

JUNE 2015
DG EMPLOYMENT, SOCIAL AFFAIRS AND INCLUSION

EVALUATION OF THE PRACTICAL IMPLEMENTATION OF THE EU OCCUPATIONAL SAFETY AND HEALTH (OSH) DIRECTIVES IN EU MEMBER STATES

MAIN REPORT



ADDRESS COWI A/S
Parallelvej 2
2800 Kongens Lyngby
Denmark

TEL +45 56 40 00 00

FAX +45 56 40 99 99

WWW cowi.com

JUNE 2015
DG EMPLOYMENT, SOCIAL AFFAIRS AND INCLUSION

Evaluation of the Practical Implementation of the EU Occupational Safety and Health (OSH) Directives in EU Member States

MAIN REPORT

PROJECT NO.	A031983
DOCUMENT NO.	5
VERSION	1.0
DATE OF ISSUE	10 June 2015
PREPARED	Core evaluation team (IOM, Milieu, COWI)
CHECKED	HC, MSJ
APPROVED	NEO

CONTENTS

List of abbreviations and acronyms	iv
Glossary of terms	vii
1 Introduction	1
2 Study process and methodology	4
2.1 Introduction	4
2.2 Four steps in the evaluation process	5
2.3 Input step A: Mapping of national implementation	20
2.4 Input step B: Information gathering	20
2.5 Development of recommendations	26
2.6 Limitations of the methodology and data availability	26
3 Labour market overview	32
4 Implementation in Member States	40
4.1 Common Processes and Mechanisms (MQ1)	40
4.2 Derogations and transitional periods (MQ2)	48
4.3 Compliance (MQ3)	53
4.4 Accompanying actions (MQ4)	102
4.5 Enforcement (MQ5)	108
4.6 Vulnerable groups (MQ6)	113
4.7 SMEs and microenterprises (MQ7)	116
5 Assessment of relevance	122
5.1 Current relevance (EQR1)	122
5.2 Future relevance (EQR2)	152

6	Assessment of effectiveness	166
6.1	Introduction	166
6.2	Effect on occupational safety and health (EQE1)	168
6.3	Effect of derogations and transitional periods (EQE2)	203
6.4	Effect of Common Processes and Mechanisms (EQE3)	205
6.5	Effect of enforcement (EQE4)	218
6.6	Objective achievement (EQE7)	231
7	Benefits, costs and broader effects (EQE5-6)	238
7.1	Key concepts and stakeholders	239
7.2	Methodologies for cost benefit analyses	241
7.3	Methodological approach in the present evaluation	246
7.4	Analysis of compliance costs	254
7.5	Analysis of benefits	277
7.6	Summary of the magnitude of costs and benefits	294
8	Assessment of coherence	297
8.1	Coherence and complementarity between the OSH Directives (EQC1)	297
8.2	Coherence between the OSH Directives and other EU measures and/or policies and international instruments (EQC2)	322
9	Conclusions and recommendations	347
9.1	Overall conclusion	347
9.2	Conclusions on implementation in the Member States	348
9.3	Conclusions on relevance	352
9.4	Conclusions on effectiveness	356
9.5	Conclusions on Coherence	364
9.6	Recommendations	366

APPENDICES

Appendix A	Literature list
Appendix B	Labour market coverage
Appendix C	Evaluation questions
Appendix D	Overview of Member State interviews with key OSH stakeholders
Appendix E	24 evaluation reports by directive
Appendix F	EU OSH in an international perspective
Appendix G	27 Country Summary Reports (CSRs) on implementation of the Directives in the Member States
Appendix H	Interview guide for national stakeholders
Appendix I	Interview guide for EU stakeholders

List of abbreviations and acronyms

Acronym	Definition
ACSH	Advisory Committee on safety and health at work
ACSH (WP)	Advisory Committee on safety and health at work (Working party)
AIL	Analytical intervention logic
APCMA	L'Assemblée permanente des chambres de métiers et de l'artisanat
AT	Austria
ATEX Directive	Directive on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres
BE	Belgium
BenOSH	Benefits of Occupational Safety
BG	Bulgaria
BusinessEurope	Advocate for growth and competitiveness at European level
CAD	Chemical Agents at Work Directive
CEEMET	European employers' organisation representing companies of the metal, engineering and technology-based industries
CEFIC	European Chemical Industry Council
CIETT	International Confederation of Private Employment Agencies
CMD Directive	Carcinogens and Mutagens Directive
CPM	Common process and mechanism
CSR	Country Summary Report
CY	Cyprus
CZ	Czech Republic
DE	Germany
DG EMPL	Directorate-General Employment
DG ENV	Directorate-General Environment
DG GROW	Directorate-General Enterprise and Industry
DG JUST	Directorate-General Justice
DK	Denmark
DNEL	Derived No Effects Level
DSE	Display Screen Equipment
DWEA	Danish Working Environment Authority
EASE	European Association for Storage of Energy
ECSA	The European Community Shipowners' Associations
EE	Estonia
EFBWW	European Federation of Building and Woodworkers
EFCI	European Federation of Cleaning Industries
EFFAT	European Federation of Food, Agriculture and Tourism Trade Unions

Acronym	Definition
EHIS	European Health Interview Survey
EL	Greece
EMF	Electromagnetic Field
EODS	European Occupational Diseases Statistics
EPSU	European Federation of Public Service Unions
EQC	Evaluation question Coherence
EQE	Evaluation question on Effectiveness
EQR	Evaluation question on Relevance
ER	Employee Representative for occupational safety and health matters
ES	Spain
ESAW	European Statistics on Accident at Work
ESAW	European statistics on accidents at work
ESENER	European Survey on New and Emerging Risks
ETF	European Transport Workers' Federation
ETUI	European Trade Union Institute
ETUC	European Trade Union Confederation
EU	European Union
EU-OSHA	European Agency for Safety and Health at Work
Eurocoal	European Association for Coal and Lignite
Eurofer	European Steel Association
Eurofound	European Foundation for the Improvement of Living and Working Conditions
Eurometaux	European Association of Metals
Euromines	Recognized representative of the European metals and minerals mining industry
Europêche	Association of National Organisations of Fishing Enterprises in the European Union
Eurostat	European Statistics
EWCS	European Working Conditions Survey
FEVE	The European Container Glass Federation
FI	Finland
FIEC	European Construction Industry Federation
FR	France
FWD	Framework Directive
Glass for Europe	Trade association for Europe's manufacturers of building, automotive and transport glass
HOSPEEM	European Hospital & Healthcare Employers' Association
HOTREC	Hotels, Restaurants & Cafés in Europe
HU	Hungary
ILO	International Labour Organisation
IMA-Europe	Industrial Minerals Association – Europe
IR	Ireland
ISO	International Organization for Standardization
ISSA	International Social Security Association
ISSG	Inter-Service Steering Group
IT	Italy
IWG	Intergovernmental Working Group
JICA	Japan International Cooperation Agency
JISHA	Japan International Safety and Health Association
KR	Key requirement
LFS	Labour Force Survey
LT	Lithuania
LU	Luxembourg
LV	Latvia
MH	Manual Handling
MODERNET	Programme which aims at establishing a network for

Acronym	Definition
	monitoring trends in occupational diseases, such as allergic and infectious diseases and reproductive hazards, and new and emerging occupational risks caused by biological agents
MQ	Mapping question
MSD	Musculoskeletal Disorder
MT	Malta
NACE	(Nomenclature of Economic Activities) is the European statistical classification of economic activities
NIR	National Implementation Report
NL	Netherlands
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSH	Occupational Safety and Health
PL	Poland
PlasticsEurope	Association of Plastic Manufacturers
PT	Portugal
RAC	Committee for Risk Assessment
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
RO	Romania
SBS	Structural Business Statistics
SCOEL	Scientific Committee on Occupational Exposure Limits
SE	Sweden
Seveso Directive	Directive 82/501/EC was a law aimed at improving the safety of sites containing large quantities of dangerous substances. It is also known as the Seveso Directive, after the Seveso disaster.
SI	Slovenia
SK	Slovakia
SLIC	Senior Labour Inspectors Committee
SME	Small and Medium Enterprise
TS	Tender Specifications
UEAPME	European Association of Craft, Small and Medium-Sized Enterprises
UK	United Kingdom
UNIZO (SME)	UNIZO's platform for growing entrepreneurs
UPEG	"Union Européenne des Producteurs de Granulats" (European Aggregates Associati)
US	United States
VOV	Virksomhedsovervågning (Monitoring Preventive Work Safety and Health Measures at Workplace Level)
WHO	World Health Organisation
WorkSafeBC	Workers' Compensation Board of British Columbia

Glossary of terms

Health

In referring to occupational health, the ILO states that:

“The term **health**, in relation to work, indicates not merely the absence of disease or infirmity; it also includes the physical and mental elements affecting health which are directly related to safety and hygiene at work” ¹

Similarly, the WHO defines **health** (not specifically in an occupational context) as:

“A state of complete physical, mental and social well-being, and not merely the absence of disease”.

Occupational diseases

In defining disease in a work context, both ILO and WHO suggest two terms, occupational diseases and work-related diseases:

According to ILO/WHO: **occupational diseases** are specified as:

“Any disease contracted as a result of an exposure to risk factors arising from work activities”. It is emphasized that the definition contains two important elements: the exposure-effect relationship between a specific working environment and/or activity and a specific disease effect on the one hand, and the fact that these diseases occur among the group of persons concerned with a frequency above the average morbidity of the rest of the population.”²

Furthermore, in the EU-statistical acquis the following definition is provided:

¹Occupational Safety and Health Convention, 1981 (No. 155) concerning Occupational Safety and Health and the Working Environment (Entry into force: 11 Aug 1983).

²Protocol of 2002 to the Occupational Safety and Health Convention, 1981. (Entry into force: 09 Feb 2005).

“A case of occupational disease is defined as a case recognised by the national authorities responsible for recognition of occupational diseases. The data shall be collected for incident occupational diseases and deaths due to occupational disease.”³

Work-related diseases

Both ILO and WHO acknowledge, however, that it might not be appropriate to refer to some diseases as ‘occupational diseases’ because of their multifactorial nature where, although work factors might make a significant contribution to their aetiology, other important (non-work) factors also have a clear role. Thus, ILO/WHO suggest that:

“The term **work-related diseases** may be appropriate to describe not only recognized occupational diseases, but other disorders to which the work environment and performance of work contribute significantly as one of the several causative factors”.

Work-related health problems

As noted above, **health** is not merely the absence of **disease** and, perhaps reflecting this, one term which is widely used within the EU is that of **work-related health problems** (in some cases, a more specific focus is adopted e.g. work-related skin problems). No formal definition of this term has been found. Despite this, a number of key data sources have used the term (or equivalents). Thus both the 2007 and 2013 Labour Force Surveys included *ad hoc* modules on **work-related health problems** whilst the ESENER 2 questionnaire, which mainly addresses risks to health, refers more specifically to work-related **musculoskeletal health problems**.⁴

In the EU-statistical acquis the following definition is provided:

“Work-related health problems and illnesses are those health problems and illnesses which can be caused, worsened or jointly caused by working conditions. This includes physical and psychosocial health problems. A case of work-related health problem and illness does not necessarily refer to recognition by an authority and the related data shall be collected from existing population surveys such as the European Health Interview Survey (EHIS) or other social surveys.”⁵

All of these three concepts: **occupational diseases** (recognised in the EU Member State where the occupational diseases are reported), **work-related diseases** (clinically diagnosed disorders) **and work-related health problems** (often revealed through population surveys), all add value and clarification to the general OSH debate. However, as the present study assesses implementation of the OSH acquis and its effect on trends in diseases, health problems and accidents at EU level through limited and occasionally fragmented data, the definitions pose certain challenges for the present study. For instance, an occupational disease may be recognised as an occupational disease in some Member States and not in others (e.g. stress). Likewise, survey data may supplement statistical data to gain insight into developments in both occupational and work-related diseases, when offering the best possible foundation for analysis. As no clear EU level distinction

³ Regulation (EC) No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on Community statistics on public health and health and safety at work.

⁴ See for example Eurostat presentation of the [ad-hoc modules on work-related health problems](http://ec.europa.eu/eurostat/cache/metadata/en/hsw_apex_esms.htm#stat_pres1424158366046) (http://ec.europa.eu/eurostat/cache/metadata/en/hsw_apex_esms.htm#stat_pres1424158366046)

⁵ Regulation (EC) No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on Community statistics on public health and health and safety at work.

between these three concepts is currently available, we shall therefore apply rather broad meanings to the terminology in the recognition that national distinctions may be lost when data is aggregated to EU level.

Occupational accidents

Occupational accidents and **accident at work** is defined by the EU as:

“A discrete occurrence in the course of work which leads to physical or mental harm”.⁶

By way of additional clarification it is noted that such accidents include cases of acute poisoning and wilful acts of other persons, as well as accidents occurring during work but off the company’s premises, even those caused by third parties. However, it excludes deliberate self-inflicted injuries, accidents on the way to and from work (commuting accidents), accidents having only a medical origin and occupational diseases.

The phrase “in the course of work” means whilst engaged in an occupational activity or during the time spent at work. This includes cases of road traffic accidents in the course of work.⁷

Adopting a slightly different approach, the ILO states that:

“The term **occupational accident** covers an occurrence arising out of, or in the course of, work which results in fatal or non-fatal injury”.⁸

Thus the EU definition focusses on the nature of the harm (physical or mental) whilst the ILO description acknowledges the varying severity of the outcome. As the severity of the accident is usually addressed separately the EU definition is generally the more useful and will be adopted here.

Coherence-related terms

Overlaps

A neutral term that designates cases where different Directives set similar requirements or use similar Common Processes and Mechanisms. For example, there are worker information requirements in almost all OSH Directives except in ATEX Directive and in the Medical Treatment on Board Vessels Directive.

Inconsistencies

When a requirement under one Directive is contradictory to another requirement under another Directive (e.g. definitions of same terms that are conflicting) or when the aims of the Directives are contradictory. We also find potential inconsistencies when the CPMs identified under the Directives

⁶ See Eurostat [definition](http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=DSP_GLOSSARY_NOM_DTL_VIEW&StrNom=CODED2&StrLanguageCode=EN&IntKey=16409685&RdoSearch=&TxtSearch=&CboTheme=&IntCurrentPage=1)

(http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=DSP_GLOSSARY_NOM_DTL_VIEW&StrNom=CODED2&StrLanguageCode=EN&IntKey=16409685&RdoSearch=&TxtSearch=&CboTheme=&IntCurrentPage=1)

⁷ European Communities – DG Employment and Social affairs. European Statistics on Accidents at Work (ESAW) methodology – 2001 edition. Luxembourg: Office for Official Publications of the European Communities, 2001.

⁸ Protocol of 2002 to the Occupational Safety and Health Convention, 1981. (Entry into force: 09 Feb 2005).

are not drafted in a consistent manner and do not contain the same level of details. It also covers cases where provisions from non-OSH legislation have contradictory objectives or requirements compared to the OSH legislation. We also find potential inconsistencies when the other EU legislation/policy or international instruments set additional or more stringent requirements.

Synergies

We define synergies as positive effects from overlaps between OSH Directives in the form of enhancement of OSH protection and/or cost effectiveness for employers, for example, requirements under one act helping employers to implement requirements under another act.

Burden of regulation

We define burden of regulation as the administrative burden arising from overlaps (e.g. application of similar requirements several times) and inconsistencies (e.g. confusion and uncertainty in the application of requirements for employers).⁹

Interfaces

Denote areas where the requirements from one piece of legislation form the basis for implementation of a requirement in another piece of legislation (e.g. REACH safety data sheets forming the basis for risk assessments under OSH legislation). Interfaces can lead to:

- › Synergy: Used when interfaces between OSH legislation and other EU legislation appear to lead to enhanced OSH protection (e.g., where the information generated under one non-OSH legislation will help employers to implement the obligations under a EU OSH legislation.)
- › Gap: An incomplete interface between piece of legislation preventing or limiting the potential synergy effects from being exploited.
- › Inconsistency: See above.

⁹ The Commission Communication 'Action Programme for Reducing Administrative Burdens in the EU' COM (2007) 23 refers to 'compliance cost' and 'administrative cost' for the definition of administrative burden: Compliance costs are all the costs of complying with regulation, with the exception of direct financial costs and long term structural consequences. In the context of the Standard Cost Model, these can be divided into 'substantive compliance costs' and 'administrative costs'. Administrative costs are defined as the costs incurred by enterprises, the voluntary sector, public authorities and citizens in meeting legal obligations to provide information on their action or production, either to public authorities or to private parties. An important distinction must be made between information that would be collected by businesses even in the absence of the legislation and information that would not be collected without the legal provisions. The costs induced by the latter are called administrative burdens.

1 Introduction

This is the Main Report of the project 'Evaluation of the Practical Implementation of the EU Occupational Safety and Health (OSH) Directives in EU Member States'. The objective is to evaluate the practical implementation of EU OSH Directives in EU Member States with a view to assessing effects and impacts and based on the identified strengths and weaknesses putting forward possible improvements to the regulatory framework. The evaluation covers a total of 24 OSH Directives (see Table 1-1) and their implementation in 27 Member States.¹⁰

The purpose of the Main Report is to provide the comprehensive overview of findings, conclusions and recommendations arising from the evaluation. The report includes 24 Directive-specific reports (enclosed in Appendix E) and 27 Country Summary Reports (CSRs) on the implementation of the Directives in the Member States (enclosed in Appendix G). Furthermore, the report is complemented by a synthesis report providing a summarised version of the key findings, conclusions and recommendations.

The evaluation is guided by a set of questions and evaluation criteria, which are addressed for all Directives and Member States. There are two main sets of questions. The first set is related to the implementation of the Directives in the Member States, and the second set is related to the evaluation. The latter set of evaluation questions addresses the three main evaluation criteria of relevance, effectiveness and coherence.

- › Relevance: examine the extent to which the aims of the Directives are up to date in addressing needs and issues related to the health and safety of workers – including both current relevance and future relevance based on known trends.
- › Effectiveness: analyse if the Directives are achieving what they set out to; how significant these achievements are; and consider the distribution of benefits and costs associated with those achievements.
- › Coherence: assess, if any, inconsistencies, overlaps, or synergies can be identified across and between the Directives and how the interrelation of the Directives is with other measures and/or policies at European level also covering aspects related to health and safety at work, such as EU legislation in other policy areas

¹⁰ Croatia was not a part of the EU when the evaluation was initiated and is thus excluded from the Task Specification.

The Main Report is structured as follows:

Chapter 2 presents the study approach and methodology followed for this complex evaluation covering 24 Directives and 27 Member States

Chapter 3 presents a brief labour market overview and comparison with OSH in four selected countries

Chapter 4 draws out the findings from the 27 Country Summary Reports in respect to the questions on mapping of the implementation of the Directives

Chapter 5 presents the findings in respect to the questions on relevance

Chapter 6 presents the findings in respect to the questions on effectiveness

Chapter 7 presents the findings in respect to the questions on coherence

Finally, chapter 8 presents the conclusions and recommendations arising from the study.

Table 1-1 24 OSH Directives

Type of Directive	Directive
General Directives	Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (Framework Directive)
	Directive 89/654/EEC concerning minimum safety and health requirements for the workplace (Workplace Directive)
	Directive 2009/104/EC on the minimum safety and health requirements for the use of work equipment by workers at work (Equipment Directive)
	Directive 89/656/EEC on the minimum health and safety requirements for the use by workers of personal protective equipment at the workplace (Use of PPE Directive)
	Directive 92/58/EEC on the minimum requirements for the provision of safety and/or health signs at work (Signs Directive)
Type-of-worker Directives	Directive 91/383/EEC supplementing the measures to encourage improvements in the safety and health at work of workers with a fixed-duration employment relationship or a temporary employment relationship (Temporary workers Directive)
	Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding (Pregnancy Directive)
	Directive 94/33/EC on the protection of young people at work (Young people Directive)
Sector-specific Directives	Directive 92/57/EEC on the implementation of minimum safety and health requirements at temporary or mobile construction sites (Construction Directive)
	Directive 92/104/EEC on the minimum health and safety requirements for improving the safety and health protection of workers in surface and

Type of Directive	Directive
	underground mineral extracting industries (Mining Directive)
	Directive 92/91/EEC concerning minimum requirements for improving the safety and health protection of workers in the mineral extracting industries through drilling (Drilling Directive)
	Directive 92/29/EEC on the minimum safety and health requirements for improved medical treatment on board vessels (Medical treatment on vessels Directive)
	Directive 93/103/EC concerning the minimum safety and health requirements for work on board fishing vessels (Fishing vessel Directive)
Hazard-specific Directives	Directive 2002/44/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (Vibration Directive)
	Directive 2003/10/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (Noise Directive)
	Directive 2004/40/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (Electromagnetic Directive)
	Directive 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (Radiation Directive)
	Directive 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres (ATEX Directive)
	Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (CMD Directive)
	Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work (Chemical Directive)
	Directive 2009/148/EC on the protection of workers from the risks related to exposure to asbestos at work (Asbestos Directive)
	Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work (Biological Directive)
	Directive 90/269/EEC on the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers (Manual handling Directive)
	Directive 90/270/EEC on the minimum safety and health requirements for work with display screen equipment (DSE Directive)

Please notice that in consideration of the readers and in order to avoid unnecessary repetition of the Directives' official titles and codes, henceforth we refer to the 24 OSH Directives by mean of their respective abbreviations, added in parenthesis in the Table above.

2 Study process and methodology

This chapter presents the evaluation methodology. Data collection through mapping of OSH at Member State level is presented as well as interviews carried out at both EU and Member State level.

2.1 Introduction

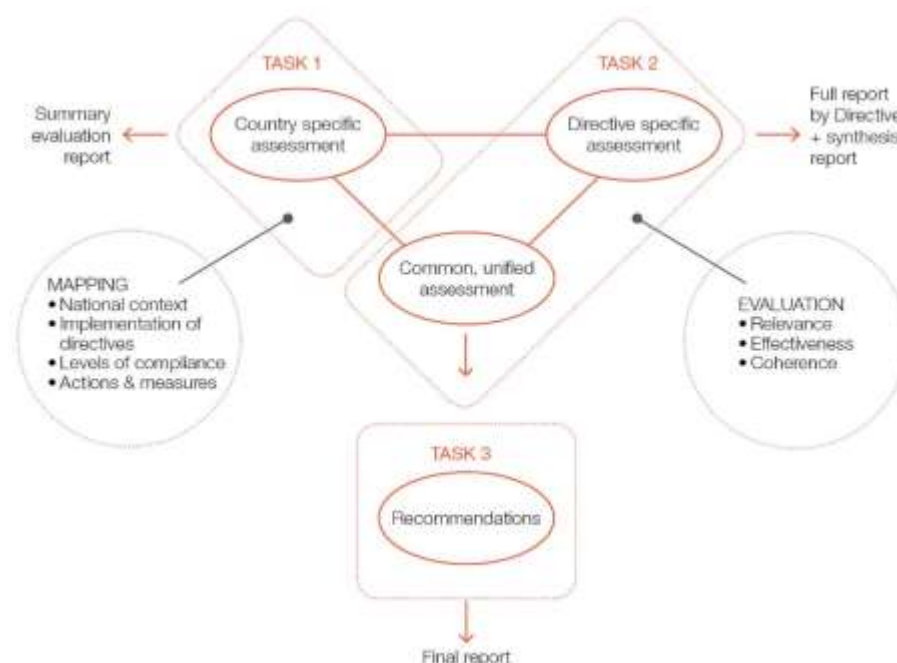
The evaluation aim is to cover the practical implementation of the OSH Directives in EU Member States with a view to assessing their relevance, effectiveness and coherence and identifying possible improvements to the regulatory framework. The focus of the evaluation is the 24 EU OSH Directives in 27 Member States (Croatia not included) in the period 2007-2012.

The evaluation is structured in three main tasks with a number of evaluation questions and outputs defined under each task. The tasks are: 1. Mapping of the practical implementation at national level in the Member States; 2. Evaluation according to the criteria of relevance, effectiveness and coherence; 3. Recommendations.

2.1.1 Evaluation process and tasks

Figure 2-1 below presents the main tasks and deliverables of the evaluation.

Figure 2-1 Overview of evaluation tasks



The Commission has overseen the evaluation through an interdepartmental group.

2.2 Four steps in the evaluation process

The Framework Directive (89/391/EEC) and the 23 related Directives sets the general frame for OSH in the Member States. In spite of being of different nature and coverage, the Directives can be structured into four categories:

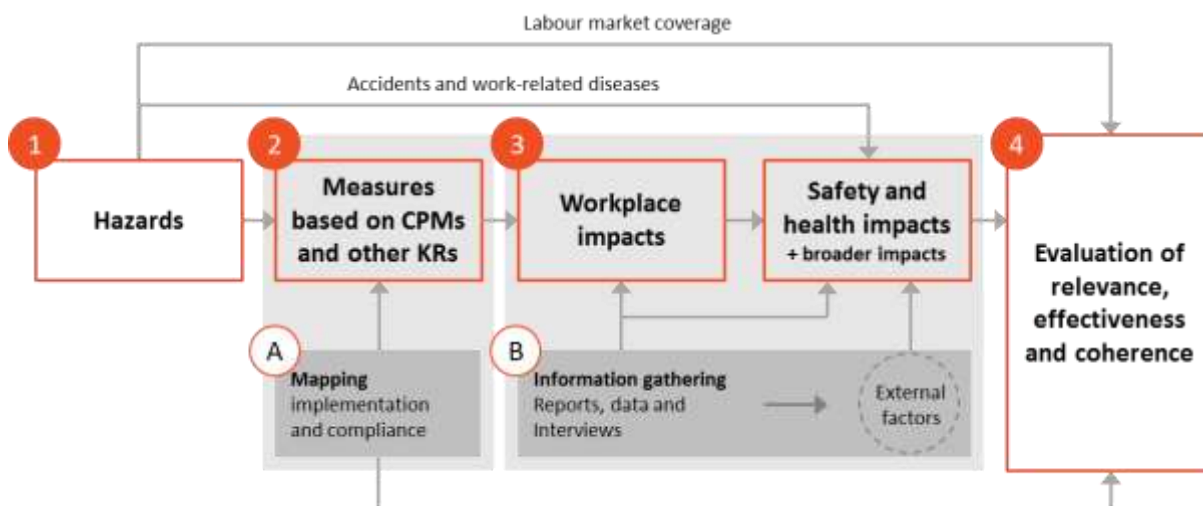
- 1 General Directives
- 2 Hazard-specific Directives
- 3 Sector-specific Directives
- 4 Type-of-worker Directives

Because of the unique character of each of the 24 Directives they cannot be analysed fully within a single/unique methodological approach. Hence, while the overall methodology remains comparable across Directives, the exact analytical approach is Directive-specific and dependent on aspects such as Directive characteristics and data availability.

The evaluation deliverables include 24 Directives reports, including a report on the Framework Directive, and the 27 Country Summary Reports, which summarise the national implementation of each Directive in the Member States. The overall findings and conclusions arising from the 24 Directive reports are presented in this Main Report along with cross-Directive analyses on the OSH acquis. Findings are synthesised in the overall synthesis report.

The methodology follows four analytical steps shown in Figure 2-2. The figure also shows two input steps A and B. Input step A is related to the mapping of the implementation of the Directives, while Input step B concerns data collection.

Figure 2-2 Steps in the evaluation methodology



In the sections below, we describe each of the four steps.

2.2.1 Step 1: Hazards

The first step in the methodology is to identify the hazards addressed by the respective Directives. Understanding these hazards constitute the basis for assessing the three evaluation criteria:

- › **Relevance:** Having a clear picture of the hazards that each Directive is intended to address is necessary for developing an understanding of the scope of the labour market covered by the Directive, as well as its development, and thus for investigating whether the Directive is fit for purpose. For example: Does the hazard still exist? How many people in today's labour market are exposed to the hazard? And have technological changes eliminated the hazard or are they likely to do so in the future?
- › **Effectiveness:** Understanding the hazards is also important for assessing whether the Directive has been effective in reducing them. This makes it possible to identify and establish a set of operational indicators for measuring workplace and safety and health impacts.
- › **Coherence:** Lastly, understanding the hazards makes it possible to identify where Directives overlap each other, and to identify additional relevant policies/developments.

2.2.2 Step 2: Common Processes and Mechanisms and other Key Requirements

Step 2 in the methodology is to identify the most important provisions in each Directive, the so-called key requirements (KR). For each Directive, including the Framework Directive (89/391/EEC), we develop a table that presents KRs and Common Processes and Mechanisms in a structured manner. These tables are presented in each Directive Report.

The Common Processes and Mechanisms (CPMs) are key obligations /requirements placed upon the employer. They provide a basis for the comparative analysis across the 24 Directives. As an example of how CPMs are used in the analytical approach, Table 2-1 lists the CPMs as defined in relation to the Framework Directive (89/391/EC).

The CPMs can be seen against the background of the common risk management strategy underpinning all occupational health and safety of risk identification/ assessment (and prevention or control/management).

Other key requirements consist of further provisions, some of which can be seen as fundamental to the intended outcome of a specific Directive. Because of their fundamental nature, these further provisions are regarded as additional key requirements and are therefore included in the KR tables as a basis of the analysis where appropriate.¹¹

Table 2-1 CPMs and their definitions in the Framework Directive (89/391/EC)

Common Processes and Mechanisms	Definition in framework Directive (89/391/EC)
Conducting a Risk assessment ¹²	Art. 6(3a): Evaluate risks to the safety and health of workers <i>inter alia</i> in the choice of work equipment, the chemical substances or preparations used, and the fitting-out of work places. Art. 9(1)(a): Be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks.
Internal and/or external preventive and protective services	Art. 7: Designate one or more workers to carry out activities related to the protection and prevention of occupational risks for the undertaking and/or establishment.
Information for workers	Art. 10: Take measures so that workers and/or their representatives in the undertaking and/or establishment receive information.
Training of workers	Art. 12: Ensure that each worker receives adequate safety and health training, in particular in the form of information and instructions specific to his workstation or job.
Health surveillance	Art. 14: Ensure that workers receive health surveillance appropriate to the health and safety risks they incur at work.
Consultation of workers	Art. 11: Consult workers and/or their representatives and allow them to take part in discussions on all questions relating to safety and health at work.

In order to perform a full assessment of a Directive's relevance, effectiveness and coherence, it is essential to understand how OSH hazards, interventions and desired results are interlinked. We therefore use the intervention logic approach in order to analyse the KRs. Our initial analysis of the Directives showed that the change processes involved in the implementation of the Directives are highly complex and involve many different actors and different levels of action, which are not easily depicted in Directive-specific intervention logics. Three main levels of actors are involved – the EU, Member States and establishments – each with specific roles and actions which are interlinked and

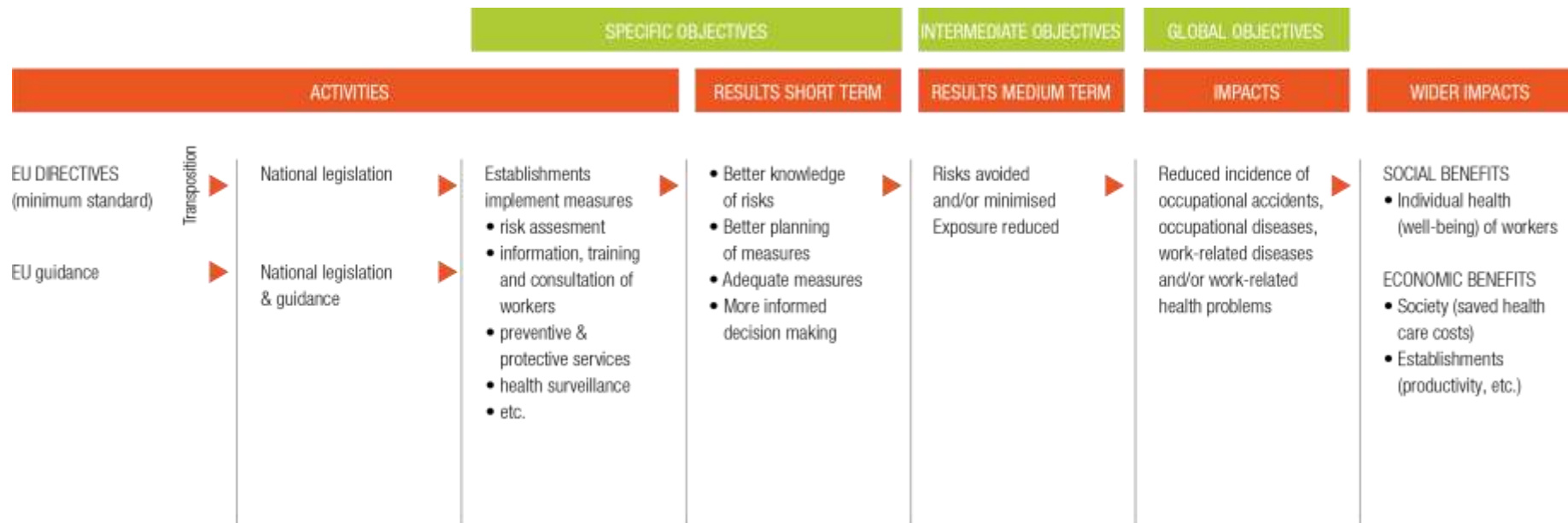
¹¹ In addition to these there is a third category of Directive-specific provisions, which – for the purpose of this study - are considered neither CPMs nor KRs as they do not prescribe key activities which need to be performed by undertakings in order to implement the Directives. In many instances, these provisions relate to technical aspects of the Directive (e.g. the arrangements for updating Annexes). Such provisions are not selected for quantitative analysis. However, where stakeholders consider them to be important, they are explored during interviews, thus providing an opportunity for including all provisions of the Directives in the analyses.

¹² Protective measures and preventive actions are included as a separate CPM rather than as part of the risk assessment. This allows for a more detailed and focused exploration of the matter.

mutually influence each other. Thus, a two-pronged approach to using intervention logics was developed:

- › Directive-specific intervention logics. Each of them focus on the specific change processes that the individual Directive aims to introduce, i.e. the workplace impacts, the safety and health impacts, and the broader impacts on society (each is included in the Directive reports).
- › An overall 'generic' intervention logic representing the entire acquis of 24 Directives and reflecting the main activities, outputs, results and impacts – and their causal links (cf. Figure 2-3).

Figure 2-3 OSH acquis intervention logic



2.2.3 Step 3: Impacts

Many of the activities resulting from the Directives are designed to lead to workplace impacts, which will serve to improve the occupational safety and health of workers. Step 3 of the methodology consists of identifying and establishing an overview of quantifiable indicators of workplace impacts, and an overview of existing data, i.e. official statistics, on these impacts.

Generally there are two types of such impacts. The first relates to *discrete* events affecting the health of workers, such as occupational accidents. The second relates to *latent* health problems, such as those occurring as a result of an exposure to risks arising from work conditions. While the first type of impact is immediate, the other type of impact occurs over time, e.g. ranging from a very short to a very long time.

In terms of immediate impacts, for example, even if a Directive has successfully managed to reduce the number of occupational accidents by addressing the relevant safety hazards, it is hard to measure this impact based on a 2007-2012 analysis period if the Directive was implemented in e.g. 1992. To do this requires data on occupational accidents as far back as 1992 and such data is not necessarily available. Instead a few examples of national statistics may be given to illustrate for instance how fatal accidents have evolved since the beginning of 1990s. An analysis of occupational accidents across 2007-2012 showing e.g. consistently low numbers could however provide an indication of the Directive's continued relevance.

The same argument holds true concerning latent work-related health problems in as far as the latency period of the effect falls before the 2007-2012 analysis period.

For the above reasons, it is important to develop a good understanding of the hazards that the Directive addresses, on the one hand, and of the safety and health impacts that the Directive intends to effect on the other.

In many instances, impact and other changes are not registered or recorded. In these cases, we rely on interviews with stakeholders and their assessments of the degree to which establishments have implemented the OSH activities.¹³

¹³ Hence, when little hard evidence exist concerning the implementation level of activities, the foundation for the evaluation is weaker compared to the case where much evidence exists. Nevertheless, the recording of availability of registered data provides an overview which can be used for designing more accurate evaluations in the future.

Textbox 2-1 Example of Directive-specific intervention logic

The workplace impacts and safety and health impact are central elements of the Directive-specific intervention logics. Intervention logics for all 24 Directives have been developed. They provide answers to the three fundamental evaluation questions:

1. Impact of what? (note: a first answer to this question was provided in Step 2)
2. Impact for whom?
3. Impact on what?

In other words, the intervention logics provide the basis for answering the specific evaluation questions regarding relevance, effectiveness and coherence. As an example, a number of the KRs within the Vibration Directive require the implementation of measures to reduce risk by reducing exposure to hand-arm vibration, perhaps by reducing time working with vibrating tools or by replacing tools with high vibration emissions with ones with lower emissions. It would be possible to quantify these **workplace impacts**, for example by documenting tool-replacement programmes. The **safety and health impact** of reducing exposure is to reduce the risk of workers developing Hand-Arm Vibration Syndrome (or other vibration-related conditions).

2.2.4 Step 4: Answering the evaluation questions

The aim of Step 4 is to answer the evaluation questions of relevance, effectiveness and coherence. In line with the Directive-specific approach, for relevance and effectiveness these questions are answered (i) Directive by Directive with results presented in the Directive reports, and (ii) across the Directives. For coherence, the analysis is first made across the acquis and based on these findings, a Directive by Directive assessment is made.¹⁴

2.2.5 Relevance

Relevance deals with assessing the extent to which a particular intervention is consistent with the needs and problems experienced by the target groups. In the case of the OSH Directives, the essential issue is therefore whether or not the Directives address the OSH risks prevalent within the EU Member States. In the context of this report, relevance is assessed against two time frames: EQR1: current relevance (2014) and EQR2: future relevance (2020).

Facts and figures

Data related to relevance is established through a combination of examining relevant statistics; drawing on the expert knowledge of subject experts; and seeking the knowledge and opinions of appropriate stakeholders. In other words, a mixture of quantitative and qualitative sources are used, relying on the knowledge of subject experts and that of national experts (including information gleaned from their desk studies and interviews), to formulate an overview of both the current and likely future relevance of the provisions of each Directive. Four topics have initially been identified which contribute to the relevance of each Directive:

- › Number of Member States where the Directive is potentially relevant

¹⁴ Note that the methodology for answering the Task 1 evaluation questions is presented in Chapter 2.3.

- › Proportion of EU workforce to whom the Directive is potentially relevant
- › Severity/Extent of risks intended to be addressed by the Directive
- › Degree to which the Directive reflects current working methods and available technologies and the risks associated with these.

Each of these topics are sequentially examined as part of the relevance assessment for each Directive.

Number of Member States where the Directive is potentially relevant

The first step establishes whether or not a subject addressed by a given Directive exists in each Member State (e.g. do all MSs have a fishing fleet, which is the subject of one OSH Directive, or do all MSs have workers exposed to biological agents, which is the subject of another). Clearly, if the subject of a Directive is only relevant to a minority of Member States then it is questionable whether action at EU level is the most appropriate source of remedial action. For the four overall types of Directives, the following approach is used:

- › *General:* These Directives apply across most or all sectors and are not hazard/risk-specific so, by definition, they are relevant to all Member States without need for further analysis.
- › *Hazard/risk specific:* Usually referred to as risk-specific, the provisions of these Directives apply in part to any workplace where the hazard (e.g. physical agent) is present. Some data on this is available from surveys (e.g. EWCS, ESENER). This is used to establish the relevance of the Directive in each Member State where exposure is reported. Where such information is not available, the knowledge of subject experts is used to identify the sectors within which such exposures are most likely to occur, and business data (SBS) is used to establish the presence of those sectors within each Member State.
- › *Sector specific:* Business data (SBS) is used to establish the presence within each Member State of the sectors for which there are specific Directives.
- › *Vulnerable groups:* As with the general Directives, the generality of these Directives render them relevant in all Member States with no need for further analysis.

Proportion of EU workforce to whom the Directives are potentially relevant

The second step is to seek to establish the proportion of the EU workforce, which is covered by the provisions of each Directive¹⁵. For the four overall types of Directives, the following approach is used:

- › *General:* These are applicable across all or most sectors of employment. Thus the proportion of the EU workforce to whom the Directives are relevant is 100%. For those where specific sectors are excluded, a calculation deducting the numbers employed in those sectors from the total workforce yields the relevant proportion.
- › *Hazard/risk specific:* For hazard/risk specific Directives, we build on the analysis of the Member States in step one which identified those MSs in which workers are exposed to the

¹⁵ A retrospective analysis (i.e. the extent to which the Directives were relevant when first introduced) was considered to be beyond the terms of reference and is not explored here.

relevant hazards covered by a given Directive (and therefore potentially at risk). From this data, estimates are calculated of the proportion of the EU workforce potentially exposed to the hazard in question and for whom the Directive is therefore relevant.

- › *Sector specific:* The LFS survey data is used to provide an estimate of the number of workers employed in a specified sector and from that we can deduce the percentage of the EU workforce to whom a given Directive is relevant.¹⁶
- › *Vulnerable groups:* The three Directives relating to specific vulnerable groups (pregnant and breastfeeding workers, young persons, and temporary workers) present particular challenges in determining the proportion of the EU workforce potentially at risk. For the Pregnant Worker Directive, to establish the proportion of the EU workforce covered by this Directive, we first determine (with input from subject specialists) which sectors could involve exposure to hazards that might pose a risk to pregnant or breastfeeding women. LFS data is then used to establish the proportion of females of child-bearing age employed within these sectors. For the Young People Directive, an estimate of the proportion of young persons (<18 years) employed within the EU, is judged to offer the best guide to the relevance of this Directive. Finally, for the Temporary workers Directive, an estimate of the proportion of temporary workers employed within the EU, is considered to offer the best guide to the relevance of this Directive. Data from the EWCS detailing those in temporary or fixed-term employment is therefore used to adjust LFS employment data to provide a relevance estimate.

Establishing the severity/extent of risks

The term 'severity' of risk as it is currently used in some EU legal acts, appears to place emphasis on the potential severity of the outcome (consequences), with low severity being assigned to injuries requiring little or no time off work and high severity with permanent incapacity to work or death. This therefore assigns a low priority to many health issues which, although possibly disabling in the long-term (some only after retirement) do not always result in lost time in the short to medium term. As an example, far more workers (probably a factor of 1,000's) are adversely affected each year by health impacts that may lead only in the long-term to health problems of the respiratory tract (low severity in terms of days lost) than die as a result of accidents at work (highest severity level).

In theory, the broad category of 'severity of risk' can be divided into two types:

- › the specific 'severity of risk' reflects the potential consequences of the hazards covered. This is further divided into 'worst consequences' and 'usual consequences'.
- › 'extent of risk' reflects the number of workers (or cases of accidents, work related health problems and occupational diseases) adversely affected, regardless of the severity.

Accompanying this, a taxonomy can be developed which presents a selection of specific risk severities:

- › Loss of life
- › Permanent incapacity

¹⁶ Where sectorial data is not directly available (e.g. extraction of minerals through drilling), the data for the larger mineral extraction sector is adjusted by using the relative proportions in the SBS database.

- › +3 day absence
- › Recorded accident or injury
- › Near-misses
- › Occupational diseases
- › Work-related health problems
- › Pain and suffering
- › Impact on lifestyle.

In theory, an analysis broken down in this manner would support a detailed review of the relevance of each of the Directives. In reality however, any analysis is severely constrained by the limitations of the available data. For example, collated databases of accidents allow just two classes, those leading to more than three days of time lost from work and those leading to fatalities. Even within this restricted classification, restrictions on the classes of types of accident or injury often lead to limited insights into the extent to which they can be attributed to specific directives, let alone specific provisions within any directive. Similarly, workplace exposure data is often restricted to self-reports where details of the specific nature of the exposure (and any consequent risks to health or safety) are non-existent. For example, self-reported exposure to 'chemicals' gives no indication of the hazards which might be associated with these chemicals (if indeed they do present any hazard) or indeed whether or not these reported exposures are adequately controlled and the extent therefore of any consequent risk to health (or safety).

As a consequence, data analyses were, in effect, limited to whatever data were available. In some instances, data from periods outside the formal review period (2007 – 2012) was used where it provided the best (or often the only) relevant insight.

Although these limitations in the nature of the data available are generally acknowledged as a specific limitation where they are used in the analyses, they must be here recognised as general limitations throughout this report and the individual directive reports.

Degree to which the Directive reflects current working methods and available technologies and the risks associated with these.

In respect of each individual Directive, consideration of the current working methods was primarily focussed on whether changes in work and working practices meant that the provisions of any specific directive were no longer relevant. In most cases, such factors were primarily driven by the views expressed within the NIRs and by stakeholders interviewed at EU and MS level. In some cases, expert knowledge was provided to interpret or expand on the comments made (or occasionally to supplement these views). These views have been summarised and reflected in discussions as to whether any directive was currently relevant and also whether it was considered likely to remain relevant. In many instances however, this latter issue was refocused to ask what changes (to a directive) were considered necessary to improve its future relevance. Implicit in this would therefore be the suggestion that failing to accommodate these changes would diminish its relevance in the future.

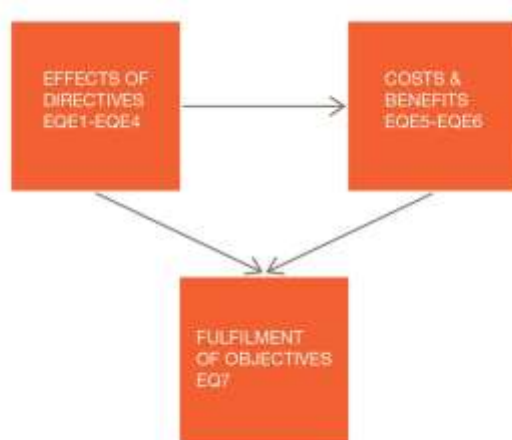
As an example, the technology associated with display screen equipment has altered radically since the adoption of the DSE Directive in 1989. At a relatively simplistic level, this means that some workplace requirements presented in the Annex to the directive are no longer relevant whilst other common features of such workplace, such as any input devices other than a conventional keyboard, are not addressed at all. However, such changes have also resulted in significant radical changes in the manner in which workers use such equipment, calling into question the whole

concept of a static 'workstation' embodied in the original directive. Such changes are discussed in the specific directive.

2.2.6 Effectiveness

The seven questions on effectiveness have been categorised in three groups: 1. Impacts of Directives, 2. Costs and benefits of the Directives and 3. Fulfilment of the objectives of the Directives. This grouping is underlined by the consideration that several of the evaluation questions share the same characteristics (e.g. in terms of inputs, data collection tools or outputs) and that important links exist between the questions in terms of the output of one question feeding directly into another. These links are illustrated in Figure 2-4 below.

Figure 2-4 Effectiveness



The following section presents the data collection activities to answer each of the evaluation questions.

Impact of Directives: EQE1-EQE4

The first group of questions focuses on the extent to which the Directive has had any safety and health impacts (EQE1), whether derogations and transitional periods (EQE2) have influenced the effectiveness of the Directives and to what extent the Common Processes and Mechanisms (EQE3) and sanctions and other related enforcement activities (EQE4) have contributed to the effectiveness of the Directives. To the extent possible, the output of the evaluation questions in this group is expressed in terms of percentages of change in e.g. the levels of exposure, the occurrence of occupational accidents and occupational diseases and other related health problems that can be attributed to a given Directive.¹⁷

¹⁷ We have merged sub-question 1 and 2 of EQE1.

Textbox 2-2 Understanding of the effectiveness questions

› The overarching effectiveness question

The evaluation of the effectiveness of the Directive takes as its starting point the development of the impact indicators. The overarching effectiveness question to be assessed is: “to what degree has the observed development in occupational safety and health impacts been caused by the Directive?” *This question corresponds to EQE1.*

› Transposition, derogation and compliance

The observed safety and health impacts must be related to if and how the Directive has been transposed in the different Member States, if derogation has been granted; and whether a transitional period has been allowed. Combining these aspects – transposition, derogations and compliance – helps to establish the degree to which Member States comply with the Directives, without which the observed impact cannot reasonably be argued to be a cause of the Directive. *This aspect relates to EQE2.*

› Workplace developments

If workplace impacts of the Directives can be quantified and measured this information will help to support the view that the Directive has had an impact on the observed safety and health of workers. If workplace impacts cannot be quantified, interviews with experts provide insights about whether workplace impacts have indeed caused safety and health impacts. Interviews furthermore cast light on how, and to what extent, the different CPMs and KRs of the Directive have contributed to causing such impacts. *The latter aspect relates to EQE3.*

› Development in external factors

The observed safety and health impacts must also be seen from the perspective of developments in external factors. General economic activity may, for instance, also affect the observed safety and health impacts, as may technological progress and industry transitions. Likewise, impacts may be caused by other Directives. Information on these aspects will e.g. be developed through the assessment of relevance and coherence.

The first step in analysing the effectiveness of the individual Directive is therefore to establish a link between the Directives and the occupational risks, accidents and diseases and other work-related health problems, as accounted for in the available register-based and survey data.

This analysis is nuanced through interviews with OSH stakeholders at EU level and national stakeholders, who contribute in different ways:

- › EU stakeholders: establish to what degree the implementation of the OSH Directives have contributed to the improvement of the safety and health of workers, and in that context evaluate the individual contribution of the CPMs and other KRs.
- › National stakeholders: address in more detail specific national particularities (e.g. the effect of derogations and transnational periods and sanctions and other related enforcement activities) and existing differences between different sizes of establishments.

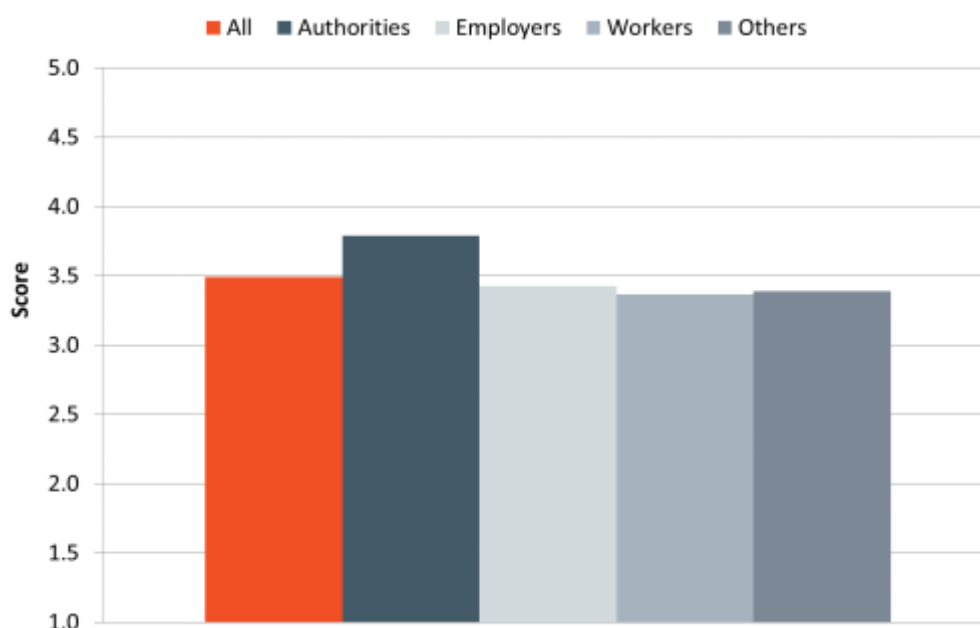
During both national and EU stakeholder interviews, we ask stakeholders to make a quantitative assessment of specific evaluation questions. A simple five scale scoring system is applied. The table below shows an example of how the scoring system is defined for Effectiveness.

Table 2-2 Scoring system for Effectiveness parameter

Score	Explanation	Criteria
1	Very low	Hardly any impact at all in any of the Member States and hence level of fulfilment of the objectives is poor
2	Low	Of some little impact, effective in few Member States
3	Medium	Reasonably effective – but some large gaps
4	High	Very effective but some small gaps in some Member States
5	Very high	Highly effective in Member States

For each Directive, these scores are presented as the total averages of the four stakeholder groups: 1) authorities, 2) employers, 3) workers, and 4) others, respectively, as well as the total average for the specific Directive, calculated by means of the illustrated averages of these four groups. This method is chosen to ensure that each stakeholder group is equally represented in the total average, irrespective of the number of stakeholders interviewed within each stakeholder group.

Figure 2-5 Example of graphical representation of quantitative interview data



In order to get a graphical illustration representative of the OSH acquis, for this Main Report, we aggregate all averages for each stakeholder group provided by Directive into one cross-directive average by stakeholder group.

Costs and benefits: EQE5-EQE6

These questions provide an economic perspective to the analysis of the effects of the OSH acquis as a whole and consider the broader socio-economic impacts of the Directives. The link between the evaluation questions is illustrated below.

Figure 2-6 Costs and Benefits



The methodology for EQE5-6 is presented in the introduction to chapter 7 before the findings.

Fulfilment of objectives: EQE7

The extent to which the Directives fulfil their objectives will be analysed from two perspectives. On the one hand the level of fulfilment of the objectives of the individual Directives and on the other hand, the overall contribution of the acquis to achieve a level playing field.

The analysis is based on three judgement criteria:

- › The effectiveness of the Directives
- › Levels of compliance with the Directives
- › Assessment by stakeholders

Interview data will be included in the assessment of EQE7 in accordance with the methodology of stakeholder interviews described for EQE1-4 above.

2.2.7 Coherence

Coherence is essentially about considering the extent to which the intervention logic is non-contradictory and that the intervention does not contradict other interventions with similar objectives.¹⁸ The assessment of coherence considers the internal logic between the Directives as well as the external coherence between the Directives and other measures and policies at EU level. Two main questions are addressed under this task.

EQC1: What, if any, inconsistencies, overlaps, or synergies can be identified across and between the Directives?¹⁹

Our methodological approach involves three activities: Identification of overlaps, Identification of inconsistencies and Final assessment.

First, we identify potential overlaps between Directives. This is done through the identification and comparative analysis of Common Processes and Mechanisms and Key Requirements on a pan-Directive level. Our preliminary findings are supplemented by additional analysis of the Directives also looking into definitions and clauses in the Directives, which contain a 'without prejudice to...'-reservation.

¹⁸ E.g. EU evaluation guidelines, 2004, p. 39

¹⁹ Ref. to Glossary of terms for definitions.

Secondly, we identify inconsistencies in three different ways:

- › *Contradictory requirements.* We identify potential contradictory requirements between OSH Directives. To that end, we analyse the key requirements identified in the initial review phase for each group of Directives in order to facilitate the identification of contradictory requirements.
- › *Inconsistencies in the drafting of CPMs.* We analyse the CPM provisions in each Directive for their consistency (e.g. similar structure, similar procedure and similar steps).
- › *Inconsistencies in the drafting of KRs.* We analyse the KR provisions in each group of Directives for their consistency (e.g. similar structure, similar procedure and similar steps).

This analysis cover all CPMs and KRs for all Directives.

EQC2: Coherence and complementarity of OSH Directives with other measures and/or policies at the European level

In EQC2 we assess how the OSH Directives interrelate with other measures and/or policies that also cover aspects related to health and safety at work. For this purpose, we address two main questions:

- › For EU policies: We assess the extent to which the objectives of the OSH Directives are coherent with objectives of other EU policies and international instruments.
- › For EU legislation: A similar question as EQC1 above, only this time focusing on non-OSH EU legislation.

Our methodology for assessing coherence with EU policies is based on a desk study approach, during which we analyse and compare the objectives of OSH Directives with those of relevant policy documents and international instruments. We analyse whether other EU policies support or complement the OSH Directive objectives (consistency), whether they contradict these objectives or hinder their achievement (inconsistencies) and to what extent they might do so (inconsistent, partially inconsistent, consistent).

For each EU policy area and instrument analysed, we assign a score indicating the level of consistency according to the following scale: 1 = Inconsistent; 2 = Partly (in)consistent; 3 = Consistent.

In addition to mapping overlaps and inconsistencies in EQC1, we also map interfaces and gaps. We focus on analysis of EU OSH legislation and a limited number of targeted non-OSH legislation identified through desk research and with the support of the Commission. We complement our findings with information from the interviews of EU and national stakeholders.

Results of the interviews at national and EU level on the one hand complement the identification of non-OSH EU legal acts and on the other hand provide additional information on the evaluation of coherence between OSH and non-OSH EU legislation. Relevant information to the evaluation of coherence has been extracted from the NIRs.

2.3 Input step A: Mapping of national implementation

One major source of information for the evaluation is Input step A: Mapping of national implementation, which entails mapping the practical implementation of all 24 OSH Directives in 27 Member States. The mapping exercise provides a general overview of the transposition of the Directives in the national legal frameworks and gives an overview of how the requirements are put into practice in the Member States. The mapping results are compiled in Country Summary Reports (CSRs) for each Member State (cf. Appendix G) and reported in an aggregated form in Chapter 4 below.

In each of the 27 Member States, the mapping exercise is performed by independent national experts selected on the basis of their OSH experience. The national experts gather data in two phases. The first consists of a desk study of available data (see section 2.2). The second phase consists of interviews with relevant, national stakeholders.

2.4 Input step B: Information gathering

In addition to the legislation and Directives to be evaluated, the study relies on three key data sources: 1) Existing studies, 2) official statistics and 3) interviews. The use of each data source is described below.

2.4.1 Studies

The Commission has made numerous relevant documents available for the evaluation, the most important of which are the following:

- › National implementation reports (NIRs)
- › Practical implementation reports, Commission communications and other policy documents
- › Other existing studies.

National implementation reports

According to provisions of the Framework Directive (89/391/EEC) and 23 other Directives in the field of health and safety of workers at work, every five years, the Member States shall submit a single report to the Commission on the practical implementation of the Directives concerned. The first report shall cover the period from 2007 to 2012 and the Member States are required to transmit their reports by the end of 2013 at the latest. The structure and questionnaire for these national practical implementation reports is defined in a Commission Decision (C(2011) 9200) and contains a section with the principles and points common to all Directives concerned, and another that deals with particular aspects of each Directive, as well as a list of the Directives concerned.²⁰

These NIRs are a very important source of information for the evaluation. The NIRs are used extensively in relation to the mapping exercise under Task 1 and are particularly useful in relation to informing on the prevailing legal framework in the Member States, the measures taken to ensure compliance (enforcement and soft measures), and the level of compliance with requirements of the

²⁰ C(2011) 9200 final COMMISSION DECISION of 20.12.2011 defining the structure and questionnaire for the practical implementation report to be drawn up by the Member States regarding Directive 89/391/EEC, its individual Directives, and Directives 2009/148/EC, 91/383/EEC, 92/29/EEC and 94/33/EC.

Directives. The NIRs are also used extensively in the evaluation of relevance, effectiveness and coherence.

By providing data for the mapping exercise, the data of the NIRs feeds into the directive reports in the same way as other data from the mapping of national implementation of the Directives.

The interpretation of the assessment questions given by the Commission vary from country to country. This variation prevents the development of a solid comparative analysis.

Practical implementation reports, Commission communications and other policy documents

Both the Commission and the European Parliament have produced important studies and communications on OSH that will inform the study either on Directive level or on specific aspects such as costs. The Commission's practical implementation reports are also a key source of information, particularly for the assessment of the Directives. The Practical implementation reports are based on studies by independent consultants, and these contain relevant and often recent information on the practical implementation and effects of the Directives.

Other existing studies

Existing studies also include other analyses on Directive or Member State level or on a specific topic, e.g. costs and benefits of OSH. Particular focus is on identification of studies concerning SMEs and Microenterprises.

2.4.2 Official statistics

The review of official statistics focuses on comparing expected impacts of the Directives identified in the intervention logics with available data from EU, national or other data sources. Moreover, official statistics are important for the relevance assessment, particularly for determining the composition of the workforce and the proportion of the workforce, which are likely to be exposed to a given risk or working in a specific sector. However, the limitations of the EU data available pose a challenge for the study as we shall discuss in more detail in section 2.6 below.

Four main sources of EU data have been identified and is reviewed and used in the evaluation. These four main sources are the following:

- › **European Working Conditions Survey (EWCS).** Relevant data is available for 2010, 2005 and (partly) 2001/2000. EWCS has developed and widened its scope through the different editions, and the recent edition covers the themes of employment status, working time, work organisation, learning and training, physical and psychosocial risk factors, health and safety, work-life balance, worker participation, earnings and financial security, as well as work and health. Survey respondents are both employees and self-employed across Europe. We examine the background material for EWCS including questionnaires to identify and assess the content of the data sources in terms of e.g. exposure at work to risk factors affecting physical and mental health, health problems caused or made worse by work, and accidents at work which are relevant not least in relation to the individual OSH Directives.
- › **Enterprise Survey on New and Emerging Risks (ESENER).** ESENER examines how health and safety is managed in practice in European workplaces and includes a focus on management of psychosocial risks, on the drivers and barriers to action, and on how workers

are involved in the management of health and safety at work. The survey respondents are primarily chosen amongst responsible managers and employee representatives from private and public-sector establishments with ten or more employees. Full data are available for 2009 only. A new upcoming ESENER-2 survey is being published simultaneously with submission of the present report, and preliminary results is included in the evaluation, where possible. The population of the ESENER-2 survey has been expanded compared to ESENER 2009 by including establishments with 4-9 employees (while ESENER 2009 only covers establishments with 10 employees or more). As the actual data source is not available, this change in survey population obstructs possibilities for trend analyses for the assessment of OSH acquis effectiveness.

- › **European Labour Force Survey (EU-LFS) ad hoc modules on Accidents at work and other work-related health problems.** EU-LFS is reportedly the largest European household survey, in general providing (quarterly and annual) data on labour participation of people aged 15 and over (including persons outside of the labour force). It covers a relatively large sample of residents in private households according to labour status, i.e. employment, unemployment or inactivity. In this context, primarily the ad hoc modules on work-related accidents and health problems (including hazardous exposure) are relevant. These aim to gather information on e.g. the volume and severity of accidents at work, the volume of health problems caused or worsened by work, the volume of exposure to risk factors affecting physical and mental health, and the types/characteristics of accidents, health problems and risk factors that occur etc. Ad hoc modules on work-related accidents and health problems were undertaken in 1999, 2007 and 2013.
- › **European Statistics on Accidents at Work (ESAW).** ESAW covers all accidents – occurring while performing working activities – that were either fatal or resulted in an absence from work of at least four calendar days. Data is available on a yearly basis from 1993 and up to 2012, but with varying country coverage over the years. For instance, on the website of Eurostat, data until 2007 is available for EU-15 Member States only. From 2008 most EU-28 data is available²¹, although data is considerably more fragmented when the data set is broken down into individual sectors. ESAW gathers information on what types of persons were injured, when and where (including gender, age, occupation, occupational status and economic activity of employer) as well as how and under what circumstances the accident happened, and not least information on the nature and severity of the injuries and the consequences of the accident (such as body part injured, type of injury, number of days lost). The basis for the ESAW data collection is the Commission Regulation (EU) No 349/2011 of 11 April 2011 on statistics on accidents at work²², which requires Member States to transmit such data within 18 months after the end of the reference period (year) to Eurostat. At national level, data is collected from employers, i.e. enterprises or self-employed persons, and not directly from the employees themselves who had the accidents. ESAW data is thus register-based and not based on self-reporting/self-assessment of employees that may be subjective.

²¹ Eurostat is the statistical office of the European Union. For more information see data available at

<http://ec.europa.eu/eurostat>. ESAW data is available here:

http://epp.eurostat.ec.europa.eu/portal/page/portal/health/accidents_work_work_related_health_problems/data/database.

²² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:097:0003:0008:EN:PDF>.

2.4.3 Interviews – national stakeholders

Interviews with national stakeholders have been completed for all 27 Member States on the basis of the interview guide in Appendix H. In total, 540 interviews have been carried out with national stakeholder across the Member States.

National experts were asked to undertake up to 20 interviews with national stakeholders according to the following prioritisation:

- › National authorities: 1-4 interviews
- › Labour inspectorates: 2-4 interviews
- › Workers' representatives: 5-7 interviews
- › Employers' representatives: 5-7 interviews
- › Other national stakeholders: 1-3 interviews

Compared to the above planned balance between stakeholder groups, it proved that national authorities, labour inspectorates and other national stakeholders were more readily available to be interviewed, compared to worker and employer organisations. In one case, for example, it transpired that a large trade union asked all of its members not to participate in the interviews because they are of the opinion that their own answers should suffice. This can be seen in Table 2-3.

Table 2-3 Interviews by stakeholder groups

Stakeholders	Methodology		Results	
	Min	Max	Contacted	Interviewed
National authorities	27	108	141	111
Labour inspectorates	54	108	112	86
Workers' representatives	135	189	152	101
Employers' representatives	135	189	156	117
Other national stakeholders (e.g. research institutes, academia, OSH professional bodies)	27	81	156	127
Total	378	675	717	542

Source: National stakeholder interviews, national experts

Appendix D shows the number of interviews carried out at Member State level by stakeholder group. While overall it was possible to achieve the goal of interviewing 20 stakeholders per MS and, in most cases achieve the goal of a balanced representation of stakeholder groups, it must be reiterated that 20 *relevant* interviews were not achievable in all cases given the differences between MSs. For example, larger countries, such as Germany, Romania and the UK, inherently have more OSH professional experts than small Member State countries, such as Malta, Slovenia and Luxembourg.

2.4.4 Interviews - EU stakeholders

Interviews with EU level stakeholders have been completed on the basis of the interview guide in Appendix I. Initially, we indicated that up to 70 interviews at EU level would be carried out. Concluding the interview round, 59 interview persons were contacted for interviews and 44 of these participated in an interview.

EU interview process

Interviews with EU stakeholders were carried out in three phases, as the interview guide for the EU stakeholder interviews underwent three revisions. In total 16 (36%) interviews were undertaken based on version 1 or 2. Out of these 14 interview persons returned written responses to the additional questions of the final version of the interview guide. A majority of the interviewees (64 %) was thus based on the last version of the interview guide.

A number of precautions were taken during the interview rounds in order to ensure a consistently high level of qualitative data. These precautions were:

- › Having 2 interviewers carry out the interview, both taking notes
- › Asking the stakeholders to review the interview note for validation purposes
- › Ensuring consistency by asking stakeholders who responded to the old interview guide to provide answers to the new guide.

Stakeholder coverage

The selection of stakeholder organisations interviewed for the evaluation is based on a list of proposed organisations collated by the evaluation team combined with feedback/comments by the Commission (DG EMPL and the ISSG) and the Advisory Committee on Safety and Health. As a result, a final list of selected stakeholder organisations was agreed upon with DG EMPL. It was inter alia decided that interviews with other parts of the Commission, DG GROW and DG JUST, were also essential for the evaluation as these DGs are particularly responsible for EU legislation with an impact on OSH.

As indicated in Table 2.4 below, 44 interviews have been carried out. In some cases multiple persons from a single organisation have been interviewed. Thus, 31 EU organisations were interviewed which include 17 employer organisations, 5 worker organisations, 3 DGs, 3 EU agencies and bodies, 3 other OSH knowledge institutions.

Table 2-4 EU stakeholders interviewed

Employer organisations		
BusinessEurope	Eurometaux	IMA-Europe
FEVE	UEPG	Euromines
FIEC	CEFIC	UNIZO (SME)
EFCI	HOSPEEM	APCMA
CEEMET	HOTREC	UEAPME
EASE	Europêche	
Worker organisations		
ETUI	EFBWW	ETF
EFFAT	EPSU	
Representatives of the European Commission		
DG GROW	DG EMPL	DG JUST
EU agencies and bodies		
SLIC	EU OSHA	Eurofound
Other OSH knowledge organisations		
ISO	Hamburg Advice Centre on Work & Health	Modernet

Source: EU stakeholder interviews

2.4.5 Validation seminar

The objective of the seminar was to consult stakeholders on preliminary findings, results and conclusions. The seminar was an important event for the evaluation as it provided critical input to the evaluation process and served to highlight key issues of concern to a selection of OSH stakeholders and to point to possible conclusions and recommendations.

The seminar was held in Brussels on 9 December 2014 and despite a strike affecting public transportation, 57 stakeholders managed to participate. In advance of the seminar stakeholders had been provided with a discussion paper structured around five themes to steer the discussion.²³ The stakeholders attending the seminar did not represent any official views and opinions of the social partners but provided very helpful reactions and viewpoints.

The inputs from the seminar has been used by the evaluation team as additional background knowledge from stakeholders with long OSH experience to complete conclusions and recommendations in the individual directive reports and as input for the main report.

²³ Theme 1: Do the Directives work as intended?. Theme 2: How do we manage the major ongoing risks of MSDs and Psychosocial risks?. Theme 3: Maintaining the relevance of the Directives. Theme 4: How do we best manage chemical risks (including nanoparticles)?. Theme 5: Challenges in implementation of OSH legislation - enforcement and SMEs.

2.5 Development of recommendations

The evaluation has been assigned the task of providing recommendations for future policy responses to the strengths and weaknesses of the practical implementation of the OSH Directives in the EU Member States. The Tender specifications present the task as a matter of suggesting changes in relation to the following issues:

- › the legal provisions of the Directives
- › the practical implementation at national level
- › enforcement strategies of national authorities
- › other accompanying measures for improving health and safety at work
- › sector specific approaches
- › and finally ways of improving coherence or synergies of different measures and/or policies at European level.

The recommendations provided by the evaluation are based on evidence and to the extent possible we seek to emphasise transparency of this evidence. However, it is necessary to clarify that for some recommendations, evidence is solid and easily presented and made available to the reader. For other recommendations, the evidence is more scattered and recommendations based on MS experience and aggregated conclusions extracted from pieces of relevant data sets. Such evidence is more challenging to present in an equally transparent manner, and while recommendations may hold equal merit as those with fully transparent evidence, as a consequence such recommendations will be provided with due precaution.

This issue is linked to the fact that from the outset we acknowledge that many of the study findings will be based on both incomplete information and on a combination of input from several different sources. Hence, it is important task to emphasize that some decisions are bound to be made without the same degree of solid evidence and thus with some uncertainty. Stakeholders are encouraged not to spend too much energy discussing whether the "number is 1 or 2" but accept the evidence that is presented.

2.6 Limitations of the methodology and data availability

This section presents several limitations of the methodology that have been managed during the evaluation process including foremost issues related to the quality and availability of quantitative data as well limitations concerning the interview-based qualitative data.

2.6.1 Quantitative data

Quantitative data relating to exposure to the hazards covered by each Directive as well as data on health impacts (occupational diseases) is only available to a limited extent, and the data sets which are available have shortcomings. In particular, there is a lack of EU-wide data on occupational diseases and national data is fragmented and difficult to compare inter alia due to differing systems for recognition of occupational diseases in the Member States. However, for each Directive, sources of data relating the safety or health risks covered are explored both at EU level and at the national level, to provide as comprehensive a picture as possible.

As described above, the evaluation primarily uses the following four different types of official quantitative EU data: European Working Conditions Survey (EWCS), European Survey on New and Emerging Risks (ESENER), Labour Force Survey (LFS) ad-hoc modules on accident at work and work-related health problems and European Statistics on Accidents at Work (ESAW). These datasets are all limited by factors (for example, level of sector detail, lack of comparability across years, only focus on selected groups of respondents, etc.) which we take into consideration when using the data in the evaluation. An overview of key limitations to each EU data source is provided below.

European Working Conditions Survey (EWCS)

The relevance and limitations of EWCS with respect to evaluating the effectiveness of the Directives are summarised as follows:

Table 2-5 Overview and relevance of EWCS

Years	Size	Sectors	Member States	Relevance	Remarks and limitations
1990/91	12,500	All except agriculture and fisheries	EC-12	Accident severity: sick leave (days) attributable to work accidents	High level of occupational detail (4-digit ISCO codes)
1996	15,800		EU-15		
2000/01	33,000		EU-15 +	Exposure and severity of exposure: physical health	Medium level of sector detail (2-digit NACE codes)
2005	30,000		EU-27 +		
2011	44,000 interviews		EU-27 +		Differences in coverage of questions between surveys in different

Note: + includes a number of other countries, effectively making it EU-27 (in 2001) and EU-28 (in both 2005 and 2011).

Relevance, remarks and limitations based on 2010 edition.

Survey respondents are both employees and self-employed across Europe. Direct comparability of data over time is often limited due to questionnaires changing and developing. A data guide is available to identify critical areas where trends cannot be established. It should also be noted that data are self-reported and therefore caution is required in making cross-country comparisons as e.g. people's assessment of their health is subjective and can be affected by their social and cultural backgrounds within and across Member States.

European Survey on New and Emerging Risks (ESENER)

ESENER data is only available on a 1-digit NACE code level, which makes the sector perspective highly aggregated. For example, manufacturing is treated as a whole although health and safety hazards are very likely to differ between the different manufacturing sectors; not only in magnitude, but also in terms of specific risks. This makes it difficult to use ESENER data for several of the OSH Directives. Without further disaggregation these differences cannot be captured by the data. Also, ESENER does not cover agriculture and fisheries.

It is also important to stress that ESENER 2009 only covers establishments with 10 or more employees. It is therefore not possible to obtain insights into accidents and other health and safety

related issues in smaller establishments below 10 employees, which in several countries represent large the majority of establishments.

Furthermore, ESENER is addressed at management and employee representatives for safety and health, respectively, who might give different responses than would have been provided by workers. While these perspectives also provide added value, they require two overall reservations to be made when assessing ESENER findings. In the case of responses provided by management this might raise questions of objectivity and some degree of bias. In the case of responses from employee representatives, this data (e.g. on the level of information of workers) inherently excludes establishments without safety and health employee representation, which might result in more OSH favourable findings than would have been reached with a survey population including establishments without employee representation.

The full 2013 ESENER II data set has not yet been published. We have gained access to a report on some selected advance data, which is analysed and incorporated into this Main Report – not the actual data set for 2013. It is important to note that the 2013 survey covers establishments down to 5 or more employees, which makes it incomparable with ESENER 2009, until release of the full ESENER II dataset.

Figure 2-7 Overview and relevance of ESENER

Years	Size	Sectors	Member States	Relevance	Remarks and limitations
2009, 2013	36,000 interviews	All except agriculture, forestry and fishing	EU-28, Norway, Turkey, Switzerland	Accidents: degree of concerns Exposure: degree of concerns with relevance to both mental and physical health	Low level of sector detail (only available at 1-digit NACE code) Low level of accident/exposure detail 2013 data not yet available

Labour Force Survey (LFS)

For the LFS ad hoc modules on work-related accidents and health problems, strict comparability of data over time is most often limited due to questionnaires changing and developing 2013 and 2007 data can be compared to a large extent though some issues remain. It should also be noted that data is self-reported.

Figure 2-8 Overview and relevance of LFS

Years	Size	Sectors	Member States	Relevance	Remarks and limitations
1999 2007	Number of house-holds	All	EU-12 EU-27	Accidents and severity Illnesses and severity	Low level of sector detail (only available at 1-digit

2013	unknown		EU-28	Exposure (both mental and physical health)	NACE code) Low level of accident/exposure detail 2013 data has become available (at 1-digit NACE level or NACE groupings) by April 2014 i.e. after the closing of the primary data collection process.
------	---------	--	-------	--	--

The European Statistics on Accidents at Work (ESAW)

The basis for ESAW data is an obligation for Member State authorities to collect and report information on work-related accidents suffered by their workers²⁴. Within Member States data is collected from employers, i.e. not reported directly by the employees themselves who had the accidents. However, this register-based data may in some cases be influenced by underreporting.²⁵ Also some problems remain in comparing data across Member States.²⁶ Furthermore, data on occupational diseases are not included in ESAW.

Data on occupational diseases was collected before within the context of the European Occupational Diseases Statistics (EODS) data collection which was stopped in 2009 due to problems of reliability and comparability of data between Member States. Currently, the Commission is working towards a simplified EODS data collection. It will be assessed in a few years whether such a simplified data collection will be of sufficient quality and continued.

Data comparability from 2007 using NACE1 classifications to 2008 using NACE2 classification also constitutes a challenge.

Figure 2-9 Overview and relevance of ESAW

Years	Size	Sectors	Member States	Relevance	Remarks and limitations
2001-	N.a.	All	EU-15 EU-27 EU-28	Accidents and severity (including fatal)	Medium level of sector detail (2-digit NACE code) High level of occupational detail (4-

²⁴ As specified by Commission Regulation (EU) No 349/2011 of 11 April 2011 on statistics on accidents at work which requires Member States to transmit such data within 18 months after the end of the reference period (year) to Eurostat.

²⁵ There are also other limitations to this data as previously described in e.g. the revised inception report, section 6.1.3.

²⁶ See https://osha.europa.eu/en/topics/osm/reports/european_system_004.stm

					digitl ISCO code)
--	--	--	--	--	-------------------

2.6.2 Interview data

In the following section we present the challenges and limitations faced during this evaluation in relation to the collection of interview data. Each challenge is followed by the mitigation performed by the evaluation team in response.

- › Obtaining an equal number of interviews of EU level worker and employer organisations proved to be difficult: fewer worker than employer organisations exist at EU level, and some of the interviewed worker organisations declined during first contact, and referred to ETUI..

Mitigation: The evaluation team has been sensitive not to let the views put forward by the different social partners be dependent on the number of interviews undertaken i.e. worker organisation and employer organisation views/comments have been analysed following the content of the arguments and not the number of interviews undertaken. Furthermore, when calculating average scores of interview data (provided in the form of scores from 1-5), the four stakeholder groups (authorities, employers, workers and others) have been weighed equally irrespective of the number of respondents within each group.

- › Depth of knowledge: When interviewing EU stakeholders, it turned out to be important to keep in mind that some of the interviewees, particularly the worker organisations, represent large organizations covering heterogeneous industries and a variety of different occupational risks and directives. As a result and not surprisingly, the interviewees mainly provided information on those Directives they had knowledge of. Several interviewees also pointed out that they are not so close to the workplace, which made it difficult for them to go into details on the actual impacts at the workplace. Finally, the level of Directive-specific knowledge of the interviewees varied. While some interviewees had specialised knowledge about the content, key requirements and derogations, others had more general knowledge about OSH legislation e.g. about the CPMs like risk assessment etc.

Mitigation: Observations about the knowledge of stakeholders are not particular to this evaluation but common to most evaluation processes. Most stakeholders do not have a full overview of the evaluation objective or all of the evaluation questions. Their point of reference is usually their own sector or speciality, and they use this to provide as elaborate answers as is possible, also on issues outside their immediate speciality. Fortunately, different stakeholders possess different levels of knowledge. Triangulating these different levels of knowledge is the mechanism that the evaluation team has used when trying to establish an acceptable level of evidence for findings and conclusions. The evaluation team has collected data from several different sources including interview-based data per Directive. For those Directives where interview data has been less detailed, other data sources have been identified to ensure as much detail as is practically possible taking into consideration the time and the resources available for data collection for each of the 24 directives.

- › Narrow/specific Directives: in the case of some sector-specific Directives, only a few stakeholders proved relevant to interview. For example, in the case of the fishing sector directives, it was not possible to obtain a broader coverage as only one of the relevant organisations agreed to participate. In other cases, the interviews focused narrowly on the

sector-specific Directive, providing strong sector-based knowledge and evidence on the evaluation question.

Mitigation: The evaluation team has been aware of the need to collect data from a number of different data sources, including interviews. On those sector-based Directives where only few stakeholders have been identified and interviewed, we have made extra efforts in searching for additional data and found, for example, research-based data from Member States.

- › Coverage of SMEs: While a number of sector-based organisations commented on SME issues, and the main stakeholder on the area, UEAPME, participated in interviews, it was not possible to find a relevant and equivalent worker organisation for SMEs.

Mitigation: The evaluation team has discussed, to the extent possible, the SME issue when interviewing worker organisations and received views/comments on SMEs as well. This issue was specifically covered at the Validation seminar.

- › In those MSs, where few stakeholders were identified or interviewed during the primary interview phase, an additional effort was made to increase the number of interviews and obtain a better balanced stakeholder representation. This was the case for: CZ, HU, IE, PL, UK. In some MSs, it was not possible to reach 20 interviews due to the following: a lack of relevant interviewees, lack of cooperation by stakeholders, very centralised OSH systems (and thus few stakeholders), relatively small size of the Member State, and conflicts between interview periods and holiday seasons. Some of these challenges led to cases where the difference between contacted stakeholders and stakeholder who agreed to participate is high. This is the case for AT, EE, FR, IR, MT, PL, SE and SI.

2.6.3 Coverage of Directives

While we have done our utmost to ensure good coverage of all Directives, the level of detail and information provided in the interviews do vary from Directive to Directive. It is mainly in those cases where problems or shortcomings have been identified, and research has been carried out by the stakeholder organisations, that highly detailed information has been obtained for the evaluation.

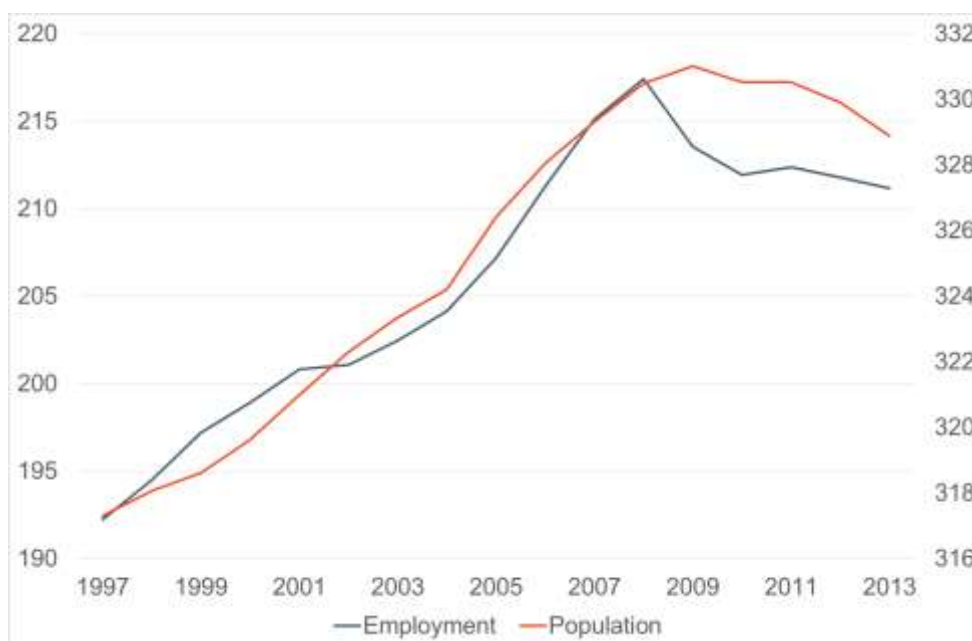
3 Labour market overview

The purpose of the labour market overview is to present recent trends within the EU labour markets. This provides background information for assessing whether the relevance of the Directives has changed over time as well as for understanding the labour market conditions in which the 24 OSH Directives have been implemented.

Although the EU Member States have experienced somewhat different developments in the period 1997 to 2013 – hereunder during the period of economic crisis – Figure 3-1 shows that for the EU on average the OSH Directives have been implemented in a period of employment growth – that is until the onset of the economic crisis in 2008. The Figure furthermore shows that this employment growth has largely been caused by similar population growth rates for the EU-27 population aged 15 to 64. This also implies that the participation and employment rates have been almost constant in the period up to 2008, although slightly rising for the female part of the workforce.

Then, since 2008, EU-27 employment has been on a decline. The Figure shows that this has also been the case for the population since 2009, although at a lower rate than that of employment. Hence, the employment rate has fallen alongside increases in the unemployment rate (see Table 3-1).

Figure 3-1 *Employment and population aged 15-64 in EU-27, 1997-2013, million people*



Source: Eurostat, LFS and population data.

Note: Left axis: employment; right axis: population.

Furthermore, Table 3-1 shows that employment growth has mainly occurred among the female workforce and the older workers, e.g. the employment rate for the female workforce aged 55-64 has continued its increase between 2000 and 2008 into the economic crisis years. A similar but less pronounced development has occurred for the corresponding older male workforce.

ESENER-2 (EU-OSHA, 2015) reveals that these EU figures varies from MS to MS. While 21% of surveyed EU-28 establishments indicate that employees aged over 55 account for more than a quarter of their workforce, the highest shares are found in Sweden (36%), Latvia (32%) and Estonia (30%) as opposed to Malta (9%), Luxembourg (9%) and Greece (10%).

Table 3-1 also reiterates the often-mentioned claim that the economic crisis in particular has been harsh on the younger men. As shown, the unemployment rate for young men has increase sharply since 2008 with a correspondingly drastic fall in the employment rate.

Table 3-1 *Employment and unemployment rates by sex and age, EU-27 average (%)*

	2000	2008	2013
Employment rates			
<i>Male</i>			
15-24	40.8	40.3	34.3
25-54	85.6	86.8	82.6
55-64	47.1	54.9	57.7
<i>Female</i>			
15-24	34.1	34.4	30.6
25-54	66.3	72.1	71.2
55-64	27.4	36.8	43.4
Unemployment rates			
<i>Male</i>			
15-24	16.7	15.8	24.0
25-74	6.7	5.5	9.3
<i>Female</i>			
15-24	18.6	15.7	22.6
25-74	8.9	6.5	9.5

Source: EUROSTAT, LFS.

The EU labour market has, however, not only been affected by the recent crisis, but from many years of structural change with a shift away from primary sectors such as agriculture, forestry, fishing and mining, and away from secondary sectors such as the manufacturing sectors, and so towards the tertiary – i.e. service – sectors.

Table 3-2 shows that this trend has continued into this century, where 10% of manufacturing jobs have been lost between 2000 and 2013 – amounting to almost 4 million jobs, and 19% or more than 2 million jobs have been lost in agriculture, forestry and fishing. At the same time, there has been a positive contribution to the overall employment growth from many new jobs within human health and social work and within the professional and scientific sectors – each with a net-increase in the number of jobs of above 6 million during the 13 years. Other service sectors with job growth of above 3 million are wholesale and retail sale, administrative and support service, and education.

This structural change implies in itself that the number of occupational injuries is most likely to fall in the declining traditional sectors that are already considerably addressed by the OSH acquis. On the other hand, they are likely to increase in the services sector where emerging risks such as psychosocial risks are also most prevalent. EU-OSHA (2014a) emphasises in this context the growth in the female-dominated sectors such as human health and social work, education, and the retail sector, and EU-OSHA (2014c) highlights the challenges facing the health and social care sector, including shortages of skilled and experienced professionals, an aging workforce, increased use of technology requiring new skills and the introduction of new care pathways to tackle multiple chronic conditions.

Another emerging type of jobs is that of green jobs. EU-OSHA (2014d) examines the electricity sector and concludes that the greening of the electricity sector may involve a decentralisation of processes and workplaces into smaller, dispersed units and microenterprises, possibly with lower OSH awareness and culture, and fewer resources for OSH. It may involve new materials where the risks are still unknown, e.g. nanomaterials in insulation material, new composites in wind turbine blade manufacture, a range of materials such as graphene in batteries, and toxic chemicals in solar

panels. Furthermore, there may be conflicts between green and OSH where measures taken to protect the environment may adversely affect OSH, and a rapid progress in green innovation could mean that OSH gets left behind.

The above-mentioned structural changes and resulting occupational safety and health changes have implications for our evaluation of the 24 OSH Directives. As shown in Table 3-3 and Table 3-4 the developments have implications for the number of employed covered by the 24 different OSH Directives.

Table 3-2 Number of employed in EU-27 by NACE groups (1000 persons)

NACE group	2000	2013	2000-13 absolute change	2000-13 percentage change
A Agriculture, forestry and fishing	11589	9415	-2173	-18.8%
B Mining and quarrying	871	833	-38	-4.4%
C Manufacturing	36568	32847	-3720	-10.2%
D Electricity, gas etc.	1388	1608	221	15.9%
E Water supply, sewerage etc.	1194	1619	425	35.6%
F Construction	14088	14707	619	4.4%
G Wholesale and retail trade	26477	29915	3439	13.0%
H Transportation and storage	10123	10881	758	7.5%
I Accommodation and food service	7126	9473	2347	32.9%
J Information and communication	4415	6166	1751	39.7%
K Financial and insurance activities	5784	6382	597	10.3%
L Real estate activities	1386	1681	295	21.3%
M Professional, scientific etc.	4897	11030	6132	125.2%
N Administrative and support service	4626	8578	3951	85.4%
O Public administration, defence etc.	13562	14774	1212	8.9%
P Education	12266	15757	3491	28.5%
Q Human health and social work	16361	22623	6262	38.3%
R Arts, entertainment and recreation	3300	3399	99	3.0%
S Other service activities	4655	5223	568	12.2%
T Activities of households	1692	2498	806	47.7%
U Extraterritorial organisations etc.	157	188	31	19.7%
TOTAL	182525	209597	27072	14.8%

Source: EUROSTAT, LFS.

When using the estimates provided in the two tables, it is important to understand how the estimates have been made. First and foremost, they have been made on the basis of indications by the evaluation team's OSH experts on which economic sectors (using the NACE classification - two digit level) must comply with the provisions of the different Directives. Economic sectors are though not included in the employment count if the safety and health situation of only a small share of the employed in practice are affected. In turn, we count all employed in the included sectors even though some of them will have work functions that in practice are not affected by a given Directive. Hence, the estimates for the general Directives and the sector-specific Directives must be considered to be the most precise, while we for the hazard-specific Directives have had to make several decisions regarding with sectors to include and which to exclude.

Since the type-of-worker Directives are not directly linked to economic sectors, the estimations of employment coverage are done differently. For the Temporary workers Directive we have made use of the Eurostat LFS data for temporary employment, and for the Young workers Directive we have used the Eurostat LFS data for employment of persons in the age group 15-19 (i.e. also a too high figure as the Directive only covers those under 18 years). Finally, since there are no official data on the number of pregnant or breastfeeding women at work, we have simply made an estimate using the data on the number of births in a given year and assumed that around 55% of the women giving birth are in employment – i.e. using the employment rate of women in the age group 15 to 39.

Table 3-3 shows therefore not surprisingly that the coverage of the general Directives has followed that of the overall employment developments. This is fully the case of the Framework Directive, the Equipment Directive, and OSH signs Directive that all cover the whole of the labour market.

The coverage of the type-of-worker Directives shows that there are more and more temporary workers, growing slightly more than that of employment as a whole. In turn, during the period there has been a drastic fall in the employment of young workers, which is in line with the development in the employment rates shown in Table 3-1 above.

The coverage of the sector-specific Directives has not changed much in between 2000 and 2013, apart from the employment decline in the EU fisheries sector.

Finally, the development of the coverage of the hazard-specific Directives differs somewhat with significant increases for the Electromagnetic Directive and the DSE Directive (although their relevance may have declined for other reasons), while there has been significant decreases for the Radiation Directive and the Noise Directive.

Table 3-3 Number of employed covered by OSH Directives in EU-27 (1000 persons)

Directive	2000	2013	2000-13 absolute change	2000-13 percentage change
General Directives				
Framework Directive 89/391/EEC	182525	209597	27072	14.8%
Workplace Directive 89/654/EEC	145854	173760	27906	19.1%
Equipment Directive 2009/104/EC	182525	209597	27072	14.8%
Use of PPE Directive 89/656/EEC	77929	75262	-2667	-3.4%
OSH signs Directive 92/58/EEC	182525	209597	27072	14.8%
Type-of-worker Directives				
Temporary workers Directive 91/383/EEC	20578	24424	3847	18.7%
Pregnant women Directive 92/85/EEC	2818	⁽¹⁾ 2854	36	1.3%
Young workers Directive 94/33/EC	6009	3931	-2078	-34.6%
Sector-specific Directives				
Construction Directive 92/57/EEC	14088	14707	619	4.4%
Mining Directive 92/104/EEC	776	737	-39	-5.0%
Drilling Directive 92/91/EEC	95	96	1	0.7%
Medical treatment of vessels Directive 92/29/EEC	295	298	3	1.0%
Fishing vessel Directive 93/103/EC	223	153	-70	-31.4%
Hazard-specific Directives				
Vibration Directive 2002/44/EC	50850	51973	1123	2.2%
Noise Directive 2003/10/EC	56008	53560	-2448	-4.4%
Electromagnetic Directive 2004/40/EC	17904	20420	2515	14.0%
Radiation Directive 2006/25/EC	2965	2426	-539	-18.2%
ATEX Directive 1999/92/EC	12865	13057	192	1.5%
CMD Directive 2004/37/EC	24775	25035	260	1.0%
Chemical agent Directive 98/24/EC	92182	94534	2352	2.6%
Asbestos Directive 2009/148/EC	14088	14707	619	4.4%
Biological agent Directive 2000/54/EC	38634	41537	2903	7.5%
Manual handling Directive 90/269/EEC	109423	111299	1876	1.7%
DSE Directive 90/270/EEC	32906	44886	11980	36.4%

Source: EUROSTAT, LFS, and evaluation team.

Note: ⁽¹⁾ 2012 estimate.

The changes in labour market coverage of the 24 OSH Directives are also shown in Table 3-4, but with emphasis on comparing the shares of employed covered.

The general Directives obviously cover the majority of the employed, and from this perspective, they may be considered relevant. Furthermore, it must be expected that they contribute to improve many adverse occupational safety and health issues and so have some element of effectiveness.

In turn, apart from the Temporary workers Directive, the type-of-worker Directives only address a minor part of the employed, which is also the case for the sector-specific Directives – apart from the Construction Directive. This could question the relevance, and possibly also the effectiveness, of these Directives, although this situation does not differ that much between 2000 and 2013.

The hazard-specific Directives differ much with respect to the share of employed covered. However, for all of them – apart from the DSE Directive – their share of employed decreased between 2000 and 2013.

Table 3-4 Share of employed covered by OSH Directives in EU-27 (1000 persons)

Directive	2000	2013	2000-13 percentage point change
General Directives			
Framework Directive 89/391/EEC	100.0%	100.0%	0.0pp
Workplace Directive 89/654/EEC	79.9%	82.9%	3.0pp
Equipment Directive 2009/104/EC	100.0%	100.0%	0.0pp
Use of PPE Directive 89/656/EEC	42.7%	35.9%	-6.8pp
OSH signs Directive 92/58/EEC	100.0%	100.0%	0.0pp
Type-of-worker Directives			
Temporary workers Directive 91/383/EEC	11.3%	11.7%	0.4pp
Pregnant women Directive 92/85/EEC	1.5%	⁽¹⁾ 1.4%	-0.2pp
Young workers Directive 94/33/EC	3.3%	1.9%	-1.4pp
Sector-specific Directives			
Construction Directive 92/57/EEC	7.7%	7.0%	-0.7pp
Mining Directive 92/104/EEC	0.4%	0.4%	-0.1pp
Drilling Directive 92/91/EEC	0.1%	0.0%	0.0pp
Medical treatment of vessels Directive 92/29/EEC	0.2%	0.1%	0.0pp
Fishing vessel Directive 93/103/EC	0.1%	0.1%	0.0pp
Hazard-specific Directives			
Vibration Directive 2002/44/EC	27.9%	24.8%	-3.1pp
Noise Directive 2003/10/EC	30.7%	25.6%	-5.1pp
Electromagnetic Directive 2004/40/EC	9.8%	9.7%	-0.1pp
Radiation Directive 2006/25/EC	1.6%	1.2%	-0.5pp
ATEX Directive 1999/92/EC	7.0%	6.2%	-0.8pp
CMD Directive 2004/37/EC	13.6%	11.9%	-1.6pp
Chemical agent Directive 98/24/EC	50.5%	45.1%	-5.4pp
Asbestos Directive 2009/148/EC	7.7%	7.0%	-0.7pp
Biological agent Directive 2000/54/EC	21.2%	19.8%	-1.3pp
Manual handling Directive 90/269/EEC	59.9%	53.1%	-6.8pp
DSE Directive 90/270/EEC	18.0%	21.4%	3.4pp

Source: EUROSTAT, LFS, and evaluation team.

Note: ⁽¹⁾ 2012 estimate.

Finally, the present evaluation places considerable emphasis on the impact of the OSH acquis on small and medium-sized establishments (SMEs). This reflects a European labour market, which is characterised by more than 20.7 million SMEs of which the large majority are microenterprises²⁷. SMEs thus represent

- › 99.8% of all establishments (92.1% microenterprises), and
- › 66.5% of the total employment

²⁷ Annual report on European SMEs, 2012/13

Table 3-5 shows the EU definitions of medium-sized, small, and micro enterprises, respectively.

Table 3-5 EU definition of medium-sized, small and microenterprises

Company category	Employees	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Source: <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/>

4 Implementation in Member States

For the purpose of the evaluation, a mapping exercise of the implementation of the 24 Directives in the Member States has been conducted. Each Directive has been mapped according to seven mapping questions.

The National Implementation Reports have constituted an important data source for the mapping exercise, but other sources of data have also been consulted such as national and EU level interviews, national legislation or relevant reports.²⁸ Additional information on implementation in the individual Member States can be found in the individual Country Summary Reports available in Appendix G.

The chapter is structured in accordance with the seven mapping questions. For the purpose of presenting information across Member States, country codes are used in tables or in brackets (ref. list of abbreviations).

4.1 Common Processes and Mechanisms (MQ1)

MQ1: Across the Member States, how are the different Common Processes and Mechanisms foreseen by the Directives put in place, and how do they operate and interact with each other?"

This first Mapping Question focuses on how MSs have designed their national legal frameworks to reflect the requirements deriving from the Common Processes and Mechanisms (CPM), in particular conducting a risk assessment, ensuring internal and/or external preventive and protective services, informing workers, training workers, carrying out health surveillance, and consulting workers. The Framework Directive has introduced the Common Processes and Mechanisms, and these are further detailed in the specific individual OSH Directives. The mapping also covers specific provisions (Key Requirements), which can be seen as fundamental to the intended outcome of that Directive e.g. provisions on limit values. Since the coverage of a given Directive, i.e. provisions on scope and relevant definitions, may also be relevant to the evaluation, such requirements were also included in the mapping as Key Requirements.

The answer to MQ1 revolves around three sub-questions:

²⁸ An explanation of the NIRs can be found in section 2.4.1.

- › How are the CPMs reflected and articulated in the national legal framework?
- › Are there differences between the Directive's requirements and the national requirements?
- › Does the national legislation make for provisions for how the CPMs interact with each other across one Directive?

4.1.1 How are the CPMs reflected and articulated in the national legal framework?

Most of the MSs follow a common structure whereby the main principles and requirements, principally from the Framework Directive, are transposed in one single act, usually the framework law on OSH, alternatively the Labour Code and/or the Public Health Act. This national framework legislation was not necessarily newly adopted after the entry into force of the Framework Directive; it is often the case that existing OSH legislation has been brought together into one main OSH Act or that an existing OSH Act has been amended to comply with the Framework Directive.

For example, in Luxembourg, a significant development of the framework legislation for OSH took place with the adoption of two major laws on 17 June 1994, which transposed Directive 89/391/EEC and replaced the old framework dating back to 1924 and other scattered legislation. These are the Laws of 17 June 1994 on respectively the safety and health of workers at work and on occupational health services. As one stakeholder noted, the transposition of the Framework Directive had provided a clear boost to Luxembourg legislation and policy on OSH as it led to a regrouping of a number of pre-existing elements and added further requirements in other areas²⁹. In particular, the transposition of the EU Directive triggered a stronger focus on preventive rather than remediation measures. Furthermore, in 2006, the Framework Law on OSH was incorporated into the Labour Code, which is now the main framework legislation for OSH.

A few other Member States have adopted another approach, whereby the main principles and requirements are split between different laws. However, such instances are generally linked to the way legislation is shaped in a given country, and the main requirements and principles set in the Framework Directive are still transposed through primary legislation.³⁰

An example of such a setting can be found in Denmark where regulation of occupational safety and health is shared among four ministries and separate legal acts are in place for work carried out on ground/land (Working Environment Act), offshore work in relation to mineral extracting industries (Offshore Safety Act), shipping/fishing (Act on Safety at Sea) and civil aviation (Act on Aviation).

Therefore, the national legislation often reflects the structure of the EU OSH legislation, with a framework law complemented with by-laws which transpose each individual Directive. The three OSH Directives aiming at protecting vulnerable workers (i.e. Directive 94/33/EC (young workers), Directive 91/383/EEC (temporary workers) and Directive 92/85/EEC (pregnant workers)) are often

²⁹ Interview with Representatives of employers.

³⁰ Primary legislation is law adopted by the legislative branch. This contrasts with secondary legislation, which is usually adopted by the executive branch. Secondary (or delegated) legislation (i.e. statutory instruments, which have different appellations such as Orders, Regulations, Rules, Decrees) must be authorised by primary legislation, and conform to the boundaries it has laid down.

transposed through a specific act and secondary legislation or directly through the main OSH act or the Labour Code.

Furthermore, several Member States have transposed the two OSH Directives on the mineral extracting industry (i.e. Directive 92/104/EEC (mineral-extracting) and Directive 92/91/EEC (drilling)) through several pieces of secondary legislation or through, e.g., the national Mining Act and secondary legislation. The same trend, although to a lesser degree, can be noticed for the two OSH Directives on vessels (i.e. Directive 93/103/EC (fishing vessels) and Directive 92/29/EEC (medical treatment on board vessels)). This is explained by the fact that these two sectors, the mining and the maritime sectors, are traditionally regulated by a distinct body of legislation, which encompasses all rules related to these particular sectors.

Non-transposition of Directives

Finally, a few MSs have not transposed some of the individual OSH Directives. There are mainly two reasons for this non-transposition: the particular Directive is not relevant for a specific MS (e.g. the vessels Directives are of no use to land-locked MSs which do not have ships sailing their flags) or the Member State has only transposed a former version of the current individual Directive. However, in the latter case it is unlikely that changes introduced by the new Directive have been reflected.

Directive 2004/40/EC (EMF) is no longer valid (since 28 June 2013) because it has been repealed by the new Directive 2013/35/EU. Member States need to transpose this Directive 2013/35/EU by 1 July 2016. As a result, most Member States never actually transposed Directive 2004/40/EC. Exceptions are IT, LV, LT, HU, AT, RO, SK and SE.

Please see hereunder an overview of the Member States which have not transposed certain OSH individual directives.

Table 4-1 *Instances of non-transposition*

Non-transposed Directive	MS
Directive 92/29/EEC (medical treatment on board vessels)	AT, CZ, SK
Directive 93/103/EC (fishing vessels)	AT, CZ, LU, SK
Directive 2009/148/EC (asbestos)	PT ³¹
Directive 2000/54/EC (biological agents)	EL, PT
Directive 2004/40/EC (EMF)	BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, CY, LU, MT, NL, PL, PT, SL, FI, UK

In terms of sectors, while the national OSH legislation is applicable to both the private and the public sector, the situation differs across Member States depending whether the national OSH (primary and secondary) legislation covers both the private and the public sector, or whether the public sector is regulated by a distinct legal act.

³¹ Portugal has yet to transpose the provisions of the most recent Asbestos Directive (2009) with national legislation still based on the 2003 version. However, this does not constitute a material discrepancy.

Only five Member States (AT, CZ, FR, LU and PT) have implemented separate, distinct OSH legislation for the public and the private sector. For some of the MSs where the public sector is regulated by distinct legislation, this public sector legislation often refers to the general (private sector) occupational health and safety legislation as directly applicable. For example, in Luxembourg, while the public sector is regulated by specific legal texts covering health and safety at work, they refer explicitly to the provisions of the books I to V of the part IV of the Labour Code and to their enforcing Decrees. Similarly, in Austria, of the 114 national regulations applying specifically to the public sector, 72 refer to the general occupational health and safety legislation (AschG) as directly applicable.

Therefore differences between private and public sectors in terms of OSH requirements and levels of compliance would not, as a rule, be justified by variance in the applicable legislation.

4.1.2 Are there differences between the Directive's requirements and the national requirements?

The Country Summary Reports map the observed discrepancies and the more stringent or broader, and more detailed requirements for each of the Directives for the main provisions under each of the CPMs, and the KRs of the scope and definitions and limit values. It is worth reminding that the OSH Directives lay down minimum requirements. This means that the national legislation can be different (i.e. impose more detailed or protective measures), but cannot set requirements that contradict those of the Directives e.g. less stringent limit values.

Discrepancies between the Directive's requirements and the transposing legislation cover instances where the text of the national transposing legislation is different from the Directive's requirements and could lead to the non-application or partial application of the CPMs due to contradiction between the national provision and the corresponding one in the Directive.

Further, the Country Summary Reports identify instances where the national legislation goes beyond the requirements of the Directive. In addition to CPMs, this part of the review systematically covers KRs encompassing the scope and relevant definitions as well as provisions setting limit values. This involves looking, amongst other things, at whether the scope of the national legislation is broader than that of the Directive. Are limit values set in the national legislation more stringent than the ones in the Directive? The following examples of more stringent transposition have been reported in some countries:

- › For the Construction Sites Directive 92/57/EEC, several Member States impose minimum qualifications with regard to coordinators, or require a signed document for the appointment of a health and safety coordinator for a construction site and of his/her acceptance (whereas Directive 92/57/EEC only requires this appointment).
- › In relation to the Directive 98/24/EC (chemical agents), a considerable number of Member States set more stringent limits for some substances, or have limits for substances for which there is no EU limit. This is the case for AT, BE, CZ, DE, DK, ES, FR, IT, LT, LV, NL, PT, RO, SE, SK, SL and UK). Similarly, more stringent limit values have been identified in AT, BG, DK, FR, LU, NL, PL and SE, in relation to Directive 2004/37/EC (carcinogens or mutagens).

- › A large number of Member States (CY, EE, FI, IE, LU, LV, MT, NL, PL, PT and SE) have included domestic servants in the definition of ‘worker’ when transposing the Framework Directive, setting a broader scope of application.
- › With regard to the Use of PPE Directive, some Member States (BE, DK, IE, FR) have extended the scope to include personal protective equipment used by all or some of the emergency or rescue services, when this is excluded from the Directive’s scope.
- › In relation to the Young Workers Directive, a large number of Member States have set a broader scope albeit in different ways. In FR, the scope is extended to trainees and young students studying in technological or vocational college, as well as young people on jobseekers’ vocational traineeships and young people accommodated in care establishments or attending care facilities under juvenile protection orders. The SE scope is also broader as the national transposing legislation applies to all work done for employers, principals, customers and those responsible for schools who let minors do work for them or study. Another requirement mentioned was legislation also covering self-employment of young people. Some Member States (AT, BE, EE, EL, NL) cover occasional or short-term work in private households depending on the employment contract and whether work was under the surveillance and direction of an adult. The FI scope extends to all work done by young workers under a work contract.

Observed discrepancies and cases of more stringent or broader; or more detailed requirements are extensively described in each of the Directive reports.

Finally, an overview of the number of infringement cases for problems of conformity per OSH Directive can help to understand where Member States have most often struggled to correctly (or more often timely) transpose a particular Directive. The following Table gives an overview of the number of infringement proceedings per OSH Directive³².

Table 4-2 Number of infringement proceedings per Directive

Directive	Number of infringement proceedings
Directive 89/391/EEC (Framework Directive)	78
Directive 89/654/EEC (workplace)	5
Directive 2009/104/EC (work equipment)	0
Directive 89/656/EEC (Use of PPE)	0
Directive 92/58/EEC (OSH signs)	1
Directive 1999/92/EC (ATEX)	12
Directive 90/269/EEC (manual handling of loads)	3
Directive 90/270/EEC (display screen equipment)	2
Directive 2002/44/EC (vibration)	10
Directive 2003/10/EC (noise)	12
Directive 2004/40/EC (EMF)	0
Directive 2006/25/EC (AOR)	14
Directive 2004/37/EC (carcinogens or mutagens)	0
Directive 98/24/EC (chemical agents)	17

³² Based on list of infringements received by mail from DG EMPL on 10 November 2014.

Directive 2009/148/EC (asbestos)	0
Directive 2000/54/EC (biological agents)	0
Directive 92/57/EEC (construction sites)	8
Directive 92/104/EEC (mineral-extracting industries)	0
Directive 92/91/EEC (drilling)	0
Directive 92/29/EEC (medical treatment on board vessels)	1
Directive 93/103/EC (work on board fishing vessels)	2
Directive 92/85/EEC (pregnant workers)	3
Directive 91/383/EEC (temporary workers)	2
Directive 94/33/EC (young people at work)	0

Source:

As can be expected, most cases of infringement relate to the transposition of the OSH Framework Directive. Other outliers are noted for Directive 1999/92/EC (ATEX), Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise), Directive 2006/25/EC (AOR), and Directive 98/24/EC (chemical agents).

The fact that 78 infringement proceedings have been launched by the European Commission regarding the transposition of the Framework Directive indicates that it has not always been an easy task. A large majority of the cases are now closed. One of the typical instances of non-conformity seems to be a failure to make the Framework Directive provisions applicable to the public sector or regarding the use of public installations – i.e. problems with the scope of the application. Another typical non-conformity is the imprecise implementation of Art. 5(1) – i.e. of the employers' duty to ensure the safety and health of workers in every aspect related to their work. The transposition seems in particular to have caused difficulties in Spain (ES) which accounts for 26 of the 78 infringement proceedings.

There have been 10 infringement proceedings regarding the transposition of the Vibration Directive. They all date from 2005 and most of these concern cases of non-communication. Austria (AT) had in 2005 an infringement proceeding regarding non-conformity.

The infringement proceedings with regard to the Noise Directive were initiated by the Commission mainly in 2006-2008. These all concerned non-communication of national measures and were closed during the period as the relevant Member States adopted and communicated the relevant national measures to the Commission following either a letter of formal notice or a reasoned opinion from the Commission. On this basis, we conclude that infringement proceedings have not caused major delays in the implementation of the Directive.

The 14 infringement cases regarding the transposition of Directive 2006/25/EC (AOR) have all been started in 2010 and all have been initiated due to the failure of Member States to timely transpose the Directive.

Finally, there have been 17 infringement proceedings initiated (mainly for non-communication of transposing measures) in relation to the transposition of Directive 98/24/EC (Chemical Agents). In the large majority of these infringement proceedings, the case has been closed as the necessary steps have been taken.

4.1.3 Does the national legislation make for provisions for how the CPMs interact with each other across one Directive?

The Framework Directive is of fundamental importance as it is the basic safety and health legal act which lays down general principles concerning the prevention and protection of workers against occupational accidents and diseases. It contains principles concerning the prevention of risks, the protection of safety and health, the assessment of risks, the elimination of risks and accident factors, the informing, consultation and balanced participation and training of workers and their representatives. These CPMs are thus laid down in the Framework Directive, but the individual Directives can contain more stringent and/or specific CPM provisions.

The national legislation transposing the Framework Directive does not always include all CPM provisions or regulates them only partially. Indeed, the national framework legislation often sets out the general principles of the CPMs, but it is the implementing (secondary) legislation which actually fully transposes all CPM requirements. The following table highlights which Member States have introduced separate secondary legislation on one or more CPMs. More detail can be found in the CSR.

Table 4-3 Secondary legislation on specific CPMs

MS	Risk Assessment	Preventive and protective services	Information for workers	Training of workers	Health Surveillance	Consultation of workers
AT						
BE		√			√	
BG						
CY						
CZ		√			√	
DE		√			√	√
DK	√	√	√	√	√	√
EE		√		√	√	
EL			√	√	√	
ES	√	√				
FI					√	
FR						
HU					√	
IE		√				
IT						
LT					√	
LU						
LV	√	√		√	√	√
MT						
NL						
PL						
PT						
RO					√	
SE					√	
SK					√	
SL	√			√	√	
UK						√

Source:

In addition, individual CPMs are sometimes fully or partly regulated through a specific legal act. Of the 27 Member States, 17 countries have transposed one or more CPMs through secondary legislation. This is in particular the case for the CPMs that relate directly to a broader institutional and organisational context, namely preventive and protective services and health surveillance, and to a lesser extent, consultation of workers.

With regard to preventive and protective services, the Member States tend to lay down their own rules as to whether the employer, the workers (in the internal preventive and protective services), or the external preventive and protective services are responsible for the implementation of the health and safety measures in the undertaking on the basis of the legal requirements contained in the framework OSH legislation.

As part of the specific legislation on health surveillance, Member States have also often set specific rules and guidelines regarding the medical examinations and their periodicity. In Romania for example, health surveillance is subject to a Governmental Decision, which regulates the specific types of medical examinations the employers must provide to their workers (examinations are differentiated based on sectors of activity as well as types of agents to which workers are exposed at work).

Another example is the UK who regulates consultation of workers through the Safety Representatives and Safety Committees Regulations 1977, and the Health and Safety (Consultation with Employees) Regulations 1996.

An interesting although atypical example is Bulgaria where it is the risk assessment, which is governed by a specific Ordinance on risk assessment which is effective for all specific Directives (Ordinance 5 of 11 May 1999 on the procedure, manner and frequency of carrying out risk assessment).

In terms of interactions between the CPM, as a consequence of a national overarching structure similar to the OSH acquis structure, the main principles and requirements can be found in the national framework law while specific additional requirements are set out in the by-laws transposing the individual Directives e.g. in relation to risk assessment, the specific risks or parameters to assess.

The specific by-laws include provisions specifying interactions between CPMs across Directives, generally by cross-references to the OSH framework act, but this does not seem to be always done in a systematic fashion and cross-references are not sufficient as such to ensure a coherent and cohesive approach across legislation.

4.2 Derogations and transitional periods (MQ2)

MQ2: What derogations and transitional periods are applied or have been used under national law under several of the Directives concerned?

4.2.1 Derogations

Derogations are provisions which explicitly allow Member States to derogate from certain requirements contained in the Directive. They are provided by nine Directives only: Directive 89/656/EEC (Use of PPE), Directive 92/57/EEC (temporary or mobile construction sites), Directive 92/58/EEC (OSH signs), Directive 92/85/EEC (pregnant workers), Directive 94/33/EC (young workers), Directive 98/24/EC (chemical agents), Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise) and Directive 2004/40/EC (electromagnetic fields). All derogations are accompanied by conditions which need to be fulfilled before and/or after derogation is permitted.

The Table below gives an overall picture as to the use of each of these derogations by Member States. Directive 2004/40/EC (electromagnetic fields) is not included in this table, as most MSs did not transpose the Directive.

Table 4-4 Use of derogations by Member States

Directive	Article	Use of Derogation	MS applying derogation
Directive 89/656/EEC (Use of PPE)	Art. 4(6), second indent	Member States' legislation may allow for contribution of workers towards the costs of some personal protective equipment, in circumstances where use of the equipment is not exclusive to the workplace.	DK, RO [2]
Directive 92/57/EEC (construction sites)	Art. 3(2)	This allows Member States, after having consulted both management and the workforce, to derogate from the obligation to draw up a health and safety plan, except where it is a question of work involving particular risks listed in Annex II to the Directive or work for which prior notice is required, as set out in Article 3.3	BE, CZ, DK, EE, ES, IT, LU, MT, SI [9]
Directive 92/58/EEC (OSH signs)	Art. 6(2)	Derogation from the application of specific rules and minimum requirements for the use of verbal communication, gesture and code words (as laid down in Annex VIII, section 2) Derogation from the application of the set of coded signals to be used for certain manoeuvres in certain sectors laid down in Annex IX, section 3	BE, BG, DE, DK, LT, LU, SI [7]
Directive 92/85/EEC (pregnant workers)	Art. 11(4)	Possibility to make the entitlement to pay conditional upon the conditions of eligibility under the national legislation National legislation cannot provide for periods of previous employment in excess of 12 months immediately prior to the presumed date of confinement	BG, DE, EE, LT, LU, LV, SK [7]
Directive 94/33/EC (young workers)	Art. 5(3)	Derogation from the requirement to receive a prior authorisation for the employment of children for the purposes of performance of children in cultural and similar activities	AT, DK, ES, FI, LU, PT, SE, SK, UK [9]
	Art. 7(3)	Derogation from the prohibition of employment of young people for works listed in Article 7.2 (works that entail specific risks) in the case of adolescents (e.g. work involving harmful exposure to toxic chemical agents and/or radiations, high exposure to physical and biological agents, work objectively beyond the physical or psychological capacity of the young worker) where such derogations are indispensable for their vocational training	AT, BE, CZ, DE, DK, EE, EL, FR, IT, LU, LV, NL, PL, PT, SE, SI, SK, UK [18]
	Art. 8(5)	Derogation from the minimum rest periods for interruption in the case of activities involving periods of work that are split up over the day or are of short duration	DK, FR, CY, LU, UK [5]
	Art. 9(2)	Derogation from the prohibition of night work for young people in the case of adolescents and in specific areas of activity.	AT, BE, CY, CZ, DE, DK, EE, EL, FR, IT, LU, SI,

			SK, UK [14]
	Art. 10(3)	Derogation from the obligation to ensure minimum weekly rest periods for children and adolescents.	BE, DK, EL, FI, IT, LU, PT, UK [8]
	10(4)	Derogations from rest periods in respect of adolescents for (a) work performed in the shipping or fisheries sectors; (b) work performed in the context of the armed forces or the police; (c) work performed in hospitals or similar establishments; (d) work performed in agriculture; (e) work performed in the tourism industry or in the hotel, restaurant and café sector; (f) activities involving periods of work split up over the day	CY, DK, EL, FR, LU, NL, PT, UK [8]
	Art. 13	Derogations from Article 8 (2) (prohibition of working over 8 hours per day and 40 hours per week), Article 9 (1) (b) (prohibition of night work between 10 p.m. and 6 a.m.), Article 10 (1) (b) (minimum period of 12 hours rest each 12 consecutive hours of work) and, in the case of adolescents, Article 12 (entitlement to 30 minutes break), for work under force majeure	AT, DK, EL, FR, IT, LU, PT, SI, UK [9]
Directive 98/24/EC (chemical agents)	Art. 9(2)	Derogations from prohibition of the use of certain chemical agents and activities involving chemical agents in the following circumstances: - for the sole purpose of scientific research and testing, including analysis, - for activities intended to eliminate chemical agents that are present in the form of by-products or waste products, - for the production of specified chemical agents for use as intermediates, and for such use.	BE, BG, CZ, DE, EE, IE, EL, ES, IT, LV, LT, LU, MT, PL, PT, SI, SK, FI, SE, UK [20]
Directive 2002/44/EC (vibration)	Art. 10(1)	Derogation from the obligation to comply with exposure limit values in the case of sea and air transport	BE, BG, DK, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, MT, SE, SK, UK [17]
	Art. 10(2)	Derogation from the obligation to comply with exposure limit values in a case where the exposure of a worker to mechanical vibration is usually below the exposure action values but varies markedly from time to time and may occasionally exceed the exposure limit value	AT, BE, BG, DK, EL, ES, FI, IE, IT, LT, LU, LV, MT, PT, SI, UK [16]

Directive 2003/10/EC (noise)	Art. 11(1) and 11(2)	Properly fitting individual hearing protectors do not have to be made available in exceptional situations where, because of the nature of the work, the full and proper use of individual hearing protectors would be likely to cause greater risk to health or safety than not using such protectors	BE, BG, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, MT, PL, RO, SI, UK [19]
------------------------------	----------------------	---	---

The Table above shows a mixed picture as to the use of derogations by Member States across directives.

- › Twenty Member States have used the derogations laid down in Directive 98/24/EC (chemical agents) from the prohibition of the use of certain chemical agents.
- › Two of the derogations provided by Directive 94/33/EC (young workers) have been used extensively: 18 MSs have made use of the derogation from the prohibition of employment of young people in the case of adolescents where such derogations are indispensable for their vocational training. 13 MSs applied derogation from the prohibition of night work for young people in the case of adolescents and in specific areas of activity.
- › The two derogations provided by Directive 2002/44/EC (vibration) have been used by respectively 17 and 16 Member States. The first possibility is that the Member States may in the case of sea and air transport derogate the provisions aimed at avoiding or reducing exposure to whole-body vibration, where, given the state of the art and the specific characteristics of workplaces, it is not possible to comply with an exposure limit value despite the technical and/or organisational measures taken. The second possibility concerns situations where workers exposed to mechanical vibration, usually below the exposure limit values, occasionally may be exposed to vibration that exceeds these limit values.
- › Nineteen Member States have used the derogation laid down in Directive 2003/10/EC (noise), which states that properly fitting individual hearing protectors do not have to be made available in exceptional situations

Other derogations have been far less used.

4.2.2 Transition periods

Transitional periods are periods of time in which Member States are exceptionally given an extended deadline for the implementation of particular provisions of the Directives. They constitute a basic tool to help authorities to adapt the implementation of Directives to the actual capacities and characteristics of companies in the MS or sectors that may need a period of time to adopt or implement the provisions of a particular Directive. Most of the transitional periods are not applicable anymore, as the dates by which the provisions in question had to be implemented have already passed. However, these periods should be taken into consideration to explain delays in implementation of certain Directives. The transitional periods applied to eight Directives only.

The Table below illustrates which Member States have made use of the transitional periods in the implementation of the relevant Directives and if these periods have been respected.

Table 4-5 Use of transitional periods by Member States³³

Directive	Relevant transitional period	MSs who applied transitional periods	MSs who respected transitional periods
Directive 92/91/EEC (drilling)	Workplaces in use before the date on which the Directive was brought into effect had a transitional period of up to five years before being subject to the minimum requirements laid down in the Annex of the Directive (Art. 10 (2)).	AT, BE, DK, EL, ES, FI, IT, LT, LU, NL [10]	BE, DK, EL, ES, FI, IT, LT, LU, NL [9]
Directive 92/104/EEC (mineral-extracting industries)	Workplaces already in use at the time of entry into force of the Directive could benefit from a transitional period of up to nine years after the Directive entered into force to satisfy the minimum requirements laid down in the Annexes (Art. 10(2)).	BE, DK, EL, ES, LT, LU, NL, AT, FI [9]	BE, DK, EL, ES, LT, LU, NL, FI [8]
Directive 93/103/EEC (fishing vessel)	Existing fishing vessels could benefit from a transitional period of up to seven years before being required to comply with the minimum safety and health requirements laid down in Annex II (Art. 5).	DE, EE, EL, ES, FI, IE, IT, LT, NL, PT, SL [11]	DE, EE, EL, ES, FI, IE, IT, LT, NL [9]
Directive 2002/44/EC (vibration)	Member States are allowed to set, after consultations with the relevant social partners, maximum transitional periods of five years from 6 July 2005 where work equipment used was given to workers before 6 July 2007 and did not permit the exposure limit values to be respected (Art. 9 first indent). A second transitional period was provided specifically for the agriculture and forestry sectors, with a four year transitional period (Art. 9 second indent).	All Member States but CZ, HU and SK [24]	All [24]
Directive 2003/10/EC (noise)	Member States were granted additional transitional periods of five years in relation to personnel on board sea-going vessels and of two additional years for the music and entertainment sectors. Such transitional periods were meant to allow Member States enough time for drafting codes of conduct and practical guidelines for the implementation of the Directive (Art. 17).	AT, CY, DE, DK, EL, ES, FI, FR, IE, IT, LT, LU, MT, NL, PL, PT, SI, UK [18]	All [18]
Directive 2009/104/EC (work equipment)	The employer shall obtain and/or use work equipment which, if already provided to workers by 31 December 1992, complied with the	BE (for specific equipment), EE, EL, ES, FR, CY, LT, LU,	BE, EE, ES, FR, CY, LT, LU, NL, AT, FI, UK [11]

³³ Bulgaria (BG) and Romania (RO) became EU Member States on 1 January 2007. To that date, all Directives mentioned in the table, of which the end dates of the transitional periods have preceded the accession date for Bulgaria and Romania, have been transposed into the national OSH legislation. Therefore, BG and RO are not included in the table.

Directive	Relevant transitional period	MSs who applied transitional periods	MSs who respected transitional periods
	minimum requirements laid down in Annex I no later than four years after that date. Furthermore, the employer shall obtain and/or use specific work equipment subject to the requirements of point 3 of Annex I, which, if already provided to workers in the undertaking or establishment by 5 December 1998, complies with the minimum requirements laid down in Annex I, no later than four years after that date (Art. 4(1)).	NL, AT, PT, FI, UK [13]	
Directive 90/270/EEC (DSE)	MS are allowed the adoption of a transitional period of up until four years for the adaptation of workstations already put in service at the time the Directive entered into force (Art. 5)	BE, DK, DE, IE, EL, ES, CY, LU, NL, AT, PT, SI, FI, UK [14]	BE, DK, DE, IE, EL, CY, LU, NL, PT, FI, UK [11]
Directive 1999/92/EC (ATEX)	Member States are provided with the possibility to apply a general transitional period (up until 30 June 2003) for the full transposition of the Directive into national law (Art. 15).	AT, BE, CY, CZ, DK, EE, EL, ES, FI, IE, LT, LU, NL, PL, PT, SI, UK [17]	BE, CY, CZ, DK, ES, FI, IE, LT, LU, NL, PL, PT, SI, UK [14]

The Table above shows that many Member States (an average of half) have applied transitional periods in the implementation of most of the Directives for which such possibility was provided. In the vast majority of cases, Member States who opted for the application of transitional periods have also respected them. The number of Member States who have not respected the given deadlines for each Directive has in any case never exceeded three.

4.3 Compliance (MQ3)

MQ3: What are the differences in approach to and degree of fulfilment of the requirements of the EU OSH Directives in private undertakings and public-sector bodies, across different sectors of economic activity and across different sizes of companies, especially for SMEs, microenterprises and self-employed?

In the following section, we provide conclusions on the degree of compliance with the EU OSH Directives. The section is divided into four subsections:

- 1 Compliance data, section 4.3.1 – in this subsection we present initial comments regarding available compliance data and the main challenges encountered when assessing compliance across Directives and Member States.
- 2 Assessment of overall compliance, section 4.3.2 – in this subsection we assess compliance on a broad, overall level from different perspectives within five further subsections:
 - a. General perspectives,
 - b. Overall compliance in SMEs,
 - c. The influence of employee representation on OSH compliance,
 - d. Compliance in the public sector compared to the private sector,
 - e. Synthesis from the findings from assessment of overall compliance.

- 3 Compliance with CPMs, section 4.3.3 – in this subsection we assess each of the six CPMs individually:
 - a. Risk assessments – the first CPM we assess is Risk assessments, which comprises four subsections. Firstly, we will present an analysis of general risk assessment compliance, then compare risk assessments performed by internal staff to those provided by external service providers. We will then analyse risk assessments in SMEs and, lastly, we will provide a brief synthesis of the findings from collected risk assessment analyses.
 - b. Preventive and protective services – the second CPM we assess is preventive and protective services,
 - c. Information of workers – the third CPM we assess is information of workers,
 - d. Training of workers – the fourth CPM we assess is training of workers,
 - e. Health surveillance – the fifth CPM we assess is health surveillance,
 - f. Consultations of workers – the sixth CPM we assess is consultation of workers
- 4 Conclusions on compliance, section 4.3.4 – in this subsection we summarise and present the combined conclusions from all of the above subsections on compliance.

4.3.1 Compliance data

Significant challenges are linked to the assessment of overall compliance with the OSH acquis across Member States. Although ESENER data provides some insight into compliance, it is difficult to quantify and document compliance with the individual Directives at EU-level. There are several reasons for this (apart from the general data challenges discussed in Section 2.6: Limitations of the methodology). A few compliance specific challenges are presented below:

- › Generally, compliance data is highly limited. Our experience from producing the Country Summary Reports has been that most national authorities do not keep specific accounts of compliance with the provisions in the individual Directives. Furthermore, many national authorities were reluctant to make concrete statements about levels of compliance during interviews as they considered their knowledge on these specificities to be limited.
- › The level of compliance varies significantly from Directive to Directive. The Drilling Directive, for instance, is one that MSs appear to comply with to a large extent, partly on account of Directive provisions, partly spurred on by the self-interest of the, often, large establishments that operate in the Mining sector. In contrast, the AOR Directive is characterised by a low level of compliance in MSs, as the issue of artificial optical radiation is regarded as a complex issue. Employers within this field find the technicalities and acquired competency to measure, monitor and assess difficult to understand and/or attain.
- › Even within the framework of the same Directive, the level of compliance varies significantly from Member State to Member State and from CPM to CPM and follows no clear pattern. For instance – according to the limited data available in the MSs – the level of reported compliance with the individual CPMs of the Manual Handling Directive ranges in compliance from 8% to 90% in enterprises. Likewise, compliance with the Biological Agents Directive varies from sector to sector, as establishments that are intentional users or handlers of

biological agents have a much higher level of compliance than establishments, which do not have biological agents as their core business.

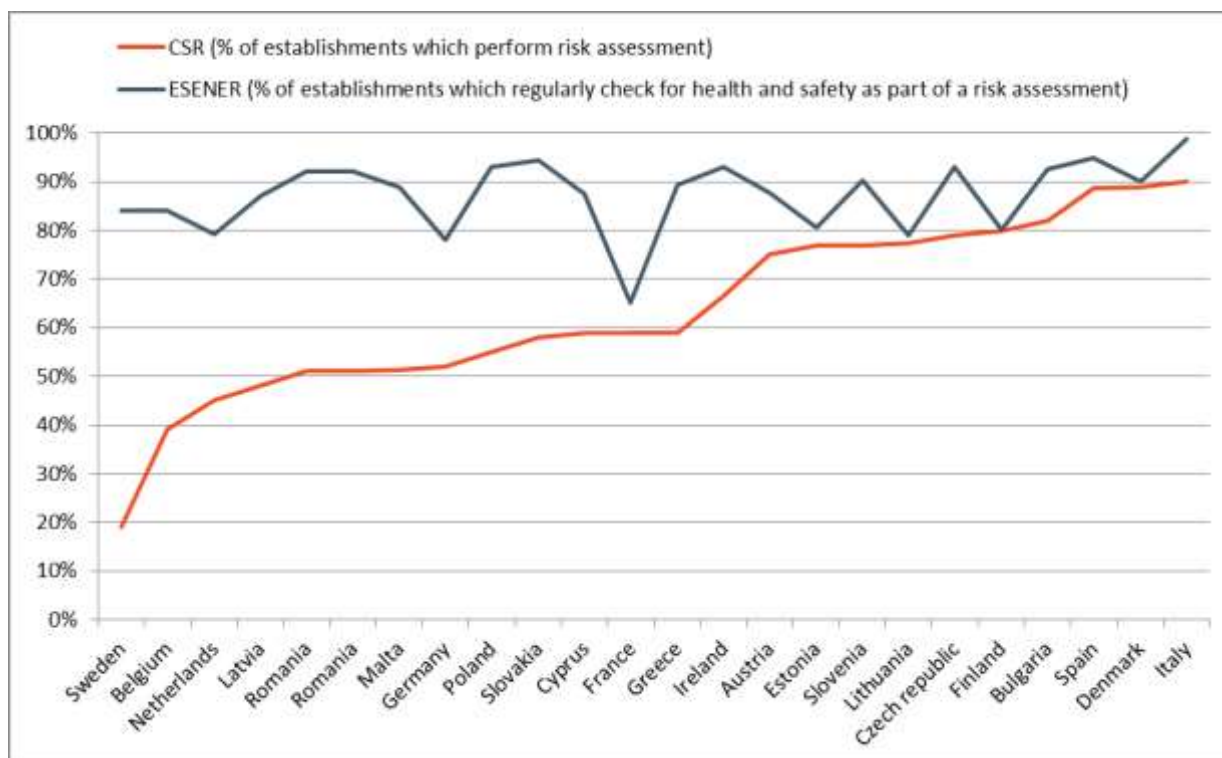
- › Apart from the CPMs, concrete workplace impacts are often extremely Directive-specific, such as, changing the office chairs according to provisions of the Display Screen Directive, or the substitution of chemical or biological agents with less harmful substances according to the provisions of the Chemical Agents Directive or the Biological Agents Directive, respectively. Unfortunately so long there is no data for workplace impacts such as these, they are not suitable for assessment at an aggregated level.
- › At EU-level the major source of compliance data are the ESENER surveys. As mentioned in the methodology section, we have obtained, in time for analysis, a report on the preliminary conclusions from the ESENER-2 findings (data from 2013). Unfortunately, the data itself is not available for calculation. Where appropriate, we will make comparisons between ESENER and ESENER-2 although significant differences in the base of surveyed establishments hinders trend analysis and direct comparison. The ESENER-2 survey has increased the population of establishments included in the scope of the survey from establishments with 10 or more employees in ESENER 2009 to cover establishments with five or more employees in ESENER-2. Thus, as the full ESENER-2 data set has not yet been released, we cannot facilitate comparisons by excluding the added population of establishments with 5-9 employees.
- › As outlined in section 4.1, differences exist in the way the OSH Directives have been implemented in the Member States in terms of level of detail, stringency, etc. and, as a corollary, the effort necessary in order to comply with the OSH requirements varies across the EU. In other words, what constitutes 'compliance' in itself differs across Member States. This issue is further exacerbated by the fact that, in the limited number of cases where specific accounts of compliance exist, these accounts are not based on a universal methodology. Despite common data collection tools and guidelines a methodological diversity to some degree persists in the assessments of levels of compliance made for the present report, which makes a direct comparison of the figures obtained difficult.

Despite these latter challenges in assessing national sources, in order to supplement compliance data at EU-level gathered through ESENER, we present comparisons with compliance for each CPM, drawing on the information provided by national experts in the CSRs and focusing solely on national sources (i.e. excluding ESENER data, unless this data was integrated in the overall assessment of compliance).³⁴

In order to illustrate the necessity of including national data sources, Figure 4-1 demonstrates the differences in MS compliance with the requirement to conduct risk assessments according to ESENER as opposed to the compliance according to national data sources.

³⁴ In those, cases where multiple assessments were provided in the CSRs without integrating the data provided, the data were integrated subsequently for the present analysis. The detailed data can be found in the CSRs.

Figure 4-1 Comparison of national and 2009 ESENER compliance data (% of establishments)



Source: CSRs, EU-OSHA: ESENER 2009, COWI analysis.

As shown, our analysis reveals a significant difference between the 2009 ESENER and the data based on national sources, in that levels of compliance estimated in the CSRs are somewhat lower in comparison to the 2009 ESENER data. Direct comparison between these figures is not always possible given the fact that the CSRs often provide ranges, rather than specific figures, to estimate compliance. For the purpose of the present evaluation, we have used the highest value indicated by the national experts. Therefore, the observed difference in compliance level is in reality likely to be even bigger.

Aware of these limitations and varieties, we shall focus, primarily, on compliance of the six CPMs as laid down in the Framework Directive and further specified in the individual OSH Directives. Firstly, however, we shall assess the overall level of compliance with the OSH acquis.

4.3.2 Assessment of overall compliance

The following assessment on overall compliance contains five additional sub-sections. Firstly, we present the overall assessment on compliance from a general perspective. Secondly, we present the analysis and conclusions on overall compliance of SMEs compared to larger establishments. Thirdly, we examine the influence of employee representatives on OSH compliance, and fourthly, we briefly compare compliance between the public sector and the private sector. To assist the reader keep track of the compiled data, we present a brief synthesis on the findings from all subsections in Assessment of overall compliance section 4.3.2.

General perspectives

In order to gain an insight into the overall level of compliance, from a general perspective, we asked EU stakeholders to provide us with an assessment on the perceived level of compliance for

each Directive. Figure 4-2 shows the aggregated average for each stakeholder group based on compliance scores for the individual Directive. In other words, it collates compliance scores for all Directives into one score, which represents the OSH acquis.

Figure 4-2 Perceived compliance with OSH acquis according to EU stakeholders



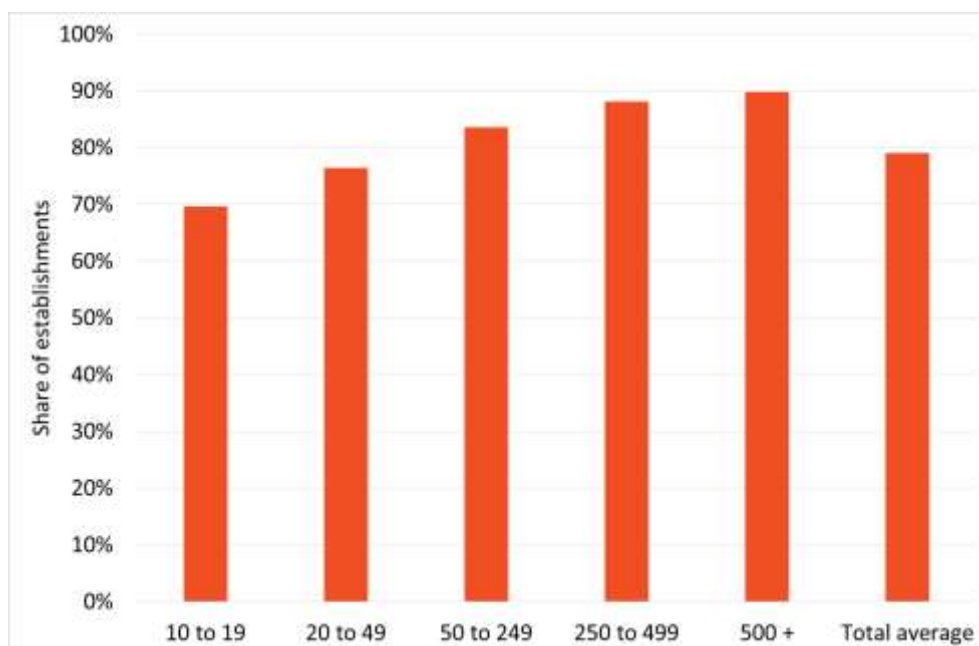
Source: EU stakeholder interviews (n=20).

Note: Scores from 1 to 5 indicate very low to very high compliance – based on stakeholder response to the question: "To what extent do your members comply with the key requirements outlined in the Directives? (rate on a scale of 1-5)"

According to EU stakeholder response, the degree of compliance with the OSH acquis, across MSs, is above medium (3.65). Generally, stakeholders representing employers are the most positive with an average score across Directives of 3.85, while both stakeholders representing workers and other stakeholders assessed compliance with the OSH acquis to be slightly lower (3.5). Caution should, nevertheless, be applied when interpreting this data. As discussed above, the levels of compliance vary across MSs, Directives and establishments (size of establishments, sectors, etc. – cf. the analysis below), therefore this assessment provides a fair indication on level of compliance, but not an entirely nuanced picture of the situation, in all Member States.

To supplement, we assess data from managers interviewed during the 2009 ESENER survey, who stated that their establishments either have a documented policy, an established management system or an action plan to ensure the health and safety of workers. The existence of an OSH policy in the preliminary assessment is a good indicator of compliance with the OSH acquis at EU-level. This data is presented according to size of establishment in Figure 4-3 below.

Figure 4-3: Establishments with a documented policy, established management system or action plan on health and safety



Source: ESENER (2009), MM155 (by size of establishment)

Note: Share of interviewed managers who answered 'Yes' to the question: "Is there a documented policy, established management system or action plan on health and safety in your establishment?"

Figure 4-3 shows that 79 % of interviewed establishments state that they have a documented OSH policy or action plan. These figures vary significantly from Member State to Member State. For example, within the group of establishments with 10 to 19 employees, Greece has for the lowest share (33 %), while, for the same group in the UK, ESENER reported a share of 98 %. For the group with large establishments, Poland has the lowest share (71%), while 100 % of the managers interviewed in Estonia, Latvia, Slovakia, Sweden and United Kingdom state that they have an OSH policy or action plan (ESENER; 2009, MM150). There is, however, possible bias on part of the respondents (management), which should be taken into account when assessing compliance levels for all establishment sizes. Overall, ESENER data seems to suggest that there is a reasonably high level of compliance, across the various establishment groups, despite significant variances between Member States.

Several contextual and environmental factors have contributed to the differences in compliance levels across MSs, including: supranational influences, the national governance and legislative systems described in MQ1 and MQ2 above, labour relations and employee representation, and socio-economic characteristics of the MSs (such as political influences, enterprise size and economic, workforce and labour market characteristics) (EU-OSHA, 2013c). Several of these determinants fall outside the scope of influence of the OSH legislation, and will therefore not be discussed here. However, as the underlying trajectory and paradigm of the OSH legislation, as well as the conceptual ideals that govern the design of the OSH acquis, have immense influence on national measures to transpose EU requirements, we shall briefly touch on one of these determinants, namely the impact of these national regulatory approaches on OSH compliance.

There are in fact, two elements to this discussion – one at MS-level and one at EU-level. At MS-level, the determinant concerns the impact of the difference in regulatory regimes in the MSs, where the Nordic countries, Ireland and United Kingdom have national goal-setting (i.e. process-

orientated) regulatory approaches to OSH management, which largely predates the Framework Directive by around 20 years (EU-OSHA, 2013c). Contrarily, other MSs have a more traditional management system with prescriptive legislative approaches embedded in the regulatory regime.

A study from EU-OSHA (2013c) establishes that the extent to which goal-setting regulatory approaches, as opposed to prescriptive ones, are embedded in the MSs legislative system (i.e. its existing institutions, systems and structures) significantly influence both implementation and operational outcomes of OSH management (EU-OSHA, 2013c). The study suggests that "regulatory systems with a longer tradition of process-based participatory OSH management which were, therefore, least challenged by the implementation of the Framework Directive are associated with greater levels of OSH management practice implementation." (EU-OSHA, 2013c: 8).

The challenges faced by MSs with a primarily prescriptive regulatory system and non-participatory traditions, depend in part on the MS's existing labour relations systems and in part on its level of maturity. According to the European Risk Observatory, a challenge often faced by newer MSs, or MSs with recently reformed OSH systems, is that the role of workplace representation tends to be poorly developed or supported in relation to OSH management. In other words, highly developed MSs, incorporating the EU OSH acquis have been challenged by their basis around institutions, structures and processes in which the conceptualisation of OSH is substantially different. Also, factors such as the role of regulatory inspection, the resourcing of appropriate training and information provision for worker representatives and the presence of strong trade unions with an active engagement in health and safety issues is highlighted in the study (EU-OSHA, 2013c).

At EU-level, the corresponding discussion concerns a lack of clear trajectory within the OSH legislation itself. While the Framework Directive is clearly goal-oriented (i.e. process-based) other Directives are significantly more prescriptive in their nature (e.g. the DSE Directive). One contributing factor to this diversity is a comprehensive tripartite policy dialogue and possible political compromises between MSs, when Directives were designed. This lack of clear trajectory within the OSH acquis may constitute a challenge for MSs when transposing the OSH acquis into national provisions. We shall return to the discussion of the impact on implementation, outcomes and challenges in the MSs of a prescriptive vs. goal-oriented legislative design of the OSH acquis continuously throughout this report, with the aim of identifying suggestions for a best policy practice approach to future OSH Directive amendments.

Another challenge to overall compliance expressed in national stakeholder interviews, and by national experts, is also associated with a lack of clear trajectory in relation to the overall design of the Framework and 23 individual Directives. Observations have been made that some confusion seems to exist at enterprise-level, which can be derived from an inconsistent inclusion of provisions on CPMs in the OSH Directives. For instance, that employers are at times inclined to believe that several risk assessments should be made (one for each applicable Directive). The confusion arises from the fact that although the CPMs stem from the Framework Directive, they are also (rather sporadically) included in the specific Directives to a varying extent. Some Directives contain specific provisions on all CPMs, while some only contain specific provisions on some of them. Also, when a specific CPM is included in a Directive, it may either contain additional detail or deviations from the CPM, as it is described in the Framework Directive, or it may simply be a statement that the CPM is applicable in accordance with the Framework Directive, although the latter is effectively already established through the application of the Framework Provisions.

In continuation of the discussion above, this may, in turn, be a reflection of the different regulatory approaches (goal-oriented vs. prescriptive), meaning that provisions on CPMs in some Directives

have been designed in accordance with more prescriptive traditions than reflected in the Framework Directive. We find that the logic and rationale behind the inclusion of CPMs in the specific OSH Directives are not inherently consistent or transparent.

In practice, we find that this problem is likely to have a limited influence on overall compliance at enterprise level (e.g. compliance is not necessarily reduced even if an employer mistakenly performs two risk assessments, as long as the subsequent OSH management is designed as one integrated, coherent action plan). It may, however, influence effectiveness of the OSH acquis at enterprise level, wherefore we shall discuss this issue further in EQE3 below.

Overall compliance in SMEs

In the following sections, we shall assess overall compliance from the perspective of SMEs, in order to establish the relationship between compliance and establishment size.

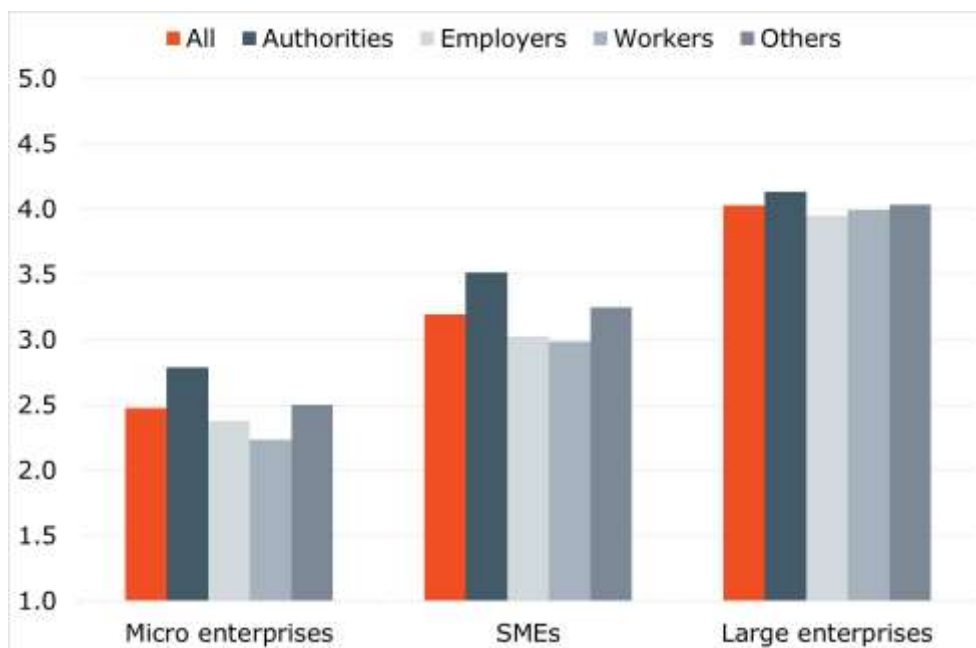
As depicted in Figure 4-3 above, ESENER shows that compliance appears to increase in accordance with the size of the establishment, from 70 % in establishments with 10 to 19 employees to 90 % in large establishments with 500 or more employees stating that they have a documented OSH policy. This tendency was also identified in a 2014 survey comprising 26,571 respondents, from different social and demographic groups, across the EU-28, called the Flash Eurobarometer 398 on working conditions (European Commission, 2014). The Flash Eurobarometer 398 survey establishes that larger establishments are more likely to have measures in place in order to prevent health problems or accidents at work.

The lower level of overall compliance in SMEs is applicable to several Directives, such as the Construction Directive, the ATEX Directive, the Medical treatment on board vessels Directive and the Vibration Directive (ref. the respective Directive Reports). However, in some Directives there is little or no difference in compliance levels for SMEs compared to larger establishments. Examples include the Biological Agents Directive (for which compliance, as mentioned, seems to depend on the core business of the establishments rather than their size) and AOR for which challenges with compliance are not limited to SMEs (ref. BA and AOR Directive Reports).

In order to give an indication of the general tendency identified when assessing compliance of the Directives, we can highlight the Work Equipment Directive as representative of the majority. According to the National Implementation Reports for the Work Equipment Directive, in approximately 40% of MSs, smaller enterprises are considered to have greater difficulty in attaining compliance than larger enterprises (this also means that 60 % of MSs do not report particular challenges to compliance for SMEs). This propensity is mirrored in several National Implementation Reports for other Directives, where Member States have elaborated on difficulties faced by SMEs in implementing Directives, while several MSs also emphasised the opposite (ref. e.g. the National Implementation Reports), namely that they have no evidence that SMEs experience greater difficulties than larger enterprises. Such mixed viewpoints are also valid for the Signs Directive (ref. NIRs on the OSH Signs Directive and the Signs Directive Report).

Through the national studies, we thus sought to establish whether there are in fact differences in levels of compliance depending on size of establishments as evidence suggests. We therefore asked national stakeholders to score on a scale from 1-5 the extent to which a given Directive had achieved behavioural impacts at the workplace level. Figure 4-4 shows the average aggregated scores made by the different national stakeholder groups for micro, small and large enterprises, respectively.

Figure 4-4 Impacts of OSH Directives on establishment behaviour according to national stakeholders



Source: Member State interviews, scores from stakeholder organisations in 22 MSs.

Note: Scores from 1 to 5 represents from very low to very high impact – assessed by the stakeholders by responding to the question: "to what extent has the national legislation transposing the Directive(s) you are commenting on affected establishments' behaviour for securing of OSH (rate on a scale of 1-5)?"

As the Figure shows, this tendency was largely corroborated during our data collection process. Though there are variances between Directives and Member States, it is an overall observation in the evaluation that national stakeholders assess compliance with Directive requirements as higher in large establishments compared to SMEs and micro-establishments.

Concerning large establishments, all stakeholder groups found the collected OSH acquis to have had an equally high impact on large establishments' behaviour giving an average score of 4 (ranging from 3.9 to 4.1 across stakeholder groups).

The aggregated scores of the national stakeholders for the Directives' impact on the behaviour of SMEs was somewhat lower than for larger establishments, with an average of 3.2. Interestingly, both employer and worker organisations, on average, agreed that the nationally transposed OSH legislation has had a medium impact on SMEs (3.0), while national authorities were more optimistic with an average score of 3.5. These findings provided by national stakeholders were corroborated during interviews with EU stakeholders, where 77% of the interviewees were of the impression that the SMEs within their respective areas are struggling more with compliance than larger enterprises (ref. EU stakeholder interviews).

This trend is further emphasised when observing the scores of the national stakeholders for microenterprises across Directives. Microenterprises were on average thought to have changed behaviour to a limited extent with an average score of 2.5. Once again the national authorities were the most optimistic, although still reflecting a relatively low impact with an average score of 2.8. Employer as well as worker organisations expressed considerable scepticism providing an average score across Directives of 2.4 and 2.2, respectively. However, it should be noted that the Figure only contains data from the national stakeholder groups that provided an actual quantification.

A few reasons were repeatedly used by national stakeholders during interviews as possible reasons for higher impacts in larger enterprises (many of which are also represented in the NIRs).

One reason mentioned during several stakeholder interviews is that large enterprises more often have dedicated OSH experts and/or departments that enable them to comply with international OSH standards (thereby ensuring workplace impacts). Another reason is that they often have well-established safety and health cultures partly developed through the accessibility of internal programmes and procedures, which are often a result of more financial resources than smaller companies. Finally, according to national stakeholders, large enterprises are often particularly concerned about company image and about bad safety and health stories in the media.

According to stakeholder interviews and National implementation Reports, the smaller impact of the OSH provisions on the behaviour of SMEs is most often a result of the SMEs, and in particular the microenterprises, facing difficulties in complying with transposed national legislation on occupational safety and health. Financial constraints were mentioned as the key reason for not being able to comply with provisions and to employ and acquire necessary expertise, technical capacity and knowledge (cf. Section 4.7 (MQ7) on SMEs and micro establishments, which contain references and quotes from the NIRs in question). This finding is in line with the European Commission's Evaluation of the European Strategy 2007-2012 on health and safety at work (European Commission, 2013b).

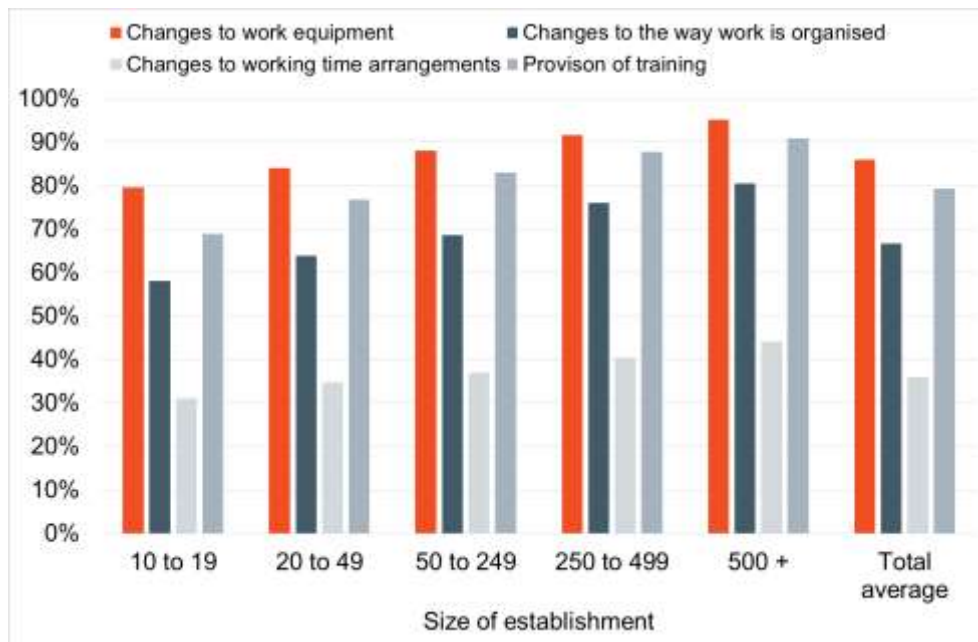
Another reason, often mentioned in interviews, and which is arguably closely related to the lack of financial resources, is a seemingly lower overall level of awareness of OSH issues as well as a lack of an internal safety and health culture within the smaller enterprises. Yet, a considerable number of stakeholders seemed to be of the opinion that the main problem was not in fact a lack of knowledge of the basic, overall risk factors as workers and employers are quite often aware of the risk associated with for instance handling of heavy loads, noise, asbestos etc. Rather, the main problem seemed to be a lack of technical knowledge of specific requirements, existing provisions and modes of minimising those risks.

ESENER data supported by with the Flash Eurobarometer 398 on working conditions thus indicate that larger establishments are more inclined to have a documented OSH policy than smaller companies (70 % of establishments with 10 to 19 employees compared to 90 % of large establishments with 500 or more employees). Yet, a management system alone does not ensure compliance. It is a prerequisite that necessary follow-up action is taken when a risk assessment or workplace check identifies a need for action in an establishment. According to surveyed employee representatives, this normally happens in 91 % of establishments, while needed follow-up action is only partly taken in 5 % of the represented workplaces (ESENER, 2009, ER210). According to ESENER data, it is thus very rare that follow-up action is not taken once a risk has been identified (2 % in both micro, SMEs and large establishments). Notably, SMEs are slightly more inclined to take necessary action (93 %) compared to large establishments (90 %), which more often then takes only part action (7 % of large establishments compared to 3% for SMEs).

Turning to the corresponding questionnaire for management, we are able to get an insight into what follow-up actions are most often taken. Figure 4-5 shows the share of surveyed establishments that have made changes to either the work equipment, to how work is organised, to working time arrangements or have made a provision of training as a result of a risk assessment or corresponding check of the workplace. The percentages illustrate establishments, which have indicated a given action, as a share of the total number of same-size respondents, and one establishment can have indicated more than one follow-up action. The Figure thus does not

provide insight into how often *one (any)* follow-up action was taken, but allows for comparison between the *frequency* with which the respective actions are used.

Figure 4-5 Follow-up actions performed as a result of a risk assessment or workplace check, by size of establishment



Source: ESENER (2009), MM166, by size of establishment

Note: Share of interviewed managers who replied to have performed one of the four reported actions when asked: "Which of the following actions have been taken as a follow-up to these checks [risk assessment]?"

As the Figure shows, for all sizes of establishments, the most common follow-up action is to make changes to the work equipment (e.g. change to less noisy or vibrating machines, replace office chairs, or modernize safety equipment). This has occurred as a result of a risk assessment or similar check in 86 % of surveyed establishments. The second most common follow-up action is to change the working time arrangements (79 % of establishment), followed by changing the organisation of work (67 %) and finally to provide additional training, which has only happened in 36 % of surveyed establishments. In other words, according to ESENER data, there is no notable difference in the preferred or needed follow-up actions as a result of company size. Finally, we can deduct from these figures that the larger the establishment, the more follow-up actions it tends to take. This is likely to reflect more diverse types of hazards in large establishments, which may require a wider range of actions, as well as existence of financial resources and capacities to implement a wider action plan based on identified risks.

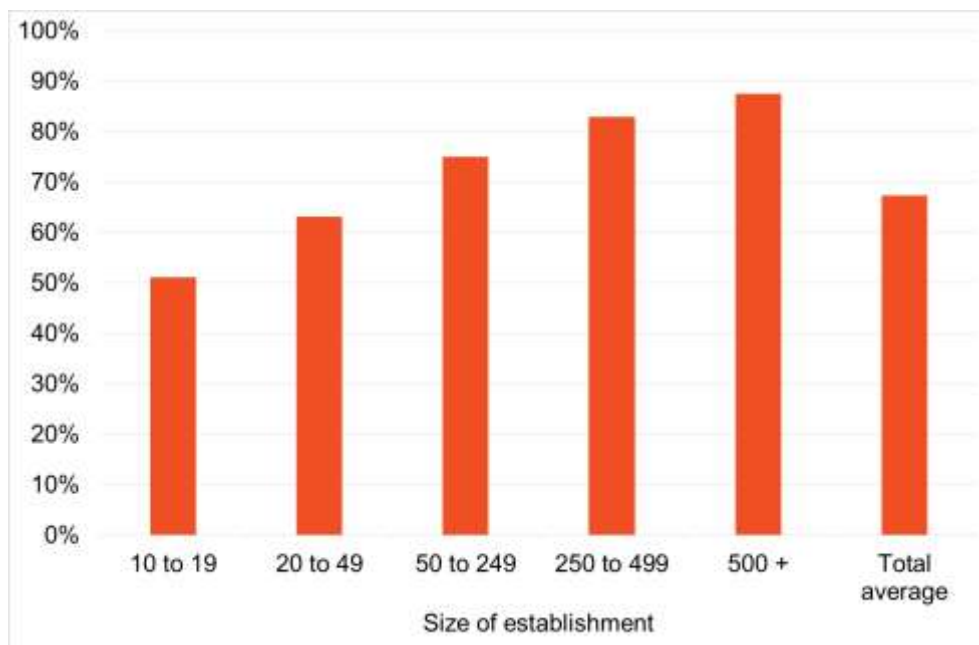
In order to shed further light on overall compliance levels, in the following section, we assess the influence of employee representation on the overall OSH compliance in the EU-27.

The influence of employee representatives on OSH compliance

The fundamental assumption behind the assessment of the impact of employee representatives on OSH compliance is that employee representation positively influences the communication between workers and management, as well as increases awareness of OSH issues, and thereby facilitates compliance with the OSH acquis in establishments.

First, we thus wish to establish the extent to which establishments have an internal safety and health representative. This information is provided in Figure 4-6 below by size of establishment.

Figure 4-6 Establishments with an internal health and safety representative



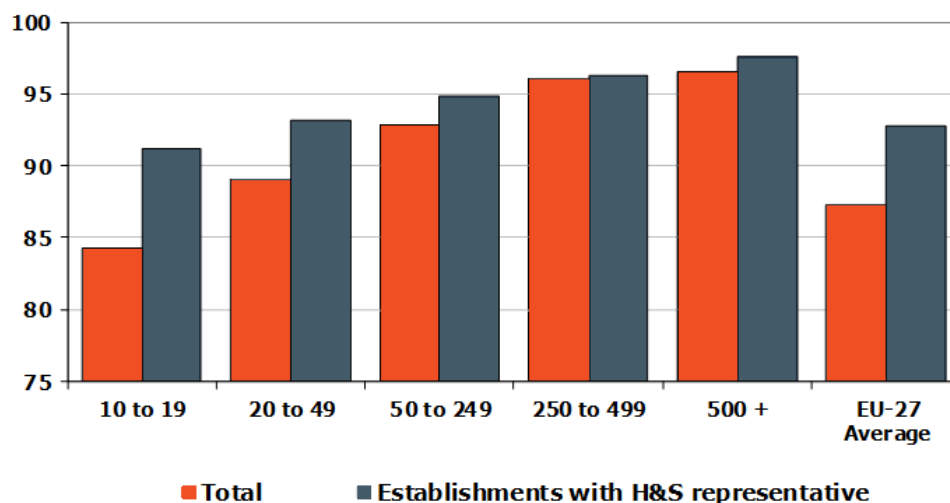
Source: ESENER (2009), MM355, by size of establishment

Note: Share of interviewed managers who reported to have an internal safety and health representative

As the Figure shows, 67 % of all surveyed establishments have an OSH employee representative. However, this figure increases considerably with the size of the establishment from 51 % in establishments with 10 to 19 employees to a large majority of 88 % in establishments with more than 500 employees.

To illustrate the connection between employee representation and OSH compliance, Figure 4-7 shows the share of workplaces that are regularly checked for safety and health by size of establishment for all establishments (with and without health and safety representation) compared to workplaces with a health and safety representative.

Figure 4-7 Workplaces regularly checked for safety and health: All establishments compared to establishments with employee representation



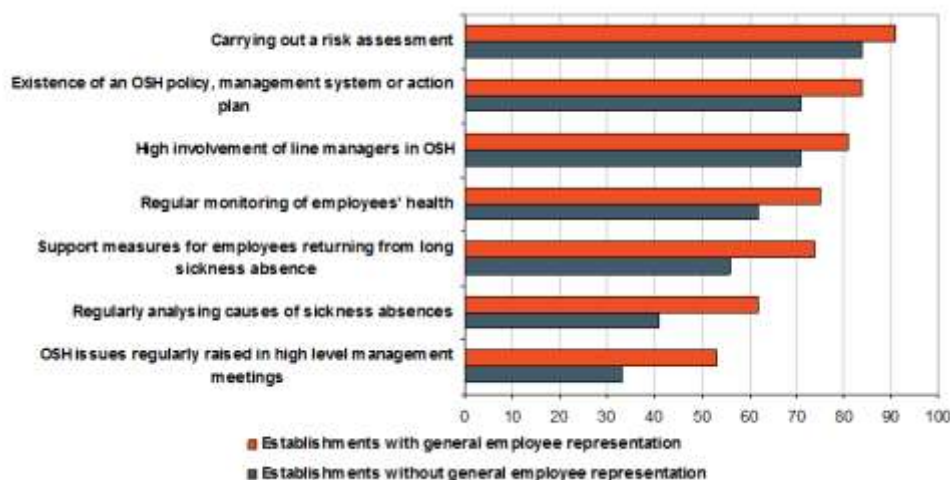
Source: EU-OSHA (2014b) – ESENER (2009)

Note: The absolute figures are no longer representative as newer data is available via ESENER-2 (presented in the analysis of risk assessments below, section 4.3.3). Yet, the correlation between the share of establishments performing risk assessments and the existence of a health and safety representative by size of enterprise still provides valuable insight into the influence of H&S representatives on OSH compliance, particularly in smaller enterprises.

The Figure illustrates that smaller businesses generally tend to check the workplace for safety and health risks to a lesser extent than large establishments. It also shows that SMEs are more inclined to perform risk assessments if they have an appointed safety and health representative, while practically all larger establishments that have an appointed safety and health representative also conduct regular safety and health checks of the workplace. This data thus seems to confirm the correlation between the existence of an OSH Employee Representative (ER) and the performance of risk assessments. As risk assessments are a significant prerequisite for OSH acquis compliance, this data seems to point to a marked influence of ERs on OSH compliance, particularly in smaller enterprises.

In extension of this analysis, we assess whether ERs can be said to have corresponding influence on compliance with other safety and health management measures. Figure 4-8 thus compares the level of compliance between establishments with employee representation and establishments without ERs with other OSH requirements, such as the existence of an OSH policy or management system (discussed above) or regular monitoring of workers' health (the total EU-27 average on risk assessments from the previous Figure is reinserted as the first line).

Figure 4-8 Health and safety management measures, by existence of a formal employee representation, % establishments, EU27

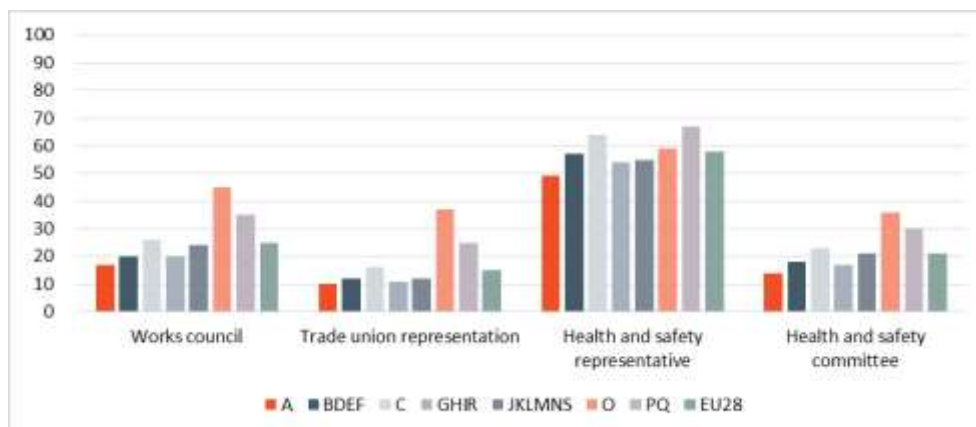


Source: EU-OSHA (2014b) – ESENER (2009)

The Figure illustrates that while ERs have noticeable influence on the share of establishments performing risk assessments, they have an even more pronounced impact on other key requirements. For instance, ERs significantly influence the extent to which causes of sickness absence are regularly analysed or the extent to which OSH issues are regularly discussed at high level management meetings. In light of this data, the fact that only half of establishments with 10 to 19 employees have an internal ER constitutes a considerable room for improvement of OSH compliance in SMEs.

Concerning the various forms of employee representation, ESENER-2 data is available to shed recent light on which forms of employee representation the establishments make most use of within various sectors. Figure 4-9 thus shows the share of surveyed establishments that have reported to have a work council, trade union representation, H&S representation and/or H&S committees in their establishments. Findings are listed within specific sector groupings defined by EU-OSHA (see the note under the Figure for further detail).

Figure 4-9 Forms of employee representation, by activity sector, % establishments



Source: EU-OSHA (2015), ESENER 2

Note: EU-28, Base: all establishments in the EU-28 – size depending on national thresholds for these representation forms. NACE Rev. 2 sections: A: Agriculture, forestry and fishing. B, D, E, F: Construction, waste management, water and electricity supply. C: Manufacturing. G, H, I, R: Trade, transport, food/ accommodation and recreation activities. J, K, L, M, N, S: IT, Finance, Real estate and other technical scientific or personal service activities. O: Public administration. P, Q: Education, human health and social work activities.

As illustrated, according to ESENER-2, health and safety representation is the most frequently reported form of employee representation, used in 58 % of establishments in the EU-28, compared to other forms of employee representation, such as trade unions. In the ESENER survey of 2009, this figure was approximately 69 % for EU-27, yet without the significant population of micro establishments with 5-9 employees (Figure 4-6).

Furthermore, we find that H&S representation is most prevalent among establishments in education, human health and social work activities (67%), manufacturing (64%) and public administration (59%). Notably, these findings are largely driven by establishment size (EU-OSHA, 2015), which further indicates that compliance is higher in larger establishments.

It is clearly positive that safety and health representation is the most prevalent form of employee representation. While, on the one hand, we may cautiously award some merit to the OSH acquis on this account, it is important to highlight that, as it is not currently possible to establish a trend (inter alia due to a lack of comparability with ESENER 2009), we cannot assess whether the proportion of organisations with safety and health representatives is in fact increasing or declining. We may also conclude that although it is positive that 58 % of surveyed establishments do have a H&S representative, this gap of 42 % constitutes significant room and potential for improvement of overall OSH compliance, particularly in SMEs (cf. Figure 4-7). There is a considerable lack of representation in some sectors, particularly in the Agriculture, forestry and fishing sector. This is worrying as the Agriculture, forestry and fishing sector is a high risk sector in the context of occupational safety and health.

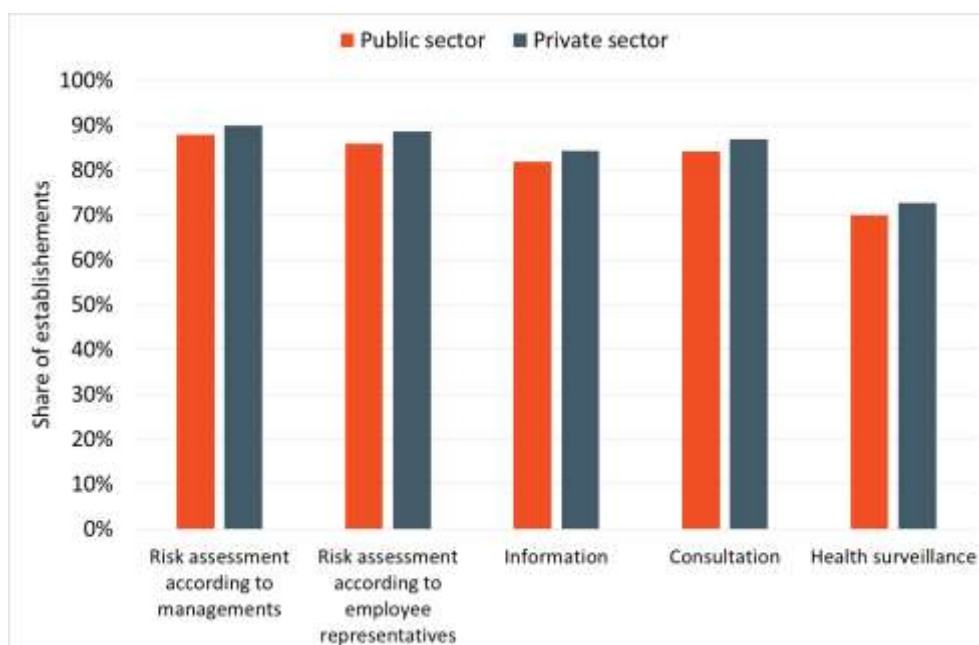
We may add to this that while 81% of surveyed ERs in 2009 stated that they got sufficient time off from normal duties to perform their OSH-related tasks adequately (ESENER, 2009, ER150 – this figure is not yet available in ESENER-2), room for improvement exists by aiming to impact employers to allow more time spent on OSH duties.

Compliance in the public sector compared to the private sector

Before presenting our conclusions on compliance with each CPM individually, we briefly assess the difference in compliance between establishments in the public and private sector.

Figure 4-10 shows a number of indicators for compliance extracted from the ESENER survey. It compares the results provided for establishments in the public sector to those in the private sector. The indicators refer to the CPMs and include the share of establishments that are regularly checked for safety and health as part of a risk assessment or similar measures according to management and employee representatives, respectively (the first two sets of columns). Furthermore, the figure shows compliance indicators for information, consultation and health surveillance (see exact survey questions in the note below the Figure).

Figure 4-10 Compliance with CPMs in the public sector compared to the private sector



Source: ESENER (2009), MM161, ER207, ER205, ER211, MM154 (by public/private sector, MM103)

Note: Share of respondents who answered 'Yes' to the following questions:

MM161 + ER205: Are workplaces in the establishment regularly checked for safety and health as part of a risk assessment or similar measures?

ER205: Are employees in this establishment regularly informed about safety and health at the workplace?

ER211: Are you as health and safety representatives usually involved in the choice of follow-up actions?

MM154: Is the health of employees monitored through regular medical examinations?

As shown in the Figure, for each CPM the share of private and the public sector establishments that comply with the OSH acquis is more or less identical (with 2-3 percentage points in favour for the public sector for all indicators). The same is true for the extent to which follow-up actions are performed upon the identification of risk factors in the two sectors, respectively (90.3 % in the public sector vs. 91.8 % in the private sector). This is likely a direct result of the fact that only five Member States (AT, CZ, FR, LU and PT) have implemented separate, distinct OSH legislation for the public and the private sector (ref. 4.1 - MQ1), and of these the legislation governing the public sector in AT and LU, respectively, largely refers back to the private body legislation.

If we compare these findings to the forms of employee representation that is depicted for the public sector in the previous Figure (Figure 4-9) this fits the conclusion of employee representation having a significant impact on compliance levels. According to ESENER-2, the public sector (cf. Nace Rev. 2 section O in Figure 4-9) has significantly higher employee representation relative to the other economic sectors when it comes to work councils, trade union representation and health and safety committees. Yet, the public sector does not have higher employee representation than the overall average across public and private sectors when it comes to safety and health representatives, which might otherwise have indicated higher compliance levels in the public sector.

On the other hand, the CSRs highlight multiple differences in compliance levels between the private and the public sector, although no unambiguous trend can be extracted. These differences are most notable in relation to the CPM consultation of workers. In Estonia, Germany, Italy, Poland and Sweden, the compliance levels with the CPM are reported to be higher in the public than in the private sector. In contrast, in Greece and to a certain extent in Portugal (as regards the appointment of employee representatives) the situation is reversed. Data to further quantify these conclusions are, however, missing.

As regards other CPMs, it is difficult to establish any trend at all based on national data reported in the CSRs. A few CSRs indicate higher levels of compliance in the public sector with respect to risk assessment (Netherlands, Poland and Slovakia) and training of workers (the Netherlands, United Kingdom). However, overall, the national data does not provide evidence to conclude that compliance generally tend to be neither higher nor lower in the public sector compared to the private sector (although if either, most evidence indicates a slightly higher level of compliance in the public sector).

During national and EU stakeholder interviews, other groups of enterprises were identified as having a lower level of compliance. These were start-ups companies compared to experienced companies, as well as companies within economic sectors that generally have low incidence rates of occupational injuries compared to those with higher incidence rates.

Synthesis of the findings from assessment of overall compliance

In sum, evidence suggests that the underlying trajectory and paradigm of the OSH legislation as well as the conceptual ideals that govern the design of the OSH acquis have immense influence on the application of national measures to transpose EU requirements. At MS-level, the determinant concerns the impact of the difference in regulatory regimes in the MSs, where the Nordic countries, Ireland and the United Kingdom have national goal-setting (i.e. process-orientated) regulatory approaches to OSH management, which largely predates the Framework Directive by around 20 years (EU-OSHA, 2013c). In contrast, other MSs have a more traditional management system with prescriptive legislative approaches embedded in their regulatory regimes. Evidence suggests that MSs with regulatory systems with a longer tradition of goal-oriented and participatory OSH management are associated with greater levels of OSH management practice implementation.

At EU-level, the corresponding discussion concerns a lack of clear trajectory within the OSH legislation itself. While the Framework Directive is clearly goal-oriented (i.e. process-based) other Directives are significantly more prescriptive. One contributing factor to this diversity is likely a comprehensive tripartite policy dialogue and possible political compromises between MSs, when Directives were designed. This lack of clear trajectory within the OSH acquis may constitute a challenge for MSs when transposing the OSH acquis into national provisions.

Observations have also been made that some confusion seems to exist at enterprise-level, which can be derived from an inconsistent inclusion of provisions on CPMs in the OSH Directives. In practice, we find that this problem is likely to have a limited influence on overall compliance at enterprise level. It may, however, influence effectiveness of the OSH acquis at enterprise level (which is discussed further in EQE3 below).

Strong evidence suggest that employee representation has noticeable influence on the share of establishments performing risk assessments and an even more pronounced impact on other key requirements. It is therefore clearly positive that safety and health representation is the most prevalent form of employee representation. While, on the one hand, we may cautiously award some merit to the OSH acquis on this account, it is important to highlight that, as it is not currently possible to establish a trend (inter alia due to a lack of comparability with ESENER 2009), we cannot assess whether the proportion of organisations with safety and health representatives is in fact increasing or declining.

Analysis of compliance data reveals that 70 % of establishments with 10 to 19 employees have a documented OSH policy compared to 90 % of large establishments with 500 or more employees. There is no indication that compliance is measurably higher in the public sector compared to the private sector.

Generally, most establishments, independent of size, take the necessary follow-up actions, once risks have been identified (91 %). However, SMEs are slightly more likely to take full action (as opposed to part action), while larger establishments seem to take more actions of different types than SMEs. Though there are variances between Directives and Member States, it is an overall observation in the evaluation that national stakeholders assess compliance with Directive requirements as higher in large establishments compared to SMEs and micro-establishments. This is supported by ESENER data on compliance, including the fact that safety and health representation is considerably less frequent in SMEs compared to larger establishments (e.g. only 51 % of establishments with 10 to 19 employees have an internal OSH representative), which further indicates that compliance with the OSH acquis is higher in larger establishments.

The smaller level of compliance in SMEs corresponds to the findings for several Directives, such as the Construction Directive, the ATEX Directive, the Medical treatment on board vessels Directive and the Vibration Directive. However, in contrast, some Directives have not resulted in differences in compliance levels for SMEs compared to larger establishments (e.g. Biological Agents Directive and the AOR Directive). This propensity is mirrored in several National Implementation Reports, where Member States have elaborated on difficulties faced by SMEs in implementing Directives, while several MSs also emphasised the opposite (ref. e.g. the National Implementation Reports), namely that they have no evidence that SMEs experience greater difficulties than larger enterprises.

4.3.3 Compliance with CPMs

This evaluation has looked into levels of compliance with common processes and mechanisms and key requirements of all Directives in order to obtain a better understanding of the effects of the Directives. The underlying rationale is that if requirements of the Directives are being complied with, this also indicates that the implementation of the Directives is a key explanatory factor in relation to possible health and safety outcomes. At MS-level, these findings are reported in the Country Summary Reports (CSRs), which provide a picture of the overall levels of compliance with

the CPMs. As Directive-specific key requirements are assessed at EU-level within the Directive Reports, the following subsections contains conclusions of overall compliance levels with the CPMs that transcend all OSH Directives and which are transposed through the Framework Directive, namely:

- › Risk assessment
- › Preventive and protective services
- › Training of workers
- › Information of workers
- › Consultation of workers
- › Health surveillance

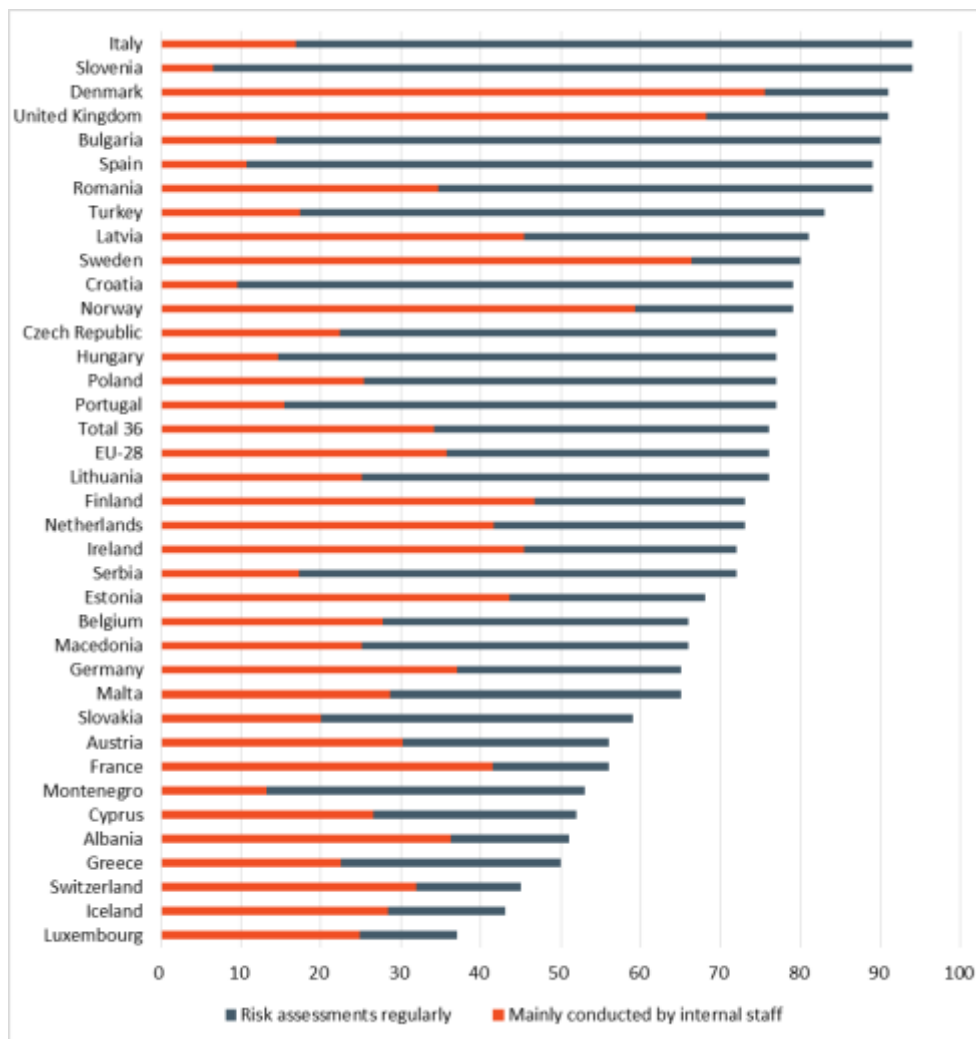
Risk assessment

The first CPM of the Framework Directive, and the cornerstone of implementation of the OSH acquis, is the requirement that enterprises shall regularly conduct risk assessments. The evaluation of this CPM has three focus areas that will be assessed individually. First, we examine the level of general risk assessment compliance by examining the extent to which risks assessments are regularly performed at establishments across EU-27. Secondly, we examine the mode of compliance, i.e. whether performed risk assessments are conducted by internal staff or external service providers, as existing literature and previous studies suggest that this may influence the quality and preventive effect of the risk assessments. Thirdly, we assess the issue of risk assessment compliance from the perspective of SMEs. Lastly, we provide a brief synthesis of the findings from entire risk assessment analysis.

General risk assessment compliance

A key indicator for the level of compliance is the extent to which risks assessments are regularly performed at establishments, and this is depicted in Figure 4-11 below. The first, coloured section of the bars illustrates the share of total performed risk assessments within a given MS that is mainly conducted by internal staff rather than external providers. As described above, we shall assess this data in the following sub-section.

Figure 4-11 Workplace risk assessments carried out regularly and risk assessments mainly conducted by internal staff, by country (% establishments).



Source: EU-OSHA (2015), ESENER-2

Note: EU-28, data on risk assessments mainly conducted by internal staff asked to those establishments that report carrying out risk assessments regularly. Percentages in the chart recalculated with respect to the total base of all establishments.

According to ESENER-2, 76% of all enterprises in EU-28 carry out risk assessments on a regular basis. However, as shown in Figure 4-7, the corresponding 2009 ESENER survey revealed that 83 % of interviewed EU-27 enterprises with 10 to 19 employees and 96 % of establishments with 500 employees or more replied that they perform risk assessments on a regular basis (i.e. a total of 88 % of all establishments in EU-27). The 2013 compliance levels, as shown in ESENER-2, are thus somewhat lower than in 2009. Possible explanatory factors behind this development include:

- › The increase of the population of establishments included in the scope of the survey to encompass establishments with five or more employees in ESENER-2. Seeing as the share of establishments to conduct risk assessments on a regular basis is generally lower for smaller companies, this change of survey population is likely to account for a significant share of the

difference in compliance figures (if not all)³⁵. However, as the full ESENER-2 data set, which would allow for comparison between ESENER and ESENER-2 by excluding the added population of establishments with 5-9 employees, is not yet released, we cannot establish a trend.

- › In 2008 EU-OSHA performed a campaign on risk assessment in cooperation with all Member States. This may have caused an immediate rise in the share of enterprises performing risk assessment. While this fact could have resulted in some decrease in compliance as the effect of the campaign gradually wore off, it is not likely to have caused a decrease of this scale.

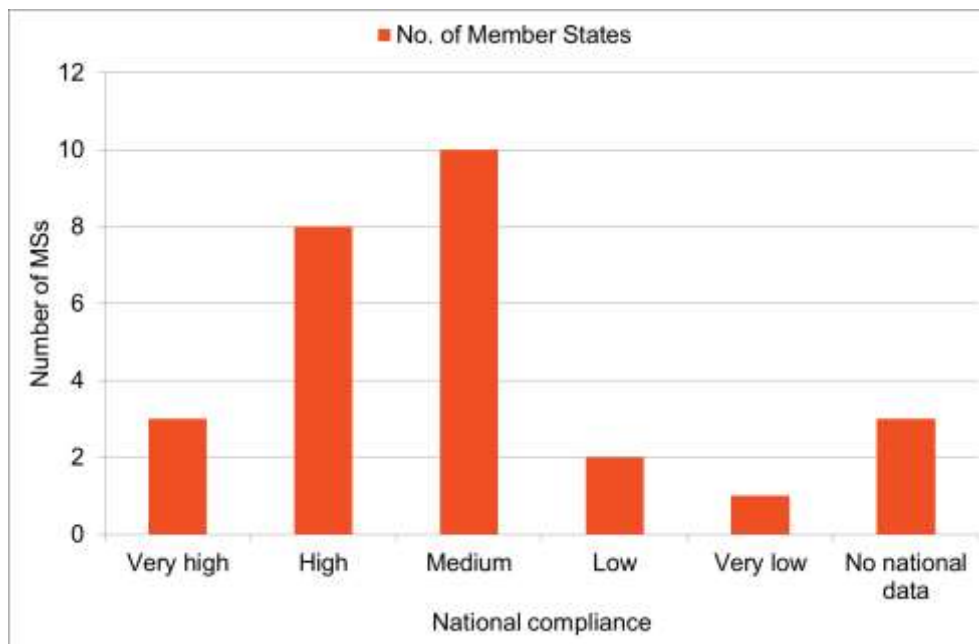
In addition, Figure 4-11 shows that compliance varies considerably from MS to MS, ranging from 94 % of establishments in Italy and Slovenia down to 37 % in Luxembourg (EU-OSHA, 2015). In general, however, it seems that the level of compliance with the CPM of risk assessments is relatively high in most MSs with Luxembourg as the only MS in which less than 50 % of establishments perform risk assessments on a regular basis.

However, in the Country Summary Reports, national experts have provided estimates of compliance based on available data. These may either build on ESENER data (as Figure 4-11 above) or on alternative national data sources in cases where national surveys or studies have been conducted. Comparison of such compliance data across MSs reveal that national data tend to present substantially lower compliance figures than ESENER data does (cf. the CSRs and EU-OSHA, 2013c). For instance, a national survey from Latvia from 2011 indicates that a full risk assessment was made in only 27 % of enterprises with 1–10 employees, 54.8 % with 11–49 employees, 65.2 % with 50–249 employees and in 55.2 % of establishments with 250 and more employees (Vanadzins and Matisane, 2011, quoted in EU-OSHA, 2013c). According to ESENER-2, approximately 80 % of all Latvian establishments perform risk assessments on a regular basis. This significant difference may be testament to an often cited critique of ESENER and similar surveys, namely that respondents tend to be from enterprises in the better end of the OSH management spectrum. Caution should therefore be made, when interpreting EU-level survey data on compliance.

As described in section 4.3.1, Figure 4-12 compares the ESENER data to the compliance levels estimated by national experts based on national, non-ESENER, data sources. The Figure groups the MSs into six categories of compliance: Very high, high, medium, low, very low and those MSs with no national, non-ESENER, data upon which to base estimations.

³⁵ Please note that Croatia, who joined the EU on 1 July 2013, raises the EU-average and that this enlargement therefore does not explain the decrease in the relative share of enterprises that perform risk assessments on a regular basis.

Figure 4-12 Levels of compliance with the CPM to perform risk assessment (no. of Member States)



Source: CSRs and COWI analysis.

As illustrated in the figure above, in a majority of the Member States, compliance with the CPM is medium or high, although major differences exist between large establishments, SMEs and microenterprises. In those Member States where breakdown according to the size of establishment is available, compliance levels range from very low/low (micro establishments) to very high, nearing 100%, in large companies. The available national data do not, however, make use of the same categorisation of companies according to size, nor are data available from all Member States, wherefore a direct comparison of the available figures is not possible.

Nevertheless, as concluded in the evaluation of the Framework Directive, despite variations between MSs, risk assessments are generally regarded by both national and EU-level stakeholders as the most important CPM for applying a risk prevention culture in establishments, i.e. for ensuring compliance with OSH acquis (ref. Framework Directive Report). That being said, some compliance issues are not related to MSs but to the provisions and characteristics of individual Directives. For instance, the Pregnant Workers Directive has given rise to some shortcomings in compliance at enterprise level, mainly because employers find it difficult to identify special risks for pregnant and breastfeeding women (i.e. to include this aspect into the risk assessment), and secondly, because they find it difficult subsequently to identify suitable work accommodations (red. Pregnant Workers Directive).

Similarly, in the context of the Fishing Vessel Directive, according to national stakeholders in the marine sector, risk assessments tend to be outdated or missing. Many national stakeholders explain that the general requirements to risk assessments are not suited for vessels and that specific procedures / provisions for risk assessments should be established, which may deviate from or add to those of the Framework Directive (ref. Fishing Vessel Directive Report). Similar conclusions pointing to a need for Directive-specific requirements to the risk assessment procedure has also been reached in other Directive Reports (ref. e.g. Biological Agents Report, Vibrations Report, the AOR Report and the Mining and Quarrying Report). If stakeholders do not see and comprehend the benefit at enterprise level of performing a risk assessment, this is likely to reduce the share of establishments that perform the risk assessment.

Compliance, however, is not only a matter of frequency, i.e. making a risk assessment regularly. If employers do not understand the concept and benefit of risk assessments, it is also likely to reduce the resources (in terms of commitment as well as money and time) put into the activity on part of the establishment, most likely to the detriment of its quality, which is also an aspect of non-compliance.

In the following sub-section, we assess the impact of risk assessments performed by internal staff compared to external service providers. Although ESENER is not designed to capture non-compliance on account of poorly performed risk assessments, this data may add additional insight.

Risk assessments performed by internal staff vs. external service providers

The underlying rationale behind analysing data on internal vs. external performance of risk assessments is that evidence suggest that risk assessments performed by external service providers more often result in a lack of subsequent anchoring in the establishment. This may in turn entail that performing a risk assessment becomes a formality, which does not ensure risk reductions or prevention in the establishment. This is for instance witnessed in Spain, where experts identify this phenomenon as one of the main obstacles to progress in the field of health and safety at work in Spain (EU-OSHA, 2013c). Risk assessments are performed by internal staff in approximately 10 % of cases in Spain (Figure 4-11). A national expert in Spain points out that a result of the externally performed risk assessments is that OSH planning and management, within the establishments themselves, based on own expertise, are virtually non-existent outside larger enterprises.

A similar example of this is reported from another case study in Bulgaria, where risk assessments are performed by internal staff in less than 15 % of cases (cf. Figure 4-11). According to a national expert report in the European Risk Observatory, there are serious concerns about the quality of the risk assessments made by occupational health services, whose assessors are frequently not qualified. Risk assessments are referred to as 'tick-box' exercises of frequently poor quality (EU-OSHA, 2013c).³⁶

Although, the two MSs are amongst the Member States with the highest share of externally conducted risk assessments, these case studies are examples and thus not representative of the quality of externally conducted risk assessments across MSs. However, as shown, some evidence seem to suggest that the use of external services reduces the need to maintain in-house expertise. This in turn is also likely to impact on the position of health and safety generally within an organisation's business and priorities.

If we return to Figure 4-11, we find that the share of risk assessments being performed by internal staff varies considerably between MSs. According to ESENER-2, the highest share is found in Denmark (76% of establishments), the United Kingdom (68%) and Sweden (66%). The lowest shares are found in Slovenia (7%), Croatia (9%) and Spain (11%). It should be kept in mind that some MSs may have a legal obligation to contract OSH services to complete risk assessments on the behalf of management (EU-OSHA, 2015). This seems to suggest a gradient from MSs with a predominately goal-oriented regulative approach to OSH management at the higher end of the

³⁶ It should be noted that the study also report a general feeling among labour inspectors that OSH management activity is increasing and improving in quality, with better quality risk assessment and infrastructural support for OSH management. With the recent ESENER-2 data, we can conclude that the share of internally performed risk assessments remain low, but we have no information of a potential increase in quality.

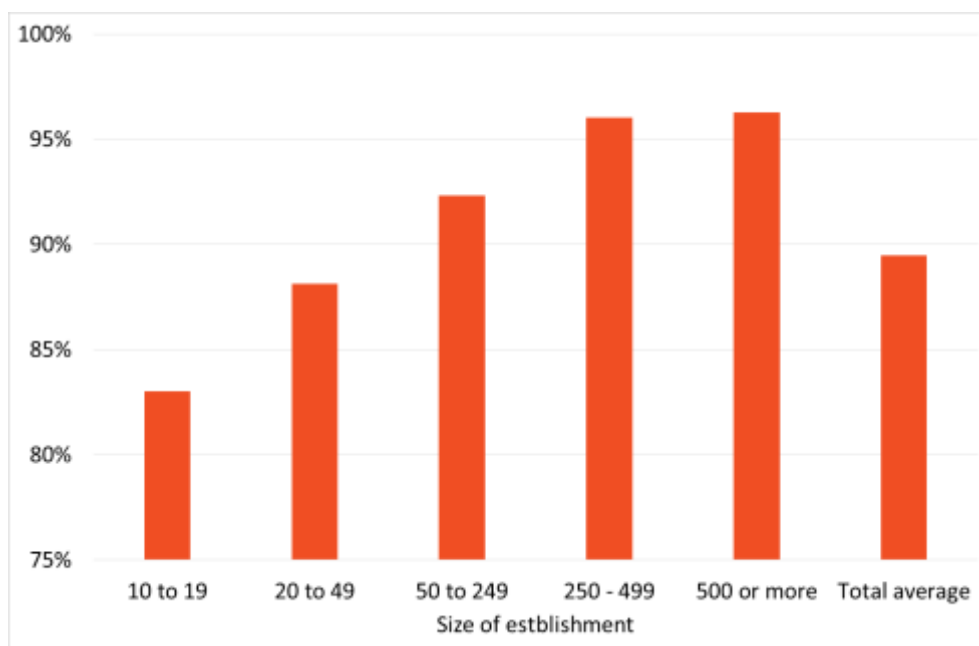
spectrum to the Baltic States with a predominately prescriptive approach at the lower end (cf. Figure 4-11 and ref. EU-OSHA, 2013c). This may with some caution be interpreted to suggest that regulatory context and characteristics are in fact influential in terms of the approach to OHS management at enterprise-level as discussed in the subsection above. Performance of risk assessments, thus, do not necessarily ensure risk reductions. As insightfully highlighted in the European Risk Observatory, this fact raises the fundamental question "of how the use of external services to carry out risk assessments fits within the Framework Directive's principles of prevention and protection through a coherent overall policy" (EU-OSHA, 2013c).

Risk assessments in SMEs

In this subsection, we expand on the above analysis by analysing compliance with risk assessments with a specific focus on SMEs.

To do so, we need to segregate the data on the share of establishments that perform regular checks on safety and health risks as part of a risk assessments (presented in Figure 4-11) by size of establishment. However, as ESENER-2 data is not available for recalculation, we shall examine compliance levels based on ESENER data. Figure 4-13 below thus shows the share of interviewed managers, whose establishments are regularly checked for safety and health as part of a risk assessment or similar measure, by size of establishment.

Figure 4-13 Workplaces regularly checked for safety and health as part of a risk assessment or similar measure, by size of establishment



Source: ESENER (2009), MM161, by size of establishment

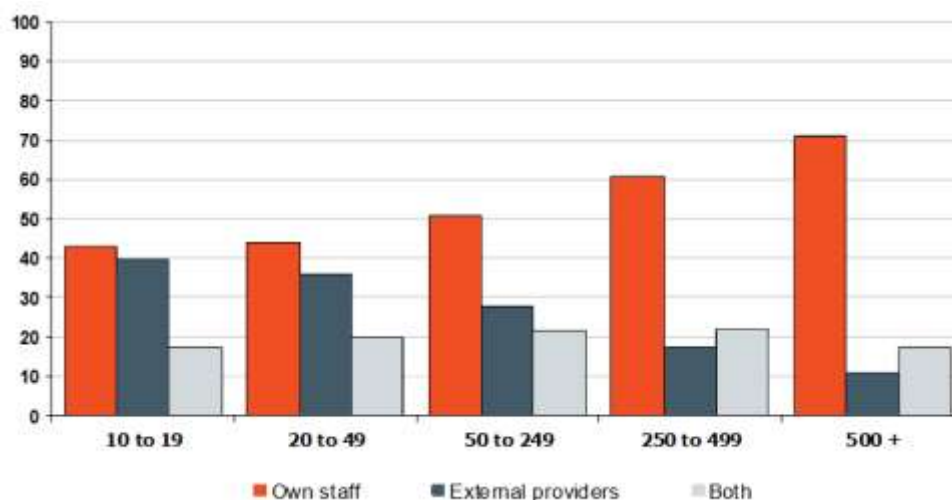
Note: Share of managers that replied 'yes' to the question: Are workplaces in your establishment regularly checked for safety and health as part of a risk assessment or similar measure?

The Figure shows a clear correlation between the share of establishments that regularly undertake risk assessments and the number of employees. This finding is much in line with the analysis of overall compliance discussed above, including data collected from both EU and national stakeholder interviews. Please notice that the ESENER-2 survey, as discussed, contain lower compliance levels for various reasons (i.e. 76% of all enterprises in EU-28 carry out risk assessments on a regular basis), and that the ones depicted above are thus not the most recent

figures. Nevertheless, the Figure serves to illustrate a correlation that seems to be representative according to qualitative evidence and other ESENER-2 data (e.g. the fact the employee representatives are more common in larger establishments, combined with the finding that they have notable impact on compliance levels).

In light of the influence that the choice of internally or externally performed risk assessments seems to have on the quality of the risk assessments as well as its effect on OSH management, we assess whether this choice is influenced by company size. This correlation is depicted in Figure 4-14 below.

Figure 4-14 Risk assessments performed by internal staff, external providers or both, by size of establishment



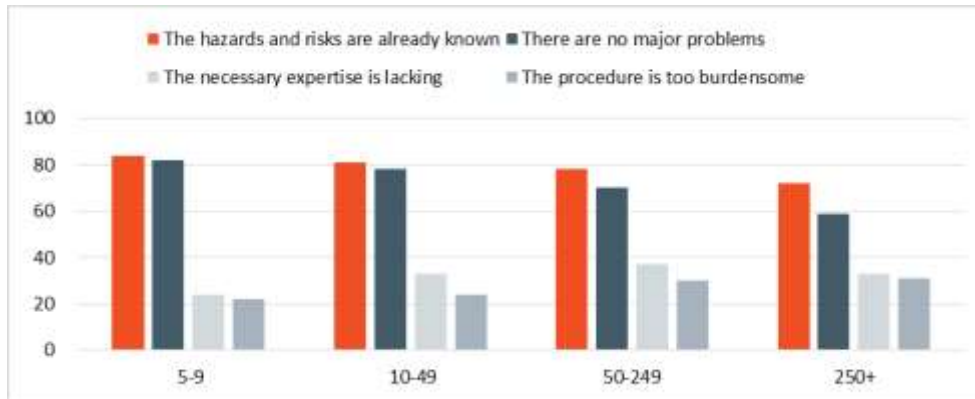
Source: ESENER 2009, MM161

As the figure shows, ESENER (2009) data clearly shows that the share of risk assessments being performed by internal staff increases along with the size of the establishment – a correlation that is confirmed in the recent ESENER-2 data (EU-OSHA, 2015). This correlation reflects the fact that large enterprises have the necessary human resources to perform risk assessments in house, while micro enterprises and SMEs are forced to acquire the service from external providers, while having less financial resources at their disposal.³⁷ A possible consequence of this correlation is that, while risk assessments seem to be regularly performed in SMEs to a rather high extent, they may not have the same quality as in larger establishments, nor to the same extent result in an OSH management approach that is integral to the particular business and priorities of the SME.

Finally, Figure 4-15 below shows the 24% percent of surveyed enterprises from ESENER-2 that did not perform risk assessments on a regular basis and their reported reasons for not doing so, by size of establishment.

Figure 4-15. Reasons why workplace risk assessments are not carried out regularly, by establishment size (% establishments, EU-28).

³⁷ In an attempt to remedy this problem, EU-OSHA has launched a tool called Online interactive Risk Assessment (OiRA) to help SMEs perform risk assessments online (cf. MQ4 below).



Source: EU-OSHA (2015), ESENER-2

Note: The Figure shows the shares within establishments where risk assessment or similar measures are not carried out, EU-27.

As illustrated, for all enterprise sizes, the most cited reasons are the fact that hazards and risks are already known and that establishments believe themselves to have no major problems. This is particularly mentioned as the main reasons in micro businesses with 5-9 employees with 84% stating that they already know the existing hazards and 82% of establishments stating that (consequently) they have no major problems. In comparison, 59% of establishments with more than 250 employees believe that no major OSH problems exist at the workplace, which indicates a high level of risk awareness in larger establishments. However, these findings clearly raise the question whether these SMEs actually have fewer problems, or they are simply less aware of workplace risks (EU-OSHA, 2015).

Furthermore, in extension of the above analysis, it is interesting to note that the smallest enterprises, which are most likely to acquire external assistance for the performance of risk assessments, are the least inclined to report a lack of necessary expertise as the main reason for not conducting a risk assessment. Likewise, according to ESENER-2 data, SMEs themselves do not seem to find that the risk assessment procedure is too burdensome (or at least, this is not the overall reason for not conducting a risk assessment). This data seemingly contradicts the findings from the national stakeholder interviews, during which the opposite viewpoint was often expressed, as well as multiple entries in the NIRs, as discussed in Section 4.3.2 on overall compliance (see also MQ7, Section 4.7).

One possible explanation may be deduced from a study of 41 SMEs in the UK that explores the impact of interventions on compliance with health and safety law in order to produce a framework for understanding how SMEs make compliance decisions (Fairman and Yapp, 2005). Fairman and Yapp found that SMEs tended to view compliance as the outcome of an external intervention rather than an on-going process requiring regular internal review. As a consequence, all studied SMEs believed that they were in compliance (i.e. 'that hazards and risks are already known' and that 'there are no major problems'), when in fact occupational health problems were present in at least 54 % of them. Non-compliance was linked with harm, and an underlying assumption was therefore that, if no harm was experienced then the establishment must be in compliance. If they were not in compliance, SMEs believed that external actors would let them know, that they would adjust according to received instructions and would then again be in compliance (Fairman and Yapp, 2005). As a result, compliance was viewed as a process SMEs were involved in but not primarily responsible for. This ultimately sums up to a distinction between a lack of recognition of non-compliance as opposed to a lack of awareness. Fairman and Yapp explains one consequence of

this distinction: "The remedy to lack of awareness is more information. More written and impersonal information will not make the SMEs in this study any more aware of their non-compliance because they will filter it, not perceive the conditions in their businesses as having anything to do with the legal requirements, and ultimately ignore it."

Although no quantitative evidence is currently available to support this notion, Fairman and Yapp's perspective on SMEs' perception of compliance may provide a possible bridge between the apparent contradiction between the ESENER-2 findings and the substantial qualitative data collected during this evaluation, which links the risk assessment procedure to administrative and financial challenges in SMEs. According to the results produced by Fairman and Yapp, SMEs would believe themselves to be in compliance, which entails choosing one (or both) of the two first response options, rather than refraining from conducting a risk assessment on account of lacking expertise and burdensome procedures. If 'already being in compliance' is the perceived baseline of SMEs, then Figure 4-15 gives little information on the extent to which SMEs do in fact find the procedure burdensome or not. Clearly, these latter considerations are not based on solid evidence and should not be regarded as such. They may, however, point a challenge associated with interpreting survey data without full knowledge of the survey population.

Synthesis of risk assessment compliance

The first CPM of the Framework Directive, and the cornerstone of implementation of the OSH acquis, is the requirement that enterprises shall regularly conduct risk assessments. According to ESENER-2, 76% of all enterprises in EU-28 carry out risk assessments on a regular basis, although compliance varies considerable from MS to MS ranging from 94 % of establishments in Italy and Slovenia down to 37 % in Luxembourg. National data generally places compliance at a slightly lower level at medium to high. In general, however, it seems that the level of compliance with the CPM of risk assessments is relatively high in most MSs. The most common reasons for not conducting risk assessments on a regular basis are the fact that hazards and risks are already known and that establishments believe themselves to have no major problems.

Some challenges with compliance stemming from provisions and characteristics of individual Directives have also been identified. For instance, the Pregnant Workers Directive has given rise to some shortcomings in compliance at enterprise level, mainly because employers find it difficult to identify special risks for pregnant and breastfeeding women (i.e. to include this aspect into the risk assessment), and secondly, because they find it difficult subsequently to identify suitable work accommodations (red. Pregnant Workers Directive).

Compliance, however, is not only a matter of frequency. If employers do not understand the concept and benefit of risk assessments, this is likely to reduce the resources (in terms of commitment as well as money and time) put into the activity on part of the establishment, most likely to the detriment of its quality, which may also constitute non-compliance. In this context, evidence from case studies in Bulgaria and Spain suggests that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring in the establishment in comparison to risk assessments performed by internal staff. This in turn may entail that risk assessments become a formality, which does not ensure risk reductions or prevention in the establishment, which is likely to impact on the position of health and safety generally within an organisation's business and priorities.

Data on the share of risk assessments being performed by internal staff varies considerably between MSs, with the highest share found in Denmark (76% of establishments), the United

Kingdom (68%) and Sweden (66%). The lowest shares are found in Slovenia (7%), Croatia (9%) and Spain (11%). However, some MSs may have a legal obligation to contract OSH services to complete risk assessments on the behalf of management (EU-OSHA, 2015). This seems to suggest a gradient from MSs with a predominately goal-oriented regulative approach to OSH management at the higher end of the spectrum to the Baltic States with a predominately prescriptive approach at the lower end (cf. Figure 4-11 and ref. EU-OSHA, 2013c). This may with some caution be interpreted to suggest that regulatory context and characteristics are in fact influential in terms of the approach to OHS management at enterprise-level as discussed in the subsection above.

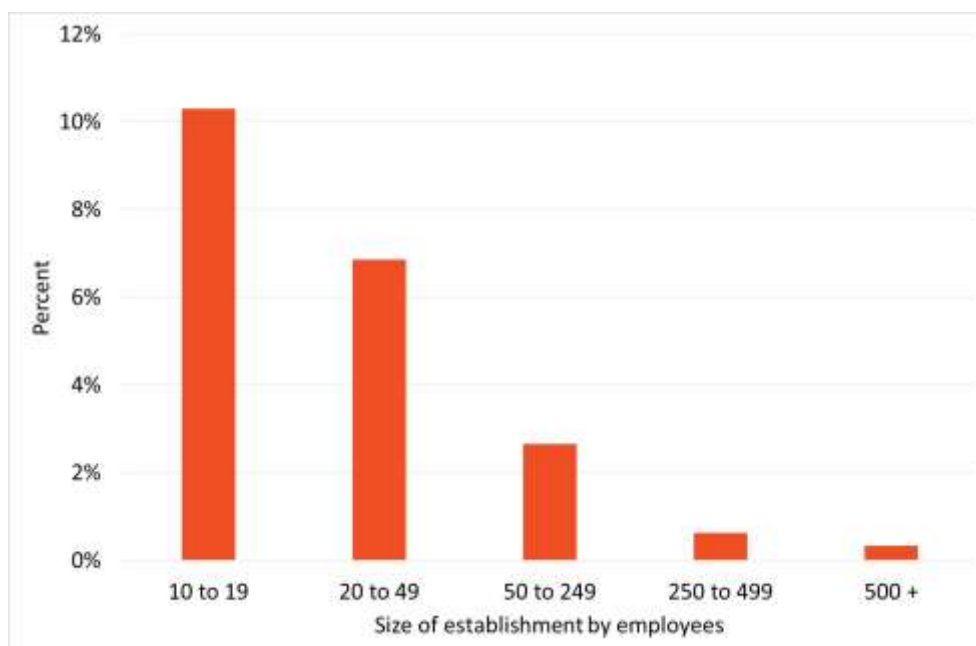
In the context of SMEs, we find that the share of establishments that regularly undertake risk assessments increase with the size of establishments. The same pattern shows for the use of internal staff when conducting risk assessments, as SMEs are more inclined to hire external service providers for the task. A possible consequence of this correlation is that, while risk assessments seem to be regularly performed in SMEs to a rather high extent, they may not have the same quality as in larger establishments, nor to the same extent result in an OSH management approach that is integral to the particular business and priorities of the SME.

Preventative and protective services

The second CPM concerns the obligation of employers to designate one or more people to carry out activities related to the protection and prevention of occupational risks (in-house competencies or externally contracted). Very little data exist on this point, as MSs, as mentioned, do not monitor the level of establishment compliance.

However, during the 2009 ESENER survey, managements were asked to define which of the following health and safety service they used in their establishments: An occupational health doctor, a safety expert, a psychologist, an ergonomics expert, a general health and safety consultant or none of the above. If we isolate the share of managers who reported to have none of the health and safety services assigned to the establishment, which were provided as response options, we get an indication of the level of non-compliance with the CPM of preventive and protective services. This data is presented in Figure 4-16 below by size of establishments.

Figure 4-16 Establishments with no preventive and protective services (non-compliance), by size of establishment



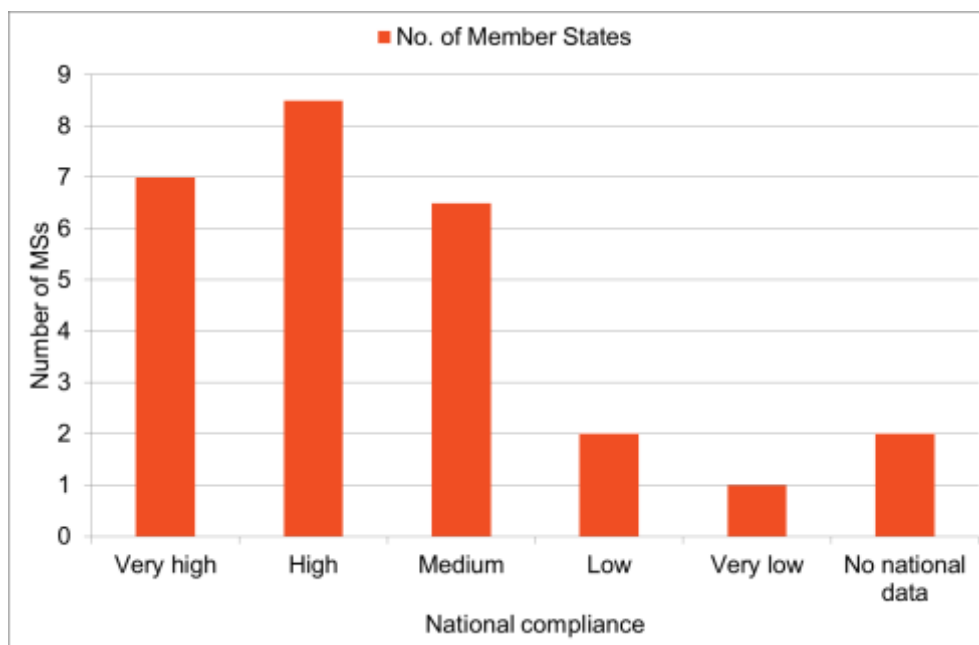
Source: EU-OSHA: ESENER (2009) – MM150

Note: Figure shows the proportion of managers, who replied to have none of the provided options for the question: "What health and safety services do you use, be it in-house or contracted externally?" by size of establishments.

This Figure shows that indicative non-compliance increases as the number of employees drops. Interestingly, less than 1 % of managers in establishments with more than 250 employees replied to have no preventive and protective services. However, some caution should be made when interpreting these proportions as equal to non-compliance, because managers have not in fact stated that they have no preventive and protective services all together. Adjustment for this reservation would entail an even lower level of non-compliance than portrayed in the Figure. However, if we build on the assumption that the proportion of establishments that have another health and safety service assigned to the establishment without also having any of the above is very small, the data may be regarded as indicative of the minimal level of non-compliance. In light of EU-OSHA's extensive experience in the field of occupational safety and health, we find it reasonable to assume that the provided response options do cover the large majority of safety and health services applied at enterprise-level.

On the other hand, non-compliance can also correspond to in-sufficient use of preventive and protective services, i.e. low quality, rather than quantity as is measured by ESENER. It is therefore more likely that non-compliance is somewhat higher than illustrated above. Overall, this level of compliance seems unrealistically high compared with compliance levels for the other CPMs presented in this chapter (see below) as well as with national compliance estimates presented in the CSRs, illustrated in Figure 4-17.

Figure 4-17 Levels of compliance with the CPM to ensure protective and preventive services (no. of Member States)



Source: CSRs and COWI analysis.³⁸

The figure shows that the level of compliance in the Member States is generally either medium, high or very high. However, national experts point out that major differences exist in compliance levels in micro/SMEs and large establishments. According to national data, compliance levels range from very low/low (micro establishments) to very high (large companies).

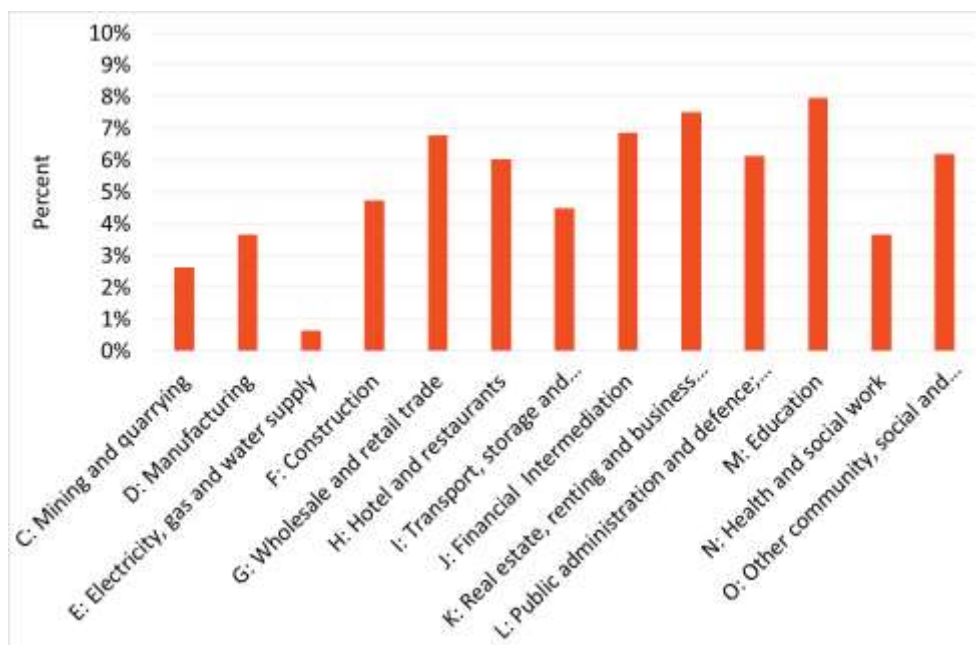
Unfortunately, as discussed in the assessment of risk assessment compliance, ESENER data is not designed in a manner that allows for an evaluation of the quality of reported OSH measures, and thus does not showcase non-compliance caused by in-sufficient quality. However, as evidence suggests that risk assessments performed by external health service providers, to some extent tend have a smaller impact on OSH management (cf. the analysis of risk assessments performed by internal staff vs. external service providers), we may cautiously apply a similar train of thought in the context of preventive and protective services. In an analysis of the outsourcing of preventive and protective services (in times of economic crisis), Márquez (2013) discusses the fact establishments that outsource to external prevention services do not always experience the same level of ownership and consequential risk reduction. As in the case of externally performed risk assessments, outsourcing prevention and protective services are more common in establishments with less than 50 employees "due to the difficulty of organising risk prevention with their own resources, especially in the case of micro-enterprises" (Márquez, 2013:9). Marquez concludes that companies should strive to carry out preventive tasks with their own resources, while external prevention services may take on a complementary role.

Outsourcing of OSH protection and prevention services for enterprises with insufficient in-house capacity is thus not without risk. It may cause employers to be less involved with their obligation in terms of prevention, and thus lead to an underestimation of safety and health issues.

³⁸ Where the national experts were unable to estimate the levels of compliance by providing a single compliance range (1-5), the entire range provided has been taken into consideration when making the analysis.

However, although the compliance levels suggested by ESENER may be artificially low, this reservation applies to all enterprises. We may therefore nevertheless apply the data for comparative purposes. Figure 4-18 below thus segregates the same group of respondents illustrated in Figure 4-16 above, by economic sector rather than size of establishments.

Figure 4-18 Establishments with no preventive and protective services, by sector



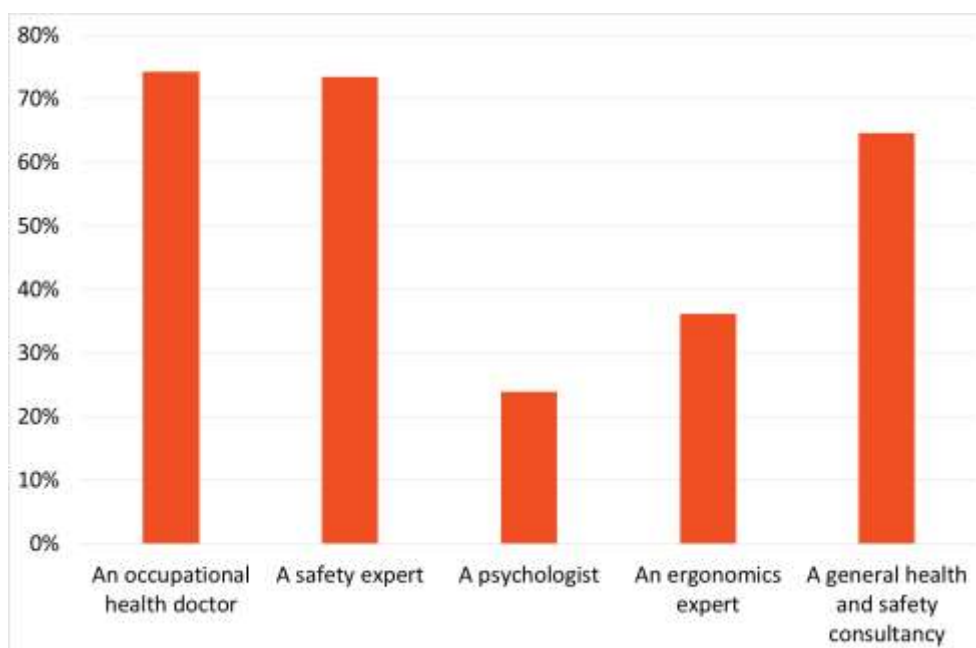
Source: EU-OSHA: ESENER (2009) – MM150

Note: Figure shows the proportion of managers, who replied to have none of the provided options for the question: "What health and safety services do you use, be it in-house or contracted externally?" by economic sector (NACE Rev. 2).

Thus, as above, the actual shares are hardly representative of EU compliance, yet the figure illustrates that compliance is higher in sectors characterised by high levels of occupational accidents and diseases, such as Mining and quarrying, Manufacturing, Electricity, gas and water supply and Health and social work.

Turning from non-compliance to compliance, Figure 4-19 illustrates, which specific preventive and protective services are most used at enterprise level.

Figure 4-19 Types of health and safety services in use, % of establishments



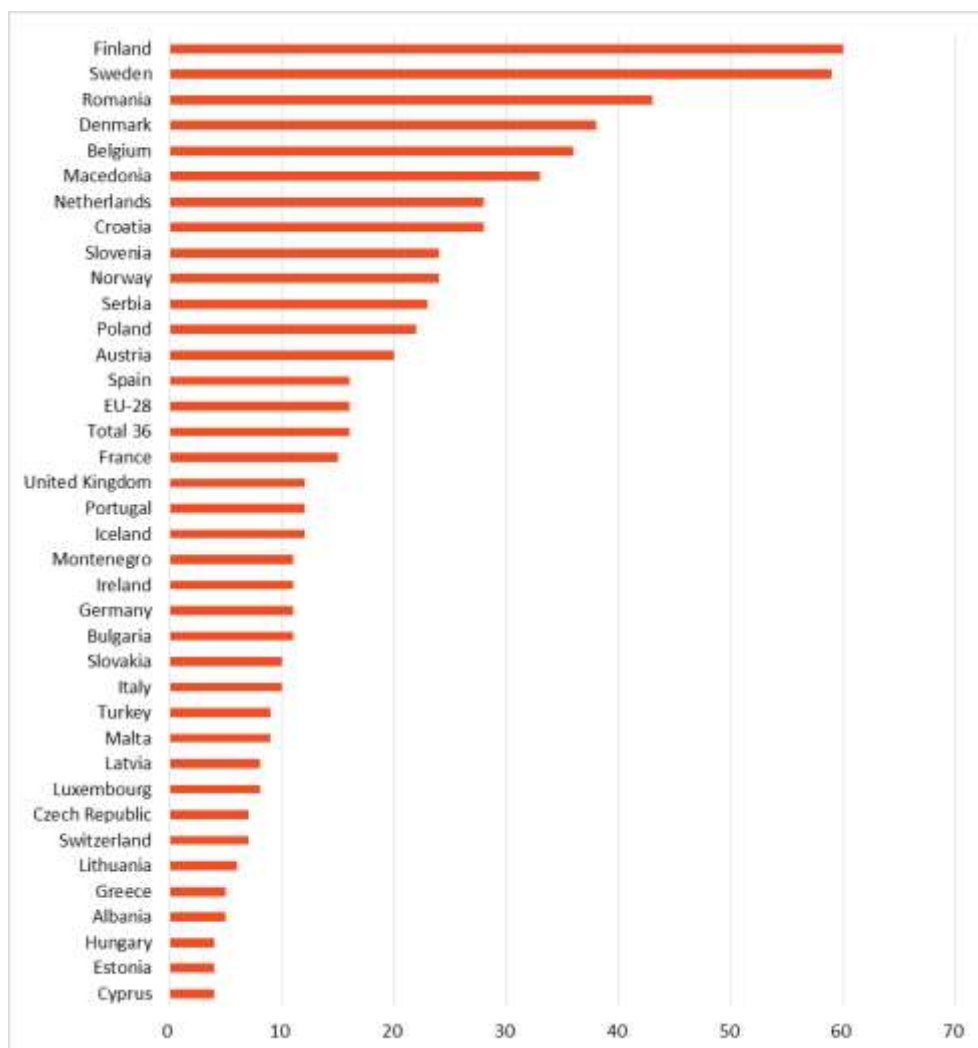
Source: EU-OSHA: ESENER (2009) – MM150

Note: Figure shows the share of managers with a positive answer, for each kind to the question: "What health and safety services do you use, be it in-house or contracted externally?"

As illustrated in Figure 4-19, 74 % of managements reported to have an occupational health doctor assigned, 75 % reported to have a safety expert and 65% reported to have a general health and safety consultancy assigned. In comparison, only 24 % reported to make use of a psychologist and 36 % of an ergonomics expert. While these issues may also fall under the scope of a general health and safety consultant, the Figure illustrates that emerging risks such as psycho-social risks and risks related to musculoskeletal disorders (MSD) are only addressed specifically by field experts to a limited extent by preventive and protective services.

Available ESENER-2 data provides additional insight into the use of a psychologist in establishments. Figure 4-20 thus shows the proportion of managements that reported to have a preventive and protective psychologist assigned to their establishment (i.e. 24 %) by Member State.

Figure 4-20 Use of a psychologist, in-house or contracted externally, by country (% establishments).



Source: EU-OSHA (2015), ESENER-2

Note: Data contains 36 countries, i.e. EU-28 plus Macedonia, Norway, Serbia, Iceland, Montenegro, Turkey, Switzerland and Albania. As the actual ESENER-2 data base is not available, these countries cannot be excluded from the assessed population. However, as the average shares for EU-28 and the total 36 countries are identical (16%), the consequential fluctuations are assessed to be minimal.

First, we see that with the incorporation of enterprises with 5-9 employees into the ESENER-2 survey population, the share of interviewed establishments, who reported to make use of a psychologist was reduced to 16 % in 2013 and was thus 8 percentage points lower than reported in ESENER 2009 (cf. Figure 4-20). Secondly, we see that the use of psychologists vary significantly from MS to MS with approximately 60% of Finnish and Swedish establishments making use of a psychologist, while that share is 10% or less in as many as 11 Member States.

In sum, it is difficult to establish an actual compliance level with the CPM of preventive and protective services across Member States. However, we find that SMEs and micro enterprises seem to have a higher degree of non-compliance and also seem to rely extensively on external providers for preventive and protective services. Compliance tend to be highest in sectors which have traditionally been acknowledged to have more occupational accidents and diseases, such as Mining and quarrying, Manufacturing, Electricity, gas and water supply and Health and social work.

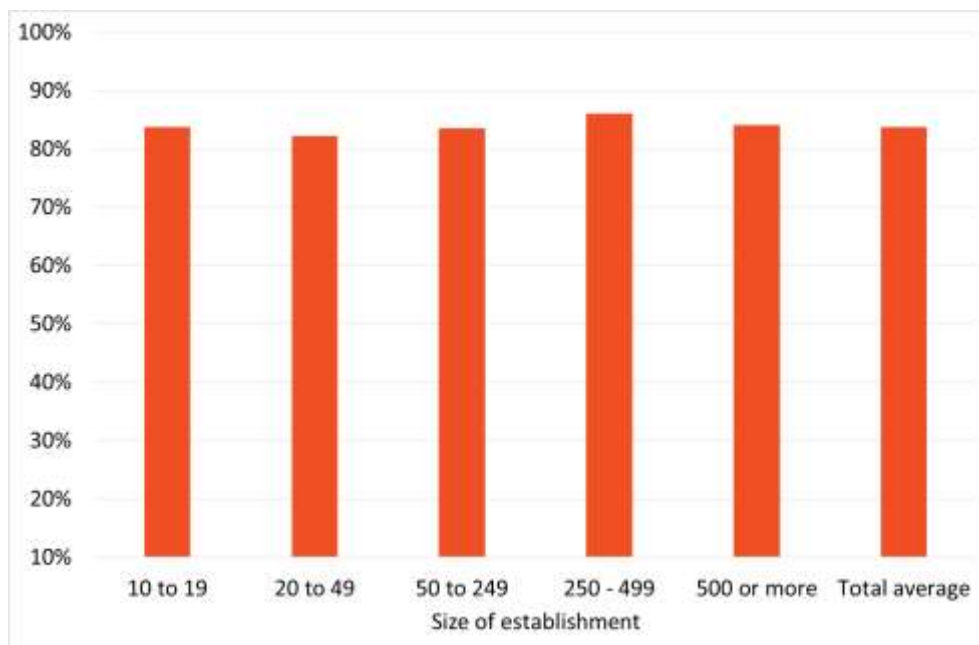
Furthermore, evidence suggests that psycho-social and ergonomic risks are addressed by specific experts to a limited extent, although it should be noted, that these issues might be covered by a general health and safety consultancy.

Information of workers

The third CPM of the OSH acquis introduced by the Framework Directive is the obligation to inform workers and/or their representatives of any safety and health risks as well as protective and preventive measures and activities.

To provide insights on compliance with this CPM, Figure 4-21 shows the share of surveyed employee representatives who report that workers at their establishments receive information about safety and health at the workplace on a regular basis.

Figure 4-21 Establishments within which workers are regularly informed about OSH



Source: EU-OSHA: ESENER (2009), ER205, by size of establishment

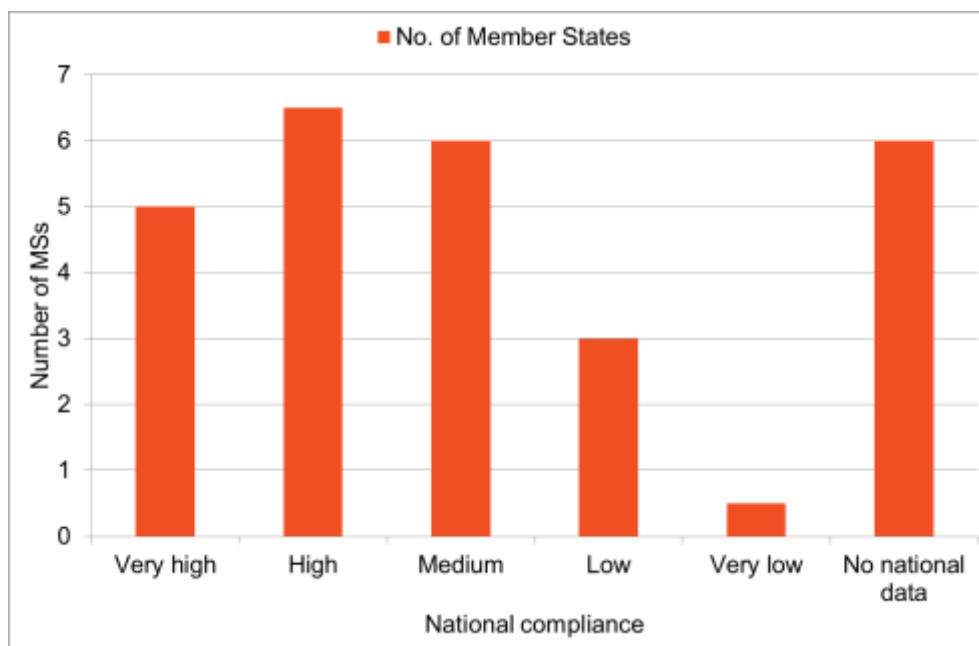
Note: Figure shows the share of employee representatives with a positive answer to the question: "Are employees in this establishment regularly informed about safety and health at the workplace?"

As illustrated in Figure 4-21, the large majority of establishments with employee representation complies with this provision, as 84% of employee representatives reply that workers are regularly informed about safety and health at the workplace. Notably, the figure shows a very limited fluctuation on compliance across different sizes of establishment.

If we assess a similar indicator on information, we see the same tendency. Hence, when employee representatives are asked whether management provides the necessary information for carrying out health and safety tasks properly, 88 % confirms and this compliance level is the same across all sizes of establishments (ESENER, 2009, ER154).

In Figure 4-22, we compare this ESNER data to compliance levels as suggested by national experts.

Figure 4-22 Levels of compliance with the CPM to provide information to workers (no. of Member States)

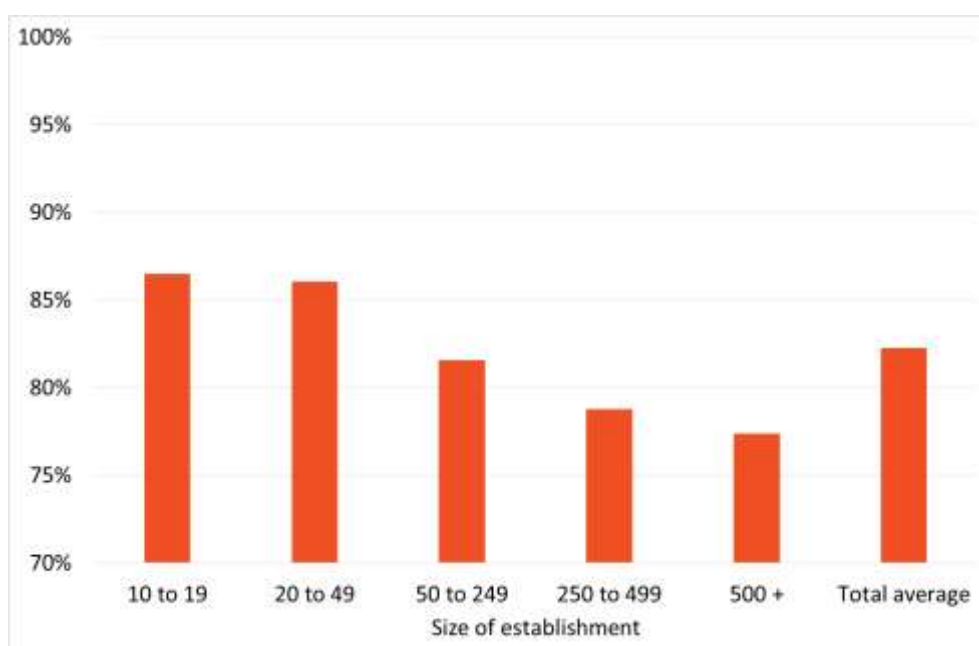


Source: CSRs and COWI analysis.

As shown in the figure above, compliance levels with the CPM vary across Member States although the large majority resides in the high end of the spectrum. 8 Member States highlighted differences in the compliance levels between micro/SMEs and large establishments. In comparison with the two CPMs presented above, the national experts were not always able to quantify these differences since data is scarcer.

Figure 4-23 shows a follow-up on to the ESENER questions and shows the proportion of employee representatives who receive their information on time and without having to ask management for it.

Figure 4-23 Employee representatives that receive safety and health information on time and without having to ask for it.



Source: EU-OSHA: ESENER (2009) – ER205.

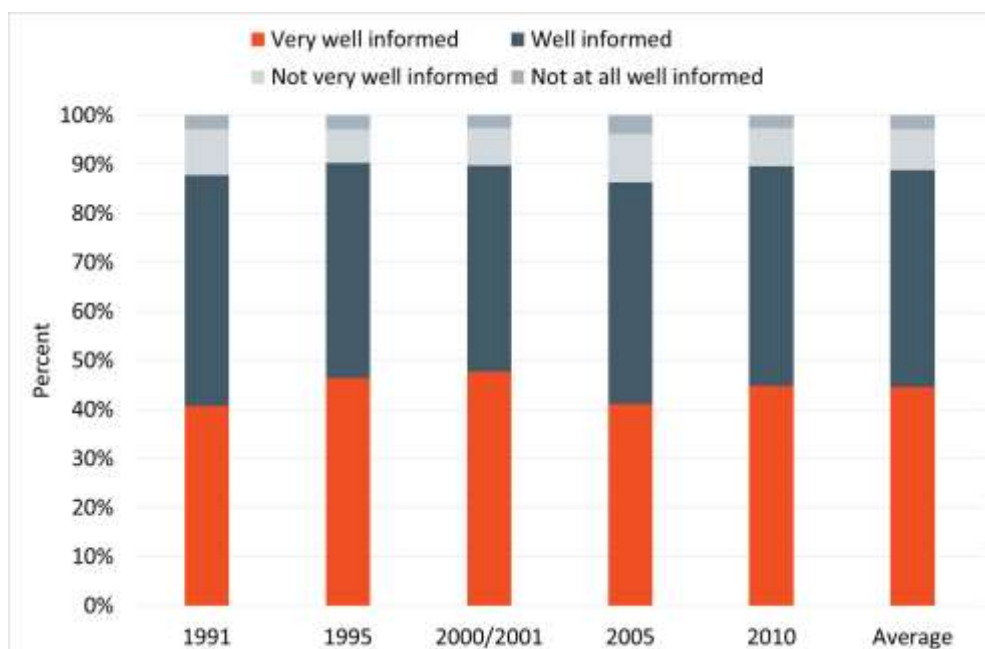
Note: Figure shows the share of employee representatives with a positive answer to the question: "Do you usually receive the information on time and without having to ask for it?"

Interestingly, although compliance remains high for all sizes of establishments, the Figure shows a reversed compliance trend compared to data presented for the previous CPMs. In establishments with 10 to 19 employees, 86 % of representatives reported to receive information in due time and without having to ask for it. This figure is slightly lower (77 %) in establishments with 500 or more employees.

While general findings represent a high level of compliance, one reservation should be made in relation to the presented ESENER data, namely that the figures represent those companies that have elected an employee representative to begin with. These figures do not therefore contain data from the 31 % of establishments that do not have an ER, and which are therefore likely to display a lower degree of overall compliance than establishments without employee representation as illustrated in the assessment on overall compliance.

However, as with all CPMs, compliance is also dependent on quality, which in this case entails that information is sufficient for workers to manage safety and health risks at the workplace. To provide insight into the quality of the information provided, shows the extent to which workers interviewed as part of the European Working Conditions Survey feel very well informed, well informed, not very well informed or not at all well informed on health and safety risks encountered at work. This data is available for five consecutive surveys and thus shows reported responds for all EWCS surveys performed in the period from 1991 to 2010.

Figure 4-24 Quality of safety and health information, trend 1991-2010



Source: Eurofound: EWCS – Q30 (2010), Q12 (2005), Q13 (2000/01), Q10 (1995), Q10 (1991).

Note: Data for 1991 and 1995 only cover EU-12. Survey question for the year 2010: "Regarding the health and safety risks related to performance of your job, how well informed would you say you are?" Survey question for the year 2000: "Would you say you are very well informed, fairly well informed, not very well informed or not at all well informed about the risks resulting from the use of materials, instruments or products which you handle in your job?"

As shown in Figure 4-24, information received by workers on OSH is generally considered informative and sufficient, as 90% of respondents feel well or very well informed of OSH measures. This assessment has remained fairly constant over the years despite e.g. EU enlargements and slight alterations to the wording of the survey question. Notably, this Eurofound data does not reflect the opinion of ERs, and is as such a more representative indication of compliance at worker-level.

This high level of compliance with the requirement to provide information to workers about safety and health risks at the workplace is largely confirmed in the Directive-specific Reports although some exceptions exist. For instance, compliance with the CPM seems to be limited in the context of the Display Screen Equipment Directive, not on account of the quantity but rather of the quality of information provided to workers on ergonomic issues. Another example includes Young Workers Directive, in relation to which analysis shows that the share of young people reporting being well-informed has decreased from 1991-2010, whilst the level of other (older workers) making the same report remained relatively stable.

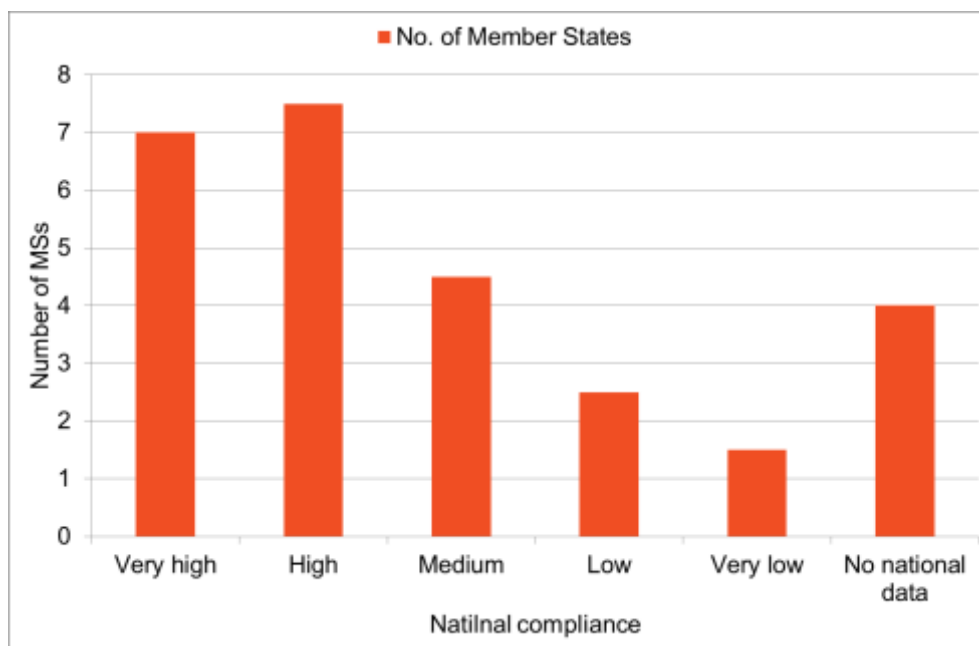
In sum, evidence suggest that compliance with the CPM on general OSH information of workers across MSs is high and the quality of the information provided seems adequate. This high level of compliance seems constant across all sizes of establishments.

Training of workers

Regular information of workers is not always sufficient for them to be able to carry out safety and health activities properly, wherefore the Framework Directive also contains a provision on the required training of workers. No data is available at EU-level that allows for an assessment of neither the quantity nor quality of training provided to workers. We shall therefore first examine the compliance estimates of the CPM provided by national experts, and the remainder of the assessment of compliance with this requirement will be based on the training of employee representatives in accordance with the approach applied for the assessment of Information of workers above. As above, analysed data therefore represents the corresponding 69 % of establishment which have an appointed safety and health representative.

First, Figure 4-25 shows the level of compliance with the requirement to provide training to workers according to national, non-ESENER, data sources.

Figure 4-25 Levels of compliance with the CPM to provide training to workers (no. of Member States)

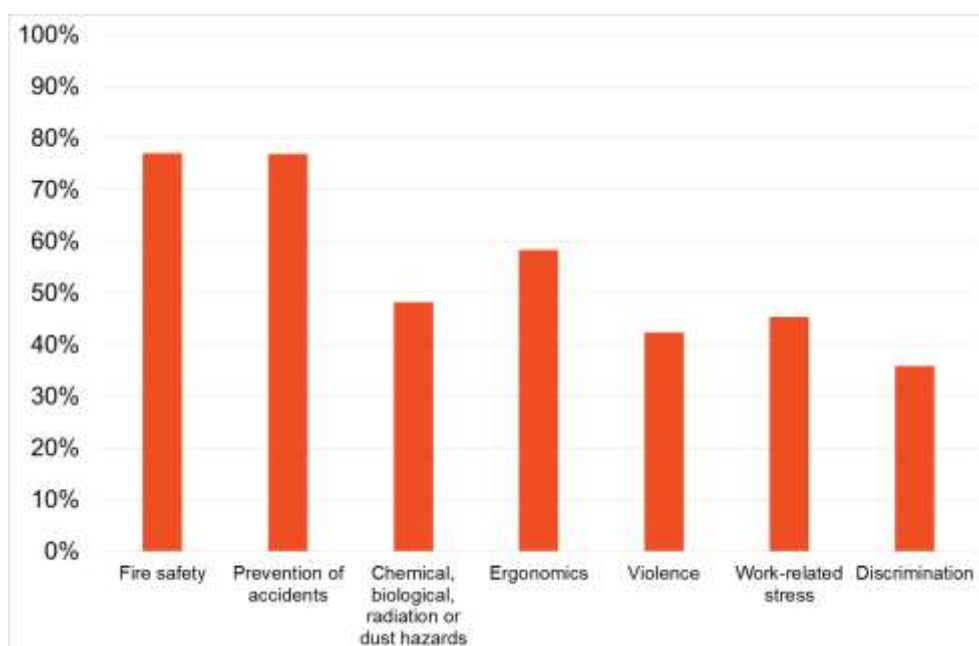


Source: CSRs and COWI analysis.

As shown in the figure above, compliance levels with the CPM vary across Member States, although once again with a majority of MSs placed in the higher end of the spectrum. Data on differences between different sizes of establishments are rare, but compliance levels were reported to be lower particularly in micro-establishments.

Next, we assess the extent to which training has been provided to ERs. In this regard, Figure 4-26 shows the share of employee representatives, which report to have received training on seven key OSH topics.

Figure 4-26 OSH training provided to employee representatives



Source: EU-OSHA: ESENER (2009) – ER159

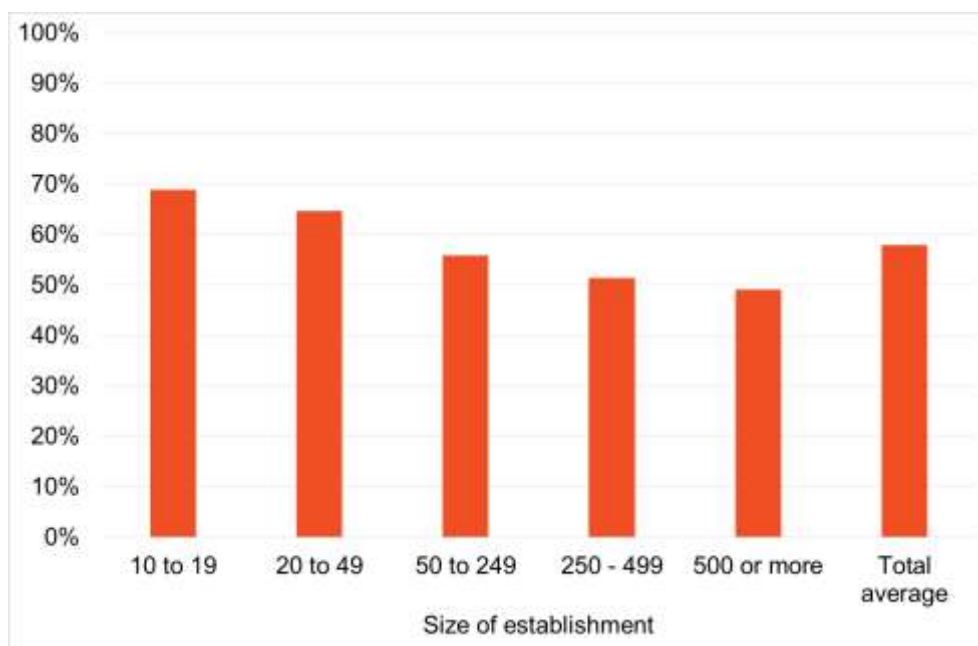
Note: The Figure shows the answers of ERs to the question: "On which of the following issues have you or your health and safety representative colleagues received training?"

According to ESENER 2009, the emphasis of training seems to be placed on traditional topics such as fire safety and the prevention of accidents (77 % of ERs) while a majority of ERs have not received training on topics related to psychosocial risks such as violence, work-related stress and discrimination (42 %, 45 % and 36 %, respectively). However, seeing as psychosocial risks have been widely debated and has received increasing attention in public debates and general OSH circles, it will be interesting to review whether the upcoming ESENER-2 data will show an increase in levels of ER training on these matters from 2009-2013.

Notably, the limited share of ERs who report having received training on ergonomic issues (58 %) gives a small insight into of the explanation for the conclusions reached regarding the lack of information provided to workers on ergonomic issues identified in the Display Screen Equipment Directive Report and discussed above.

In the following Figure, we present the share of employee representatives that have received the training presented above, who find that the respective training was sufficient by the size of establishment they work in.

Figure 4-27 Sufficiency of training provided to employee representatives, by size of establishment



Source: EU-OSHA: ESENER (2009) – ER160, by size of establishment.

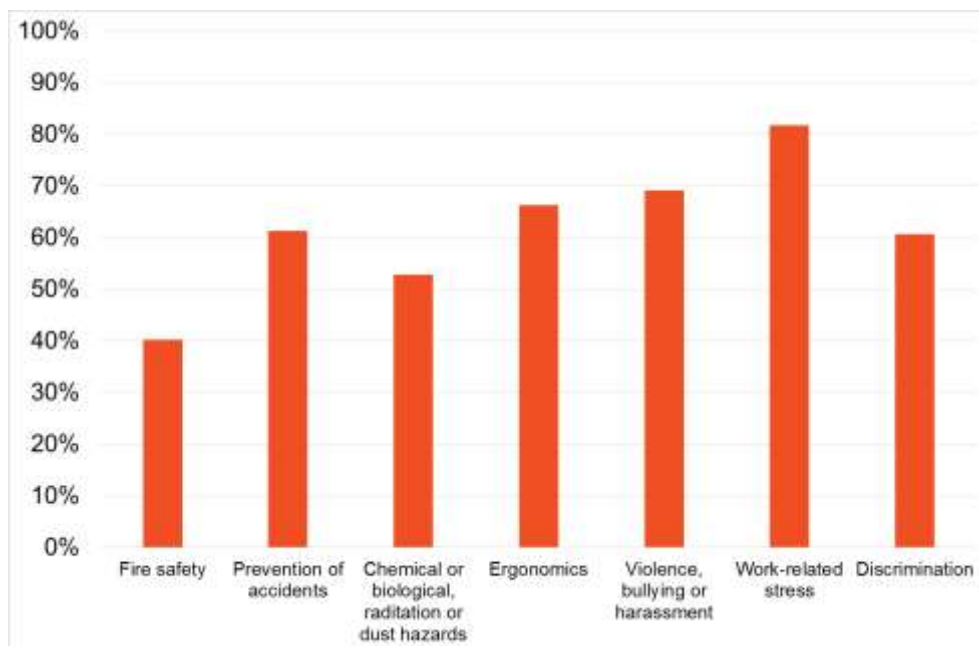
Note: Figure shows the share of employee representatives who responded that training is sufficient when asked: "Is this training sufficient or would more training in any of these fields be desirable?"

As shown, across the EU-27, a total of 57 % of safety and health representatives report that they have received a sufficient amount of training. Interestingly, once again we see a reversed correlation between the size of establishment and the share of satisfied representatives corresponding to the gradient reflected in respect to timely information received from management without prior request (cf. Figure 4-23). This interrelatedness of training and information of workers is mirrored in numerous studies as well as in a large majority of Directive Reports. As established in Eurofound (2010) when assessing previous trends, in general, the proportion of 'well-informed'

respondents is significantly higher among those who received training provided by their employer than among those that did not.

Lastly, Figure 4-28 provides information on the quality of the training provided by showcasing the share of employee representatives that would like additional training and on which OSH topics.

Figure 4-28 Need for additional training according to employee representatives, by size of establishment



Source: EU-OSHA: ESENER (2009) – ER161a

Note: Figure shows the share of employee representatives to have already received training but need additional training on selected topics when asked: "On which of the following topics would you or your health and safety representative colleagues need additional training?"

As illustrated by the Figure, as many as 82 % of ERs would like to have additional training on work-related stress. This of course reflects the fact that 55 % of ERs have not received training on work-related stress all together but it also entails that at least 27 % of the safety and health representatives that have already received training on stress report a need for additional training on the subject. These findings may be a testament to insufficient quality of training, although it is perhaps more (or equally) likely that the expressed need on part of ERs reflects the increasing socio-economic challenges associated with absence from work on account of work-related stress, which in turn increases the need for continued prevention and training.

In general, however, on all topics apart from fire prevention, more than half of the ERs express a desire for additional training. Although these shares are considerable, they do not in isolation provide information on the level of training provided nor the level of compliance with the CPM as much as it corroborates a continued relevance of the CPM.

In comparison to the ESENER data, according to the Flash Eurobarometer 398 survey on working conditions (European Commission, 2014), 77% of workers confirm that safety and health information and/or training is available in their workplace. Although this indication of compliance may be too high on account of the inclusion of 'information', the data is interesting because the survey population consists of a random selection of workplaces, including those without safety and health representation, for a more accurate composition of establishments. Also, the Flash

Eurobarometer is addressed directly at workers, which contributes to the circumvention of the challenges associated with the indirect compliance reflected in training of ERs rather than training of workers.

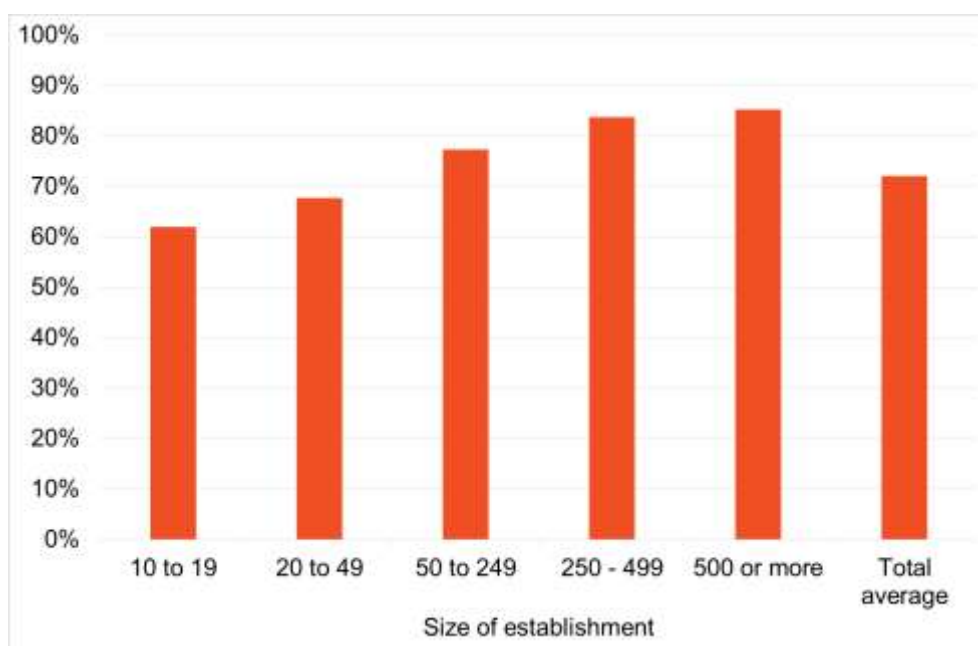
In sum, evidence suggest that indirect compliance through training of safety and health representatives (as opposed to workers themselves) on traditional OSH risk, such as accident prevention and fire safety seems to be quite high. Contrarily, training on prevention and measures related to psychosocial risks and risks associated with exposure to chemical and biological agents, radiation or dust hazards has been provided to less than half of the surveyed ERs. Of these a total of 57 % of safety and health representatives report that they have received a sufficient amount of training. Evidence suggests that ERs working in SMEs tend to be more satisfied with the training they receive, than those working in larger establishments. Generally, additional training is desired amongst ERs on all surveyed OSH issues apart from fire prevention. However, data is primarily indicative of indirect compliance, which furthermore seems to depend on the subject and occupational hazard, which makes it difficult to make any firm assertions in terms of EU-level compliance.

Health surveillance

The Framework Directive requires that employers carry out health surveillance to ensure that workers receive information appropriate to the safety and health risks they incur at work. Measures shall be introduced in accordance with national laws and/or practices and shall allow each worker to receive health surveillance at regular intervals, if so desired. Health surveillance may be provided as part of a national health system.

Figure 4-29 below shows the share of establishments which regularly monitors the health and safety of workers through medical examinations according to management.

Figure 4-29 Medical examinations performed at a regular basis, by size of establishment



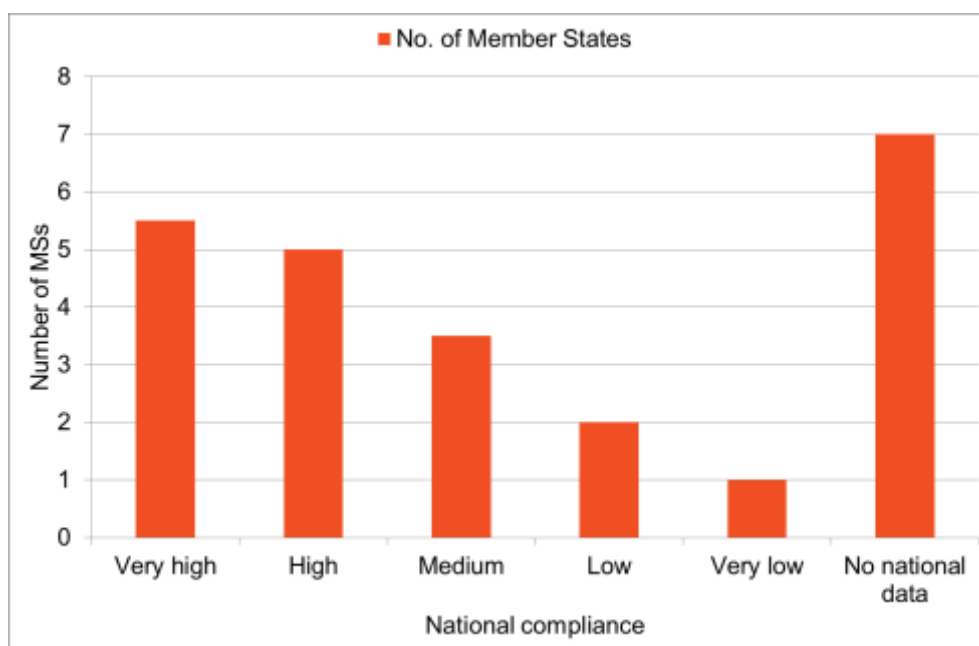
Source: EU-OSHA: ESENER (2009) – MM154

Note: Share of managers to answer 'yes' to the question: "Is the health of employees monitored through regular medical examinations?"

The Figure shows that medical examinations are regularly performed in 72 % of all surveyed establishments in EU-27. Health surveillance compliance seems to follow a similar pattern to preventive and protective services and risk assessments, with compliance increasing with the size of establishments. Regular medical examinations are thus performed in 62 % of establishments with 10 to 19 employees, while this figure is 85 % for establishments with 500 employees or more.

Much the same picture emanates from the Country Summary Reports. As shown in Figure 4-30 below, there is generally very high/high compliance with the CPM across the EU and lower levels of compliance were reported in micro establishments and SMEs.

Figure 4-30 Levels of compliance with the CPM to provide health surveillance to workers (no. of Member States)



Source: CSRs and COWI analysis.

Although, neither EU-wide nor much ESENER data is available specifically on compliance with the CPM of health surveillances, Figure 4-8 (Health and safety management measures by existence of formal employee representation), discussed in the section on overall compliance, provides a good indication by means of the following two variables: 1) Regular monitoring of employee's health, and 2) Regular analysis of causes for sickness absences. The Figure reveals that 75% of interviewed establishments with general employee representation regularly monitor the health of employees, while only 61% of establishments without ERs do so. Similarly, 62% of business with ERs regularly analyse causes of sickness absences while this figure is only 41% for establishment without ERs. Although the latter variable does not provide information on OSH compliance specifically, seeing as businesses are not generally legally required to analyse such causes (unless specified in the individual Directives or the national transposition of the OSH acquis), it does give an insight into the extent and quality of health surveillance performed by employers across EU establishments.

Overall, with considerable caution, we may conclude that compliance with the CPM of health surveillance performance seems to be moderate with some room for improvement. Compliance seems to be considerably higher in larger establishments compared to SMEs and is also significantly increased in establishments with safety and health employee representation compared to those without. Data does not allow for an assessment of the depth and quality of performed

health surveillances across MSs. Similarly, little may be derived from the Directive-specific Reports, which were challenged by a corresponding lack of data.

Consultation of workers

Finally, the last CPM of the Framework Directive is the requirement to consult workers and/or their representatives and allow them to take part in discussions on OSH issues. This CPM is one of the cornerstones of the participatory approach envisaged by the Framework Directive (with employee representation as another).

First it should be noted that it is not possible to draw general conclusions regarding the levels of national compliance with the CPM from the CSRs. While the CSRs report that some form of consultation is in place in the majority of establishments, significant differences exist as to the scope and frequency of such consultation, the appointment of an employee representatives, etc. The quality of the available data as regards the fulfilment of these requirements is also often low. Moreover, the CSRs indicate that there are substantial differences between establishments of different sizes. However, there are no data to quantify this conclusion.

However, a number of indicators for the level of consultation may be deducted from the ESENER data. First, we wish to briefly revisit the share of establishment that has an internal safety and health representative by size of establishment.

Table 4-6 *Establishments with an internal safety and health representative*

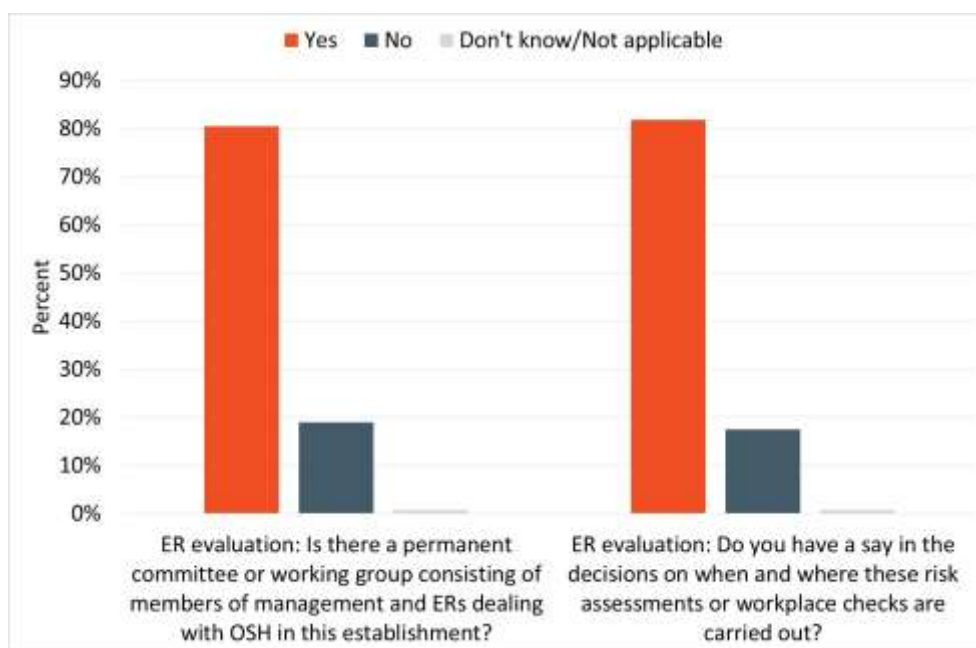
Size of establishment	10 to 19	20 to 49	50 to 249	250 to 499	500 +	Total average
Establishments with ERs (%)	51%	63%	75%	83%	88%	67%

Source: ESENER (2009), MM355, by size of establishment

These initial figures provide an indication that SMEs may generally have a lower level of consultation than larger establishments. This is based on the assumption that consultation is more likely to take place in establishments with a safety and health representative than in those without, as was established above to be the case for compliance with the risk assessment requirement. However, as this correlation is not explicitly documented, establishment of a permanent committee or working group consisting of members of management and ERs that deal with OSH matters may also be seen as an indication of an attempt to achieve compliance and incorporate the participatory principles into the OSH management system. The latter does not, however, provide information on the extent of practical implementation of these principles and the level of consultation applied on issues such as changes to organisation and working conditions, workplace learning opportunities and job security.

To gain insight into both the share of establishments that may be in compliance and the quality of these consultation activities (and thus potential level of workplace impact), Figure 4-31 contains two variables. The first set of columns represents the share of employee representatives who report that there is a permanent committee or working group dealing with OSH matters within the establishment. The second set of columns represents the employee representatives who report that they do in fact have a say in when and where risk assessments or workplace checks are carried out, which constitutes an indicator for the extent of practical implementation of the participatory principles.

Figure 4-31 Extent of workers' consultation (%), 2009

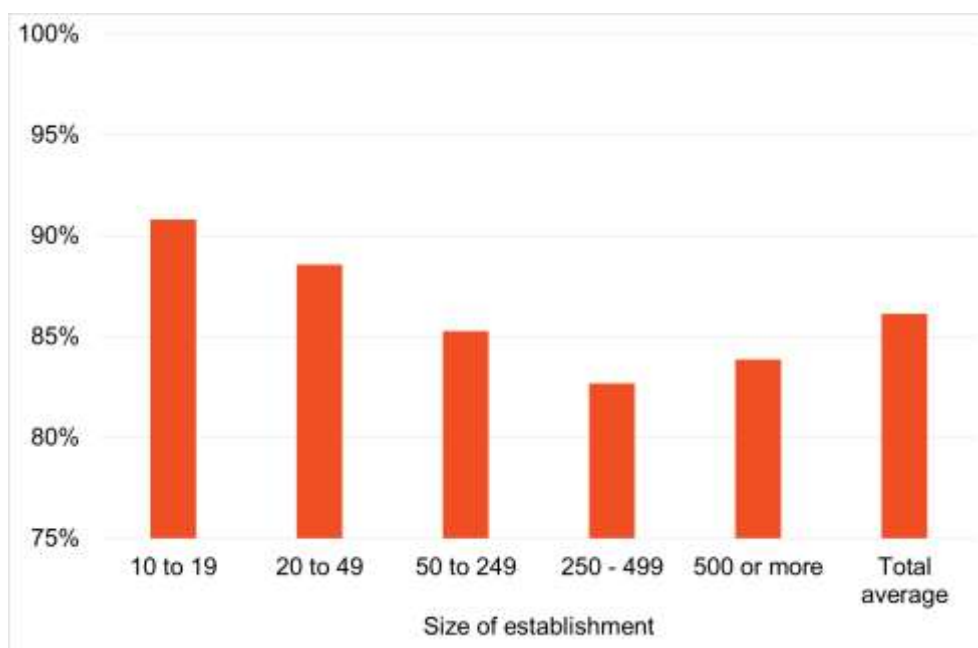


Source: EU-OSHA: ESENER (2009) – ER102, ER209.

As illustrated in Figure 4-31, most establishments (80%), which have an assigned ER, also have a permanent committee or working group consisting of members of management and representatives of the employees dealing with safety and health. Most ERs (82%) also report to have a say in the decisions on when and where risk assessments or workplace checks are carried out. This indicates that the level of compliance with the CPM of consultation seems to be relatively high in those establishment, which have an appointed ER.

Another indicator for the level of consultation implemented at workplace level is the extent to which ERs are involved in the choice of follow-up actions to be implemented at the workplace as a result of risk identified during a risk assessment. The share of ERs to report such involvement is illustrated in Figure 4-32.

Figure 4-32 Employee representative involvement with the choice of follow-up actions



Source: EU-OSHA: ESENER (2009), ER211, by size of establishment

Note: Share of employee representatives to answer 'yes' to the question: "Are you as health and safety representatives usually involved in the choice of follow-up actions?"

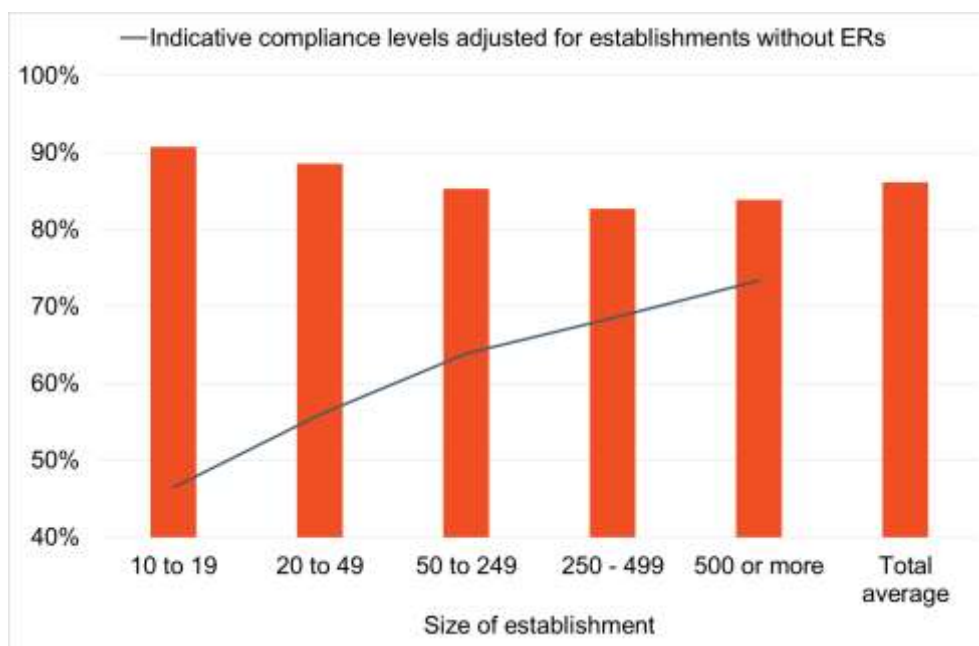
This data also indicates a high level of compliance across establishments as 86 % of ERs report to be included in the choice of follow-up actions. Interestingly, it seems that management is more likely to consult with the appointed safety and health representatives in small establishments (91 % of establishments with 10 to 19 employees) compared to large establishments (84 %).

Adding to this, as previously shown in Figure 4-8 above, 81 % of enterprises with general employee representation and 71 % of establishments without ERs involve line managers in OSH matters to a high extent. This indicates a good level of worker consultation, although exclusively at line management level, in companies both with and without employee representation. It also seems to confirm, however, that the presence of a safety and health representative has a positive influence on compliance in relation to consultation.

As only 51 % of establishments with 10 to 19 employees have an internal safety and health representative compared to 88 % of the large establishments (67 % in total), this implies that compliance, particularly in SMEs, is likely to be somewhat lower than the ESENER data suggests. This reservation is exacerbated by the fact that ESENER does not provide information on the actual level of consultation with workers.

To provide an indication of the actual shares of all surveyed establishments that are thus represented in Figure 4-32, when taking account of the share of establishments reported to have no safety and health representative, we have calculated an estimated compliance inserted in Figure 4-33 below. The inserted line thus illustrates the actual share of all surveyed establishments, within which an ER is consulted on follow-up actions in relations to OSH prevention.

Figure 4-33 Employee representative involvement with the choice of follow-up actions, indicative calculated compliance adjusted for establishment without ERs



Source: EU-OSHA: ESENER (2009), ER211, by size of establishment, adjusted for establishments without an internal safety and health representative by means of MM355

Note: Share of employee representatives to answer 'yes' to the question: "Are you as health and safety representatives usually involved in the choice of follow-up actions?" Indicative compliance level calculated by multiplying share of establishments with ERs (MM355) with the 'yes' answers to ER211.

The Figure shows that a total of 58 % of surveyed establishments actually have a safety and health representative, who is consulted in regard to follow-up actions. Although these calculations are clearly merely indicative of compliance (in part because other consultation activities may be performed in establishments without ERs, which cannot be presumed to be non-compliant), they serve to illustrate that compliance is likely to be lower than suggested by ESENER.

In comparison, during the Flash Eurobarometer 398 survey on working conditions, 62% of surveyed workers reported to have been consulted on safety and health issues at work by their employer or by a safety and health representative (European Commission, 2014). This survey thus points to a compliance level significantly closer to the calculated indicative level than the reported ESENER level.

The European Commission in 2004 highlighted a similar finding, namely that the participation of workers was not always organised in a satisfactory manner (European Commission, 2004). These findings and figures are clearly lower than the compliance level suggested by the ESENER data, which are all at 80 % or higher across establishment size. This difference may either indicate that the actual compliance level across MSs is in fact lower than suggested by ESENER 2009 or that ERs do not always include the workers they represent, when consulted by management on OSH matters.

In sum, our assessment of the overall level of compliance with the CPM of consultation and the extent of practical implementation of the participatory approach to OSH management has yielded varying results. This may indicate that EU compliance with the worker consultation requirement is

generally mainly ensured through employee representation or at line management level (as investigated by ESENER). This, may in turn result in workers not experiencing to be personally consulted on OSH issues, which is thus reflected in lower compliance findings in other survey data, not aimed at ERs or management. As employee representation is less widespread in SMEs compared to larger establishments, this may entail a smaller level of compliance in SMEs in general. However, it should be noted that evidence suggests that in those SMEs, which do have internal employee representation, ER involvement was slightly higher than in larger establishments.

4.3.4 Conclusion on compliance

Evidence suggests that the underlying trajectory and paradigm of the OSH legislation as well as the conceptual ideals that govern the design of the OSH acquis have significant influence on the application of national measures to transpose EU requirements. At MS-level, the determinant concerns the impact of the difference in regulatory regimes in the MSs, where the Nordic countries, Ireland and the United Kingdom have national goal-setting (i.e. process-orientated) regulatory approaches to OSH management, which largely predates the Framework Directive by around 20 years (EU-OSHA, 2013c). In contrast, other MSs have a more traditional management system with prescriptive legislative approaches embedded in their regulatory regimes. Evidence suggests that MSs with regulatory systems with a longer tradition of goal-oriented and participatory OSH management are associated with greater levels of OSH management practice implementation.

At EU-level, the corresponding discussion concerns a lack of clear trajectory within the OSH legislation itself. While the Framework Directive is clearly goal-oriented (i.e. process-based) other Directives are significantly more prescriptive in their nature (e.g. OSH Signs Directive). One contributing factor to this diversity is likely a comprehensive tripartite policy dialogue and possible political compromises between MSs, when Directives were designed. This lack of clear trajectory within the OSH acquis may constitute a challenge for MSs when transposing the OSH acquis into national provisions.

Observations have also been made that some confusion seems to exist at enterprise-level, which can be derived from an inconsistent inclusion of provisions on CPMs in the OSH Directives. In practice, we find that this problem is likely to have a limited influence on overall compliance at enterprise level. It may, however, influence effectiveness of the OSH acquis at enterprise level (which is discussed further in EQE3 below).

Strong evidence suggests that employee representation has noticeable influence on the share of establishments performing risk assessments and an even more pronounced impact on other key requirements. Case studies in Bulgaria and Spain suggest that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring in the establishment in comparison to risk assessments performed by internal staff. This is likely to impact on the position of health and safety generally within an organisation's business and priorities. It is therefore clearly positive that safety and health representation is the most prevalent form of employee representation. While, on the one hand, we may cautiously award some merit to the OSH acquis on this account, it is important to highlight that, as it is not currently possible to establish a trend (inter alia due to a lack of comparability with ESENER 2009), we cannot assess whether the proportion of organisations with safety and health representatives is in fact increasing or declining.

Analysis of survey data on compliance indicates that 70 % of establishments with 10 to 19 employees have a documented OSH policy compared to 90 % of large establishments with 500 or more employees. There is no notable indication that compliance is measurably higher in the public sector compared to the private sector. During national and EU stakeholder interviews, some groups of enterprises were identified as having a lower level of compliance. These were start-ups companies compared to experienced companies, as well as companies within economic sectors that generally have low incidence rates of occupational injuries compared to those with higher incidence rates.

On the subject of SMEs and micro establishments, evidence suggests that they experience problems in implementing the OSH acquis to a higher extent than large establishments. Generally, most establishments, independent of size, seem to take necessary follow-up actions, once risks have been identified. However, SMEs are slightly more likely to take full action (as opposed to part action), while larger establishments take more actions of different types than SMEs. Though there are variances between Directives and Member States, it is an overall observation in the evaluation that national stakeholders assess compliance with Directive requirements as higher in large establishments compared to SMEs and micro-establishments. This is supported by ESENER data on compliance, including the fact that safety and health representation is considerably less frequent in SMEs compared to larger establishments (e.g. only 51 % of establishments with 10 to 19 employees have an internal OSH representative), which further indicates that compliance with the OSH acquis is higher in larger establishments. However, regarding the information, training and consultation of workers, it should be noted that for those SMEs that do have an internal safety and health representative, evidence point to a slightly higher degree of compliance in terms of providing sufficient training and timely information to ERs and to consult on the choice of follow-up actions for risk prevention.

The smaller level of compliance in SMEs corresponds to the findings for several Directives, such as the Construction Directive, the ATEX Directive, the Medical treatment on board vessels Directive and the Vibration Directive. However, in contrast, some Directives have not resulted in differences in compliance levels for SMEs compared to larger establishments (e.g. Biological Agents Directive and the AOR Directive). This propensity is mirrored in several National Implementation Reports, where Member States have elaborated on difficulties faced by SMEs in implementing Directives, while several MSs also emphasised the opposite (ref. e.g. the National Implementation Reports), namely that they have no evidence that SMEs experience greater difficulties than larger enterprises.

Regarding compliance with the specific CPMs, the first CPM of the Framework Directive, and the cornerstone of implementation of the OSH acquis, is the requirement that enterprises shall regularly conduct risk assessments. According to ESENER-2, 76% of all enterprises in EU-28 carry out risk assessments on a regular basis, although compliance varies considerable from MS to MS ranging from 94 % of establishments in Italy and Slovenia down to 37 % in Luxembourg. In general, the level of compliance estimated in the CSRs are somewhat lower in comparison to the 2009 ESENER data. However, overall, it seems that the level of compliance with the CPM of risk assessments is relatively high in most MSs. The most common reasons for not conducting risk assessments on a regular basis are the fact that hazards and risks are already known and that establishments believe that they have no major problems.

Some challenges with compliance stemming from provisions and characteristics of individual Directives have also been identified. For instance, the Pregnant Workers Directive has given rise to some shortcomings in compliance at enterprise level, mainly because employers find it difficult to

identify special risks for pregnant and breastfeeding women (i.e. to include this aspect into the risk assessment), and secondly, because they find it difficult subsequently to identify suitable work accommodations (ref. Pregnant Workers Directive).

Data on the share of risk assessments being performed by internal staff varies considerably between MSs, with the highest share found in Denmark (76% of establishments), the United Kingdom (68%) and Sweden (66%). The lowest shares are found in Slovenia (7%), Croatia (9%) and Spain (11%). In this regard, it should be noted that in some MSs there may be a legal obligation to contract OSH services to complete risk assessments on the behalf of management in cases where in-house capacity is insufficient (EU-OSHA, 2015). This seems to suggest a gradient from MSs with a predominately goal-oriented regulative approach to OSH management at the higher end of the spectrum, to the Baltic States with a predominately prescriptive approach at the lower end (cf. Figure 4-11 and ref. EU-OSHA, 2013c). This may with some caution be interpreted to suggest that regulatory context and characteristics are in fact influential in terms of the approach to OSH management at enterprise-level as discussed in the subsection above.

In the context of SMEs, we find that the share of establishments that regularly undertake risk assessments increase with the size of establishments. The same pattern shows for the use of internal staff when conducting risk assessments, as SMEs are more inclined to hire external service providers for the task. A possible consequence of this correlation is that, while risk assessments seem to be regularly performed in SMEs to a rather high extent, they may not have the same quality as in larger establishments, nor to the same extent result in an OSH management approach that is integral to the particular business and priorities of the SME.

Moving to the second CPM, the analysis showed that it is challenging to establish an actual compliance level with the CPM of preventive and protective services across Member States. However, we find that SMEs and micro enterprises seem to have a higher degree of non-compliance and also seem to rely extensively on external providers for preventive and protective services. Compliance tend to be highest in sectors which have traditionally been acknowledged to have more occupational accidents and diseases, such as Mining and quarrying, Manufacturing, Electricity, gas and water supply and Health and social work. Furthermore, evidence suggests that psycho-social and ergonomic risks are addressed by specific experts to a limited extent, although it should be noted, that these issues might be covered by a general health and safety consultancy.

In the context of the third CPM on general OSH information for workers, compliance across MSs with the CPM is high, and that the quality of information adequate. However, actual compliance levels among European enterprises might be slightly lower than the ESENER data suggests, due to limited data from establishments without employee representation.

On the subject of the CPM related to the training of workers, evidence suggest that indirect compliance through training of safety and health representatives (as opposed to workers themselves) on traditional OSH risk, such as accident prevention and fire safety, is quite high. In contrast, training on prevention and measures related to psychosocial risks and risks associated with exposure to chemical and biological agents, radiation or dust hazards has been provided to less than half of the surveyed ERs. Of these a total of 57 % of safety and health representatives report that they have received a sufficient amount of training. Evidence suggests that ERs working in SMEs tend to be more satisfied with the training they receive, than those working in larger establishments. Generally, additional training is desired amongst ERs on all surveyed OSH issues apart from fire prevention. However, data is primarily indicative of indirect compliance, which

furthermore seems to depend on the subject and occupational hazard, which makes it difficult to make any firm assertions in terms of EU-level compliance.

Overall, with considerable caution, we may conclude that compliance with the CPM of health surveillance performance is moderate with some room for improvement. Compliance seems to be considerably higher in larger establishments compared to SMEs and is also significantly increased in establishments with safety and health employee representation compared to those without. Data does not allow for an assessment of the depth and quality of performed health surveillances across MSs. Similarly, little may be derived from the Directive-specific Reports, which were challenged by a corresponding lack of data.

In the context of worker consultation, our assessment has yielded varying results in terms of the overall level of compliance and the extent of practical implementation of the participatory approach to OSH management. This may indicate that compliance with the worker consultation requirement is generally mainly ensured through employee representation or at line management level (as investigated by ESENER). This, may in turn result in workers not experiencing to be personally consulted on OSH issues, which is thus reflected in lower compliance findings in other survey data, not aimed at ERs or management.

4.4 Accompanying actions (MQ4)

MQ4: What accompanying actions to OSH legislation have been undertaken by different actors (the Commission, the national authorities, social partners, EU-OSHA, Eurofound, etc.) to improve the level of protection of safety and health at work, and to what extent are they actually used by companies and establishments to pursue the objective of protecting safety and health of workers? Are there any information needs that are not met?

When answering the fourth mapping question (MQ4), we distinguish between accompanying actions taken at Member State level – mainly based on information presented in the Country Summary Reports prepared as part of the present evaluation – and accompanying actions taken at EU level – mainly based on information obtained through desk research and interviews with EU level stakeholders.

The analysis focused on key documents and actions. Many Member States have developed, additional items, such as leaflets and posters, but these have not been taken into account in this mapping question. The scope of the enquiry was restricted to 2007-2012 in line with the timeline of the evaluation. Some (important) material might predate or postdate this period and has therefore not been reported.

4.4.1 Accompanying actions at Member State level

With regard to the accompanying actions at Member State level, three sub-questions were considered, as follows:

- › What accompanying actions to OSH legislation have been undertaken by different actors to improve the level of protection of health and safety at work (by national authorities, by social partners, etc.)?

- › Are there gaps identified in accompanying measures?
- › To what extent are the accompanying actions actually used by establishments to pursue the objective of protecting health and safety of workers?

These three questions are answered, on the basis of research and national stakeholder interviews, in the Country Summary Reports.

The accompanying measures identified cover the following categories:

- › Guidance documents (through decisions and other soft measures, guidelines)
- › Awareness-raising campaigns
- › Support tools (possibly IT based)
- › Education and training actions
- › Financial incentives (i.e. tax benefits or the possibility to offer reduction of insurance premium to reward organisations for going beyond the legal requirements).

Most accompanying actions and strategies aim at influencing behavioural changes, improving sector- and risk-specific knowledge and implementing legislation. According to the NIRs, the actions are, generally, not only aimed at the relevant social partners, at employers, or at workers, but also at the general public. It of course also depends on the type of accompanying actions, namely from supporting employers in their efforts (guidelines, national studies, online learning tools) to more concrete initiatives (consultations, informational campaigns, conferences and information days, networking events, sharing of best practice).

In all Member States, with no exceptions, guidance documents are by far the most common action undertaken in respect of supporting the implementation of the national legislation transposing the individual Directives, including the Framework Directive.

Awareness raising campaigns and support tools are the next common actions undertaken, while education and training actions are less often used. This trend applies to all directives and to all Member States.

The NIRs corroborate this conclusion, as Member States reported on a significant number of publications developed to support the implementation of the health and safety Directives, e.g. guides, information material, brochures and websites (section 2.1.2 NIR). The role of websites and online tools in disseminating information appears to increase. France especially has been very active in developing a wide range of support tools. They include a DVD on the field of prevention, a database gathering more than 18000 reports of serious occupational accidents since 1999, the French version of the OIRA tool for risk assessment, and an online platform which gathers and makes available all information related to occupational health and safety (including targeted approaches to risk assessment and prevention).

A number of Member States also make use of financial incentives to encourage establishments to comply with safety and health provisions. For example, different types of financial incentives for enterprises are in place in Germany. None of these financial incentives can be attributed to a

specific Directive as they are of a more general nature and aim at improving prevention measures in a company as a whole. Most common are insurance premium variations and tax incentives. Another example is Luxembourg, where one particular financial incentive is highly praised by stakeholders and especially in relation to SMEs. This is a programme, led by the AAA (Accident Insurance Association), which targets enterprises using certain security management systems: under the programme, partial reimbursements of costs related to safety and health investments and to the acquisition of material (DVD, posters, etc.) related to promoting safety and health at work are provided for. Finally, France has also set a combination of various financial incentives, in particular, a) the Fund for the Improvement of Working Conditions (FACT) – managed by the Ministry of Labour, Employment, Vocational Training and Social Dialogue – which provides financial support for improving working conditions; b) the National Agreement of Prevention Objectives (CNOP) which supports enterprises with less than 200 workers to implement preventive measures; and c) the Simplified Financial Support targeting SMEs.

The number of accompanying actions varies greatly from Directive to Directive. The Framework Directive is covered extensively through guidance documents, support tools, campaigns and education and training activities. For the individual directives, the total number of accompanying actions across all Member States varies between approximately 240 (in relation to the Workplace Directive) to approximately nine (in relation to the Medical treatment on board vessels Directive). Other individual directives for which the highest number of accompanying actions has been identified are Directive 89/656/EEC (use of PPE), Directive 98/24/EC (chemical agents) and Directive 2009/104/EC (work equipment).

Conversely, the directives for which national stakeholders agreed that there are no sufficient accompanying actions in the Member States are Directive 92/58/EEC (OSH signs), Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise), Directive 2000/54/EC (biological agents), Directive 92/91/EEC (drilling), Directive 92/29/EEC (medical treatment on board vessels), Directive 93/103/EC (fishing vessels), Directive 92/85/EEC (pregnant workers) and Directive 91/383/EEC (temporary workers).

The Commission report on the implementation of the vessels-related directives³⁹ already underlined the lack of available guidance documents, support tools and awareness raising activities. The Commission noted: *"To a large extent, the fishing sector's small numerical and economic scale in some Member States justifies or explains the lack of attention given to developing instruments to publicise the provisions. In other Member States with bigger fishing sectors, the authorities responsible for publicising the provisions need to invest more resources and show more commitment"*.

National stakeholders also mentioned other gaps, not related to a specific Directive but mainly to the need for more targeted guidance and information documents whereby the action is specifically directed towards certain sectors and, especially, SMEs. Stakeholders in nine Member States have highlighted the lack of accompanying actions targeting SMEs. Stakeholders indeed often call for the development of additional practical documents per sector, especially for SMEs, guiding them through the drafting of, notably, risk assessments. In that respect, some stakeholders stressed that it is more efficient to highlight and target one topic (risk) per year than to publish extensive reports and brochures. Given the overall lack of targeted accompanying documents on risk assessments across all sectors and groups of workers, stakeholders consider as a priority the development of

³⁹ COM(2009)599 final

information actions especially aim at supporting companies in conducting risk assessment and integrating them in a global OSH policy. Accordingly, the interviews at national level led to the conclusion that, on one hand, stakeholders would like national authorities, both national and European, to provide more financial incentives. On the other hand, some stakeholders representing employers have stressed that there is no need to develop a checklist and strategy for each sector.

Further, many stakeholders have mentioned that, even though information is available, it is often uncoordinated and unsystematic. Dutch stakeholders suggest that the best accompanying assistance would be a 'solution-oriented' website that can be accessed with a search engine on the basis of the right keywords. It must be easy to use and provide a straight response to the question at hand – preferably based on a scan of the applicable OSH catalogues.

Finally, gaps were identified on particular issues such as the ageing workforce and psychosocial issues. This is corroborated by the relatively low number of accompanying actions identified for the directives which target vulnerable groups of workers.

With regard to the actual use of accompanying actions, the ESENER survey contains a question on whether establishments have used health and safety information from various institutions. The table below shows the average results (including the minimum and maximum of all results) of the responses to this question.

Table 4-7 Share of establishments using information from different sources

	OSH		In-house health and safety services	labour			Contracted health and safety experts	Insurance providers
	Official institutes	EU-OSHA		The inspectorate	Employers' organisations	Trade unions		
Average	52.78%	13.34%	54.89%	60.18%	30.88%	23.2%	59.52%	40.3%
Min.	12.70% (AT)	3.05% (AT)	36.81% (EL)	33.34% (EL)	12.83% (EL)	7.18% (EE)	33% (EE)	10.34% (DK)
Max.	84.49% (DE)	34.92% (MT)	77.13% (RO)	86.12% (RO)	58.93% (IE)	62.92% (SE)	86.8% (ES)	72.84% (IE)

Source: ESENER, question MM173: Has your establishment used health and safety information from any of the following bodies or institutions? (Note: only the responses from EU MS have been considered in relation to minimum and maximum scores).

The data indicate that the establishments use information materials and sources from a broad range of bodies. The data also show that establishments rely quite substantially on their in-house health and safety services and contracted health and safety experts. It can be noted that these services may very well rely on the materials and guidance produced at national and EU level. Establishments also use regularly the accompanying actions (in particular health and safety information) produced by official institutions for health and safety at work.

National experts in the context of the Country Summary Reports have generally commented on the fact that, overall, sectoral tools, checklists, trainings, expertise and financial incentives are more effective than brochures aimed at raising awareness. National stakeholders have observed that various actors (national authorities, workers' representatives, employers' representatives, funds, association of prevention services, prevention services, etc.) publish brochures but most of these fail to reach establishments other than large companies.

Practical tools, forms and check-lists that enable employers to comply with OSH obligations are considered by stakeholders as the most useful accompanying actions. The practical approach that aims at providing sectoral templates for risk assessment (e.g. OIRA) is welcomed by all stakeholders that recognise the potential for simplification and gain of time when using such tools.

Finally, with regard to awareness-raising campaigns, national stakeholders seemed to agree that long-term campaigns usually have a better impact than punctual ones.

4.4.2 Accompanying actions at EU level

The European Union has initiated a number of accompanying actions to support the implementation of the Framework Directive and the OSH acquis as a whole. Apart from the Commission Guidance document on risk assessment at work (1996), there are also numerous other EU documents that provide guidance or guidelines on specific topics or risks. Notably, the European Commission has published several non-binding guidance documents on good practice for implementing specific OSH directives. These documents clarify the Directive and guide its implementation. Non-binding guidance is available for Directive 1999/92/EC (ATEX), Directive 98/24/EC (chemical agents), Directive 92/57/EEC (construction sites), Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise) and Directive 2006/25/EC (AOR).⁴⁰ Several EU stakeholders underlined that such accompanying action is missing for other individual directives, in particular with regard to Directive 92/91/EEC (drilling), Directive 93/103/EC (fishing vessels) and Directive 92/85/EEC (pregnant workers).

EU-OSHA has developed a number of accompanying actions, but as implied in Table 4-6 above EU-OSHA information is the least used from all of the different types of information sources cited. Nevertheless, the Online interactive Risk Assessment (OIRA) IT tool has especially been mentioned by different Member States in their National Implementation Reports and pointed out during several Member State interviews as reported in the Country Summary Reports, as being very useful and well-regarded. It is a web-based platform specifically targeted at micro and small organisations to support them in the implementation of step-by-step risk assessment process. Cyprus has, for example, completed the implementation of this tool for hairdressers/barbers and office workers, and it is currently being expanded to cover butchers, catering and primary and secondary education sectors. Furthermore, the Department of Labour Inspection or other official OSH authorities seem to actively promote the OIRA, providing information on the operation of the tool to companies.

In addition, the 'E-facts' series of EU-OSHA contains online articles aimed at workers, employers and occupational safety and health professionals. They are intended to give a straightforward and practical overview on specific topics in OSH. Further, EU-OSHA has also established, for example,

⁴⁰ Outside of the OSH acquis, there is also a non-binding guide to good practice for implementing Directive 2001/45/EC (work at a height) available.

an e-learning module on the “manual handling of loads” intended for all labour inspectors and keeps on publishing various guidance documents for workers, employers and safety and health professions on specific risks, such as MSD. Finally, and as already mentioned above, the Healthy Workplaces Campaigns organised by EU-OSHA aim at raising awareness of occupational safety and health related issues. Many Member States have actively supported these campaigns by using the opportunity to generate national level events to promote safety and health focusing on specific themes. However, as described below in the same section, there may be room for raising awareness as to the existence of such events amongst stakeholders at national level.

Other European institutions have developed accompanying actions to support the implementation of individual OSH directives in specific sectors. The European Chemicals Agency (ECHA), for example, has published on its website guidance documents that are framed around REACH and that provide a useful source of information when implementing the Chemical Agents at Work Directive and the other chemical related OSH directives. Also the European Maritime Safety Agency (EMSA) provides technical and scientific assistance to ensure proper application of EU legislation in the field of maritime safety, monitor its implementation, evaluate its effectiveness, organise training etc. EMSA has, for instance, published materials supporting good practice measures in regard to the training of personnel at sea.

It can therefore be concluded that a number of accompanying actions have been taken at EU level to encourage the achievement of the safety and health targets of the OSH acquis as a whole.

There is a lack of guidance documents at EU level in relation to particular individual directives, namely Directive 92/58/EEC (OSH signs), Directive 92/91/EEC (drilling) and the two vessel-related directives.

With respect to the implementation of Directive 92/58/EEC (OSH signs), no EU level guidance documents have been identified. However, the implementation of the OSH Signs Directive can capitalise on the information provided by sign manufacturers. In addition, international standards organisations such as ISO (International Organization for Standardization) and CEN (European Committee for Standardization) have already published a considerable amount of accompanying actions. These minimise the need for the EU to raise awareness of or clarify OSH signs-related requirements.

Similarly, no accompanying actions have been developed at EU level in relation to Directive 92/91/EEC (drilling) covering mostly oil and gas activities. A possible reason might be that other global actors such as the International Council on Mining and Metals (ICMM), which is not covering oil and gas but metals and minerals, are developing international guides to good practice in the industry.⁴¹ The 2013 evaluation of the Directive did conclude that additional guidance is needed. It also emphasised that more sharing and learning from experience across EU and EEA countries would be beneficial and lead to a more rapid implementation of the Directive and hence, better protection of the safety of workers (see e.g. executive summary, p. 11).

Equally, a limited number of accompanying actions at EU level was found for the two vessels directives (i.e. Directive 92/29/EEC (medical treatment on board vessels) and Directive 93/103/EC (fishing vessels)). This may be justified by the fact that global actors such as the International Labour Organisation (ILO) and the International Maritime Organisation (IMO) have developed

⁴¹ <http://www.icmm.com/>

influential guidelines. Also the World Health Organisation (WHO (2007)) has provided an international medical guide for ships targeted at first-aid providers to help them diagnose, treat, and prevent the health problems of seafarers on board vessels.

Although the sub-question on the use of the accompanying actions at EU level has already been partly answered above, national stakeholder interviews have highlighted that EU level guidance is unlikely to actually reach individual workers. Therefore, national guidance is seen as the actual catalyst for compliance – even though national guidance is often based upon EU level guidance.

Of relevance as well is the level of awareness of the European Week for Safety and Health at Work in the different Member States. This awareness raising event is held each year in October and is a key focus of every Healthy Workplaces Campaigns. The ESENER1 survey included the following question: “Are you aware of the European Week for safety and health at work?” (question MM175). On average, 31.15% of the respondents responded positively, although the results differ widely from one MS to another. Only 12.5% of Swedish respondents are aware of this European Week, while, for the Czech Republic, this number climbed to 62.57%. This overall rather low level of awareness suggests that further efforts should be made to promote this event.

4.5 Enforcement (MQ5)

MQ5: What are the enforcement (including sanctions) and other related activities of the competent authorities at national level and how are the priorities set among the subjects covered by the Directives?

4.5.1 Enforcement authorities

The body competent for OSH inspections varies from one Member State to another depending on the institutional setting of the country. As a rule, the Labour Inspection is the main responsible authority (AT, BE, BG, CY, CZ, DE, EE, EL, ES, FR, HU, IT, LT, LU, LV, NL, PT, RO, SE, SI) or the main authority falls under the Ministry of Health (OSH inspectorates under the Ministry of Social Affairs and Health in Finland) or is an autonomous authority dedicated to OSH (the Health and Safety Authority in Ireland and the Health and Safety Executive in the UK). In Poland, the enforcement responsibilities are shared between the labour and health authorities (the National State Labour Inspectorate and the State Sanitary Inspectorate). In Slovakia, while the National Labour Inspectorate is responsible primarily for safety aspects, the Public Health Authority is the main enforcement authority in relation to the chemical, biological and physical agents directives.

In two countries, the institutional setting is specific. Denmark has a rather atypical setting whereby responsibilities are distributed among the Danish Working Environment Authority, under the auspices of the Ministry of Employment, for work environment on land; the Danish Maritime Authority at sea; the Danish Energy Agency for offshore installations and the Danish Transport Authority for the civil aviation. In Malta, the main authority in charge of OHS legislation enforcement is the Occupational Health and Safety Authority OHSA under the authority of the Ministry for Social Dialogue, Consumer Affairs and Civil Liberties.

In most Member States, specific authorities are responsible for certain directives to varying degrees. This is typically the case with mineral-extracting industry directives, vessels directives, chemical agents directives and sometimes vulnerable workers directives. Other specific aspects, e.g. fire safety, may be covered by other inspection bodies.

For instance, in Slovenia, the Energy and Mining Inspectorate is in charge of mining operations and underground construction works using mining operation methods and the inspectorate competent for protection against natural and other disasters supervises the implementation of fire safety, rescue and evacuation measures. In Sweden, while the only authority in charge of OHS legislation enforcement is the Swedish Work Environment Authority, the Swedish Transport Agency supervises all shipping vessels, including working conditions on ships/vessels.

These authorities can be the only ones responsible for enforcement or share responsibility with the main authority in charge of the enforcement of OSH legislation. One example is the ATEX Directive in Finland whereby the Finnish Safety and Chemical Agency is the enforcement authority while the OSH Inspectorates within the Regional State Administrative Agencies (Ministry of Social Affairs and Health), are responsible for all the other risks, workplaces and group of workers.

Even when there is no specialised inspection for certain sectors or issues, for several Member States, specialised units within the enforcement body deal with particular sectors, risks or groups of workers. For instance, Austria has labour inspectors dedicated to specific tasks or groups of workers, such as protection of young workers, construction sites, pregnant and breastfeeding workers and workers in the catering industry.

Most of the time, there is a combination of generic and specialised inspectorates. An illustration of this type of setting can be found in Belgium where the main authority in charge of OSH legislation enforcement is the Directorate General for the Control of Well Being at Work under the Federal Public Service for Employment, Labour and Social Dialogue, and its eight regional directorates. Within the Directorate General for the Control of Well Being at Work, the Department for control on chemical risks is specifically responsible for chemical risks, hence for the four chemical-related OSH directives. With regard to the two mineral-extracting directives, the competent authority for enforcement is the Federal Public Service Economy. For the two directives on vessels, it is the Federal Public Service Mobility who is responsible.

In most countries, inspection services operate at the regional or local level.

Three countries have different inspectorates for the public and the private sectors, which reflects the fact that they have implemented separate, distinct OSH legislation for the public and the private sector. There are: the Czech Republic (enforcement bodies subordinated to the Ministry of Interior and the Ministry of Defence), France (General Directorate of Administration and Public Services) and Luxembourg (the National Service for Occupational Safety of the Public Sector). Thus, Austria and Portugal, the remaining two MSs with distinct public sector legislation (ref. MQ1), do not also have separate enforcement inspectorates.

As shown in Table 4.7, there are significant variations between Member States regarding the number of labour inspectors and workers per labour inspectors. While the number of inspections remains constant and the number of workers per labour inspector has even slightly decreased, this general picture covers very diverse situations at the national level and there is no common trend across Member States. In some countries, it is clear that the resources devoted to inspections have been drastically cut. A significant decrease in the number of inspectors is accompanied by a substantial increase in the number of workers per labour inspectors. This is the case in Sweden where, from 2007 to 2012, the number of inspectors has decreased sharply, from 359 full time inspectors to 250 full time inspectors. As a result, the number of workers per labour inspectors has seen an impressive increase and employers are, on average, inspected once every 17.7 years (being once every 13.5 years in 2007). The sharply decreased budget of the Swedish enforcement

agency, the Swedish Work Environment Authority is probably the main reason. In contrast, countries as Malta or France have seen a considerable increase in the number of inspectors (respectively 56% and 46%), while the number of workers per labour inspector has decreased accordingly.

Table 4-8 Number of labour inspectors and workers per labour inspector

MSs	2007	2012	Change 2007-12	2007	2012	Change 2007-12
	Number of labour inspectors			Number of workers per labour inspector		
AT	308	312	1%	12,739	13,091	3%
BE	145	145	0%	30,209	31,199	3%
BG	383	325	-15%	8,492	9,028	6%
CY	29	21	-28%	13,031	18,343	41%
CZ	216	199	-8%	22,787	24,573	8%
DE	6,336	5,809	-8%	5,996	6,735	12%
DK	636	471	-26%	4,408	5,708	29%
EE	51	38	-25%	12,894	16,182	25%
EL	262	222	-15%	17,420	16,644	-4%
ES	814	959	18%	25,282	18,387	-27%
FI	450	421	-6%	5,537	5,898	7%
FR	1,541	2,256	46%	16,581	11,414	-31%
HU	121	102	-16%	32,248	37,522	16%
IE	77	93	21%	27,832	19,761	-29%
IT	353	307	-13%	64,857	73,505	13%
LT	202	196	-3%	7,186	6,509	-9%
LU	23	23	0%	8,822	10,265	16%
LV	134	112	-16%	7,891	7,818	-1%
MT	9	14	56%	17,267	12,164	-30%
NL	287	260	-9%	29,490	32,401	10%
PL	1,416	1,634	15%	10,763	9,541	-11%
PT	283	391	38%	17,995	11,629	-35%
RO	526	571	9%	17,782	15,070	-15%
SE	359	250	-30%	12,648	18,628	47%
SI	36	33	-8%	27,367	27,994	2%
SK	260	298	15%	9,068	7,815	-14%
UK	2,610	2,420	-7%	11,156	12,230	10%
Total/average	17,867	17,882	0%	12,226	11,982	-2%
Source: The data on number of labour inspectors is from the NIRs except for Finland and Poland, where the data is from the Ministry of Social Affairs and Health (FI) and the report of Chief Labour Inspector on the activity of the National Labour Inspectorate (PL). The data on number of workers per labour inspector is calculated using Eurostat data on number of employed persons in the Member States (as the data presented by the Member States was in some cases inconsistent). By using the same source of data on number of employed persons, the indicator on number of workers per labour inspector is more comparable across the Member States						

4.5.2 Sanctions

Sanctions are a key element of the enforcement system. Sanctions are understood as administrative or criminal measures taken when an entity is in infringement with the law. Sanctions can be fines and imprisonment but also a range of other remedial and punitive measures, for example suspension of the activity or improvement notices. Table 4-9 depicts whether or not a

Member State has set criminal sanctions (fines and imprisonment) and/or administrative sanctions (fines).

Table 4-9 Criminal and administrative sanctions

MS	Criminal sanctions	Administrative sanctions
AT	N	Y
BE	Y	Y
BG	Y	Y
CY	Y	N
CZ	Y	Y
DE	Y	Y
DK	Y	Y
EE	Y	Y
EL	Y	Y
ES	Y	Y
FI	Y	Y
FR	Y	Y
HU	Y	Y
IE	Y	Y
IT	Y	Y
LT	Y	Y
LU	Y	N
LV	Y	Y
MT	Y	N
NL	Y	Y
PL	Y	Y
PT	Y	Y
RO	Y	Y
SE	Y	Y
SI	Y	Y
SK	N	Y
UK	Y	N
Total	25	23

In most cases Member States have set both criminal and administrative sanctions, with a limited number of exceptions. Maximum sanctions vary significantly from one Member State to another. The highest imprisonment sanction identified is in the Portuguese legislation – 16 years in case of causing human death.

As a rule, the same sanctions apply across the whole OSH acquis. Traditional sanctions – fines and imprisonment – are complemented by a range of other sanctions or measures the inspectorate can take to ensure the breach of OSH requirements ceases as soon as possible. For example, in Luxembourg, the labour inspector can order the immediate cessation of work for the worker concerned in case of blatant breach of the rules on minimum age for work, working time and night work, compliance with the weekly rest, statutory holidays, protecting rules on the conditions of employment of pregnant women, breastfeeding and young workers. When labour inspectors consider that a situation might constitute a threat to workers' safety or health, they can require a technical check of machineries, changes to fix defects or work methods, stopping the activity of the workers at risk and evacuating the premises. These can be extremely effective sanctions.

However, when data is available (and this is rarely the case), case law on OSH matters seem rather limited. This can be partly due to a more pro-active policy of the enforcement authorities who, along their sanctioning functions, also privilege their preventive, advisory and support functions. A typical example of such an approach can be found in the UK where the enforcing authorities use a mixed intervention approach with duty-holders in which enforcement of the law is only one factor, alongside the provision of good practice advice, the use of awareness campaigns and work with stakeholders to influence behaviour change.

4.5.3 Setting of priorities for enforcement

The last part of the mapping question relates to the way priorities are set among the topics covered by the Directives. Priorities are not set according to Directives as such but rather according to the number of occupational accidents in specific sectors i.e. where enforcement actions may bring effective results. For instance, the construction sector, which is characterized by a large number of work-related accidents, is often specifically targeted. The results of previous inspections or complaints are also often taken into account. Another criterion often featuring across Member States is the priorities set by strategic documents, both at national and EU level, and sometimes also at regional level. Typically, the priorities will be set in annual inspection plans or instructions, often building upon overall strategic documents.

As a result, priorities are set per sector or sub-sector, group of workers, type of risks, size of companies e.g. several Member States focus on SMEs.

For example, in France, the Occupational Health Plans both at national and regional levels constitute the main strategic documents for enforcement. Another important strategic document is the National coordinated actions plan 2009-2012 for the Medical Insurance accidents at work/occupational diseases branch. Priorities are set in terms of the size of the companies targeted, the sectors, the groups of workers, the type of equipment. Information and training, research and expertise, management and financing can also constitute priority areas for enforcement. The main criteria on the basis of which those priorities are established include risk assessment, the results of inspections, the national and regional Occupational Health Plans and the national coordinated action plan 2013-2016.

In Hungary, the National Labour Office issues annual inspection directives which set the main targets, areas and expectations for the year. Priorities are set in terms of sectors and groups of vulnerable workers. The selection of priorities is based on the European and national strategy on OSH and the annual reports of the labour inspections.

In some countries, priority setting builds upon overall targets. This is the case in Finland where strategies for inspections are established by the Ministry of Social Affairs and Health through annual operational plans. These operational norms set objectives in terms of number of inspections and specific priorities. Each year, a reviewing report assesses the results obtained in application of the operational plan. Currently, the goals up to 2020 are: (1) decreasing the number of occupational diseases by 10%; (2) decreasing the frequency of workplace accidents by 25%; (3) decreasing perceived physical load due to work by 20%; (4) decrease perceived psychological load due to work by 20%.

4.6 Vulnerable groups (MQ6)

MQ6: What are the differences of approach across Member States and across establishments with regard to potentially vulnerable groups of workers depending on gender, age, disability, employment status, migration status, etc., and to what extent are their specificities resulting in particular from their greater unfamiliarity, lack of experience, absence of awareness of existing or potential dangers or their immaturity, addressed by the arrangements under question?

4.6.1 Potentially vulnerable groups of workers

In order to answer MQ6, the scope of the question has been specified and is considered to cover the following vulnerable groups/specific groups of workers cover:

- › Women
- › Ageing workers
- › Workers with disabilities
- › Migrant workers
- › Young workers
- › Workers with a specific status: temporary workers, agency workers, self-employed working as employees.

4.6.2 Risk factors

Taking into account their specificities, the following risk factors are deemed relevant for these groups of workers and were considered during the mapping. These are the risk factors identified in the 2011 European Parliament Study on OSH risks for the most vulnerable workers⁴²:

- › Pregnancy; breastfeeding
- › Menstrual disorders; Menopause
- › Reduced physical capabilities
- › Additional non-work activities e.g. childcare; house care
- › Part-time jobs; precarious contract
- › Natural deterioration of physical and mental capacities with age or infirmity
- › Longer recovery time with age or infirmity

⁴² European Parliament Study on Occupational Health And Safety Risks For The Most Vulnerable Workers., carried out by Milieu and IOM (IP/A/EMPL/ST/2010-03).

- › Longer exposure to occupational hazards
- › Increased risk of developing long-term or chronic illnesses or disabilities
- › Different risks faced by disabled workers, related either to a decreased tolerance of the body part/function affected by the disability or an increased load on other body parts/functions
- › Combined risks of occupational risk factors (e.g. standing and walking) on the effects of illness or disability (e.g. heart diseases)
- › Less awareness of the risks amongst new (especially young) workers
- › Lack of awareness of long-latency occupational diseases (e.g. asbestos-related disease)
- › Work arrangements (temporary work, etc.)
- › Language barriers
- › Fear of authorities in migrant workers or other insecure groups leading to underreporting of OSH problems
- › Lack of OSH training, especially in temporary and migrant workers
- › Lack of familiarity with the working environment, especially for temporary, young and new workers

4.6.3 Coverage of vulnerable groups in legislation

The Country Summary Reports show that, as a rule, the national legislation does not go beyond the EU requirements – i.e. covering some groups in line with EU Directives, i.e. pregnant and breastfeeding workers, young people at work and temporary workers. In addition, the findings reveal that most Member States have general approaches to vulnerable groups, which are not targeted at specific Directives (except the following Directives, which are specifically designed to address vulnerable groups: Temporary Workers Directive; Pregnant Workers Directive; Young People Directive). Other groups covered in line with EU legislation are women and workers with disabilities in line with Directive 2000/78/EC establishing a general framework for equal treatment in employment and occupation (the Employment Equality Directive). In addition, the OSH acquis itself includes provisions on workers with disabilities.

However, it seems that in some Member States, further requirements are set specifically in relation to OSH. For instance, the Finnish Gender Equality Act (as amended in 2005) promotes gender equality at workplaces, following a systematic approach through planning, monitoring and evaluation. It requires companies to develop an equality plan, with a particular focus on OSH issues. More specifically, sexual harassment, ergonomics and workplace design are considered as the key issues to be addressed in the occupational equality plan. The Act also contains provisions on supervision and sanctions in case of violation of its dispositions. Furthermore, some specific projects have been funded by the Government, which focus on atypical employment contracts for women, sickness absence, work ability and return to work after maternal leave, as well as work/life balance and engagement of women who survived cancer.

Other categories of workers for which national legislation provides specific protection in terms of occupational health and safety are trainees (e.g. BE), part-time workers (e.g. BG), migrants (e.g. ES) and older workers (e.g. LU where legislation on older workers is currently being considered).

4.6.4 Other initiatives targeting vulnerable groups

In most Member States, different strategies, programmes, guidance and initiatives target a number of vulnerable groups, as per the examples provided below.

The Austrian labour inspectorate has conducted campaigns on ageing workers/sustainable work at all ages, promoting guidance and tools, which are available on the labour inspection website. It also provides special information and leaflets targeting young workers.

In Belgium, a series of guidance issued by the Federal Public Service for Employment, Labour and Social Dialogue target different types of vulnerable workers (including older workers; young workers in their first job; part-time workers; temporary, high flexibility workers and agency workers; parents).

The Czech State Labour Inspection Office has implemented a national strategy on gender and OSH, aiming to include gender specific considerations in OSH work. Pragmatic actions include adaptation of PPE to physical characteristics and respect of ergonomic requirements; adaptation of working conditions, prevention of health risks and control of workloads for pregnant and breastfeeding women, and other sector-specific measures.

In France, the industry-wide agreement on the health and safety of temporary employees, which was signed on 26 September 2002 and is currently being renegotiated by the social partners, is designed to foster the development of occupational risk prevention with a view to protecting the health and ensuring the safety of both permanent and temporary employees of temporary employment agencies. The French second Occupational Health Plan includes several actions targeting specific groups of vulnerable workers, namely ageing workers, temporary workers and self-employed.

In the UK, the Health and Safety Executive's website includes a section devoted to vulnerable workers (defined as workers who are at risk of having their workplace entitlements denied, and who lack the capacity or means to secure them) includes managing questions of race and migrant workers, disabled people, gender issues, older workers, and workers new to the job.

4.6.5 Mixed views on the need for specific action

While the need for specific action is recognised, some advocates a general approach, which would apply to all without targeting in particular vulnerable workers.

The European Parliament⁴³ has concluded that attention to vulnerable groups is particularly important in light of the major social and economic changes underway in Europe, including an ageing workforce, higher employment rates for women, a greater number of migrant workers, and a greater use of temporary contracts. Furthermore, it emphasised that recent European policy

⁴³ Ibid.

initiatives provide additional impetus towards addressing vulnerable groups, e.g. the EU 2020 strategy which calls for an increase in workforce participation during this decade, including older workers and women. However, the European Parliament stated that there is scope for further EU action to reduce occupational safety and health risks for vulnerable workers. Possible actions include: the inclusion of domestic workers within the scope of the Framework Directive and other OSH Directives where relevant; promotion of age management in enterprises, e.g. the development of guidelines for SMEs; emphasising the importance of an integrated approach to disability, focusing on both prevention and reintegration; development of tools such as educational programmes targeting students; promotion of the translation of OSH documents into major languages used by migrant workers; greater attention to the long-term health surveillance of temporary workers; and the consideration of suggested means to encourage and track OSH training for temporary workers such as "passports" containing information on the training carried out by the worker in his/ or her previous positions.

Conversely, some stakeholders have expressed the opinion that specific actions targeting vulnerable workers are not needed as long as OSH management should be tailored to individual needs and circumstances. In the Netherlands, interviewed stakeholders agreed that it is not wise to make special arrangements for specific vulnerable groups, as OSH measures in general must always tailor-made and individual characteristics and requirements must always be considered. This is the approach followed by the Danish Working Environment Authority and other European OSH actors in general whereby the work environment should be designed and organised for everybody, considering there is no need for specific approaches to vulnerable groups apart from what is already included in the EU-legislation, as this would most likely lead to exclusion of the labour market.

4.7 SMEs and microenterprises (MQ7)

MQ7: What measures have been undertaken by the Member States to support SMEs and microenterprises (e.g. lighter regimes, exemptions, incentives, guidance, etc.)?

As stated in the Preamble to the Framework Directive, OSH-related Directives, especially in the working environment, must avoid imposing administrative, financial and legal constraints which would hold back the creation and development of small and medium-sized undertakings. As a result, the Framework Directive explicitly includes that the size of the undertaking and/or establishment should specifically be taken into account with regard to the CPMs preventive and protective services, risk assessment (in particular related to the drawing up of specific documents), and information for workers.

Therefore, the mapping question focuses on the identification of measures adopted by Member States, i.e., the national authorities, in order to assist SMEs and micro-enterprises in the implementation of OSH requirements. Measures provided by other actors, such as social partners, are not included. The concept of 'measures' is considered as covering national legislation and soft measures, i.e. incentives. Other measures such as guidance documents are included in MQ4.

The national experts of the Country Summary Reports were asked to check three elements for each Directive:

- › Exemptions: are there thresholds of number of workers to be exempted from certain key requirements? If so, what are the thresholds? To what requirements does it apply?

- › Lighter regime: are certain norms/regulatory standards provided by law differentiated for SMEs?
- › Incentives: have financial measures/tax reductions been adopted to support SMEs?

These are important questions as the National Implementation Reports made clear that many Member States assess that SMEs in particular face difficulties implementing the Directive's (and transposing national legislation's) requirements in their establishments. In particular, as the Member States are widely differentiated not only in terms of national legislation, but also with regard to key characteristics such as size, sectors, geography and organisational structures, the 'one size fits all' model presented in the Directives, proves problematic or even irrelevant for many Member States. An additional difficulty relates to the lack of a coherent methodology for risk assessments and the lack of training of inspectorate officials in order to acquire the necessary knowledge and technical skills to support the SMEs in the implementation of the formal requirements set by the Directives. Although being general problems, the National Implementation Reports show that they are especially relevant to SMEs, which face heavy administrative burdens and a lack of financial and human resources - especially to record risk assessments.

The Belgian NIR states the following: "A large share of small, micro and medium-sized undertakings experience difficulties organising the management of safety and health at work and have insufficient or no knowledge about safety and health at work; the risks are inadequately distributed between large and small undertakings." This point has been corroborated in the Hungarian NIR, which says: "SMEs often misinterpret the provisions of legislation or Directives and only attend to their obligations as a result of an inspection or following an accident." The Polish NIR emphasises the lack of financial resources in SMEs: "Among reasons for irregularities identified during checks, employers often indicate the lack of sufficient financial resources necessary to meet all requirements concerning safety and health at work, as well as to introduce organisational measures." The Cyprus NIR summarises the point nicely: "The practical difficulties encountered in ensuring that the directives achieve their aims relate to the inability of small businesses to comply with the requirements of the directives, due to the lack of know-how, equipment, appropriate means, suitably qualified staff, and capital." Finally, in the Estonian NIR, the increase in the administrative burden and high costs associated with health and safety coordination are singled out.

Many national authorities acknowledge that they face particular problems in reaching micro-enterprises and SMEs about occupational safety and health issues; and especially those that are not part of a business federation.

Overall, the Country Summary Reports show that this contributes to a high degree of non-compliance among micro-enterprises and SMEs. However, interviews with national stakeholders revealed that exceptions to this are: SMEs that are doing well financially and that are well aware of safety and health in the workplace or are working in high-risk areas. Furthermore, SMEs that are subcontractors for large establishments, which have integrated quality systems and under stricter control by inspectorates, also tend to better observe the safety and health regulations.

The table below shows that the Member States, to a varying degree, have made use of measures to support SMEs and microenterprises mainly in complying with the national legislation transposing the Framework Directive provisions. In particular, these provisions (lighter measures, etc.) primarily address general OSH provisions, largely adopted within the Framework Directive, but in practice extending across the whole OSH acquis. Member States tend to favour lighter regimes and

financial incentives to support SMEs and microenterprises. Note in this context that the SMEs and microenterprises in many Member States make up the majority of the enterprises, and so they are in practice already targeted by the general key requirements.

Table 4-10 Exemptions, lighter regimes and financial incentives for SMEs and micro-enterprises

Directive	MSs who provide exemptions	MSs who provide lighter regimes	MSs who provide incentives
Directive 89/391/EEC (FW)	BG, CZ, DE, DK, ES, FI, FR, NL, PT, SE, SK [11]	BE, DE, IE, ES, HU, IT, LT, LU, LV, NL, PT, RO, SI, SK, SL [15]	BE, BG, DE, EE, EL, ES, FR, IT, MT, NL, PT, RO [12]
Directive 89/654/EEC (workplace)	ES	-	-
Directive 2009/104/EC (work equipment)	-	-	FR, CY
Directive 89/656/EEC (PPE)	-	-	-
Directive 92/58/EEC (OSH signs)	-	-	-
Directive 1999/92/EC (ATEX)	-	-	-
Directive 90/269/EEC (manual handling)	-	-	-
Directive 90/270/EEC (DSE)	-	-	-
Directive 2002/44/EC (vibration)	-	-	BE
Directive 2003/10/EC (noise)	-	-	BE
Directive 2004/40/EC (EMF)	-	-	-
Directive 2006/25/EC (AOR)	-	-	BE
Directive 2004/37/EC (carcinogens or mutagens)	-	-	-
Directive 98/24/EC (chemical agents)	-	-	-
Directive 2009/148/EC (asbestos)	-	-	-
Directive 2000/54/EC (biological agents)	DE	-	-
Directive 92/57/EEC (construction sites)	MT, SE	-	CY
Directive 92/104/EEC (mineral-extracting industries)	-	-	-
Directive 92/91/EEC (drilling)	-	-	-
Directive 92/29/EEC (medical treatment on board vessels)	-	SE	-
Directive 93/103/EC (fishing vessels)	-	SE	BE
Directive 92/85/EEC (pregnant workers)	-	-	-
Directive 91/383/EEC (temporary workers)	-	-	-
Directive 94/33/EC (young workers)	-	-	-

Austria and the UK have not provided any specific measures directed to SMEs and microenterprises. As an Austrian stakeholder has noted during the interview: “SMEs are naturally addressed within the measures taken and therefore special regimes are not common”. Also

Cyprus did not take any specific measures, apart from establishing a financial incentive for building contractors.

Eleven Member States have introduced specific exemptions for SMEs and micro-enterprises to the key requirements laid down in the Framework Directive. The majority of these exemptions relate to:

- › the exemption from the obligation to have an OSH Committee or similar organisation (BG, DK, ES, FI, SK). Note this exemption may account for a small proportion of the lower number of micro establishments to have an OSH committee as discussed in MQ3 above.
- › the exemption from the obligation to have a health and safety representative (FI) or worker representative (FR)
- › the non-obligatory nature to comply with the requirements on training of workers, consultation of workers and information for workers (CZ)
- › the (written) documentation of risk assessments (DE until 2013, SE) or OSH corporate policy (SK)

All of these exemptions are inherently connected to the number of workers in the establishment. On average, the exemptions will apply in those enterprises with less than 11 workers.

Fifteen Member States have established a lighter regime for SMEs and micro-enterprises. This lighter regime often relates to:

- › different types of preventive and protective services are to be set up depending on the size of the enterprise (BE, DE, ES, LV, LT, LU, NL, PT, RO, SL). For example, the employer himself can be the safety expert if he employs fewer than 15 workers.
- › the participation of workers to the OSH policy (BE, SL)
- › setting up a standard risk assessment (IT)
- › simplified procedures for compliance for SMEs operating in the agricultural sector (IT)
- › simplified documentation (ES)

The above mentioned lighter regimes can generally only be applied provided that – where applicable – the appointed safety officers have received a special training or have the necessary qualifications. In addition, lighter regimes are generally not applicable in establishments where there are high occupational (or other) risks.

Almost half of the Member States make use of financial incentives for SMEs and micro-enterprises to comply with the Framework Directive. There is not really a ‘trend’ in the type of financial incentives offered and the following therefore gives a Member State specific overview:

- › BE: reduced costs related to external preventive and protective services
- › BG: financed programmes for risk assessment in certain sectors and extra financial compensation from health insurance

- › EE: financial support for risk assessment
- › EL: fund for training of workers and financial aid directed to certain sectors
- › ES: financial incentives in reducing the contribution for companies that have improved the prevention of accidents at the workplace
- › FR: fund for the modernisation of enterprises in order to improve working conditions, fund to implement risk prevention measures, support at local level to help implement preventive measures, as well as various funds for workers with disabilities
- › IT: fund for training workers in the agricultural sector and fund for the adoption of organisational models and social responsibility (and related investment projects), as well as since 2013, a fund for the replacement or adjustment of work equipment
- › MT: tax credits covering certain investments
- › NL: external service should not check the risk assessment
- › PT: health at work is to be ensured by the National Health Service and there is financial support for training of workers
- › RO: de minimis aid scheme

No exemptions, lighter regimes or financial incentives are established by any of the Member States in the national legislation transposing Directives 89/656/EEC (PPE), 92/58/EEC (OSH signs), 1999/92/EC (ATEX), 90/269/EEC (manual handling), 90/270/EEC (DSE), 2004/40/EC (EMF), 2004/37/EC (carcinogens or mutagens), 98/24/EC (chemical agents), 2009/148/EC (asbestos), 92/104/EEC (mineral-extracting industries), 92/91/EEC (drilling), Directive 92/85/EEC (pregnant workers), Directive 91/383/EEC (temporary workers) and 94/33/EC (young workers). It should, however, be noted that the particular measures to support SMEs and micro-enterprises in the implementation of their legislation transposing the Framework Directive are equally applicable, given that they relate to procedural aspects which apply to any SMEs whatever are the risks or types of workers involved. Also, several Member States have explained that they do not find additional support to be necessary, as practically all enterprises in these Member States are SMEs and there is hence no need to draw any distinctions (see, e.g. the Spanish NIR).

Specific financial incentives are established by BE, FR, CY to support SMEs and micro-enterprises in the implementation of their legislation transposing Directives 2002/44/EC (vibration), 2003/10/EC (noise), 2006/25/EC (AOR) and 93/103/EC (fishing vessels) – for Belgium, and Directive 2009/104/EC (work equipment) – for France and Cyprus, and Directive 92/57/EEC (construction sites) – for Cyprus. In Belgium, for example, the Funds for national diseases offers the services of technical experts for assessing physical agents such as noise, vibration and AOR, as part of a programme of preventive advices. In Cyprus, a 2008 grant scheme for building contractors in SMEs was introduced in order to improve the Cypriot metal scaffoldings industry.

SE provides a lighter regime for SMEs implementing the two Vessels Directives, where Swedish legislation has introduced separate levels of medical competence on board ships, depending on their size, the available crew and the time away from land.

Finally, there are four extra exemptions foreseen for SMEs and micro-enterprises implementing the national legislation transposing individual Directives. They relate to Spain, with regard to Directive 89/654/EEC (workplace), as companies employing less than 50 people are not required to have a first-aid location; Germany, with regard to Directive 2000/54/EC (biological agents), as risk assessment documentation is only required when working with biological agents of risk group I; Malta in relation to Directive 92/57/EEC (temporary or mobile construction sites), for which Malta foresees exemptions to the Prior Notice and Health and Safety Plan for short-duration construction works; and Sweden, with regard to Directive 92/57/EEC (temporary or mobile construction sites), where a work environment plan is only required for certain sizes of construction works.

Apart from the above mentioned exemptions, lighter regimes and financial incentives, while there are very few additional accompanying actions addressed specifically to SMEs, most Member States and/or social partners strongly emphasise the considerable number of accompanying actions, organised awareness raising events and training sessions (sometimes with the cooperation of inspectors) which can help SMEs better understand the legal requirements laid down in the Directives and ultimately comply with such requirements more easily and effectively. In general, the additional measure most commonly praised by SMEs were the development of publications, e.g. folders, brochures and circulars, websites and educational activities, e.g. training programmes and workshop, which all aim to expand the SMEs' knowledge of health and safety issues in the workplace, thus enabling preventive measures. However, these kind of measures are mostly applicable to all enterprises regardless of the size, but can be of particular relevance to SMEs with a view to facilitate the implementation of OSH requirements and reduce the burden of compliance.

Some examples illustrate the importance of accompanying actions for SMEs. In Spain, the National Institute of Hygiene and Safety at Work, in collaboration with the Autonomous Communities, launched "Prevención 10", a free public advice service on prevention of occupational risks for micro-companies and the self-employed. It is considered to be an important tool to help employers and the self-employed learn the measures to be taken in order to prevent occupational risks and comply with the Law on Occupational Risks Prevention. Belgium has developed a particular tool for the management of occupational risks and for a dynamic and effective risk management, called SOBANE (Screening, Observation, Analysis and Expertise). The methods developed for SOBANE are being developed in function of the means and competences which are available in SMEs. The Polish Central Institute of Labour Protection-National Research Institute, on its turn, is the coordinator and main executor of the long-term 'Programme for the improvement of work safety and work conditions', under which several pieces of research were conducted and soft measures have been elaborated. The latter include, in particular, guidelines, control procedures, checklists, textbooks and IT applications. This programme was established in 2007 and is currently in the third phase of execution. The Institute has developed a website dedicated to micro-enterprises, providing access to information on safety and health in the working environment to the smallest and most numerous companies in Poland. Further in Poland, the implementation of individual Directives across SMEs is supported under accident- prevention activities financed from a dedicated Accident Fund of the Social Insurance Institution. These activities include, for example, the organisation of training sessions on OSH and risk prevention. The courses are organized all over the country (in each voivodship) and they concern issues related to the prevention of risks in the working environment. On average they gather around 1000 attendees.

5 Assessment of relevance

In accordance with the Task Specification, this chapter presents the extent to which the aims of the Directives are up-to-date in addressing the needs and issues related to the health and safety of workers.

5.1 Current relevance (EQR1)

EQR1: To what extent do the Directives adequately address current occupational risk factors and protect the safety and health of workers?

The first task in establishing the relevance of any Directive was to determine how many of the MSs it was of relevance to. The fact of transposition into national legislation was not sufficient for this because, as is apparent from the NIRs, some MSs have transposed directives which are then stated as not being of relevance to them. The first criterion to be applied therefore is whether there are workers and /or sectors in each of the MSs where relevant hazards might be encountered. In doing this it is not necessary to identify all such sectors, simply that some at least exist in each MS.

Following this, the second criterion was to estimate the proportion of the EU-27 workforce to which the provisions of the Directive were potentially relevant. Some directives applied to all (or most) sectors or were sector-specific. In other cases, especially for the hazard-specific directives, it was necessary to determine the main sectors (or sometimes sub-sectors) where that hazard might be encountered. There are often a variety of sectors and occupations where exposure to a specific hazard is possible, usually for small, select sub-groups of the workforce. In some cases however each of these represents a specialist sub-group within a sector making it difficult to establish the numbers of workers potentially exposed. In order to provide an approximate estimate of the proportion of the EU-27 workforce possibly exposed to a hazard, without estimating numbers in such subsectors, a procedure was adopted whereby the whole employment figure was adopted for those sectors where the majority can be assumed to be at risk of exposure (not necessarily exposed) and to omit those in relatively small subsectors. This clearly resulted in, on the one hand, an overestimate of those potentially at risk and, on the other hand, an underestimate. However, it was considered that this provided a reasonably accurate overall estimate, where the intention was to provide a broad view of the proportion of the workforce covered, rather than any detailed calculation.

Subsequent criteria related to indicators of the extent to which the hazards or risks addressed by a Directive remained a potential problem. This was explored by examining information relating to the

occurrence of injuries or diseases which could be related to exposure to the hazard, or data giving some insight into ongoing exposure to the potential hazard in question.

5.1.1 Summary of the five relevance parameters across all Directives

Table 5-1 presents a summary of the five main parameters used to assess relevance. It lists each of the Directives and summarises the results for the main criteria. It will be noted that, for many directives, it has not been possible to summarise some data into a single figure. Full details of these are presented in the specific report on that Directive

Table 5-1 Summary of the five relevance parameters across all Directives

Directive	Coverage of Workforce and MSs		Severity and extent of risks covered		
	Number of MS where Directive potentially relevant	Proportion of EU workforce whom Directive potentially relevant	Fatal accidents at work (per 100-000 employed)	Non-fatal accidents at work (per 100,000 employed)	Work-related health problems
89/391/EEC (framework)	27	100%	1.82	1480.74	12,8%
89/654/EEC (workplace)	27	99.6%	n/a ⁴⁴	See Directive report	See Directive report
2009/104/EC (work equipment)	27	100%	n/a	See Directive report	See Directive report
89/656/EEC (PPE)	27	~100%	n/a	See Directive report	See Directive report
92/58/EEC (OSH signs)	27	100%	n/a	See Directive report	See Directive report
92/85/EEC (pregnant/breastfeeding workers)	27	33%	<0.26 ⁴⁵	<~1,000	9.7%
91/383/EEC (temporary workers)	27	13.33% ⁴⁶	n/a	See Directive report	See Directive report
94/33/EC (young people)	27	0.45% ⁴⁷	0.93	2125.44	See Directive report
90/269/EEC (manual handling)	27	52.1%	n/a	See Directive report	See Directive report
90/270/EEC (DSE)	27	52.76%	n/a	See Directive report	See Directive report
1999/92/EC	27	1.4%	4.6 ⁴⁸	120 ⁴⁹	n/a

⁴⁴ n/a – not applicable or not available – see text.

⁴⁵ All women of child-bearing age, not necessarily those who are pregnant.

⁴⁶ This percentage is based on data from responses to the relevant question in EWCS 2007 data; this differs from most of the Directives where the LFS data is used.

⁴⁷ This figure is based on the assumption that the 2010 EWCS is a representative population of the EU-27 workforce.

⁴⁸ Estimated for relevant manufacturing subsectors only.

(ATEX)					
2002/44/EC (vibration)	27	21% -22%	n/a	See Directive report	See Directive report
2003/10/EC (noise)	27	25.4%	0	See Directive report	See Directive report
2004/40/EC (EMF)	27	3.7%	n/a	See Directive report	See Directive report
2006/25/EC (AOR)	27	1.6-3.3%	n/a	See Directive report	See Directive report
2004/37/EC (carcinogens and mutagens)	27	12.3%	n/a	See Directive report	See Directive report
98/24/EC (chemical agents)	27	50%	n/a	See Directive report	See Directive report
2009/148/EC (asbestos)	27	7.2%	5,000 ⁵⁰	See Directive report	See Directive report
2000/54/EC (biological agents)	27	20.4%	See Directive report	See Directive report	See Directive report
92/57/EEC (construction)	27	7.2%	6.18	3138.36	12.8 % ⁵¹
92/104/EEC (S&U mineral extraction industries)	27	0.32%	10.6	1,601	See Section 4.1
92/91/EEC (drilling)	~26	0.05%	n/a	See Section 4.1	See Section 4.1
92/29/EEC (medical treatment on board)	23	0.9%	1.82	926.86	See Section 4.1
93/103/EC (fishing vessels)	22	0.05%	16.87	2,767.18	13.6%

5.1.2 Number of MS where risk is present

General directives

89/391/EEC (framework); 89/654/EEC (workplace); 2009/104/EC (work equipment); 89/656/EEC (PPE); 92/58/EEC (OSH signs)

In many cases, the provisions of the Directives are sufficiently broad to be unquestionably relevant to all 27 MS. The Framework Directive, together with the Workplace and Work Equipment Directives clearly fall into this category as do the Use of PPE and OSH signs Directives.

⁴⁹ Estimated for relevant manufacturing subsectors only

⁵⁰ Estimated deaths in 1998.

⁵¹ Few, if any of these health problems are directly addressed by the provisions of the Construction Directive.

Worker-specific directives

92/85/EEC (pregnant/breastfeeding workers); 91/383/EEC⁴² (temporary workers); 94/33/EC (young people at work)

Similar considerations apply to those Directives relating to pregnant/breastfeeding workers, temporary workers and young people at work as these are not sector or risk-specific.

Risk-specific directives

90/269/EEC (MH); 90/270/EEC (DSE)

Although risk-specific, the risks associated with manual handling and the use of Display Screen Equipment (DSE) were considered to be virtually ubiquitous and that no verification of their relevance to every MS was considered to be required.

1999/92/EC (ATEX)

Entries in the NIRs indicate that this Directive has been transposed into national law in each MS (ref. NIRs). The non-binding guide to the provisions of the Directive⁵² includes a table (Table 1.1) of examples of potential explosion hazards. This covers such a wide variety of situations that it serves to illustrate the relevance of this Directive across all Member States.

2002/44/EC (vibration)

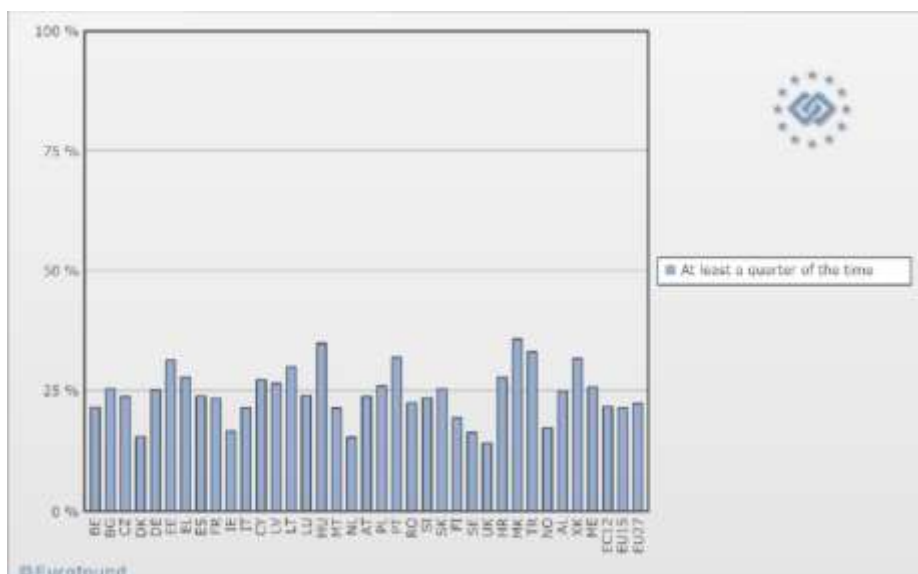
Entries in the NIRs indicate that this Directive has been transposed into national law in all MS (ref. NIRs). The Fourth European Working Conditions Survey⁵³, reported in 2007, indicated that exposure to vibration was reported across all MS.

Figure 5-1 below is from the Fifth Survey (2010 reported in 2012) and confirms that this remains the case and that the Directive remains relevant in all MSs.

⁵² Non-binding guide to good practice for implementing the European Parliament and Council Directive 1999/92/EC

⁵³ <http://www.eurofound.europa.eu/pubdocs/2006/98/en/2/ef0698en.pdf>

Figure 5-1 Reported exposure to vibration at work, at least 25% of the time across MS⁵⁴.



Source: Eurofound, Fifth EWCS Survey (2010)

Note: Vertical axis shows percentage of respondents in each MS indicating exposure to work at least 25% of their shift

2003/10/EC (noise)

As with the Vibration Directive, entries in the NIRs indicate that the Noise Directive has been transposed into national legislation in all MSs (ref. NIRs). Data from the most recent EWCS confirms that some workers report exposure to noise at work at least 25% of the time across all MSs⁵⁵ confirming the ongoing relevance of this Directive.

2004/40/EC (electromagnetic fields)

Directive 2004/40/EC relating to exposure to electromagnetic fields (EMFs) has been subject to a number of revisions. Directive 2013/35/EU of 26 June 2013 repeals the earlier Directive and revisions and establishes (ref. Article 16) that Member States have to enact the laws, regulations and administrative provisions necessary to comply with this Directive by 1 July 2016. At present therefore, the criterion of adoption into national legislation cannot be applied to this Directive. This view is confirmed by reference to the NIRs, which indicate that most MSs have not implemented the provisions of either Directive, have repealed their transposition of the earlier Directive or do not actively enforce the provisions made (ref. NIRs).

Electromagnetic fields are produced by a wide range of sources that workers may encounter in the workplace. They are generated and used in many work activities. However, two of the main common industrial sectors where EMFs will be encountered include electrical power generation (low frequencies) and telecommunications (high and very high frequencies). It would appear that all MS have workers in these two main industrial sectors where exposure to EMFs might occur and therefore the Directive is potentially applicable to all MS.

⁵⁴ http://www.eurofound.europa.eu/surveys/smt/ewcs/ewcs2010_04_02.htm

⁵⁵ <http://www.eurofound.europa.eu/surveys/ewcs/2010/datatables.htm>

2006/25/EC (artificial optical radiation)

The Artificial Optical Radiation (AOR) Directive has been transposed into national legislation in all MSs according to findings from the NIRs. Commonly encountered sources of infra-red radiation include industries where red-hot (molten) materials are utilised such as glass-making (and glass products) and primary metal production (metal smelting and casting). Eurostat data shows relevant employment in these industries in all MSs with the exception of Luxembourg and Malta.⁵⁶ A more detailed specific search of the Eurostat database, combined with further investigations revealed relevant industrial activity in both of these MSs. On this basis, it was concluded that occupational risks relevant to the AOR Directive are potentially experienced by workers in all MS and the Directive can be regarded as relevant in all MS.

98/24/EC (chemical agents at work); 2004/37/EC (carcinogens or mutagens)

Both Directives have been transposed into national legislation in all MSs according to evidence from the NIRs. The possibility of exposure to potential carcinogenic substances covered by the Carcinogens or Mutagens Directive (CMD) can be identified in each of the MSs, as will the use of chemicals in some form. On this basis, both Directives can be regarded as relevant in all MS.

2009/148/EC (asbestos)

All MS have transposed the provisions of this or the earlier Asbestos Directive (Directive 83/477/EEC) (ref. NIRs). EU-OSHA has indicated that all construction, maintenance and cleaning workers are potentially at risk from exposure to asbestos.⁵⁷ Trades at risk include: plumbers; heating engineers; electricians; joiners; carpet fitters, and fitters of other floor finishes; shop fitters; maintenance staff, including contract staff and janitors; roofers; and cleaners. No MS is known where asbestos has not been used in the past. As such it is clear that there will be workers in all MSs potentially at risk from asbestos exposure and for whom therefore the provisions of this Directive are relevant.

2000/54/EC (biological agents)

This Biological Agents Directive has been transposed into national legislation in all MS according to evidence from the NIRs. According to EU-OSHA, exposure to biological agents can occur whenever people are in contact at work with natural or organic materials such as: soil, clay, plant materials (hay, straw, cotton, etc.), substances of animal origin (wool, hair, etc.), food, organic dust (e.g. flour, paper dust, animal dander), waste, wastewater, blood and other body fluids. They are therefore potentially encountered in a wide variety of occupational groups represented in all MS and so the Directive remains relevant in all MS.

Sector specific directives

92/57/EEC (construction)

It is clear that all MSs have construction activities in some form and that the provisions of this Directive are therefore potentially applicable.

⁵⁶[http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Key_indicators,_manufacture_of_basic_metals_\(NACE_Division_24\),_2010_A.png&filetimestamp=20130507064311](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Key_indicators,_manufacture_of_basic_metals_(NACE_Division_24),_2010_A.png&filetimestamp=20130507064311)

⁵⁷ <https://osha.europa.eu/en/publications/factsheets/51>

92/104/EEC (M&Q)

The provisions of the Mines and Quarries Directive have been transposed into the national legislation in all MS according to the NIRs. Eurostat data shows enterprises in industries categorised under NACE Code B in almost all MSs except Malta⁵⁸. However, the absence of detailed data from some MSs prevents checking whether this is restricted to drilling (NACE Code B06), which is covered by the Drilling Directive, or encompasses surface and underground mineral extraction as covered by this M&Q Directive. The reports from the 4th and 5th EWCS studies merge this sector into the larger industrial sector and therefore also do not provide separate information.

The 2012 Minerals Yearbook⁵⁹ records that several small stone quarries operate on the islands of Gozo and Malta, with limestone the main mineral product, confirming that they have industrial activity in this sector. Exploration of the National Implementation Reports identified that all MS have industrial activity in the relevant sector, although in a number of MSs this is limited to surface extraction (quarries, opencast mines) with no underground mining activities (ref. NIRs). Yet in sum, this Directive remains relevant to workers in all 27 MS.

92/91/EEC (drilling)

Extraction of minerals through drilling is generally smaller-scale than extraction through mines and quarries. Nevertheless, the provisions of the Drilling Directive have been transposed into national legislation in all MSs (ref. NIRs). Eurostat data⁶⁰ shows either a zero entry or no data for various reasons for BE, IE, EE, CY, LU, MT, SK, FI, SE for activities relating to the extraction of crude petroleum or natural gas.

Of these, IE, EE, CY, MT, SK, and SE all appear however to have some form of oil and gas exploration activity. LU and FI have no indications of any such activity, although Finland is believed to be associated with some Arctic exploration activities, possibly providing support expertise.

Further exploration of the National Implementation Reports identified that not all MSs have relevant industrial activity, with some, such as Luxembourg, Malta and Portugal indicating none whatsoever and others, such as Latvia and Estonia reporting only limited relevance. In fact Estonia appears to have extended the scope of the Directive to cover the extraction of water by drilling which constitutes their only relevant industry (ref. NIR-EE). Thus, the question of relevance of the Directive to some MSs presents a confusing and sometimes contradictory picture depending on the source of information. It appears to not be relevant to Luxembourg and may be of little relevance in several other MSs although the fact that they have transposed the Directive into national legislation could suggest that the possibility of relevant activity in the future cannot be ruled out.

92/29/EEC (medical treatment on board vessels)

It appears that provisions have been made for the transposition of this Directive in almost all MSs (ref. NIRs). The exceptions, according to the NIRs, are the Czech Republic and Hungary. Eurostat

⁵⁸ Annual enterprise statistics by size class for special aggregates of activities (NACE Rev. 2) [sbs_sc_sca_r2]
<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

⁵⁹ <http://minerals.usgs.gov/minerals/pubs/country/2012/myb3-2012-mt.pdf>

⁶⁰ Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E) [sbs_na_ind_r2]

data published in 2010⁶¹ shows enterprises in the water transport sector (NACE Code H50) in almost all MSs, with the exception of BE, LU, MT. As discussed above, it is unclear whether this represents an absence of data or a genuine zero return, although the entries for Belgium (listed as confidential) and Luxembourg (low reliability) suggests that there are some data.

In the case of Belgium, there is a ship registry which implies that there are Belgian registered vessels. Similarly there are Luxembourg⁶² and Malta registered vessels. In fact Malta is claimed to have the largest ship register in Europe⁶³. It would seem therefore that this Directive is potentially relevant in all MS.

It should however be noted that this includes freshwater and coastal transport and might not therefore represent the accurate extent of relevance of the particular provisions of this Directive. To explore this further the 27 National Implementation Reports were interrogated. This revealed that four MS (AT, CZ, HU, & SK) do not consider this Directive to be relevant to them (Slovakia described it as 'less than marginal') with two not having implemented its provisions as noted earlier.

However, it remains relevant in all other MSs (ref. NIRs).

92/29/EEC (work on board fishing vessels)

Not all MSs have national instruments transposing the provisions of this Directive listed on the eur-lex.europa website⁶⁴ although some have been recently added (e.g. December 2014). It is not clear from this whether this indicates an absence of any relevant industry or an omission from the site. However, 21 MSs appear to be represented.

Statistics on fishing are not always available as this code is omitted from some Eurostat sources or merged with others. A report on the Common Fisheries Policy from 2014 documents fishing vessels in 22 of the EU-27 (including BE). MSs not included are AT, CZ, HU, LU and SK⁶⁵.

Confirmation of the position was sought from the NIRs. This confirmed that these five MSs did not regard this Directive as being of relevance to them and, in three cases, its provisions had not been adopted into national legislation. In one further MS (CY) the relevance was described as 'very limited', a description which could also perhaps be applied to Romania which recorded that there were just two qualifying fishing vessels operating under their jurisdiction (ref. NIRs).

A further point to note from the NIRs is that most noted an ongoing trend for a reduction in the number of registered fishing vessels, in accordance with common fishery policies. This point will be explored further in the Directive-specific report.

⁶¹ Annual enterprise statistics by size class for special aggregates of activities (NACE Rev. 2) [sbs_sc_sca_r2]
<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

⁶² <http://www.maritime.lu/luxembourg-merchant-fleet>

⁶³ <http://www.flagport.com/>

⁶⁴ http://eur-lex.europa.eu/search.html?type=advanced&qid=1424700506334&DN=71992L0029*

⁶⁵ http://ec.europa.eu/fisheries/documentation/publications/pcp_en.pdf

5.1.3 Proportion of EU workforce covered by the provisions of the Directives

General Directives

89/391/EEC (framework); 89/654/EEC (workplace); 2009/104/EC (work equipment); 89/656/EEC (Use of PPE); 92/58/EEC (OSH signs).

Turning to the labour market, determination of the proportion of the labour market covered by the provisions of most of these Directives is a matter of establishing the number of persons employed within relevant sectors. The provisions of three of these general directives (Framework, Work Equipment & OSH signs) are used to some extent in all sectors, and therefore they are relevant to all EU workers in all sectors (100%) which according to LFS data for 2012, amounts to 215,678,600 people (15-74 years)⁶⁶.

For the Use of PPE Directive, the provisions apply to most sectors, with the exclusion of certain specific groups (equipment used by emergency and rescue services, the military, police and other public order agencies, and in road transport). However, each of these are encompassed within much wider sectors and it is not possible to objectively determine the proportion to exclude. As an added complication, not all MSs apply these exclusions. It is therefore considered that the Use of PPE Directive is potentially relevant to most (~100%) workers.

For the Workplace Directive, again there are exclusions, although the only excluded group which can be determined with any certainty is the extraction industry sector, encompassing 0.37% of the EU-27 workforce leaving approximately 99.6% for whom this Directive is potentially relevant.

Worker-specific Directives

In extension, determination of the proportion of the labour market covered by the provisions of the worker-specific Directives is therefore a matter of establishing the number of employees in the EU-27 labour force exposed to the risks compared to the total workforce of 215,678,600 people, as established above. There are a number of approaches and data sources which can be used to establish these numbers. No single source provided data suitable for each Directive. Therefore, for each Directive, the most appropriate approach or source was adopted and is documented below.

92/85/EEC (pregnant/ breastfeeding workers)

To determine what age range of female workers fit within a child-bearing age range, Eurostat data on demographic fertility rate by age was consulted.⁶⁷ This identified that the child-bearing age of females in the EU-27 in 2012 ranged from 15-49 years. For this age range in the LFS data 71,355,000 female workers were employed in the EU. As any employer who has female workers of child-bearing age should consider this in any risk assessment, the Pregnancy Directive can therefore be regarded as potentially relevant to 33% of the EU workforce.

⁶⁶ Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [Ifsa_egan2.

⁶⁷ <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>

91/383/EEC (temporary workers)

To determine the proportion of workers in temporary employment, EWCS data for 2007 was consulted as the most recent available material.⁶⁸ Clearly this only provides a guide as the figure might be expected to have changed in the period since then.

In the responses to the EWCS 2007 survey, the number of participants who responded to question Q3B 'What kind of employment contract do you have?' was 29,296. Of those respondents 3,300 workers were in a fixed term contract or 11.26%; 449 respondents were in a temporary employment agency contract or 1.53%; and 156 respondents were in an apprenticeship or training scheme or 0.53%.

A further 1,826, or 6.23%, of the respondents reported themselves as having no contract; however, due to the ambiguity of what 'no contract' means in the questionnaire it cannot be determined whether this proportion of the respondents are in temporary or permanent employment as either are possible. The proportion of the EU-27 workforce in temporary employment is therefore based on the proportion of respondents who responded positively to one of the first three options. This yielded a total of 13.33% of the workforce (as shown by the EWCS) being considered to be in temporary employment.

94/33/EC (young people at work)

Determination of the proportion of the labour market covered by the provisions of this Directive is therefore a matter of establishing the number of young persons employed within the EU-27 workforce. In the context of the Young Workers Directive, a young person is defined as a worker under the age of 18 years.

To determine the proportion of young persons in employment EWCS data for 2010 was consulted. The number of participants who responded as being younger than 18 years, was 162 of a total of 35,372 respondents. Therefore, the Young Workers Directive could be estimated as relevant to 0.45% of the EU-27 workforce.

Risk-specific Directives

With some risk-specific Directives estimates have been made on the basis of the proportion of workers in those sectors (or sub-sectors) where exposure to the hazard is most likely to occur. These sectors have been selected on the basis of expert OSH advice. It is recognised that there will be workers in other sectors who will be potentially exposed to the risk. Similarly, there will be workers in the sectors selected who are not exposed. However, it was not considered appropriate to assign 'estimated fractions' to these proportions which, it was hoped, would to some extent be balanced.

90/269/EEC (Manual Handling)

One source of evidence of coverage of the workforce is the EWCS 2010 data⁶⁹, documenting the proportion of respondents who reported that their job involves carrying or moving heavy loads. Across the EU-27, 52.1% of those questioned responded positively to this. Thus, to the extent that

⁶⁸ Fourth European Working Conditions Survey, 2007

⁶⁹ <http://www.eurofound.europa.eu/surveys/ewcs/2010/datatables.htm>

the EWCS can be regarded as genuinely representative, this provides a guide to the proportion of the EU workforce to whom the manual handling Directive is currently relevant.

In the same survey, a second question asked about lifting and handling people. Only 16.5% of the respondents replied positively to this. It is not clear to what extent the two samples overlap, but it would seem likely that those reporting handling people would also have acknowledged handling heavy loads implying a total overlap. This figure is therefore assumed to be included within the 52.1% reported above.

An alternative approach to estimating the proportion of the EU workforce to whom the MH Directive is relevant is to compute the proportion of the workforce in those occupational sectors where manual handling might be regarded as a common activity. Some, such as construction, mining and agriculture; can be selected with reasonable confidence, with the assumption that most of those employed in these sectors will be required to manually handle loads at times. However, the proportion of those in other sectors such as manufacturing and retail, who are also required to perform manual handling is harder to predict and, even in more business service sectors, there will be some employees who perform such tasks. This approach is therefore unlikely to provide a reliable estimate.

Manual handling is also common in the healthcare sector (not just handling people) although again the proportion of those employed in this sectors who carry out such activities (handling patients or materials) is not easy to derive from the data available.

In the absence of a clear criterion based on sectors, it is suggested that the estimate from the EWCS 2010 of 52.1% provides the most reliable indication available for defining the proportion of the EU-27 workforce for which this Directive is relevant.

90/270/EEC (DSE)

Establishing the proportions of DSE users in different economic sectors is not straightforward as computers are widely used in offices and virtually every employer will include some form of office function.

The EWCS 2010 survey included the questions: "Does your main paid job involve - working with computers: PCs, network, mainframe?" and "Does your main paid job involve - Using internet / email for professional purposes". Of the respondents, 52.76% indicated that they did so for a quarter of their time or more to one or both questions (curiously, some individuals responded that they never worked with computers, despite indicating that their main job involved using the internet/email). Thus, to the extent that the EWCS can be regarded as genuinely representative, this provides a guide to the proportion of the EU workforce to whom the DSE Directive is currently relevant.

As an alternative approach, data was obtained from the LFS 2012 data, to calculate the number of employees in relevant sectors likely to be users of computers in some form. The database showed a total of 215,678,600 employed persons (15-74 years) in total across the EU-27 for 2012. Within this, the following sectors were selected as predominantly employing workers likely to be DSE users:

- › J: Information and communication
- › K: Financial and insurance activities

- › L: Real estate activities
- › M: Professional, scientific and technical activities
- › N: Administrative and support service activities
- › O: Public administration and defence; compulsory social security
- › U: Activities of extraterritorial organisations and bodies.

This yielded a total of 49,613,300 workers or 23% of the total workforce well short of the percentage provided from the EWCS database. Not all workers in the selected sectors will use computers, with no means of determining an accurate figure. Additionally, there will undoubtedly be workers in other sectors for whom the Directive is relevant, such as office staff in the manufacturing sector. This makes a sector-based approach particularly problematic and prone to error.

In the absence of a clear criterion based on sectors, it is suggested that the estimate from the EWCS of 52.76% provides the most reliable indication available for defining the proportion of the EU-27 workforce for which the DSE Directive is relevant.

1999/92/EC (ATEX)

Consultation with expert practitioners suggested that the Directive is most relevant to specialised sectors within the main sectors. However, employment data do not extend to these more detailed classifications. Therefore the following sectors were selected as likely to have a reasonable proportion of workers to whom the provisions of this Directive could be relevant:

- › C10 - Manufacture of food products
- › C16 - Manufacture of wood and of products of wood and cork, except furniture
- › C20 - Manufacture of chemicals and chemical products
- › C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
- › H49 - Land transport and transport via pipelines.

By applying the percentages to the number of workers in the two sectors from the LFS data, the ATEX Directive can be regarded as relevant to 168,162 manufacturing workers and 2,846,584 transport workers in the EU, which amounts to approximately 1.4% of the EU workforce in total.

2002/44/EC (vibration)

The EWCS data provides self-reported data from individual workers who report themselves as exposed to vibration at work for at least 25% of the time. This has limitations in that exposure to vibration for less than 25% of a working shift can present a risk of injury. It also does not differentiate between whole-body and hand-arm sources although, as both are covered by the Directive, this is of limited importance. Nevertheless, it provides one approach to estimating the proportion of the EU workforce exposed to vibration at work and to whom therefore the Directive is relevant. From the Fifth Survey EWCS data it can be established therefore that 22.1% of respondents reported themselves as exposed to vibration for at least 25% of the time. For the purpose of this analysis, it is assumed that 'almost never' reflects negligible exposure for which the Directive would not be relevant. Based on a sample of over 35,000 individuals across the EU-27 these data are not weighted or adjusted for the representativeness of the different sectors represented.

A second approach to establishing relevance entails taking data for relevant sectors and estimating the proportion of the EU-27 workforce employed within those sectors and therefore potentially covered by the provisions of this Directive. In addition to the agricultural (NACE Code A) and

construction (NACE Code F) sectors, subject experts advised that vibration exposure was common in the mines and quarries sector (NACE Code B) as well as in some subsectors of manufacturing (e.g. NACE Codes C16 – manufacture of wood products, and C25 – manufacture of fabricated metal products). The Directive can also be relevant to workers in some other specialist applications, such as landscape services (N81). From LFS data for 2012, using the widest available age range (15-75 years), it can be determined that a total of 26,811,600 workers are employed within the three codes A, B and F. To these can be added data from the SBS database for the relevant manufacturing (and other) subsectors (C25, 26, 27, 28, 29, 30, 31, N81) which results in a total workforce of 44,985,600. Based on total employed persons figures (LFS 2012) this yields an estimate that 20.9% of the EU-27 workforce are employed in sectors where they are potentially exposed to vibration and for whom the Vibration Directive can be considered to be relevant.

Given the uncertainties over the various sets of data involved these two estimates appear to be remarkably similar and give a clear indication of the proportion of the workforce to whom the Vibration Directive is relevant.

2003/10/EC (noise)

Consideration of NACE coding of economic sectors by OSH experts identified the following sectors as ones where the proportion of workers who might potentially be exposed to noise justified inclusion of the entire sector (or subsector). Although other sector subdivisions were identified these were either at a level of division where separate statistics were not available or the proportion potentially exposed was not considered to warrant inclusion. On this basis, the following sectors: Forestry and logging (NACE Code A2), Mining and quarrying (Code B), Manufacturing (Code C), Electricity, gas, steam and air conditioning supply (Code D), Water supply; sewerage; waste management and remediation activities (Code E), Construction (Code F), Air transport (Code H51), and Creative, arts and entertainment (Code R90) were selected for inclusion.

By calculating the sum of the workers in all these sectors, the Noise Directive can be regarded as relevant to 54,846,108 of the total number of workers in the LFS data, which amounts to 25.4% of the EU workforce.

2004/40/EC (electromagnetic fields)

As noted earlier, there are a variety of sectors and occupations where exposure to EMFs is possible. They are generated and used in many work activities, including manufacturing processes, research, communication, medical applications, power generation, transmission and distribution, broadcasting, aeronautical and marine navigation, and security. However, with the exception of incidental exposures, which are difficult to estimate, each of these tends to represent a specialist sub-group within a sector making it difficult to establish the numbers of workers potentially exposed.

Consultation with OSH experts highlighted the main sectors within which the EMF Directive is relevant:

- › C24 (Manufacture of basic metals)
- › C25 (Manufacture of fabricated metal products, except machinery and equipment)
- › D (Electricity, gas, steam and air conditioning supply)
- › J61 (Telecommunications)
- › Q86 - Human health activities

A combination of LFS and SBS data was used to determine the level of employment in each of these sectors. By using the available data it was estimated that the EMF Directive can be regarded as relevant to 7,994,934 workers in the EU-27 workforce, or 3.71% of the total.

On the specific issues of welders (who are seen as a group at particular risk), a report financed by German Welding Society (DVS) and by European Federation for Welding, Joining and Cutting (EWF) states that, in 2007, there were nearly 837,000 welders, although the origins of this figure are not given⁷⁰. This would increase the above figure by less than 0.01%.

2006/25/EC (artificial optical radiation)

As with EMF, there are a variety of sectors and occupations where exposure to AOR is possible, usually for small, select sub-groups of the workforce. For example, discrete UV light sources are used in pharmaceutical and research (e.g. fluorescence and sterilisation systems); motor vehicle repairs (e.g. curing of paints); and printing (curing of inks) as well as medical and cosmetic treatments (e.g. laser surgery, blue light and UV therapies). Again however, each of these tends to represent a specialist sub-group within a sector making it difficult to establish the numbers of workers potentially exposed.

Commonly encountered sources of infra-red radiation include industries where red-hot (molten) materials are utilised such as glass-making (and glass products) and primary metal production (metal smelting and casting). EU employment statistics indicate that employment in these sectors accounts for 2,489,526 workers, which amounts to approximately 1.2% of the EU workforce. Adding welders as a specific group at risk would increase the above figure to approximately 1.6% of the EU workforce (although some of these might be employed in the sectors already listed).

As an alternative source of data, EWCS data was examined. Earlier surveys (most recently 2005) used a more detailed level of classification of occupation than the 2010 data. Based on this material, a total of 3.31% of EWCS respondents indicated that they were exposed to 'Radiation such as X-rays, radioactive radiation, welding light, laser beams' for some of the time as part of their job and that they worked in an occupation where such exposures were likely to be of a nature falling within the provisions of the AOR. Thus it can be suggested that the actual proportion of the EU-27 workforce to which the AOR Directive is potentially relevant is between 1.6-3.3%.

2004/37/EC (carcinogens or mutagens)

Professional OSH expert consideration of NACE coding of economic sectors suggests that the following sectors are relevant to this Directive: mining and quarrying (NACE B); Construction (NACE F); selected subcategories of manufacturing (NACE C), manufacture of wood and of products of wood and cork, except furniture (NACE C16), manufacture of coke and refined petroleum products (NACE 19), manufacture of chemicals and chemical products (NACE C20), manufacture of other non-metallic mineral products (NACE C23). Finally a selected sector within the transporting and storage sector (NACE H); land transport and transport via pipelines (NACE H49).

Combining the total workers from each relevant sector gives a total of 26,547,801 workers or 12.3% of the EU workforce to whom this Directive is relevant.

⁷⁰ Middeldorf K (2009) The economic importance of welding and joining in Europe:

Production values, values added and employees. DVS - Deutscher Verband für Schweißen und verwandte Verfahren e.V. (German Welding Society)

It is recognised that there are other sectors (e.g. workers in industries involving the processing of leather, textiles, etc.) where some workers might be exposed to carcinogens or mutagens. However, any inclusion of these would entail a guess as the proportion from the sector involved. This potential underestimate will be balanced to some extent by the fact that many workers in the sectors utilised above will not be exposed.

98/24/EC (chemical agents at work)

As with some other Directives, there are a variety of sectors and occupations where exposure to chemicals is possible, with many of these representing a specialist sub-group. Professional OSH expert consideration of NACE coding of economic sectors suggests that the following sectors are relevant to this Directive: agriculture, forestry and fishing (NACE A); mining and quarrying (NACE B); manufacturing (NACE C); electricity, gas, steam and air conditioning supply (NACE E); construction (NACE F); transporting and storage (NACE H), human health and social work activities (NACE Q).

Combining the total workers from each relevant sector gives a total of 97,546,200 workers or 45.2% of the EU workforce to whom this Directive is relevant. However, according to Eurostat statistics⁷¹ around 9-10% of persons are employed in 'size zero' businesses (self-employed). This would increase this proportion to around 50% of the 'economically active' population.

2009/148/EC (asbestos)

Turning to the labour market, the potential for exposure to asbestos is most marked in the construction sector. Although, as new uses of asbestos are banned under the Directive no construction workers involved in new-build projects will be at risk it is not possible to differentiate this subgroup within general employment statistics. Rushton et al (2010) provide a useful indication of the occupational groups where cancer registrations are recorded, together with potential exposures to carcinogens including asbestos. This identifies construction workers as the main group at risk.

A UK-based study, specifically of mesothelioma⁷², again identified construction trades (especially carpenters) as being at particular risk. Other high-risk occupations included lagging and shipyard work although, in these cases, many will probably reflect historical exposures when asbestos was still used as an insulation and fire protection material. On this basis, data on employment in the construction sector (NACE Code F) was obtained from the LFS database as an indicator of the proportion of the EU-27 workforce potentially covered by the provisions of this Directive. Although this probably constitutes an over-estimate, it was considered that this would, in some way, compensate for the omission of other small sectorial sub-groups not included.

Of these, 15,438,900 were employed within the construction sector. The Asbestos Directive can therefore be regarded as relevant to 7.2% of the EU workforce.

2000/54/EC (biological agents)

Consideration of NACE coding of economic sectors suggests that primary code A (Agriculture, forestry and fishing) is an obviously category for inclusion. Selected subcategories of

⁷¹ Key figures on European business with a special feature on SMEs. Eurostat 2011

⁷² Peto et al (2009) Occupational, domestic and environmental mesothelioma risks in Britain. A case-control study. HSE Research Report. RR696.

manufacturing (NACE Code C), involving the handling of plant or animal products were also selected (C10, C11, C12, C13, C14, C15) as were pharmaceutical products (C21). Finally, NACE Codes E (Water supply; sewerage; waste management and remediation activities) and Q (Human health and social work activities) were also selected for inclusion. The Biological Agents Directive can therefore be regarded as potentially relevant to at least 20.4% of the EU workforce.

Sector specific directives

92/57/EEC (construction)

Determination of the proportion of the labour market covered by the provisions of this Directive is therefore a matter of establishing the number of persons employed within the Construction sector. LFS data⁷³ documents that, for 2012; 15,438,900 were employed within the construction sector. The Construction Directive can therefore be regarded as relevant to 7.2% of the EU workforce.

In many MS the situation appears to be relatively complex, with local variations in the distribution of employment between the public and private sectors, again making it very difficult to establish any form of estimate. Similarly, differences in practices between MS in the extent to which such work is performed by public sector workers makes extrapolation of data from individual MS to the entire EU subject to considerable potential error.

92/104/EEC (M&Q)

Consultation with OSH experts the following sub-sectors within mining and quarrying were considered to be relevant; mining of coal and ignite (NACE B05); mining of metal ores (NACE B07); other mining and quarrying (NACE B08); mining support service activities (NACE B09). The Directive is relevant to all such workers.

841,000 were employed within the mining and quarrying sector. To calculate the proportion of workers in the mining and quarrying sector for whom the Mines and Quarries Directive is relevant the SBS data set was consulted. In the SBS database the most up to date data was used, which was recorded in 2010. The estimated population of workers in the mining and quarrying sector was 615,000. The relevant sectors described above were estimated to include the following number of workers:

- Mining of coal and ignite (NACE B05) = 233,000
- Mining of metal ores (NACE B07) = 4,909
- Other mining and quarrying (NACE B08) = 213,900
- Mining support service activities (NACE B09) = 52,500

Therefore the Mines and Quarries Directive is relevant to 82% of the workers in the mining and quarrying sector (NACE B). By applying this percentage to the number of workers in the mining and quarrying sector from the LFS data the Mines and Quarries Directive can be regarded as relevant to 689,620 workers in the EU, which amounts to approximately 0.32% of the EU workforce.

⁷³ Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_egan2]

92/91/EEC (drilling)

Determination of the proportion of the labour market covered by the provisions of this Directive is a matter of establishing the number of persons employed within the extraction of crude petroleum and natural gas sector (NACE B6).

LFS data⁷⁴ documents that, for 2012; 841,000 were employed within the mining and quarrying sector. By applying the percentage of the workers in the relevant manufacturing sub-sector from the LFS data the ATEX Directive can be regarded as relevant to 100,920 workers in the EU, which amounts to approximately 0.05% of the EU workforce.

92/29/EEC (med treatment on board vessels)

Determination of the proportion of the labour market covered by the provisions of this Directive is best achieved through establishing the number of persons employed within the Maritime sector. The Directive is potentially relevant to all such workers although clearly not all will work on qualifying vessels.

LFS data⁷⁵ documents that, for 2012; 10,948,400 were employed within the transport and storage sector (including water transport). SBS data⁷⁶ for 2011 (the most recent available) indicates that 10,594,400 workers are employed in transport of whom 217,000 are employed in 'water transport', although this will include shore-based workers in that sector and also those working in fresh water or small coastal vessels to whom the provisions of this Directive do not apply. Using these data to adjust the LFS data suggests 216,881 workers.

According to other Eurostat statistics⁷⁷ a total of 170,200 workers are employed in the sea and coastal water transport (passenger and freight) sectors. However, this figure is again likely to include shore-based personnel working for appropriate employers.

In 2011, a Commission Task Force on maritime employment and competitiveness⁷⁸ reported that it was 'difficult to find accurate, complete and reliable figures on seafarers'. It found it necessary to recruit an external consultant to collate estimated data on its behalf. As a result of these deliberations it concluded that the estimated numbers of active seafarers in maritime EU Member States in 2010, plus Norway, (as extracted from ISF/BIMCO Manpower up-date study 2010) were 143,967 officers and 110,152 ratings, for a total of 254,119 seafarers. Although including Norway (SBS data indicate 25,134 workers) this appears to be the highest estimate, despite the fact that it seems to be restricted just to those actually working on vessels. Deducting the SBS value for Norway leaves 191,747, or 0.9% of the EU workforce to whom this Directive is potentially relevant.⁷⁹

⁷⁴ Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [Ifsa_egan2

⁷⁵ Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [Ifsa_egan2

⁷⁶ Annual enterprise statistics by size class for special aggregates of activities (NACE Rev. 2)

⁷⁷ http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/File:Key_figures_of_traditional_EU_maritime_industry_and_transport_enterprises,_2010_V2.png

⁷⁸ <http://ec.europa.eu/transport/modes/maritime/seafarers/doc/2011-06-09-tfmec.pdf>

⁷⁹ A further factor not formally considered here, but to be borne in mind, is that the provisions have implications for those travelling as passengers, not just crew, thus widening the potential relevance of this Directive.

92/29/EEC (work on board fishing vessels)

An analysis of the proportion of the EU to whom this Directive is potentially relevant is complicated by the fact that the sources usually used are unsuitable. The LFS data⁸⁰ merges the fishing sector with those of agriculture and forestry (NACE Code A) whilst the SBS database does not include this NACE Code at all. Alternative sources of information on employment therefore had to be consulted.

Data from the EWCS 2010 survey indicated that fewer than 0.1% of respondents (34 individuals) reported working in the Fisheries sector – and this presumably includes those working onshore for companies operating within this sector.

A Commission funded report, published in 2006⁸¹ concluded that total employment in the fisheries sector amounted in 2002/2003 to about 421,000 persons. It was estimated that one third of this number were women, who were mostly employed in the fish processing industry. This supports the need for caution in interpreting 'Fisheries sector' data as relating to those elements to which the Directive applies.

Specifically, the same report suggested that, in 2002/2003 there were some 110,000 fishermen active on off-shore fleet. (NB: It was estimated that about 20% of the employment on board is part time, mainly in the coastal fisheries). This figure of 110,000 can be compared to the total employment of 215,678,600 employed persons (15-74 years) in total across the EU-27 for 2012 (LFS data). Even without adjusting for any change, (the Fisheries report indicated a loss of employment from the sector of approximately 5% per year) suggests around 0.05% of the EU workforce are employed on offshore fishing vessels. As all reports indicate a dwindling sector the proportion for 2012 is likely to be less than this.

Whatever the source, and whatever the proportion of those who work on appropriate vessels, the values serve to illustrate the small proportion of the EU workforce to whom this Directive is relevant.

5.1.4 Extent of current risks to health and safety

Common data problem

A common theme amongst all of the individual Directives is the difficulty in finding data which documents injuries and diseases specific to the provisions of those directives. Still harder is relating any such statistics to the causal factors addressed by the directives in order to establish any degree of attribution. In many cases therefore, strong reliance is placed on the expressions of opinions regarding the current relevance of each Directive collected during interviews with stakeholders and experts at both EU and MS level, together with any Directive-specific comments in the NIRs.

89/391/EEC (Framework)

Recent statistics on fatal and non-fatal accidents, as well as work-related health problems, described in the Directive report, clearly demonstrate the current relevance of the Framework

⁸⁰ Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [Ifsa_egan2]

⁸¹ Employment in the fisheries sector: current situation (FISH/2004/4)

Directive in helping to improve workplace safety and health. Hence, work-related injuries have caused, and are still causing, burdens to the individual workers, to their employers, and to the wider society.

On the basis of limited data on fatal accidents there would also appear to be a relevance of the Directive to the self-employed, an issue which is discussed in more detail below (future relevance).

89/654/EEC (Workplace)

The provisions of the Workplace Directive cannot readily be related to specific safety or health outcomes and these data cannot therefore be considered in establishing its current relevance. Few stakeholders expressed strong views regarding this Directive although comments in the NIRs seemed to suggest that the scope and application of the Directive are appropriate (and thus remained relevant). A small number of MS questioned the need for two Annexes, as that relating to existing workplaces should now be complied with throughout. However, repealing this would presumably cause problems with the accession of any new MS to the EU. Several comments were received relating to possible changes to the Directive. However, these have been interpreted as relating to enhancing the relevance of the Directive in the future and are addressed below.

2009/104/EC (Work Equipment)

Due to changes in the classification of injury causes, older data (from the ESAW Phase III 2005 survey) was used, giving responses from 16 of the 27 MSs. For these 16 MSs, a fatal accident incidence rate of 2.9 per 100,000 employed persons can be determined. In the same period (2005) there were 1,515 fatal accidents involving contact with a moving object (incidence rate 1.0). This suggests such a mechanism as being a significant cause of workplace fatalities at that time. 'Moving objects' are not defined and could include mobile plant or parts of equipment both of which are covered by the Work Equipment Directive. It should be noted that commuting road traffic accidents are not included in these statistics. The data analysed appear to support the suggestion that fatalities relating to the use of work equipment make (or at least made at that time) a substantial contribution to occupational fatalities. For non-fatal accidents resulting in 3 or more days absence from work a similar conclusion was drawn. However, identifying work-related health problems which are attributable to the risks of work equipment was not possible using the data available.

This accident data does appear to suggest that, in general, the provisions of the Directive remain relevant.

In support of this conclusion two EU stakeholders expressed the view that the Work Equipment Directive was relevant and important for helping to safeguard the safety and health of workers.

89/656/EEC (Use of PPE)

The Use of PPE Directive protects against a wide variety of hazards which present possible risks to the safety and health of the workforce. Data on the extent of exposure to these hazards by the EU workforce is unhelpful in that PPE should only be used where the hazards and consequent risks cannot be avoided or sufficiently limited by other means and it is not possible to determine the proportion of circumstances where this applies.

However, statistics indicate that some 40% of the EU workforce are required to use PPE as part of their work suggesting that, in principle, the Use of PPE Directive is relevant to these workers.

Some indirect sources of data were considered to explore the relevance of the individual provisions of the Use of PPE Directive. This evidence ultimately seems to provide some support for the ongoing relevance of at least some of the provisions, in that the issues covered have been shown to have an impact on the use of PPE by individual workers.

92/58/EEC (OSH signs)

In essence, OSH signs can be used to warn or advise workers of a wide variety of hazards, courses of action, etc., and, as such hazards remain present, safety signs remain relevant. In extension, the Signs Directive remains highly relevant to all MSs.

In support of this view, comments in the NIRs reveal that 21 of 27 MSs consider that the current scope of the Signs Directive remains relevant, although some did express reservations which are discussed below in respect of its future relevance

92/85/EEC (pregnant/ breastfeeding workers)

Data relating to the effects of occupational factors in pregnant and breastfeeding workers gives sometimes contradictory results. For example, recent scientific evidence shows that working conditions like shift work heavy lifting etc. are not likely to have a high impact on adverse pregnancy-related outcomes in the foetus, although these working conditions might have an impact on the health and well-being of the mother (and possibly greater effects on a particularly high-risk group who would be expected to have been identified as high-risk by virtue of their previous history of stillbirth). In contrast, there is strong evidence that certain chemical agents can have negative effects on the foetus and the child. One complication is that many of these risk factors are especially detrimental during the first trimester of the pregnancy, often before the employer is made aware of the pregnancy.

The NIRs of only two countries included responses to the specific question: "In the light of practical experience, knowledge, technological, social and cultural developments, are the provisions of the Directive still appropriate?" That from France concentrated in particular on issues such as a need to update the annexes (which is discussed below under future relevance) and the response from the other MS (Hungary) was limited to documenting actions they had taken rather than providing a response to the question. Given that this was a direct question in the NIR template the low level of responses does not suggest a strong degree of support for the relevance of this Directive

91/383/EEC (temporary workers)

Temporary workers represent a heterogeneous group. Previous research suggests that temporary workers are at higher risk for experiencing work-related accidents. The available data does indicate a higher risk, which supports the relevance of the Temporary Worker Directive. However, it is unclear whether this risk is due to the employment contract and/or the mode of integrating workers or other factors.

94/33/EC (young people at work)

Data for accidents and ill-health amongst young people present differing views. Accident statistics show that young people (<18 years) are less than half as likely to experience a fatal injury but around 30% more likely to experience a non-fatal injury. It is not known (but possible) whether this reflects the exclusion of young people from certain high risk occupations. Alternatively it might reflect factors recognised in the published literature as not unique to younger workers such as limited time in job (and therefore job-specific experience).

According to health data, young people are less likely to report the majority of different types of health problem than those over the age of 18, although they do report more injuries (which mirrors the accident statistics) and more skin problems. The reporting of skin problems also supports the relevance of the Young People Directive as they are often employed in jobs where there is skin irritation and diseases. However, the lower levels of other reported health problems should not be seen as necessarily indicating a lack of relevance for the Young People Directive because there are many other non-work factors which could have contributed to these figures (the same caveat can of course be applied to the skin problems data, although there is at least a plausible rationale for this apparent effect being genuinely work-related).

The relevance of the Young People Directive was supported by EU stakeholders in relation to working and workplace exposures due to the level young people employed in industry, although employers from one MS gave a differing view.

90/269/EEC (Manual Handling)

Data from an EU workforce survey shows an apparent dose-response relationship (especially for load handling) with the proportion reporting backache increasing with the proportion of the day spent involved in handling heavy loads. It is not clear whether this relationship is indicative of causing injury (leading to the symptom of back pain) or whether it indicates that those with back pain are more likely to experience symptoms if they have a job which requires manual handling for much of the day. Clearly however it would appear that managing the risks associated with manually handling heavy loads (and therefore the Manual Handling Directive) remains relevant.

90/270/EEC (DSE)

Data from the EWCS 2010 survey shows that approximately a fifth of those who worked with computers (at least 25% of the time) reported experiencing backache, muscular pains in shoulders, neck and/or upper limbs, or headache or eyestrain. These data support the view that the DSE Directive remains relevant.

However, far fewer reported symptoms potentially related to stress (depression or anxiety) reinforcing the view from other published sources that stress and other problems related to psychosocial risks are not a major risk with computer work.

1999/92/EC (ATEX)

It is not possible to assess the extent to which the Directive is still relevant, because there is no data on the prevalence/number of fatal and non-fatal accidents caused by explosive atmosphere. Likewise, there is no data on the health consequences of such accidents. However, it would seem just a matter of chance whether such an event as an uncontrolled explosion leads to loss of life or minor injury – and all such events present the potential for the most serious outcome. While workplace environments with the potential for explosion if correct precautions are not taken can still be found, then the need for some form of regulatory management remains and the Directive can be considered to still be relevant.

2002/44/EC (vibration)

From the EWCS 2010 data, 23% of respondents indicated that they were exposed at work to vibrations from hand tools, machinery, etc. at least 25% of the time. This gives some insight into the current relevance of this directive. In addition, 46.84% of all respondents indicated that they had suffered from 'backache' in the last 12 months. Of these, 21.98% were also exposed to vibration for at least 25% of the time and 13.11% reported both backache and vibration exposure.

Although there are many different causes of backache and a causal relationship cannot be assumed in these cases, these figures do appear to provide some indication of the proportion of the EU workforce for whom vibration exposure might be of relevance adding further support to the ongoing relevance of this directive. No collated data are available regarding the EU incidence of vibration-specific diseases such as HAVS.

2003/10/EC (noise)

From the EWCS 2010 data, 29.9% of respondents indicated that they were exposed at work to “Noise so loud that you would have to raise your voice to talk to people” at least 25% of the time. Whilst these figures give no indication of the extent of actual risk, this criterion is often used as a practical guideline to noise levels being sufficient to warrant action and therefore gives some insight into the current relevance of this directive.

Additionally, the LFS 2007 database includes statistics relating to those who report having had what they perceive as a work-related health problem within the last 12 months. According to these statistics, 2.1% of all respondents indicated ‘hearing problems’ as their most serious health problem. Whilst there are other work-related causes of hearing problems, and these cases will of course relate to historic exposures this data gives some further indication of the possible extent of noise at work as a problem and therefore of the noise directive being of relevance.

2004/40/EC (electromagnetic fields)

The ESAW data for 2008 (onwards) does not contain any category of injury appropriate to EMF exposure and the LFS data is not sufficiently specific to allow data relating to EMF exposures to be extracted. The EWCS (2010) contains materials relating to the employment environment and employment health. However, neither of these sections includes any material from which data relating to EMF exposure can be derived.

Research by Franco et al (2010) suggests that the use of MRI scanners in hospitals can have acute, cardiovascular and memory effects. However, the authors concluded that they are uncertain whether the data on effects of EMF exposure are sufficient to assess whether the evidence is enough to take action.

This view was mirrored by EU-OSHA in concluding that more research is needed and supported by the WHO that noted more scientific data are needed to establish what the health risks are. Similar views have been reached in published reviews of the field.

It would seem therefore that, given published doubts over the nature and extent of any risks, evidence of the extent to which these risks are a significant problem warranting legislative control in the form of an EU Directive is unclear and the whole rationale for this Directive can be questioned,

2006/25/EC (artificial optical radiation)

In terms of injury caused by AOR exposure there is very little evidence appropriate to use but, what little there is appears to suggest a very low level of actual injury. Across the EU-15, the ESAW database for 2007 records just 70 injuries entailing four or more days off work, and no fatalities across the EU-15 for ‘effects of temperature extremes, light and radiation’ whilst for ‘effects of radiation (non-thermal)’ there were again no fatalities and a total of 1,481 injuries. It is not possible to separate ionising and non-ionising radiation from these figures or to determine in any other way the proportion of these attributable to exposure to AOR. Care should be taken in concluding that these figures indicate that AOR exposure is of only limited relevance to the EU workforce, because

there are a number of longer-term consequences, such as cataracts and skin cancer, which are not captured by these figures.

Other statistics, documenting less-specific 'health problems', give a slightly different picture. EWCS 2005 statistics indicate that those who report working most of the time exposed to 'Radiation such as X-rays, radioactive radiation, welding light, laser beams' (again restricted to those industrial sectors where such exposures are likely to be AOR) are more likely than those less exposed to report that their work gives them problems with their vision. The nature of the problems experienced is not known. To the extent that these problems relate to AOR exposure (which is not known) these figures might provide some limited justification for the ongoing relevance of the AOR Directive in terms of workers possibly at risk. However, given the tenuous nature of any presumed connection, and the clear evidence from authoritative reviews such as that from EU-OSHA, there must be at least some doubt over the current relevance of the AOR Directive.

2004/37/EC (carcinogens or mutagens)

No comprehensive data on current exposure to carcinogenic and mutagenic substances across the EU-27 are available. However, despite the shortcomings in the data it is clear from a variety of sources that workers in the EU-27 continue to be potentially at risk from exposures to carcinogenic and mutagenic substances and that there is therefore an ongoing need to control such exposures to remove or reduce the risks.

It is difficult to gain a clear picture of the current health impacts of such exposures. The long period of latency of many cancers and the delay before many mutagenic changes become manifest makes it difficult to establish the current level of problems in terms of registered cases or deaths. However, published data from the UK estimates that, in Britain in 2005 and 2004, 8010 (5.3%) of all cancer deaths (6073 excluding mesothelioma) and 13,598 of cancer registrations (11,661 excluding mesothelioma) were attributable to occupation.

Data from the individual NIRs show varying levels of occupational cancer (deaths and incident cases) with much missing data and suggestions of under-recording. This material, as well as the substance specific studies identified in the Directive report, gives a strong indication that this Directive remains relevant

98/24/EC (chemical agents at work)

ESAW statistics on fatal accidents at work do not give any indications as to whether any of the fatal injuries recorded arose from exposure to chemicals. Similarly, the collated statistics on non-fatal accidents do not permit those arising from chemical exposures generally to be identified. However, statistics are recorded for accidents arising from contact with "chemical, explosive, radioactive, biological substances - not specified". Although not exclusively concerning chemicals this database records that, in 2005 there were 40,411 such accidents (representing an incidence rate of 36.9 injuries resulting in more than three days lost per 100,000 employed), or 0.6% of the total.

According to EU LFS (2007) data, 3.6% of respondents reported experiencing work-related pulmonary disorders in the last 12 months whilst 1.8% reported skin problems. Whilst chemical agents were not necessarily responsible for these problems they are common causes of such problems and give some insight into health problems possibly related to exposure to chemicals.

EWCS 2010 data shows that 16.5% of respondents reported breathing in smoke, fumes, powder or dust, doing so at least a quarter of the time. For breathing in vapours such as solvents and

thinners, and handling or being in skin contact with chemical products or substances the equivalent values were 10.4% and 14.7% respectively. Plotting the reported duration of such factors against those reporting breathing difficulties and skin problems shows a trend for increasing likelihood of reporting such problems with increasing daily duration of exposure. These sets of data appear to indicate the ongoing need for risk management and the relevance of the CAD.

Support for this can be derived from the research literature which shows continuing respiratory health problems such as occupational asthma and COPD.

There is evidence of other health problems as well. For example, research studies suggest that the most important risk factor for Occupational Contact Dermatitis (OCD) is exposure to 'irritants' a term which encompasses many chemicals as well as other agents. From such material it is clear that exposure to chemicals makes a significant contribution to respiratory health, reinforcing the view that the Chemical Agents Directive is of considerable relevance.

As further evidence of the need for managing occupational risks associated with chemicals, the 2009 ESENER survey asked managers and employees about their concerns regarding dangerous substances (including dusts, chemical, biological or radioactive agents). Almost 70% of both groups indicated some or major concerns.

Clearly therefore, there is an ongoing need for control of risks to health and safety arising from exposure to chemicals in the workplace.

2009/148/EC (asbestos)

Despite the well-recognised impact of asbestos exposure there is very little data regarding the actual level of disease resulting from such exposures. One challenge in determining current relevance is the long latency of asbestos-related disease and the fact that symptoms are not specific and do not emerge until the cancer is well-advanced. One estimate suggests approximately 5,000 male deaths (in 1998) from mesothelioma in Western Europe. More recently, another study has suggested 4738 deaths from asbestosis and 1260 from mesothelioma across the study period (8-13 years up to around 2013) in a group of six Central and East European countries for whom data were available.

Although the use of asbestos is now banned, it is understood that asbestos can still be found in a considerable number of locations. In 1997, it was estimated that some 75% of commercial buildings in the UK still contained some asbestos. Although relatively old data, it is clear that residual asbestos remains a problem. A recent (2015) opinion of the European Economic and Social Committee (EESC) stated: "The total removal of all used asbestos and all asbestos containing products has to be a priority target of the European Union."⁸² It is clear therefore that the Asbestos Directive remains relevant.

2000/54/EC (biological agents)

No suitable data can be identified at EU level relating to injuries or diseases associated with biological agents. The Eurostat ESAW database includes accidents at work resulting in more than three days at work arising from 'poisonings and infections', so it is not possible to separate out

⁸² EESC. Opinion of the European Economic and Social Committee on Freeing the EU from asbestos. CCMI/130 Asbestos.

these two very different causes. LFS data provides a breakdown of health problems by type of problem, including an entry 'infectious diseases'. From this, 1.8% of respondents indicated that their most serious work-related problem over the preceding 12 months had been an infectious disease. However, it is not possible to restrict the data to those reports originating from those workers likely to have been exposed to biological agents as part of their work and so the possibility that such problems were acquired through other avenues (e.g. an infection acquired from a work colleague) cannot be excluded.

An EU-OSHA Risk Observatory report from 2009 alluded to this problem stating: "There are only limited data on occupational exposure to infectious biological agents in the EU".

The Health Council of the Netherlands cite estimates that 5,000 workers in the European Union, die each year as a result of occupational exposure to biological agents. They suggest that the number who fall ill due to occupational exposure to biological agents is probably much higher, but is difficult to estimate because there is no specific monitoring in this field and the reported data are insufficient.

Data from the EWCS survey (2007) identifies reported exposures in the responses to the question "Are you exposed at work to - Handling or being in direct contact with materials which can be infectious?". Given the fact that even transient exposures to infectious agents can result in illness it seems appropriate to consider all those who consider that they might be exposed to such potentially infectious materials at some time. The database records that 78.8% of respondents stated that they never encountered such exposures. By default therefore, it is assumed that 21.2% might, at some time, be exposed. Clearly however this only includes overtly infectious materials.

Despite the shortcomings of the data, the cumulative evidence from ill-health associated with infection from biological agents is that biological agents remain a significant potential cause of work-related ill-health and that the Biological Agents Directive therefore remains relevant.

92/57/EEC (construction)

Data in the ESAW shows that, for 2012, the rate of fatal accidents in the construction sector was more than three times that for workplaces as a whole (including that same sector) with that for non-fatal accidents almost double.

The focus of the Construction Directive is primarily on construction site planning and infrastructure. Although some reference is made to workplace health issues such risks are therefore primarily addressed by other, risk-specific Directives. It is difficult therefore to attribute any specific health effects to the provisions contained within this Directive. Data from the EWCS survey (2007) identified the construction sector as having the highest incidence of reported exposures to physical risk factors (chemical, biological, ergonomic, noise, temperature; etc.) of all sectors.

Evidence from the UK suggests that forms of work-related ill-health are higher in the construction sector than elsewhere. A scientific paper reporting on the UK industry found that, in comparison to all other employment sectors combined, male UK construction industry workers aged under 65 years had significantly raised SRRs (Standardised Risk Ratios) for respiratory (3.8, 95% CI 3.5 to 4.2), skin (1.6, 1.4 to 1.8) and musculoskeletal disorders (MSD; 1.9, 1.6 to 2.2). Despite this, LFS data (2007) suggests that workers in the construction sector consider themselves to be no more or less healthy than the wider EU-27 workforce.

On balance it would seem that, although there are surveys that point to that workers in the construction sectors consider themselves to be no more or no less healthy than the EU-27 workforce as a whole, there are also statistics that suggest that the construction sector remains a high risk sector for both injuries and health risks, which supports the ongoing relevance of the Construction Directive.

92/104/EEC (M&Q)

The rate of fatal accidents in the mines and quarries sector is approximately six times the EU-wide average. Although not so dramatically different, the incidence rate for non-fatal accidents is also higher in the sector than the industry-wide figure. As for the data on accidents, when compared to the whole EU-27 workforce, a slightly higher percentage of workers in the mines and quarries sectors reported work-related health problems. Additionally, the EU-27 average number of persons within the mining and quarrying sector reporting exposure to hazardous factors is relatively high, and is higher than the overall figure for each MS although the proportion varies substantially between MSs.

The limited literature-based, accident and ill-health data identified, together with opinions from stakeholder interviews, support the suggestion that the Directive continues to address current occupational health and safety risk factors for workers in this sector, and that the directive remains relevant.

92/91/EEC (drilling)

The rate of fatal accidents in the drilling sector is approximately twice that for workplaces as a whole. In contrast, the non-fatal injury rate in the drilling sector is more than four times lower than that for the whole EU workforce. Data on health issues from the LFS and EWCS only provide data for the whole mineral extraction sector, including the much larger mines and quarries component.

Gardner (2003) provided an overview of occupational exposures and health risks with specific reference to the offshore oil and gas industry (a substantial element of the drilling sector). This indicated that: "Virtually all the health hazards common to industry are present offshore".

Given the extensive array of risks to health encountered offshore (and in other parts of the drilling sector) it seems likely that this directive remains relevant.

92/29/EEC (medical treatment on board vessels)

Seafaring is generally considered to be a high-risk occupation, and the incidence of fatal-accidents is higher than in the water transport sector. The Medical Treatment on Board Vessels Directive differs from most other directives, because it does not seek to prevent or eliminate exposure to potentially dangerous working conditions. In contrast, it aims to ensure adequate health care in case of an accident and illness. Thus, the potential of the Directive is to mitigate the effects of serious accidents and disease. Such diseases are not only restricted to occupational diseases. A study in one MS (Denmark) on seafarers and fishermen showed an excess risk of mortality, poor health and adverse health outcomes of non-occupational nature compared to other Danes. Based on these sources it would appear that a need remains for the provision of medical treatment on board vessels.

92/29/EEC (work on board fishing vessels)

The ESAW database only includes fatal accidents data from 11 MSs for the fishing (and aquaculture) sector for 2012. According to these entries, the rate of fatal accidents in the fishing

and aquaculture sector is almost ten times (9.27) that for EU workplaces as a whole (including that same sector). In the same reporting period, the rate for non-fatal accidents was almost double the workforce average.

In contrast to these accident figures, LFS (2007) data appears to suggest that, in general, workers in the fishing and aquaculture sector consider themselves to have only slightly more health problems (<1% difference) than the wider EU-27 workforce. Statistics on exposure to risks from the same survey indicate that 64.8% of workers in the fishing and aquaculture sector report exposure to factors which could affect their physical well-being, compared with the overall reporting rate of 39.8% across all sectors whilst risks to mental well-being appear to be lower, as only 20.6% of workers in the fishing and aquaculture sector report exposure to factors which could affect their mental well-being (compared to 26.5% overall).

Data from the EWCS (2010) found that 61.8% of those who worked in the fisheries sector considered that their health or safety were at risk because of their work. However, because of the very small sample each individual effectively accounts for 3% of the total figure.

One caveat for all these figures is that they reflect those working in the industry, and not necessarily those working on fishing vessels of a qualifying size. Despite this, the accident statistics seem to suggest that there is little doubt about the continued existence of the risk factors, which the Directive aims to alleviate, a conclusion which is also confirmed in NIRs and stakeholder interviews. This indicates a high continued relevance of the Fishing Directive.

5.1.5 Discussion of current relevance

Overview

Two issues can be identified and need to be addressed when considering the current relevance of each of the 24 Directives. The first is the question of whether or not the need for each Directive remains, i.e. whether the risks which they are intended to address are still present. The second concerns the specific content of each Directive and asks whether that content is still relevant. A secondary question to this issue is whether Directives are the best approach. However, this question overlaps to a degree with that of the effectiveness of the Directives and will be addressed later.

Following on from this consideration of the risks covered by the Directives there is the related issue of those risks not covered (with the exception of the overall provisions of the Framework Directive). Here, the reviews have identified three areas of widespread concern. Firstly, there would appear to be general recognition that some of the hazards giving rise to risks of musculoskeletal disorders are not explicitly addressed by any of the existing individual Directives. In particular, industrial repetitive work activities, which may or may not include the application of force, do not fall within the scope of the Manual Handling Directive.

A second area of widespread concern is that of psychosocial risks. Apart from a specific reference to stress as a consequence of work with display screen equipment (which may not actually be justified given the available evidence) none of the individual Directives specifically address these risks, despite clear evidence that ill-health attributable to such risks is a significant problem.

Thirdly, and possibly less unequivocally, concerns have been expressed regarding the risks associated with nanoparticles or nanomaterials. In this case it is less clear whether they are already addressed, as some take the view that they are adequately encompassed by the provisions of the Chemical Agents Directive whilst others advocate a new Directive.

General relevance of Directives

Turning to the relevance of the Directives in terms of the risks addressed, the individual Directive reports provide extensive documentation of quantitative and qualitative material (briefly summarised above) of the extent to which the risks encompassed by each Directive are still present and still appear to give rise to injuries and ill-health. Although in some cases, material is highly specific (e.g. data on Hand Arm Vibration Syndrome can only relate to hand-arm vibration exposure, and data on asbestos to asbestos exposure) in many cases the association is more tenuous.

A good example of this is back pain where there are many work and non-work factors which can cause or contribute to the incidence of back problems. For example, scientific evidence⁸³ has suggested that degeneration of the lumbar intervertebral discs (a significant contributory factor in some back pain) is 43% attributable to familial (genetic) factors. Despite such influences however, others have concluded, on the basis of evaluations of the cumulative scientific evidence, that there was strong epidemiological evidence that the physical demands of work can be associated with increased reports of back symptoms or aggravation of symptoms; as well as for the physical demands of work being a risk factor for the onset of back pain⁸⁴. In the workplace, poor sitting postures (DSE Directive), manual handling (MH Directive), and whole-body vibration have all been associated with back problems so, even where an injury is work-related, attributing any injury to a specific causal factor and therefore to a specific Directive is often difficult.

From a combination of examining available sources of data (subject to the caveats outlined above); the combined opinions of stakeholders at both EU and national level; and the NIRs, supplemented where appropriate by evidence from published sources, it can be determined that the risks addressed by most Directives still remain and that the Directives are therefore largely still relevant.

Some Directives, such as the Framework and Workplace Directives, as well as those relating to vulnerable groups such as young persons, are potentially applicable to almost any workplaces and, where industrial sectors are concerned, the provisions of the Work Equipment Directive will often also be applicable. As a result, determining which provision of which Directive is applicable in respect of any specific risk (and therefore relevant) is often difficult if not impossible, especially where injury and ill-health data do not identify the causal agent or mechanism. As a result, it can be difficult to determine which provisions of which Directives are applicable and therefore remain relevant.

With few exceptions, the limitations of available data rarely permit the quantitative appraisal of the relevance of individual Directive provisions. Any assessment must therefore, of necessity, be based to some extent at least on the qualitative views and opinions expressed by the wide range of stakeholders and experts interviewed as part of the project.

⁸³ Battié MC, et al (1995) Determinants of lumbar disc degeneration: A study relating lifetime exposures and magnetic resonance imaging findings in identical twins. *Spine*, 20, 2601-2612

⁸⁴ Waddell G, Burton AK. (2000) Occupational health guidelines for the management of low back pain at work - evidence review. London: Faculty of Occupational Medicine

At a general, pan-Directive level, few it seems would disagree with the broad approach to managing risks to health and safety embodied in the Framework Directive and further expressed in the various individual directives. The concept of reducing risk by removing hazards (for example in banning the use of asbestos) in preference to managing exposure to those hazards does not meet with many objections (especially amongst professional health and safety practitioners).

To a degree, this consistency of approach is reflected in the CPMs, although some concerns have been expressed regarding the extent to which the CPMs within individual Directives are recognised as part of this overall concept, as opposed to imposing separate duties. For example, the CPM relating to risk assessment is seen by some as generating a multiplicity of such assessments, one for each Directive in which the CPM occurs.

Differing opinions over the requirement for risk assessments to some extent reflect variations in the national (cultural) approach to workplace health and safety and its enforcement. In some MSs, the risk assessment is seen as tangible evidence of compliance whilst, in others, the explicit emphasis on risk assessment is seen as diverting attention away from actually controlling or managing the risks identified.

Despite these specific concerns, the ongoing relevance of most Directives appears to be generally accepted. There are however exceptions to this which are briefly presented below.

Specific concerns about Directives and their provisions

Although therefore in broad terms there would seem to be general acceptance of the ethos behind the 24 Directives, some specific issues relating to the relevance of particular Directives can be identified. In most instances these relate to elements of the Directive, not the Directive itself. Details of these are discussed in the individual Directive reports. Although to a large extent they are reflections on the current relevance of the directives, most of the comments and consequent suggestions for change clearly relate primarily to future measures which will influence the future relevance of the directive in question. For this reason, summaries of these are presented below in considering the future relevance of each directive. The exception to this is the two directives where considerable doubts have been raised over the need to retain the whole directive. Comments regarding these are summarised here.

2004/40/EC (EMF)

There appear to be considerable scientific doubts over the value and validity of the EMF Directive. Several authoritative reviews have questioned the evidence-base for the EMF Directive and called for more scientific data was needed to establish what the health risks are. Given the uncertainty over the nature and extent of any risks therefore, requiring employers to assess and manage them seems premature.

One EU stakeholder interviewed questioned whether the requirements (and resultant costs) the Directive imposes are proportionate to the extent of any risk to health or safety. In addition, the NIR of one MS (UK) specifically recommends the repeal of this Directive.

2006/25/EC (AOR)

Opinions, drawn from interviews with stakeholder and expert groups from a number of MSs, together with material and recommendations from NIRs and representations by expert research groups as to the future relevance of the Directive are mixed. Some evidence suggests that the AOR Directive is not at all relevant at present (including one MS providing objective evidence that

AOR exposure did not appear to have contributed to any workplace accidents), with some stakeholders suggesting that technological changes would reduce its relevance still further. One stakeholder went so far as to recommend that the AOR Directive should be repealed in its entirety. This recommendation was also formally made by one MS in its NIR.

In contrast, another stakeholder felt that the AOR Directive had great relevance, in particular for the health sector, whilst a number of national stakeholders indicated that the AOR Directive was insufficient in that it did not cover outdoor work and the associated increased risk of skin cancer. This latter view was endorsed by representations from a scientific and medical research group concerned with skin cancers, although the views of this group were again countered by other evidence. One very recent study estimates that, in the UK at least, approximately 2% of deaths from cutaneous malignant melanoma are attributable to occupational exposures to solar radiation.

92/58/EEC (OSH signs)

OSH signs can be seen as an integral part of the safety milieu. They can be used to warn or advise workers of a wide variety of hazards, courses of action, etc., and, as such hazards remain present, safety signs remain relevant. In extension, the Signs Directive remains highly relevant to all MSs.

91/383/EEC (temporary workers) and 94/33/EC (young people)

Some questions have been raised over the evidence-base which justifies the need for specific directives on temporary and, to a lesser extent, young workers.

90/269/EEC (manual handling)

It is widely recognised that the manual handling (and DSE) directives do not address all workplace risks for MSDs. There has been extensive debate regarding the best solution to resolve this as MSDs remain a significant cause of sickness absence.

Some doubts have been raised regarding the implementation of the provisions of this Directive with concerns that insufficient emphasis is placed on reducing risks through improving the design of workplaces. As part (but by no means all) of this, questions have been raised regarding the scientific evidence questioning the value of manual handling training as a risk control measure.

90/270/EEC (DSE)

Strong concerns have been expressed over the requirements for workstations specified in the Annex to the Directive which is very dated and has not been amended to reflect changes in technology and ways of working.

Doubts have been expressed over the requirement for eyesight testing (Article 9) as a means of protecting eyes and eyesight as there is no evidence that use of DSE causes any such damage.

2004/37/EC (carcinogens and mutagens) and 98/24/EC (chemical agents)

Whilst the need for the protection provided by these Directives is not in doubt there is seen to be a need to improve the manner through which changes to Limit Values are agreed and enacted as the current approach is slow and unwieldy and tends therefore to lag behind developments in scientific knowledge.

In addition, there are suggestions that their utility (and relevance) could be improved by merging the two Directives.

92/104/EEC (S&U mineral extraction industries)

This Directive was enacted at a time when there was a strong deep coal mining sector within the EU which has now considerably reduced (and, in some MSs no longer exists). There are some suggestions that the Directive could be 'streamlined' to reflect a stronger emphasis on surface mining (quarries).

92/29/EEC (medical treatment on board)

Concerns have been expressed that some of the provisions of this Directive are inconsistent with provisions made under International Maritime agreements. Additionally some of the requirements for medicines are seen as excessive with concerns about the fundamental need for them with changes in communications systems (resulting in considerable waste of medicines with relatively short shelf-lives), problems over storage on some (smaller) vessels, and concerns over competencies to administer some of them, again particularly on some smaller vessels.

93/103/EC (fishing vessels)

This is one of the few Directives not transposed into national legislation in all MSs and not fully implemented in others due to the lack of any qualifying fishing vessels. However, although clearly not relevant to these MSs there have not been any doubts expressed over its relevance in general.

5.1.6 Current relevance: conclusions

As noted above, two issues can be identified when considering the current relevance of each of the 24 Directives. The first is the question of whether or not the need for each Directive remains, i.e. whether the risks which they are intended to address are still present. The second concerns the specific content of each Directive and asks whether that content is still relevant.

As summarised above, almost all of the Directives can be seen to remain relevant in all MSs. With the exception of those few instances described where a MS does not have economic activity in a particular sector covered by a Directive, all MSs have workers potentially at risk from all of the hazards and risks of injury or ill-health covered by the Directives. However, evidence has been summarised, particularly in respect of the EMF Directive, which questions the need to retain this directives and there are doubts and concerns about others, or at least about specific provisions within certain directives. These are summarised above on a directive-by directive basis and addressed further below in respect of ensuring the future relevance of the Directives.

5.2 Future relevance (EQR2)

EQR2: Based on known trends (e.g. new and emerging risks and changes in the labour force and sectoral composition), how might the relevance of the Directives evolve in the future, and stay adapted to the workplaces of the future in light of the horizon of 2020? Does the need for EU level action persist?

5.2.1 General overview

In summary, there have been no consistent views expressed to suggest that any of the Directives would cease to be relevant in their entirety in the period up to 2020. However, as noted above, concerns have been expressed regarding two directives which, particularly in respect of the EMF

Directive, question the need to retain these directives. However, a number of specific issues have been identified regarding the provisions of Directives which potentially influence their future relevance.

5.2.2 Directive-specific issues

89/391/EEC (Framework)

One area of uncertainty in relation to occupational health and safety lies with those workers who are self-employed. As they are neither workers (any person employed by an employer) nor employers, they are not obviously covered by the provisions of the Framework Directive and indeed largely fall outside the scope of EU OSH legislation. Although this exclusion is not necessarily reflected in individual Member States, self-employment is nevertheless seen as an OSH challenge.

The difficulties encountered in identifying appropriate data to establish the scale of the problem are reflected in comments made in an EU-OSHA report on accidents and illnesses amongst the self-employed that “the available statistics present significant shortcomings”.

The report uses ESAW data which, it states, shows that, when taking all sectors together there is no great difference in the incidence rate of fatal accidents among workers, compared with the self-employed. However, this overall figure apparently masks sector differences. For example, in the agriculture, hunting and forestry sector, the fatal accident rate of self-employed and family workers is notably and consistently higher than that of workers in the same sectors. The headline fact that fatal accidents are no less common amongst the self-employed than other workers does call into question their exclusion from the protection provided by OSH legislation and suggests that consideration should be given to widening the scope of the Framework Directive to include them.

89/654/EEC (Workplace)

A sizeable minority of MSs commented at some point in their NIRs on concerns regarding the definition of a workplace. To some extent this reflects new ways of working (e.g. teleworking and working from home) as well as issues regarding working elsewhere, away from their employer's premises. Related topics include difficulties over shared premises, where multiple occupants and a further 'building owner' result in an unclear demarcation of responsibilities. Some MSs have accommodated these concerns by extending their national legislation, adopting a wider definition of a 'workplace'. Although no specific changes are widely adopted, being restricted to one or two MSs, the general impression is that MSs have identified this as a deficiency in the Workplace Directive which impacts on its future relevance.

2009/104/EC (Work Equipment)

There is some suggestion of a change to the Work Equipment Directive which would help in improving the consistency of its interpretation and application – or at least an area of change. In response to a specific question asked on this issue in the NIR template there is a reasonably clear impression that the concept of 'specific risk', as embodied in Article 6, needs to be more clearly defined and explained.

Although not all those MSs who commented on this issue specifically endorsed such a change, the apparent inconsistency and confusion over this issue makes it clear that such change is desirable.

Several stakeholders made references to possible ‘new and emerging risks’ and the possible need to amend the Directive to reflect these. These are perhaps best summarised in an EU-OSHA Risk Observatory report which identified a number of areas relating to machinery, work processes and technologies considered to constitute ‘emerging risks’:

What is not clear from this report, and the other comments, is the precise nature of these risks and whether or not any such risks are adequately addressed by the present Work Equipment Directive (or if it will require to be amended). Arguably, as the ‘General obligation’ (Article 3(1)) is not risk-specific then no change should be necessary, although clearly there is likely to be a need for informative material to acquaint employers with what risks can (or do) arise from the use of such systems/equipment so that they can avoid or manage them appropriately.

Discussions with OSH experts suggest that suggestions for change to accommodate emerging risks perhaps reflect national differences in OSH management, where those MSs who adopt a more goal-setting approach are more likely to be content with the existing provisions, whilst those MSs who tend to adopt relatively prescriptive legislation might need to make further prescriptions.

89/656/EEC (Use of PPE)

Although a number of specific concerns were raised regarding the Use of PPE Directive these mainly related to technical performance issues and relate to Directive 89/686/EEC (the PPE Product Directive).

One significant occupational group who, at times, place considerable reliance on PPE are the emergency services. It appears to be a strange anomaly that this group, who potentially have the most to gain by ensuring ergonomically well-designed PPE, are currently excluded from the provisions of the Directive. A sizeable minority of MSs have not transposed this exclusion and one expert on the ergonomics of PPE, supported by published material, questioned the need for this exclusion.

92/58/EEC (OSH signs)

To ensure the future relevance of the Directive, it would be beneficial to review the Directive with the aim of ensuring its alignment and unproblematic coexistence with ISO Standards, which may entail a renewal of the Signs and standards in the Directive annexes

92/85/EEC (pregnant/ breastfeeding workers)

Recent scientific evidence shows that working conditions, such as shift work, heavy lifting etc., are unlikely to have a high impact on adverse pregnancy related outcomes in the foetus, with the possible exception of a particularly high-risk group (who would be expected to have been identified as high-risk by virtue of their previous history of stillbirth). However, these working conditions might have an impact on the health and well-being of the mother.

There is, however, strong evidence that certain chemical agents can have negative effects on the foetus and the child. However, many of the risk factors are especially detrimental during the first trimester of the pregnancy. Moreover, childhood cancers are also affected by paternal exposure.

Based on these findings, it appears possible that the effectiveness and relevance of the directive could be improved by including risks to men, and to focus on fertility in general (that is to not only focus on the period after a pregnancy is recognised).

91/383/EEC (temporary workers)

Although the review of this directive identified some doubts over its relevance no specific changes were identified which would increase this in the future. However, temporary workers are one of a number of vulnerable groups and there are some suggestions, discussed elsewhere in this report, that the needs of such groups might be better addressed collectively rather than through individual (group-specific) provisions.

94/33/EC (young people at work)

In general, no substantive measures were identified from any sources for measures necessary to ensure or safeguard the future relevance of the Young Persons Directive. However, as with temporary workers there are some suggestions that young persons would be best addressed as one of a number of vulnerable groups.

90/269/EEC (Manual Handling)

There would seem to be a widely held view from a variety of stakeholder sources that the Manual Handling Directive is likely to remain relevant in the future. Occupational risks associated with manual handling activities are expected to persist and it is expected that the aging nature of the workforce will lead to an increased susceptibility to such risks.

Overall, it would seem that the provisions of the MH Directive are correctly addressing the risks relevant specifically to manual handling activities, although there are general doubts over the quality of their implementation.

One exception to this however is the widely perceived need for manual handling training (Article 6) which, in some MSs at least, there is evidence for this having become the main (possibly sole) risk management method. Given the evidence from the scientific literature for the ineffectiveness of such training, supported by the views from NIRs and stakeholders, it would seem appropriate for Article 6(2) to be revised. Whilst education to raise awareness of the risks arising from handling activities remains of value, amendment of the text to diminish the perceived requirement for training in manual handling techniques would appear to be of value.

To accompany this 'downgrading' of the 'requirement' for training in manual handling techniques it would seem advisable to clarify the risk-based approach embodied in Article 3 to emphasise the hierarchy of:

- Risk prevention;
- Risk reduction;
- Risk (personal) protection.

In this hierarchy, manual handling training could correctly be seen as a potential adjunct to workplace design improvements (prevention & reduction of risks) as a personal protection approach.

The report also discusses the issue of the risks of musculoskeletal disorders not arising from manual handling activities and therefore not covered by the current directive. This discussion is summarised below in respect of additional risks.

90/270/EEC (DSE)

It is clear from numerous sources that the Annex of Minimum requirements for workstations, which largely reflects the state of computer technology of the 1980s, is out of date. Not only does this mean that the Directive is partially out of date at present, but also that it is likely to become more so as further developments in technologies are introduced into the workplace. One difficulty is that, in its present form, any amendment upon similar lines is going to become out of date with developments in technology in the same way as the present one has done so. Consideration should therefore be made given to preparing a less prescriptive text, and one which does not preclude alternative approaches. For example, the current requirements for the chair to be provided broadly assume a conventional seated posture and could be considered to have a negative impact on the concept of a standing workstation.

However, one of the difficulties with a prescriptive approach such as this is that, as practical experience with employers has demonstrated, it tends to encourage employers to consider that compliance with these requirements is all that is required. As a result, practical experience in the implementation of the Directive indicates that often, no actual assessment of the working posture of the worker is carried out. There might be some merit in considering a more 'enabling' approach that required employers to provide furniture and equipment 'sufficient to enable the worker to adopt a good working posture', supported with authoritative information and guidance as to what constituted a good posture.

One further specific concern is that Article 9 of the Directive is factually misleading in that the title 'Protection of workers' eyes and eyesight' implies that use of DSE presents a risk. This is contrary to scientific and medical evidence. There is however, some experience to suggest that workers might experience problems such as visual symptoms, or might adopt compensatory (adverse) physical postures if they cannot see the display clearly due to visual defects. This appears to be tacitly recognised in a number of MSs where testing is made available to those who report problems rather than prior to starting work. As written, the Article is misleading and inappropriate and amending it to reflect the current evidence base would enhance the future relevance of the Directive.

Many MSs also reported in their NIR the need to review the exemptions in the Directive (Article 1(3)) due to the technological advances which have occurred since the Directive entered into force.

1999/92/EC (ATEX)

There are no indications of any significant developments in industry which would markedly reduce or enhance the future relevance of this Directive. However, researchers have strongly criticised the fact that the Directive does not adequately differentiate between dust clouds and gases/vapours and revising this would serve to increase the future relevance of the Directive.

2002/44/EC (vibration)

Numerous issues and measures have been raised by stakeholders, experts, and within the NIRs. However, none of these measures, which are discussed in the directive report, appeared to be shared across other MSs and would not seem to indicate any need to reconsider the content of this Directive to maintain or increase its future relevance.

2003/10/EC (noise)

Although technological change will possibly reduce noise emissions in some circumstances, and economic changes means that many traditionally noisy industries are declining within the EU, it

seems likely that exposure to noise will continue for some workers and the Noise Directive will therefore remain relevant for the immediate future. However, some consideration should be given to exploring the possible implications for the provisions of the Directive of an aging workforce, both in terms of 'older ears' being exposed and of workers working for longer and therefore being exposed to noise for a longer period.

2004/40/EC (electromagnetic fields)

As earlier, there are concerns regarding the current relevance of this Directive. There are no additional concerns relating to its future relevance.

2006/25/EC (artificial optical radiation)

The AOR Directive is a little unusual in that whilst, on the one hand, there is some doubt over its current relevance, there are also suggestions that its scope should be extended to cover natural (solar) radiation, with evidence submitted to reflect this. However, it should be noted that there have also been counter-suggestions not to adopt such an extension, again supported by published evidence.

2004/37/EC (carcinogens or mutagens); and

98/24/EC (chemical agents at work)

It is difficult to separate discussions over the future relevance of these two directives because many of the comments can apply to both. One such example are the comments relating to what are seen as the emerging risks associated with nanoparticles and nanomaterials. Although these are chemical agents, and therefore addressed by the CAD (and possibly also the CMD where some substances are regarded as potentially carcinogenic), some concerns have been expressed that existing legislation is not sufficient. However, it must be noted that these concerns are balanced by others expressing the view that it is sufficient. Even amongst those who considered the provisions of the CAD to be generally sufficient, there were some who advocated amending or adjusting it to clarify the situation regarding nanoparticles.

Nanoparticles

Member States were specifically asked through the NIR template whether the Chemical Agents Directive adequately addresses the risks from nanomaterials. Most did not provide an unequivocal answer although the majority appear to indicate that the provisions of the Chemical Agents Directive should be adequate. Nevertheless, some other MSs gave a clear response that they considered a new Directive to be required. The general view appeared to be that the framework for assessing and managing risks from chemicals, outlined in the CAD, should be sufficient but that, in reality, the lack of clear knowledge and understanding of what those risks were made this problematic.

As suggested earlier in respect of the Work Equipment Directive, suggestions for change to accommodate emerging risks perhaps to some extent reflect national differences in OSH management, where those MSs who adopt a more goal-setting approach are more likely to regard existing provisions as sufficient, whilst those MSs who tend to adopt relatively prescriptive legislation might need to make further prescriptions to clarify the most appropriate methods for controlling the risks associated with working with nanoparticles.

Scientific opinion, expressed by subject-matter experts, is that the broad provisions of the CAD can be applied to managing any risk from nanoparticles. Certainly, the recently published (2014)

guidance from the European Commission on potential risks related to nanomaterials, referenced in the CAD report, makes this clear. It remains to be seen whether this and related materials serve to assuage the concerns of those stakeholders who expressed the view that a revision of the CAD (or a new Directive) was necessary to counter these risks.

Merging the CAD and CMD

Although the nanomaterials guidance referred to above presents guidance in the context of the CAD, it does defer at times to the more stringent requirements of the CMD. There are suggestions, at least from a legal perspective, that merging the two (CMD and CAD) in the future would provide for a more coherent approach, enhancing the relevance of control in this important field. This view is consistent with that expressed by Germany in their NIR which ‘urgently’ recommended a reduction in the number of Directives.

Discussions amongst stakeholders at the validation seminar held as part of the evaluation project revealed that there was no clear consensus amongst the stakeholders present. Although there was some variation within stakeholder groups it seemed that the main differences of opinion reflected a worker-employer split, with employers favouring a merger but workers preferring to retain the two Directives. There was a suggestion that merging the two might make compliance and risk management easier for SMEs and it was argued that merging of directives would be beneficial, reducing duplication and removing confusion amongst employers. Others argued that there is no need to merge the directives as it is open to MSs to implement their provisions within a single legislative instrument; and that any such changes would be burdensome for MS in having to alter legislation.

Limit values

The subject of OELs was mentioned by several stakeholders. Some questioned the evidence-base for some OELs, especially those in the CMD where the relationship between the CMD OELs and the Binding OELs in the CAD also attracted comment. It was suggested by some that the rate of introduction of new chemicals into the workplace tended to move faster than the level of knowledge and awareness of those in authority (such as Inspectors – and the development of OELs) could keep pace with.

Also, one explicit recommendation for amendment was offered by the UK NIR, to ‘Review the limits for exposure to lead set out in Annex I and II, in the light of current scientific evidence.’

Many MSs have implemented additional Limit Values for chemicals not covered by the Chemical Agents Directive and those supplementary lists issued since. Some have also implemented lower limits than those established under the Directive. Although in some cases this reflects a divergence of opinion between national experts and those advising the EU as to what the limit should be it more usually reflects the relatively slow rate with which limits for new substances can be incorporated into legislation at an EU-level. A concern expressed relating to this was that variations in national exposure limits (provide for under the CAD) would lead to work being directed towards other countries where higher or no limits existed.

An EU worker representative stakeholder comment expressed concern that no further Binding OELs have been published since those included in the initial CMD. In this context it is noted that the ACSH has published an opinion (Doc. 2011/12) on a proposed amendment of the CMD to introduce further Binding OELs, although it is not known what progress has been made in this regard since that time.

The need to review and revise the system of agreeing limit values for chemicals to ensure the ongoing relevance of these two directives is clear and is discussed further, alongside issues such as other exposure classification systems such as DNELs (REACH), in the CAD report.

One Directive-specific issue relating to the CMD is the question of whether or not the scope of this Directive should be extended to include reprotoxins. It was noted that over a third of MSs already accommodate them within their equivalent legislation suggesting a degree of tacit support for such a measure. However, it is suggested that including consideration of reprotoxins and how best to control the risks they present within a wider debate over the future of the CAD and CMD provides the best option given the current lack of detailed data.

As a further issue, the prospect of identifying some carcinogens or mutagens for which an evidence-based safe threshold can be established would generate additional pressures to revise the CMD, with its assumption that such thresholds cannot be identified and focus on measures such as substitution and the use of closed systems (as well as an explicit requirement for exposure levels to be reduced as low as technically possible).

2009/148/EC (asbestos)

In relation to clarifying aspects of the Asbestos Directive and therefore enhancing its future relevance, some comments from stakeholders and NIRs have been collated advocating improving the definition of some terms. Thus one EU stakeholder commented that there is no criterion within the directive to define sporadic and low intensity. This is clearly important because of the possible exemption within Article 3(3) from certain duties “Provided that worker exposure is sporadic and of low intensity,...”. It is understood that the concept of sporadic and low intensity exposure is subject to different interpretations within individual MS where each MS defines it in different ways. This could become of increasing importance with the growing attention to locations such as schools and offices, in accordance with the European Parliament resolution of 14 March 2013, where exposures might normally be expected to be sporadic and low intensity.

The NIR from one MS (UK) comments on other aspects of the same article with the use of terms such as “non-friable” and “deterioration of non-degraded materials” that are not defined.

Other EU stakeholders agreed that the Asbestos Directive was (and would remain) relevant.

The question has been raised of introducing a lower limit value (as already implemented in two MSs with a third adopting a slightly different approach). It would seem that there is some epidemiological evidence to support a lowering of the limit, which would serve to increase the ongoing relevance and effectiveness of the Asbestos Directive

2000/54/EC (biological agents)

A number of Member States regarded the classified list of infectious agents to be out of date. This was the most frequent response to a specific question in the NIR template regarding whether or not the Directive needed adaptation to take account of the pattern of accidents or ill health. Updating the classification (and lists) of pathogens would clearly improve the current relevance of the Directive. However, to maintain its future relevance it would seem that an efficient mechanism needs to be devised, to enable this list to be updated regularly and easily.

Clearly, in order to retain its relevance, the Directive needs to respond to emerging risks (and others which might develop) which should be within the scope of the Biological Agents Directive.

However, the emergence of such new risks means that the Directive is likely to remain relevant against a horizon of 2020.

92/57/EEC (construction)

Although very many MS provided extensive comments on the Construction Directive in their NIRs few of these impact directly on the issue of relevance. One aspect addressed in the NIRs related to a fairly widespread concern about the interpretation of the scope of the Directive, suggesting a need for clarification to ensure a consistent approach. Although conventional construction works are not seen as problematic, the degree to which the Directive applies to works such as maintenance and cleaning appears to vary and impacts on the perceived relevance of the Directive.

92/104/EEC (M&Q)

EU and National stakeholders mainly felt that the Directive will remain relevant over the period to 2020. New and emerging risks such as changing workplace demographics (for example increasing numbers of ageing workers); the potential for cybercrime attacks on plant operating systems; the use of nanomaterials in materials processing and an increasing prevalence of undersea mining were also considered relevant for this Directive and might influence its future relevance.

There was no clear view on whether such risks should be addressed by additional Directives, amendments to existing Directives, or the provision of more and/ or better consultation, communication and guidance.

92/91/EEC (drilling)

A recent (2013) independent evaluation of the implementation of the Drilling Directive found a need to update it. It was found that current good practice in both industry and regulation has moved on since 1992, and therefore, is not fully echoed in the provisions of the Directive. Furthermore, several specific areas of the Directive or actual provisions of the Directive were regarded as limited; and thus the success of the Directive offering protection to the workers was restricted. The evaluation report defines a number of specific recommendations including the addition of current good practice which is missing in the Directive; being more explicit regarding the management of drilling activities and well control; and outlining the structure/functions to be undertaken by the regulator.

92/29/EEC (medical treatment on board vessels)

Few EU and national stakeholders had strong opinions regarding the general future relevance of the Medical Treatment on Board Vessel Directive. However, some NIRs indicated a need to review and align medicine lists and other provisions of the Directive, and its scope, in order to improve its ongoing relevance. In this context, several references were made to the MLC (or ILO) in terms of inconsistencies between their agreement and the Directive. Rectifying these, and establishing a more effective means of ensuring consistency in the future, would help to ensure its ongoing relevance. It is noted that a small number of Member States have already updated national requirements to reflect these differences, aligning their legislation with the MLC rather than the Directive.

92/29/EEC (work on board fishing vessels)

Although the size of the EU fishing fleet is decreasing, due to the continued existence of risk factors on board fishing vessels, there is no evidence to suggest that the future relevance of the

Fishing Directive will decrease. No specific amendments or additions to the Directive were identified which would impact on this relevance.

5.2.3 Risks not addressed by current Directives

Overview

In addition to the issue of nanoparticles discussed above, two areas of particular concern have been identified relating to ongoing or emerging risks. These are MSD risks not currently addressed; and psychosocial risks. To help ensure the ongoing relevance of the overall OSH acquis these issues need to be addressed in the period up to 2020. These issues are discussed in greater detail in the appropriate Directive reports (for psychosocial risks see that on the Framework Directive whilst MSD risks are discussed in the report on the Manual handling Directive), and will be discussed at an OSH-acquis level in the subsequent chapter on effectiveness, but the issues are summarised below.

In addition, some questions have been raised regarding the Agriculture sector and whether there is any justification for a sector-specific Directive.

MSD risks not already addressed

One of the criticisms of the Manual Handling Directive from some stakeholders is that it does not adequately address all MSD risks. This is perhaps not surprising given that its subject (scope) is to lay down safety and health requirements for the manual handling of loads. It is clear from any examination of the wealth of published scientific literature that many risks of MSDs do not arise from the manual handling of loads (or from the use of DSE).

In the 2010 EWCS survey, 46% responded that they had suffered from backache over the last 12 months. It should not be assumed that this backache was necessarily associated with manual handling. As data in the Manual Handling Directive reports shows, not all of those who experience backache are engaged in manual handling. Thus approximately 40% of those with backache report never carrying or moving heavy loads and a slightly higher percentage (47%) report never working with computers. In total, 13.6% report never doing either.

In the same survey, approximately 45% of respondents indicated that, over the last 12 months, they had suffered from muscular pains in their shoulders, neck and/or upper limbs. More than a third of these (38%) indicate that their work never involves carrying or moving heavy loads whilst only 16% indicate that their job never involves repetitive hand or arm movements. Further analyses show that just under a half (46%) report that their main work never involves working with computers.

Clearly there are many complex factors at play and these figures only give a relatively crude and imprecise picture with no direct indication of causation. However, it is clear that there will be many workers who experience MSDs whose work does not entail either handling heavy loads or working with computers.

A further complication is that not all MSDs are necessarily caused by work. In generic terms, workplace risks of MSDs can arise from repeating or sustaining awkward body postures; repetitive or sustained actions or movements; or the application of excessive force (where the concept of excessive also accommodates the frequency and/or duration of force application). Amongst these

generic risks, those arising from the use of computers (DSE) and those associated with manual handling activities, are addressed through the two existing Directives. This leaves those activities, especially in industrial tasks, which do not involve either of these.

Given the importance of MSDs in terms of overall EU sickness absence these considerations reflect a clear 'gap' in terms of workplace risks for which no specific legislative provision exists at present and therefore for which no existing Directive (with the exception of the Framework Directive) provides protection to workers.

Psychosocial risks

The second emerging issue from the evidence considered was that of psychosocial risks. In addition to the views expressed by stakeholder at EU and MS level, quantitative evidence shows that psychosocial risks are a considerable work-related risk. In the ESENER 2009 survey, 37% of respondents across the EU-27 indicated that work-related stress was of major concern whilst, in the 2007 LFS responses, 20% indicated 'stress, depression, anxiety' as a work-related health problem.

Psychosocial risk factors, which interact and combine in a complex fashion, include:

- › Excessive demands or exposure to physical hazards
- › Having inadequate say over how work is done
- › Having inadequate support from managers or co-workers
- › Being subjected to unacceptable behaviours - including harassment or violence
- › Not understanding roles and responsibilities
- › Not being involved and informed in organisational changes
- › Verbal or physical violence, or the threat of violence.

As with MSD risks, a complication is that not all episodes of 'stress, depression, anxiety' are necessarily caused by work. Nevertheless, there is an extensive body of research evidence to establish these as work-related risk factors and no existing Directive (with the exception of the Framework Directive) addresses them, reflecting another clear 'gap' in terms of workplace risks for which no specific legislative provision exists at present and therefore for which no legislation provides protection to workers.

5.2.4 High risk sectors not specifically addressed

The agriculture sector is widely regarded as one of the most hazardous sectors in the EU. According to EU-OSHA: "The fatal accident rate, for the old EU 15 member States, in 2000, was 12.6 per 100 000 workers, and for accidents with more than 3 days absence the rate is over 6000 per 100 000 workers. These rates are some of the highest for any industry."⁸⁵ More recent data (ESAW) for the EU-27 do not support this view (2012 figures for non-fatal accidents show an incidence rate of 1,365.79 compared to an industry-wide average of 1558.52 per 100,000 workers) although it is generally believed that there is widespread under-reporting of such accidents within the sector. It is interesting to note that the 2012 figure for the EU-15 is higher at 2430.87 (cf 1831.51 overall).

⁸⁵ https://osha.europa.eu/en/sector/agriculture/index_html

A paper presented to the European Parliament on Safety and Health in Agriculture (2012) refers to “the characteristics of the Agriculture sector with its persistently high and disproportionate levels of fatal and non-fatal injuries and ill-health”.⁸⁶

Other high-risk industrial sectors such as mineral extraction (two Directives), construction, and fishing have sector-specific directives. As the Parliament paper notes: “OSH in Agriculture is not covered by a specific EU Directive”.

The Framework Directive provides for such a directive. Article 16(1) refers to the Council adopting individual directives ‘in the areas listed in the Annex’. The annex lists seven ‘areas’ of which the last is ‘Fisheries and agriculture’. Although individual directives have been adopted for all the other six areas, and fishing (rather than fisheries), agriculture remains.

Although not raised as an issue by any stakeholders interviewed about gaps in provisions, discussions have raised the question of whether this is a legislative gap which should be filled.

In general, these sector-specific directives do not in general seek to provide broad protection against the risks encountered in those sectors. For example, although it is widely recognised that there are many chemical hazards in the construction sector, as well as physical hazards such as noise and vibration, the Construction Directive (92/57/EEC) does not seek to address these. Rather, as described in its preamble, it seeks to address issues such as “unsatisfactory architectural and/or organizational options or poor planning of the works at the project preparation stage have played a role in more than half of the occupational accidents occurring on construction sites in the Community;” or “Whereas, when a project is being carried out, a large number of occupational accidents may be caused by inadequate coordination, particularly where various undertakings work simultaneously or in succession at the same temporary or mobile construction site.” Similar considerations relate to the mineral extraction directives. Thus, such directives do not seek to address OSH in general within the sector but rather to make provision for what are regarded as factors unique to that sector.

The question to be asked therefore is not, ‘is the agriculture sector a high-risk sector?’ but ‘are there risks, unique to this sector, which are not otherwise addressed?’ According to EU-OSHA, “most common cause of serious and fatal injuries in agriculture involves moving and overturning vehicles. Other causes of accidents include:

- › falling from a height (through fragile roofs, trees etc.)
- › struck by moving or falling objects (bales, trees etc.)
- › trapped by something collapsing or overturning
- › livestock related fatalities
- › asphyxiation / drowning.”⁸⁷

⁸⁶ <http://www.europarl.europa.eu/document/activities/cont/201303/20130321ATT63633/20130321ATT63633EN.pdf>

⁸⁷ <https://osha.europa.eu/en/faq/agricultural-occupational-diseases-and-accidents/what-are-the-most-common-accidents-in-agriculture>

However, according to the paper to Parliament the unique aspect of agriculture is not these (which are probably addressed to some extent at least by existing provisions) but the nature of its workforce. Thus: “agriculture is unique in terms of workplaces, the vast majority of farmers across Europe are self-employed, self-supervised individuals largely reliant on family labour” and, following on from this, “while various EU Directives do address certain health and safety issues self-employed workers are not well covered.” The report concludes: “The challenges in Agriculture cannot be solved with the same approach as in other sectors, such as construction, as Agriculture is predominately made up of self-employed individuals.”

The issue of extending OSH provisions to the self-employed has been raised earlier in relation to the Framework Directive. It would seem that the challenges of the agriculture sector should provide a particular impetus to such considerations.

5.2.5 Vulnerable groups

It could be argued that self-employed workers, identified as a particular challenge to ensure the future relevance of OSH Directives in the agriculture sector, are a form of vulnerable group – although they are not usually regarded as such. OSH Directives include three aimed at specific vulnerable groups: the Pregnant Workers, Young People and Temporary Workers Directives. However, a consistent theme to emerge in discussions with stakeholders and in reviewing published work on OSH and vulnerable groups are ageing workers. There is a clear recognition that the age profile of the EU workforce is changing, with a gradual increase in the proportion of older workers (and consequently in the average age) within the workforce. This is not a Directive-specific issue although there is scientific evidence that some potential consequences include:

- › Greater cumulative exposure to risks such as chemicals, and physical agents such as noise and vibration
- › Increased susceptibility to MSDs
- › Longer periods of recovery post-illness (such as MSDs)
- › Lower resilience to psychosocial risks
- › Possible increased susceptibility to injury due to deteriorations in eyesight, reaction time, etc.

There have been no specific recommendations or suggestions from MSs or stakeholders for an ‘Older Workers Directive,’ and it is possible that any increased risk is best assessed, and appropriate action taken, within the existing framework of provisions. Nevertheless, it is clear that such workers do face additional or enhanced risks and that consideration should be given to these to ensure the future relevance of the OSH Directives in meeting the needs of the EU workforce.

5.2.6 Future relevance: conclusions

In summary, there have been no consistent views expressed to suggest that any of the Directives would cease to be relevant in their entirety in the period up to 2020. Concerns have been expressed regarding two directives which, particularly in respect of the EMF Directive, question the need to retain these directives. The second Directive (AOR) presents a strange situation. On the one hand, the weight of the evidence for the risks currently addressed would suggest that there might not be a need for this Directive. On the other hand, there is at least a plausible case for considering providing protection to workers exposed at work to solar radiation, thereby extending the scope of the Directive.

A number of specific issues have been identified regarding the provisions of individual Directives which potentially influence their future relevance. These are summarised above and will not be repeated here. They include clarifications, extensions, deletions, etc., as considered necessary to improve or maintain the future relevance of the existing directives.

As well as recommendations or suggestions relating to existing Directives, consideration has also been given to additional provisions to address workplace hazards not already covered (other than implicitly by the Framework Directive which covers any risks). Two areas which have been identified, for which there is a clear need for action, are the introduction of measures to control:

- › Workplace hazards which present a risk of MSDs which are not addressed by existing provisions
- › Workplace hazards which create risks to psychosocial health (known as 'psychosocial risks').

Evidence is summarised relating to each of these topics and suggestions made for further initiatives.

As well as hazards not already covered, consideration has been given to whether or not there was any need for further sector-specific measures, to address risks not already covered in what might be regarded as high-risk sectors. This discussion has focussed on the agriculture sector which, despite having been specifically referred to in the Framework Directive as warranting action, has yet to be the subject of any specific legislation. Again, evidence regarding this is summarised above and won't be repeated here. However, it would seem to be recognised that the problems in the sector stem more from the nature of employment in the sector rather than in respect of any unique hazards not otherwise addressed. It is possible therefore that any need for action in relation to the agriculture sector would best be regarded as part of a wider need to consider extending OSH provisions to the self-employed and to others such as family businesses where the usual employer-worker relationship doesn't hold.

Finally, it is widely recognised that, in common with many other parts of the world employment market, the EU is facing a progressively aging workforce. Many actions and initiatives are underway which recognise that, as a group, older workers have special needs and vulnerabilities in respect of their younger colleagues. However, at present, unlike some other vulnerable groups (such as young people) they are afforded no specific protection. It is suggested that their needs might best be seen in the context of a wider appraisal of how the OSH needs of different vulnerable groups are addressed in the future.

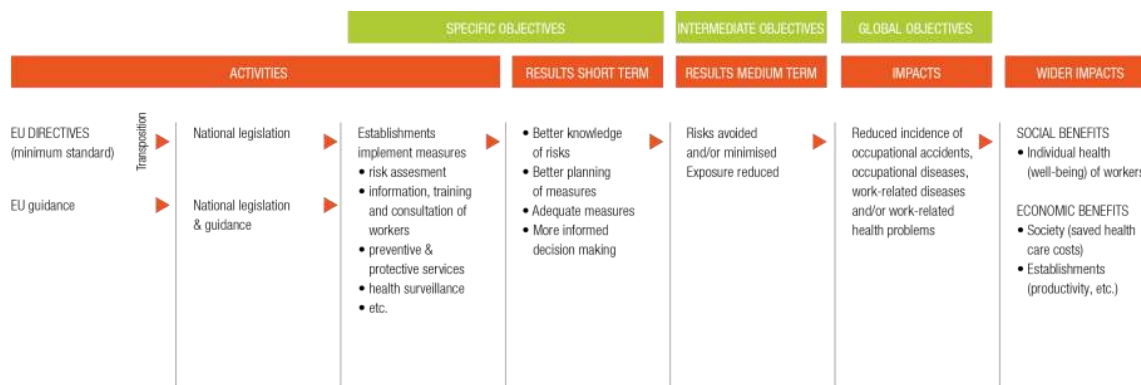
6 Assessment of effectiveness

6.1 Introduction

The overall objective of the OSH acquis is "to introduce measures to encourage improvements in the safety and health of workers at work" (ref. Framework Directive (89/391/EEC) article 1.1.). In order to assess the extent to which the OSH acquis has been successful in doing so, this evaluation has examined a number of key determinants of the effectiveness of the 24 OSH Directives:

Up until this point, the evaluation of the OSH acquis has assessed the recent trends within the EU labour markets in order to establish the framework conditions for the overall implementation of the 24 OSH Directives (Chapter 3). The rationale behind this assessment is that changes to the labour market influence the prevalence of specific hazards, risks and challenges faced by the workforce and which are thus sought remedied by means of the implementation of the OSH acquis.

Subsequently, in Chapter 4, we have presented the conclusions drawn from mapping the national transpositions of the OSH Directives and assessing their practical implementation in the Member States. This extensive mapping exercise has revealed significant variations across MSs in the regulatory approaches to OSH implementation, including to factors such as enforcement, vulnerable groups and SMEs, all of which affect the conditions under which the OSH acquis operates within the MSs. One key purpose of the mapping exercise was to examine the levels of and conditions for OSH compliance in establishments seeing as compliance with the OSH legislation is a prerequisite for affecting establishments' behaviour and thus achieving workplace impacts (such as a regular performance of risk assessments). As explained in the OSH acquis intervention logic illustrated in Figure 2-3 and revisited below, the rationale behind this assessment of national implementation and compliance is the assumption that workplace impacts result in improved OSH management and consequential risk reduction at workplaces. Ideally, this chain of events ultimately impacts the safety and health of workers, measurable through reduced incidence of occupational accidents, work-related diseases etc.



However, while implementation is pivotal, it is not the only prerequisite for safety and health impacts. In the previous chapter (Chapter 5), we assessed the relevance of the OSH acquis by examining whether the risks which Directives are intended to address are present in the current (and future) labour market and whether the specific content of the individual Directives is in fact relevant for addressing these risks. The assessment confirmed a high level of relevance across a large majority of Directives, and also identified other highly relevant risks that are insufficiently covered by means of the current design and content of the OSH acquis (e.g. MSD and psychosocial risks).

In the present Chapter, we thus build on the combined findings of the Labour Market Overview, the mapping of national implementation and the assessment of relevance in order to assess the overall effectiveness of the OSH acquis in improving the safety and health of workers. We examine the effectiveness of the OSH Directives by addressing the following seven evaluation questions:

- › EQE1: To what extent has the Directive influenced workers' safety and health, the activities of workers' representatives, and the behaviour of establishments?
- › EQE2: What are the effects on the protection of workers' safety and health of the various derogations and transitional periods foreseen in several of the Directives concerned?
- › EQE3: How and to what extent do the different Common Processes and Mechanisms that were mapped contribute to the effectiveness of the Directives?
- › EQE4: To what extent do sanctions and other related enforcement activities contribute to the effectiveness of the Directives?
- › EQE5: What benefits and costs arise for society and employers as a result of fulfilling the requirements of the Directives? (Addressed in Chapter 7)
- › EQE6: To what extent do the Directives generate broader impacts (including side effects) in society and the economy? (Addressed in Chapter 7)
- › EQE7: To what extent are the Directives achieving their aims and what factors have particularly contributed to the achievement of the objectives?

The seven evaluation questions on effectiveness (EQE) all cover different aspects that contribute to the realisation of the intervention logic. However, as evaluation questions 5 and 6 can be said to extend beyond the effectiveness of the OSH acquis by touching upon broader impacts and on those costs and benefits that are associated with implementation of the OSH acquis (rather than contributing to its effectiveness), these evaluation questions have been merged and are addressed separately in a subsequent chapter (Chapter 7). Thus by examining evaluation questions 1-4 and 7, we incrementally expand on the assessment of the effectiveness of the OSH acquis based on the national implementation of the Directives mapped in Chapter 4. As such, we do so by tracking the intervention logic and evaluating the impacts of the national implementations on establishment

behaviour to identify whether the OSH acquis has caused workplace impacts which, in turn, have reduced occupational risks and ultimately improved the safety and health of workers.

6.2 Effect on occupational safety and health (EQE1)

EQE1: To what extent has the Directive influenced workers' safety and health, the activities of workers' representatives, and the behaviour of establishments?

The first step in the assessment of effectiveness is therefore to establish the extent to which the OSH acquis has in fact improved the safety and health of workers. In accordance with the intervention logic, this assessment is conducted in two stages. First, we examine the actual changes and improvements which have occurred at workplaces as a result of implementing the OSH acquis (section 6.2.1). Secondly, we analyse how these changes have influenced the safety and health of workers and ultimately reduced occupational accidents and work-related diseases (section 6.2.2).

6.2.1 Overall workplace safety and health environment

As discussed above, a precondition for the OSH acquis to result in workplace impacts is that provisions under the Framework Directive and the 23 individual Directives are implemented and complied with in the Member States. Compliance essentially entails abiding by the requirements of the CPMs and thus conducting risk assessments on a regular basis, having preventive and protective services, providing information and training to workers as well as consulting them on OSH matters, conducting health surveillance and applying any other Directive-specific key requirements – all of which constitute workplace impacts and a change in establishment behaviour. In other words, workplace impacts are inextricably linked to the level of compliance with the overall OSH provisions which is discussed in Section 4.3 (MQ3). Hence, in order to avoid repetition, in the present subchapter, we briefly build on those findings by linking compliance to potential workplace impacts. For additional elaborations and nuances on the effectiveness of the CPMs, we kindly refer to Section 6.4 (EQE3).

One key challenge linked to the assessment of the overall effectiveness of the OSH acquis in achieving workplace (and by extension safety and health) impacts is to establish a causal relationship between any OSH-related improvements identified and the Directives. We might identify workplace impacts that correspond to OSH acquis provisions (and thus might stem from them). However, as many MSs had national provisions containing similar or identical requirements prior to their transposition of individual EU Directives, we cannot establish with any certainty to what extent workplace impacts would have occurred without adoption of the EU level OSH acquis.⁸⁸

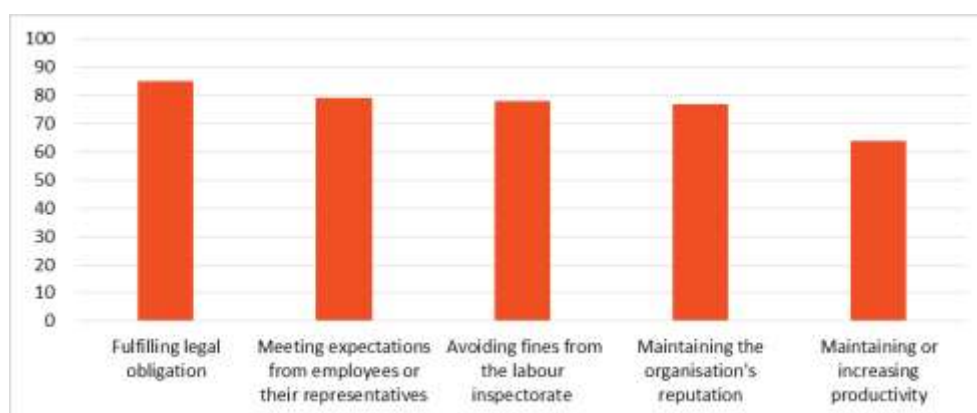
⁸⁸ In theory, it might have been possible to compare workplace impacts stemming from the OSH acquis in MSs with similar previous provisions to MSs without previous provisions. However, as impacts often occur with some latency and as data is very rarely available for more than a few years, several years apart, this does not allow for specific changes to be detected within minor time spans, wherefore this cannot be done with any scientific certainty in practice.

Another of many examples of this predicament of establishing causality is the significant workplace improvements that stem from technological developments. Specific examples may include improved trawling equipment on fishing vessels, improved personal protective equipment (PPE), and machinery that produces less noise or vibration, all of which contribute to the improved safety and health of workers. Yet, to claim that such technological improvements stem from the implementation of the OSH acquis would clearly be a disingenuous simplification. However, although technological improvements are often a result of market demands and a prospect of profit, it could be suggested that an increased awareness of occupational safety and health issues is likely to accelerate the process of change and the pace with which technologically improved equipment reaches workplaces. Effectiveness is therefore largely circular, and any assessment will constitute a simplified view of causality with many inherent reservations.

Overall subjective views

In an attempt to shed some light on this issue of causality, we examine the reasons reported by establishments as to why they address safety and health issues, to give some insight into the safety and health environment in which the 24 OSH Directives have been expected to operate. Examining the major motivations behind managing safety and health may shed some light on the level of impetus that is given by the OSH acquis to the achievement of workplace impacts and thus help to establish a link between EU-level legislation and enterprise-level workplace impacts. Figure 6-1 thus shows the proportion of managers who have identified each of a number of major reasons for addressing health and safety.

Figure 6-1 Major reasons for addressing health and safety (% respondents, EU-28)



Source: EU-OSHA (2015), ESENER-2

Figure 6-1 shows that 85% of respondents in the EU-28 report fulfilling legal obligations to be a major reason for addressing health and safety. ESENER-2 data also shows a positive correlation with establishment size (EU-OSHA, 2015). By country, the proportion ranges from 68% of surveyed establishments in Denmark who report that fulfilling legal obligations is their main reason for addressing safety and health to 94% in Portugal. In contrast, in some countries, particularly those that joined the European Union in 2004 and in some of the Candidate countries, the most frequently reported driver to address health and safety is maintaining the organisation's reputation (EU-OSHA, 2015).⁸⁹

⁸⁹ An identical question exists in ESENER 2009, but due to the different survey population as well as differences in the wordings of the response options, assessment of possible changes in establishment motivation cannot be made.

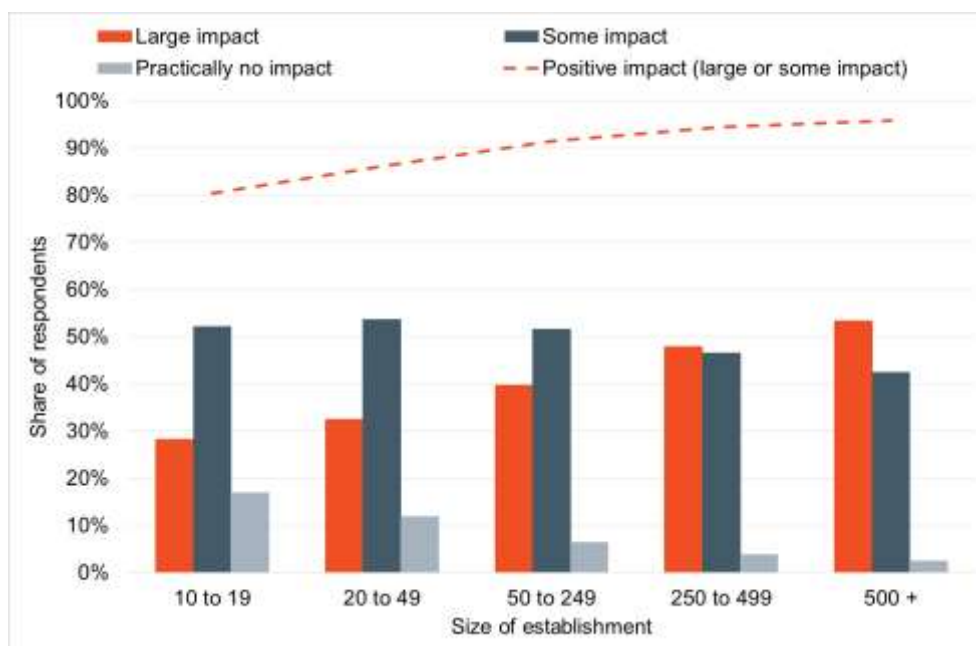
While this clearly does not unequivocally link workplace impacts to the OSH acquis, it shows that the existence of legal obligations, i.e. national provisions, including enforcement by labour inspectorates (cf. Section 6.5 Effect of enforcement), is the most important reason for addressing OSH at enterprise-level. We may conclude from this finding that the introduction of the OSH acquis and its potential to streamline national provisions may have a direct impact on workplaces, and may thus gradually level out the differences in OSH standards between EU Member States.

The second most commonly identified reason for addressing safety and health is meeting expectations of employees (and ERs), which in turn can be seen as a direct result of increased information of workers and awareness of OSH. This corroborates the conclusions that emanate from the information gathered from national and EU stakeholder interviews, namely that improved information of workers is one of the main workplace impacts achieved through the transposition of the OSH acquis, although significant variations in this may be witnessed between Directives. Furthermore, although increased awareness on safety issues across the EU is not simply a result of the OSH acquis alone, stakeholders agree that the OSH acquis and its accompanying actions, including campaigns from social partners, have contributed to this increased awareness and thus to workplace impacts. The fact that worker and ER expectations are mentioned as a highly motivating factor in establishments also support the conclusion of Section 4.3 (MQ3) that employee representation has a significant influence on compliance with the OSH acquis.

As also established in MQ3, 70% of establishments with 10 to 19 employees have a documented OSH policy compared to 90% of large establishments with 500 or more employees. However, as the existence of a documented policy on OSH does not necessarily entail a reduction of work-related risks, the assessment of the effectiveness of the OSH acquis is inextricably linked to the impact of this OSH management system on workplace impacts, which may in turn improve on the safety and health in establishments.

In order to assess to what extent compliance is likely have actually resulted in workplace impacts, Figure 6-2 shows the extent to which interviewed managers perceive their OSH management system to have had a large impact, some impact or practically no impact on health and safety in their establishments.

Figure 6-2 Perceived impact of documented policy, established management system or action plan on health and safety in establishments



Source: ESENER (2009), MM156 (by size of establishment)

Note: Proportion of interviewed managers who answered 'Yes' to the question: "Is there a documented policy, established management system or action plan on health and safety in your establishment?"

As illustrated, as many as 96% of managers in large establishments find that their OSH management policy has had some positive impact and 53% of those perceive the impact on safety and health to have been large. At the other end of the scale, 80% of managers in establishments with 10 to 19 employees perceive their OSH management plan to have had a positive impact although only 28% of them believe it to be a large one. These smaller expectations of safety and health impacts reported by SMEs are in line with the findings on SME compliance, which indicate that SMEs more often than larger establishments believe that they are in compliance with the OSH acquis (even when they are not) and that no major hazards exist at the workplace (even when they do) (ref. section 4.3.2., and Fairman and Yapp, 2005).

It is clearly positive that a significant share of managers perceive their OSH management policy to have had some impact on safety and health in the establishment, and it does increase the *likelihood* that the OSH acquis has been effective in achieving workplace impacts at establishment level, particularly in larger establishments. However, in terms of assessing the actual level of effectiveness of the OSH acquis this data is inherently limited, as it allows us to develop *assumptions* on effectiveness rather than formulate evidence-based conclusions.

A general problem in this regard is that very limited data on compliance over time exists (particularly at EU-level), wherefore it is difficult to establish whether Directives have led to improvements, and whether potential workplace impacts have in fact increased or decreased in the period from period 2007 to 2012.

One survey of 26,571 EU-28 residents (i.e. not necessarily workers) above the age of 14, commissioned by the European Commission (2014), has attempted to remedy this problem by asking respondents to assess their own working conditions and subsequently to provide their opinion on whether working conditions in the particular MS had improved, stayed the same or

deteriorated over the last five years. The survey shows that just over half of the respondents (53%) report that working conditions in their country are currently good. Not surprisingly, results vary from MS to MS, ranging from 16 % in Greece to 87% in Denmark. However, the survey also shows that a majority of Europeans (57%) find working conditions in their country to have deteriorated in the last 5 years, 27% say they have stayed the same while only 12% think they have improved. Estonia (42%), Malta (40%), Lithuania (27%), Latvia and Hungary (both 25%) are the only countries where at least one quarter of respondents think working conditions in their country have improved over the last five years (European Commission, 2014).

This data clearly indicates that workplace impacts are considered to have deteriorated in the EU over the last five years which, if true, might be expected to be reflected in an increase in the number of work-related accidents and/or absence caused by work-related diseases or ill-health in the analysis of safety and health impacts below. However, this data may be subject to significant limitations as a retrospective, subjective assessment of trends may cause a range of statistical fallacies (i.e. personal bias, faulty recollection of actual events, differently applied definitions of what constitutes improvement/deterioration etc.).

In this regards, it is relevant to refer back to the ESENER findings, presented in Section 4.3.2 Assessment of overall compliance above, showing that as many as 91% of those establishments that have identified a need for action during a risk assessment actually follow-up and take that necessary action. This of course does not speak of neither the quality of the conducted risk assessment (e.g. number of unidentified hazards), nor the preventive quality of the taken follow-up action. However, as 88% of establishments in EU-27, according to ESENER data, conduct risk assessments on a regular basis and 91% of those have taken follow-up action in response to identified risks, that effectively means that 80% of all establishments have taken some measure to improve working conditions (notwithstanding the number of remaining, unidentified risks.). This to some extent counters the data from the European Commission (2014) survey.

In sum, evidence on the effectiveness of the OSH acquis at improving establishment behaviour from 2007-2012 and thus achieving impacts at workplace-level is sparse and to a limited extent self-contradictory. On the one hand, a considerable level of compliance seems to be maintained and to increase with the size of the establishment, just as a significant proportion of managers perceive their OSH management policy to have had some positive impact on safety and health in the establishment. Also qualitative data from national and EU interviews suggests that working conditions have improved e.g. on account of increased awareness and information of OSH amongst workers, which is promising. On the other hand, (limited) data points to a potential deterioration of working conditions in the EU-28 over the last five years, although these findings should be assessed with due caution.

The fact that workplace impacts cannot be assessed over time has the primary consequence that possible improvements to the safety and health of workers cannot be unequivocally linked to those workplace impacts and consequently to the national transpositions induced by the acquis itself. This effectively means that a causal relationship between identified OSH-related improvements and the Directives cannot be established. As a result, we cannot quantify to what extent safety and health trends emanate from national transpositions of OSH legislation and to what extent changes are caused by external factors, such as improved technological equipment, structural changes to the labour force etc. However, the fact that managers consider the existence of legal obligations, i.e. national provisions, as the most important reason for addressing OSH at enterprise-level clearly means that the Directives do have a considerable potential impact on establishments' behaviour in relation to OSH management.

6.2.2 Safety and health trends and impacts

Trends and impacts – general approach

Analysis of the effectiveness of the OSH Directives utilises two main types of data. Objectively, trends in OSH data over time can be analysed to determine any changes that have occurred over the period in which the Directives have been in place. As noted elsewhere in this report, the challenge is then to explore the extent to which any changes (or lack of change) can be attributed to the effect of the Directives rather than the many other potential influences over the same period.

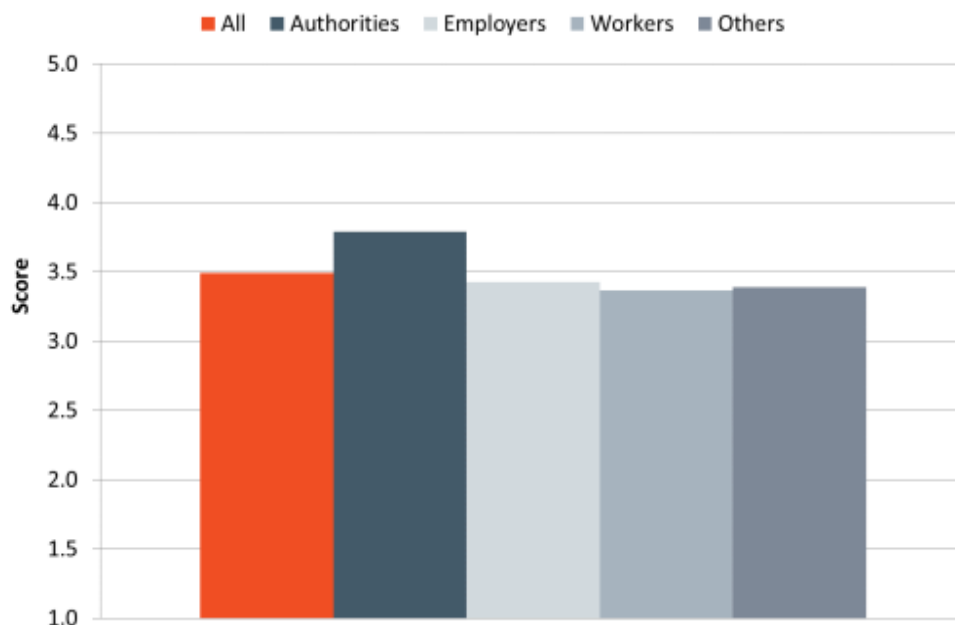
The reports on each of the individual Directives present any findings specific to that Directive. In this subchapter, we take an overview of overall trends in safety and health to gauge what effect (if any) the suite of OSH Directives might have had on these outcomes. This therefore complements the more specific analyses and, in doing so, removes one area of uncertainty where the measures adopted in more than one Directive can affect the same outcome measure.

As a second element of this analysis, subjective views are presented. During the interviews with EU and national stakeholders carried out in the course of this study, interviewees (or groups of interviewees as some were group interviews) were asked to provide ratings for specific questions relating to the effectiveness of the OSH Directives. These were sometimes asked as general questions regarding the OSH acquis and, at other times, depending on the interviewee, in respect of a specific Directive. These ratings are presented here and their significance discussed. In each case, ratings were provided on a scale of 1-5, where lower numbers indicate a lower or poorer score. The exact anchor phrases used depended on the issue in question, but the underlying scale remained constant throughout.

Overall opinion on Directives

As a start point, during the present evaluation, we asked national stakeholders from EU Member States to provide an assessment of the extent to which each Directive has fulfilled its overall objectives. Figure 6-3 below shows the aggregated average, for each stakeholder group, of the objective achievement scores provided for each Directive. The averages cover scores from 71 stakeholder groups from 21 different MSs. The average score of 3.5 indicates that, according to national stakeholders, the OSH acquis has fulfilled its objectives to an extent slightly above the mid-point of 3.0. The stakeholder groups representing authorities are slightly more positive in regard to objective fulfilment than the other stakeholder groups. They find that the OSH acquis has fulfilled its objectives to a higher extent (3.8) compared to the average scores of 3.4 for the three other stakeholder groups.

Figure 6-3 Extent to which the OSH acquis has fulfilled its objectives, according to national stakeholders



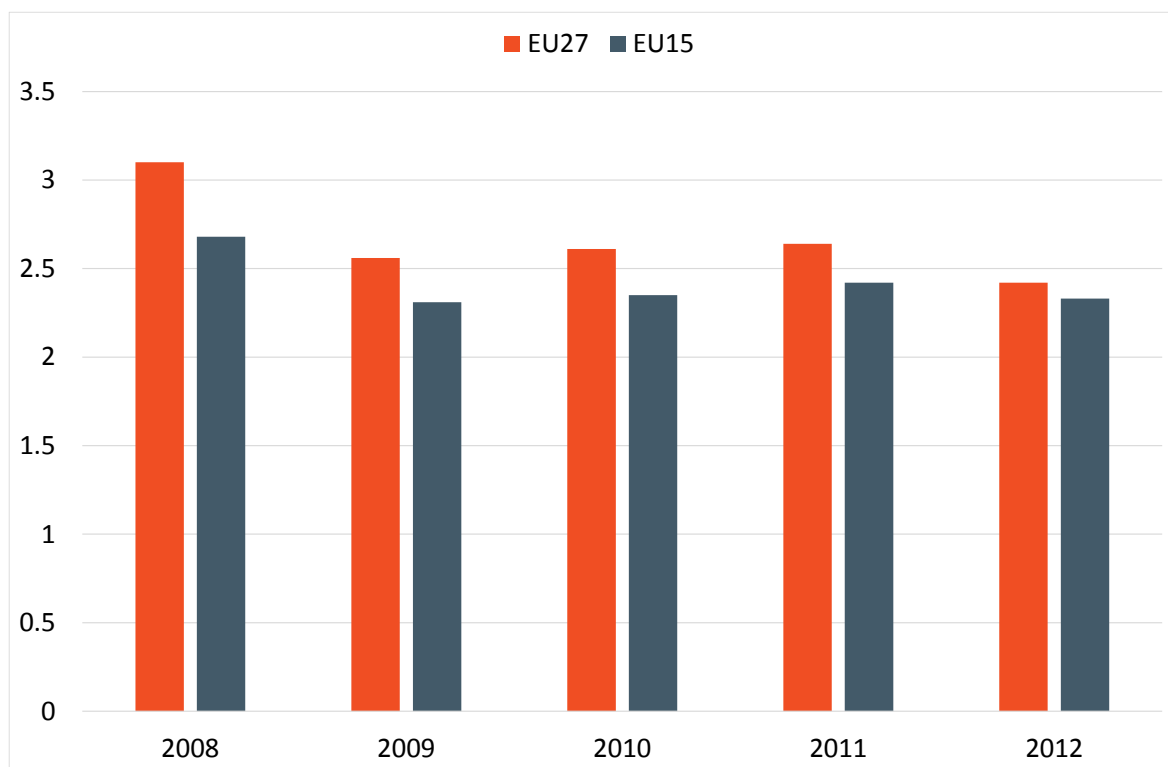
Source: Member State interviews, (n=71 stakeholder groups from 21 MSs, no data from AT, FR, HU, IE, MA and SE)

Note: The graph depicts the average score provided by national stakeholders according to stakeholder groups when answering the question "Has transposed legislation fulfilled its objective?", rated on a scale of 1 (to a very low extent) to 5 (to a very high extent).

Trends in accident statistics

When we examine the overall accident trend in the EU from 2008 to 2012, we see a clear overall picture, namely that, as shown in Figures 6-4 and 6-5 below, the absolute number of occupational accidents in both the EU-15 and the larger EU-27 has fallen markedly for both fatal (Figure 6-4) and non-fatal accidents (Figure 6-5) across the whole analysis period, although both show a small increase for 2010 before the decline continues in 2011. As noted earlier, attributing this, or even part of this, to the OSH Directives is challenging (or rather impossible) and it must be acknowledged that some or all of this reduction in occupational accidents might have occurred without implementation of the OSH acquis.

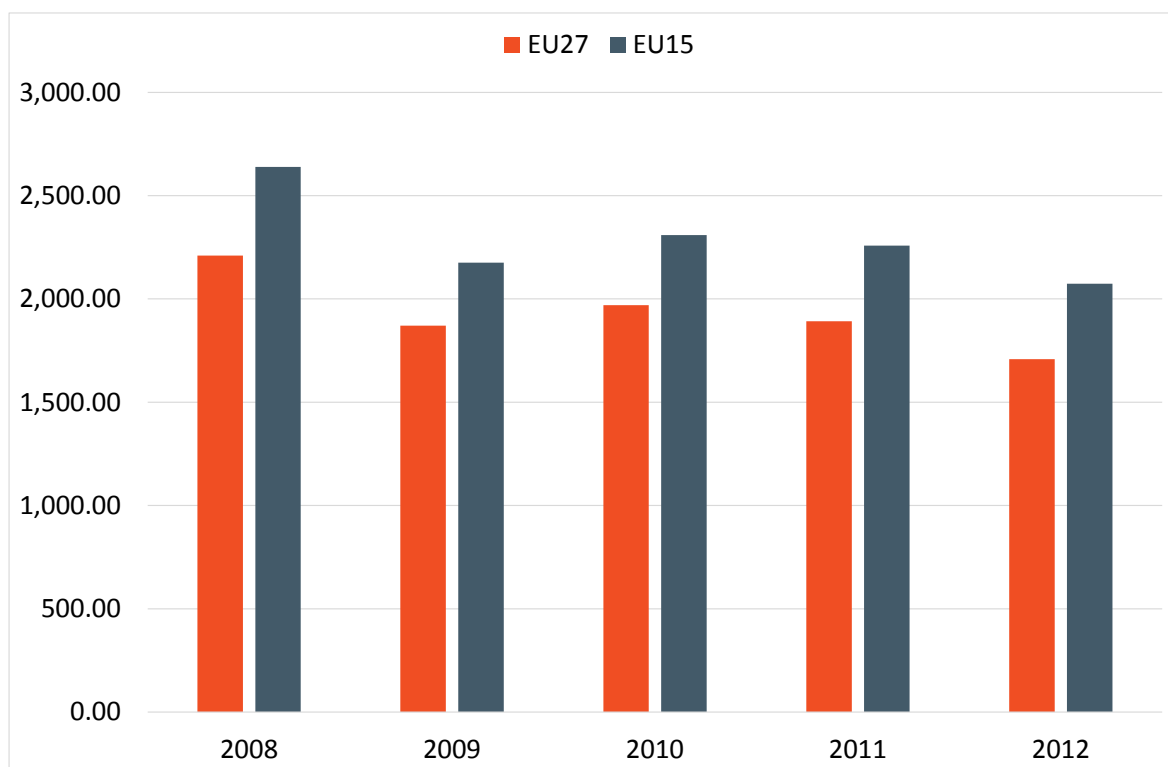
Figure 6-4 Total fatal accidents, 2008 – 2012 for the EU-15 and EU-27 (Eurostat (EWAS) 2015)



Source: Eurostat 2015

Note: Fatal accidents at work. Shown is the standard incidence rate. The incidence rate of fatal accidents at work is the number of persons with fatal accidents at work per 100,000 persons in employment.

Figure 6-5 Total non-fatal accidents, 2008 – 2012 for the EU-15 and EU-27 (Eurostat (EWAS) 2015)



Source: Eurostat 2015

Note: Non-fatal accidents at work. Shown in the standard incidence rate. The incidence rate of serious accidents at work is the number of persons involved in accidents at work with more than 3 days' absence per 100,000 persons in employment.

It should be mentioned that several national stakeholders have highlighted the absence of proper national monitoring instruments apart from official statistics on occupational accidents and diseases. During our data collection processes, we thus experienced a general request across Member States for more information, to enable the formation of a robust answer to the challenges associated with assessment of safety and health impacts. The issue of the inadequacies and limitations of existing data sets is mentioned on a number of occasions in the Directive-specific reports (including, in some cases, specific suggestions for improving this situation) and is returned to later in the report.

This overall trend can be seen against views of overall trends in accidents in each MS as reported by Scoreboard 2009.⁹⁰ The OSH strategy evaluation report⁹¹ summarised the findings in a table, reproduced in part below as Table 6-1. This shows the reported trends for the whole ten-year period (2000-2009), together with a subdivision into two, three-year trends, 2007-2009 for the latter part of the ten years and 2009-2011 for the period subsequent to the ten year period.

Table 6-1 Trend in rate of occupational accidents. The 10-year trend = 2000-2009, the 3-year trend = 2007-2009, and the 3-year trend 2009-2011. (Scoreboard 2009 reported in strategy evaluation)

Member State	The 10-year trend 2000-2009	The 3-year trend 2007-2009	The 3-year trend 2009-2011
Austria	↓	...	↓
Belgium	↓	↔	↓
Bulgaria	↓	↓	↓
Cyprus	↓	↓	↓
Czech Republic	↓	↓	↑
Denmark	↓	↔	↓
Estonia	↑	...	↑
Finland	...	↑	↑
France	↓	↑	↔
Germany	↓	↓	↓
Greece	↓	↓	-
Hungary	↓	...	-
Ireland	↔	↔	↑
Italy	↓	↓	↓
Latvia
Lithuania	...	↓	-
Luxembourg	↓	↓	↓
Malta	↓	↓	↓
Netherlands	↓	↔	↓
Poland	...	↑	↑
Portugal	↓	↓	-
Romania	↓	↓	...
Slovak Republic	↓	↓	-
Slovenia	↓	...	↓
Spain	↓	↓	↓
Sweden	↓	↓	-

⁹⁰ Scoreboard 2009. Community strategy on health and safety at work, European Commission.

⁹¹ Evaluation of the European Strategy on safety and health at work 2007-2012. European Commission.

Member State	The 10-year trend 2000-2009	The 3-year trend 2007-2009	The 3-year trend 2009-2011
United Kingdom	↓	↓	...
Summary			
↑ Increasing	1	3	5
↓ Decreasing	21	15	12
↔ Stable	1	4	1
... No sign. trend	4	5	3
? No info. avail	0	0	0
- No answer	0	0	7
n/a	0	0	0

Symbols: ↑ Increasing, ↓ Decreasing, ↔ Stable, ... No significant trend, ? No information available, - No answer given, n/a Not applicable. Source: Scoreboard 2009.

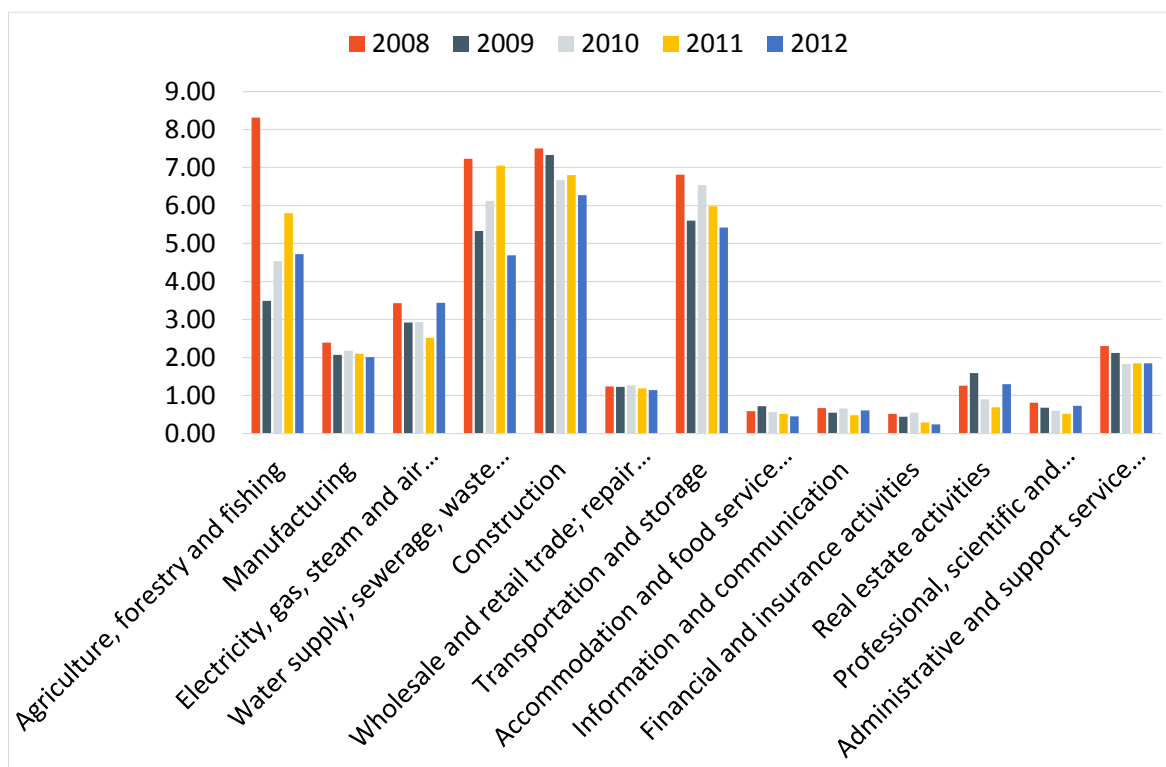
This table shows that most MSs considered occupational accidents to be declining, taking both a three-year and ten-year view although, from the overall figures, there are some indications of a slight reversal of that trend in the two 3-year trend reports. However, it appears that this is an artefact of variations in those MSs which report estimates in the different ranges as only one MS shows an actual trend reversal between the two three year estimates. According to the data on the trend 2009-2011, presented in the table above, in 12 of the Member States the three-year trend, in the rate of occupational accidents, is downward, in one it is unchanged, while in three Member States the variation is not significant. In only four cases is the trend reported to be upward.

Overall, these estimates thus give a fairly strong indication that the incidence rate of accidents at work is considered to have been decreasing over the evaluation period of 2007-2012, although it is not a stable decreasing trend during the period. Whether or not this development can be ascribed to the Directives is difficult to determine. Referring to the previous section on workplace impacts, it is considered that the Directives might have played a role but, based on the existing data, it is not possible to quantify this.

Figures 6-6 and 6-7 segregate changes in the incidence of fatal (Figure 6-6) and non-fatal (Figure 6-7) occupational accidents from 2008 to 2012 by industrial sector. All groups or sectors should, in principle, be covered by national legislation or other statutory arrangements that require cases of accidents at work to be notified to the authorities, or to a private or public insurance body in accordance with the law. However, not all data are compiled for statistical purposes. The coverage of groups varies from one Member State to another. Self-employed and family members, as well as Fishing, Mining and Public sectors are not covered for some of them. For this reason Eurostat disseminates statistics by a subset of NACE sectors, so-called as '13 common branches'. This breakdown is used in presenting these statistics.

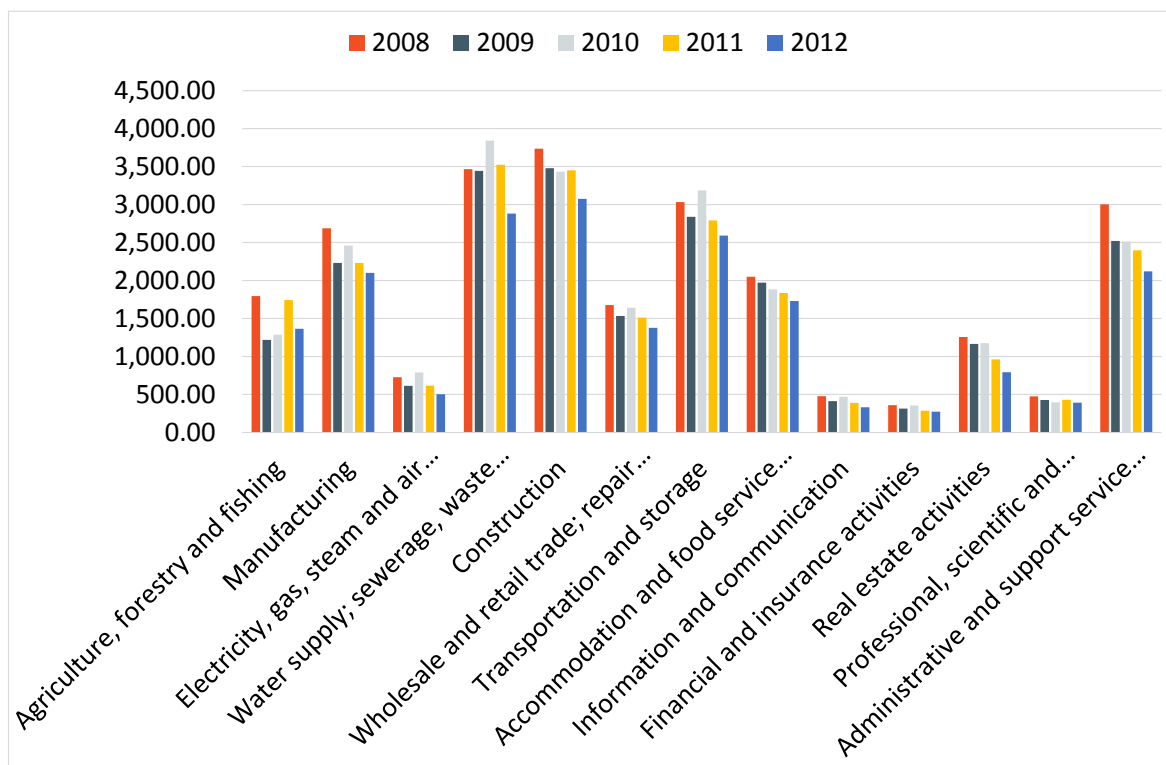
For fatal accidents (Figure 6-6) there would seem to have been a reduction across the whole period in almost all sectors with the exception of some of those with very small incidences, where figures can be distorted by a single accident. However, there are marked fluctuations on a year by year basis with each of the four sectors with the highest incidences. Care should therefore be taken over interpreting this as a clear trend, although it does at least seem to be indicative of one.

Figure 6-6 Incidence of fatal occupational accidents by industrial sector EU-27, 2008-2012



In respect of non-fatal accidents (Figure 6-7) there would seem to be an apparent downward trend in all sectors, with the exception of 'agriculture, forestry and fishing' where the results are harder to interpret. In some sectors, the change appears to develop from year to year whilst, in others, trends in intervening years are less distinct.

Figure 6-7 Incidence of non-fatal occupational accidents by industrial sector EU-27, 2008-2012



When examining the incidence rates over time, it may be observed that the downward trend accelerated in the year 2000 with incidence rates for non-fatal accidents falling by 5.9% from 1995 to 2000, against 22.9% from 2000 to 2005. The strongest reductions in incidence rates concerning non-fatal accidents were observed for the sectors of 'Transport, storage and communication' (-36.2%) and 'Construction' (-33.2%) (European Commission, 2009).

It is worth noting, as described in more detail in the labour market overview in Chapter 3, for many years we have witnessed a structural change, with a shift away from primary – often male-dominated – sectors such as agriculture, forestry, fishing, and mining, and away from secondary sectors such as the manufacturing sectors, and so towards the tertiary – often female-dominated – service sectors. In this century alone, 10% of EU-27 manufacturing jobs have been lost between 2000 and 2013 – amounting to almost four million jobs, and 19%, or more than two million jobs, have been lost in agriculture, forestry, and fishing. Simultaneously, there has been a positive contribution to the overall employment growth from many new jobs within human health and social work, and within the professional and scientific sectors – each with a net increase in the number of jobs of over six million during the 13 years. Other service sectors with job growth of over three million are wholesale and retail sale, administrative and support service, and education.

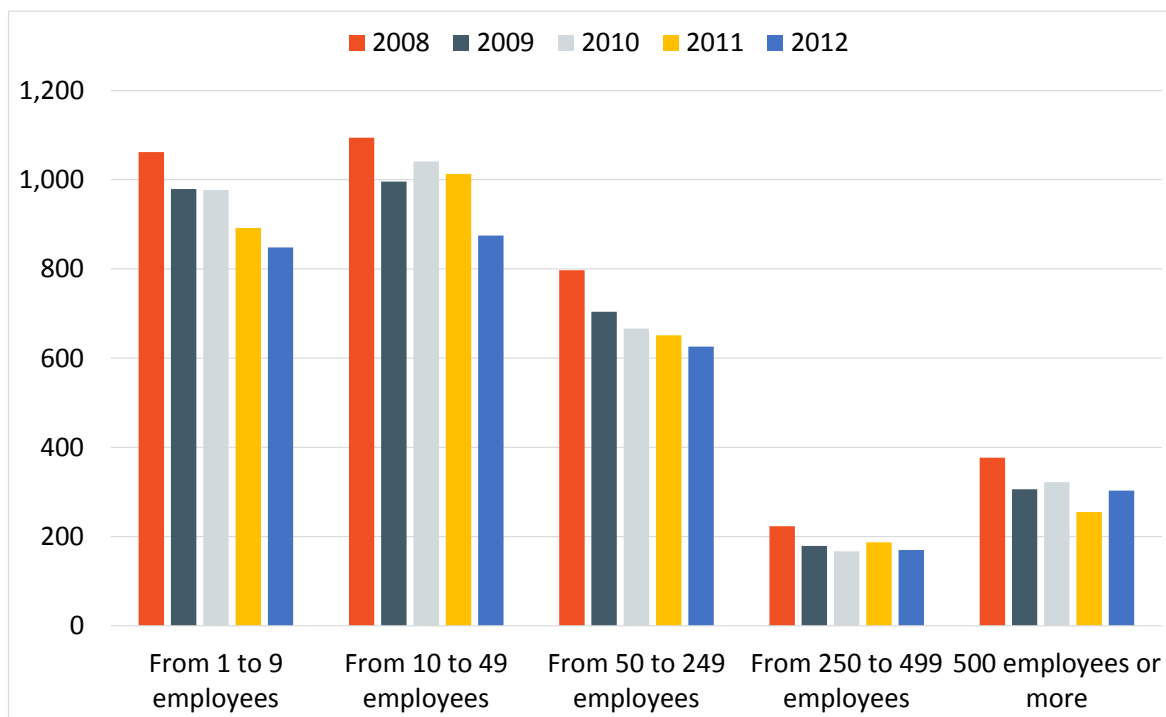
The changes in the overall number of occupational accidents has obviously been affected by these structural changes within the Member States' economies. This sectoral development therefore implies that the number of occupational accidents is most likely to have decreased in the diminishing traditional sectors, which are also considerably addressed by the OSH acquis. Hence, the shift in the economic structure from manufacturing to services, i.e. from sectors with high incidence rates to sectors with lower incidence rates, will in itself have contributed to an overall decrease in the absolute number of occupational accidents.

Another emerging type of jobs is that of green jobs. In EU-OSHA (2014d) implications on OSH of occupations within wind energy, green building and the electricity sector is examined, and it is concluded that the emergence of green jobs may involve a decentralisation of processes and workplaces into smaller, dispersed units and microenterprises, possibly with lower OSH awareness, less OSH culture and fewer resources to be spent on OSH initiatives. It is therefore interesting to notice that the 'Electricity, gas and water supply' sector for instance did not follow the downward accident trend of the other economic sectors in the period from 1995-2005, as accident risks rose by 18.4%, with risks multiplied by 2.4 for women. Within this sector, the most exposed subsector was 'Collection, purification and distribution of water' (European Commission, 2009).

A further analysis of interest is that relating to the incidents of accidents in companies of different sizes. Unfortunately, the Eurostat (EWAS) database only includes a breakdown of such accidents by number, not incidence, meaning that meaningful comparisons across size of company cannot be made from this data. Nevertheless, it was considered of value to explore changes within a size (although here the data would be susceptible to any changes in employment numbers).

Figures 6-8 (fatal) and 6-9 (non-fatal) show this breakdown of number of accidents per number of employees in company.

Figure 6-8 Incidence of fatal occupational accidents by number of employees in company EU-27, 2008-2012



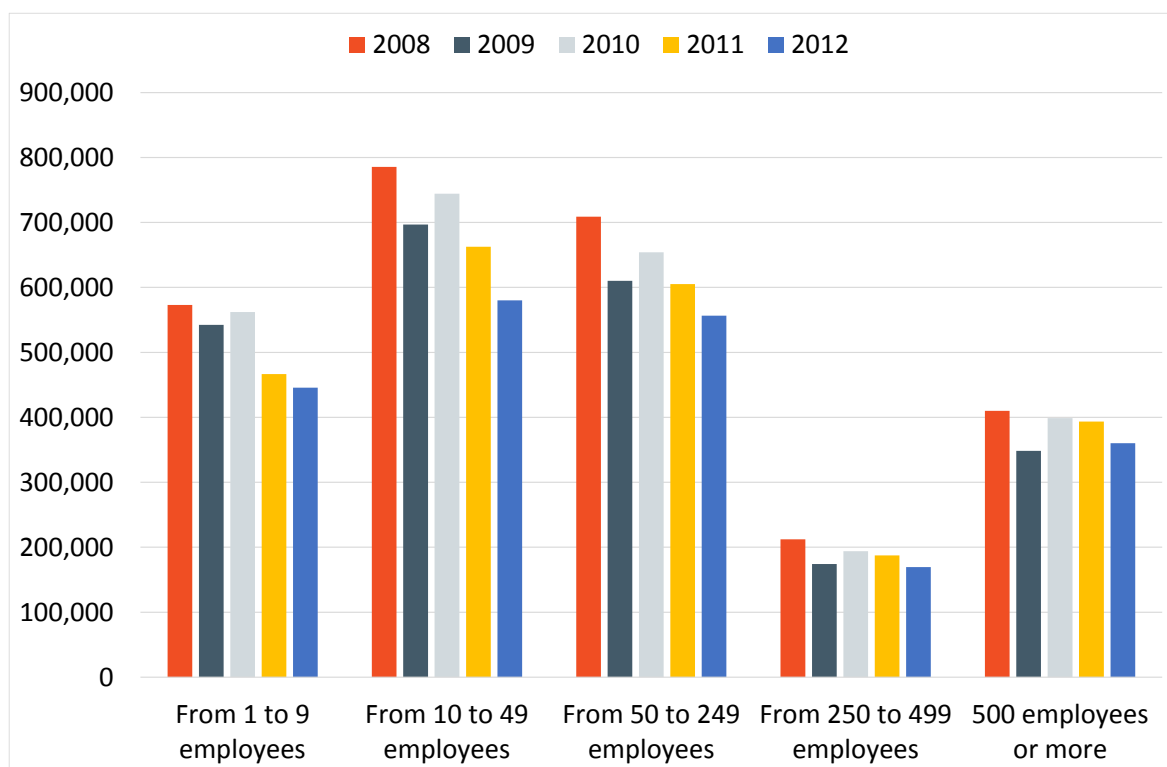
Source: Eurostat, combination of reported accidents and estimates.

Note: Total number of reported fatal accidents. Data for 2010 has low reliability as reported by Eurostat. Observations with zero reported as size of enterprise have been removed

The data for the smaller sizes of company show a marked and consistent fall in the number of both fatal and non-fatal accidents across the period 2008-2012. Although a similar trend is apparent for the larger sizes (250-499 and 500+) this is far less marked. As noted above, the absence of incidence data mean that number of employees in the sector will distort these figures, both in terms of differences between groups but also in changes within groups from year to year. Nevertheless, the presence of a consistent trend gives some support for the contention that this is a genuine effect and not an artefact.

One important point from this is the implication that any influences on workplace safety, of which the OSH legislative regime is part, appears to have had a consistent impact in all sizes of company, despite concerns that smaller companies have difficulties in complying with health and safety provisions and are less likely to comply with legal requirements.

Figure 6-9 Incidence of non-fatal occupational accidents by number of employees in company EU-27, 2008-2012



Source: Eurostat, combination of reported accidents and estimates.

Note: Total number of accidents at work resulting in more than 3 days of absence. Data for 2010 has low reliability as reported by Eurostat. Observations with zero reported as size of enterprise have been removed

Subjective opinions of effectiveness of OSH Directives – national stakeholders

In extension of the analysis of the above statistical accident trends, Figure 6-10 and 6-11 show a representation of the broad impact that national and EU stakeholders interviewed considered the OSH acquis to have had in terms of the safety and health of workers. In this case, their opinions were classified as to whether they considered the overall effect to have been neutral (i.e. no real effect) or to have had a positive or significantly positive effect. None considered the effect to have been negative.

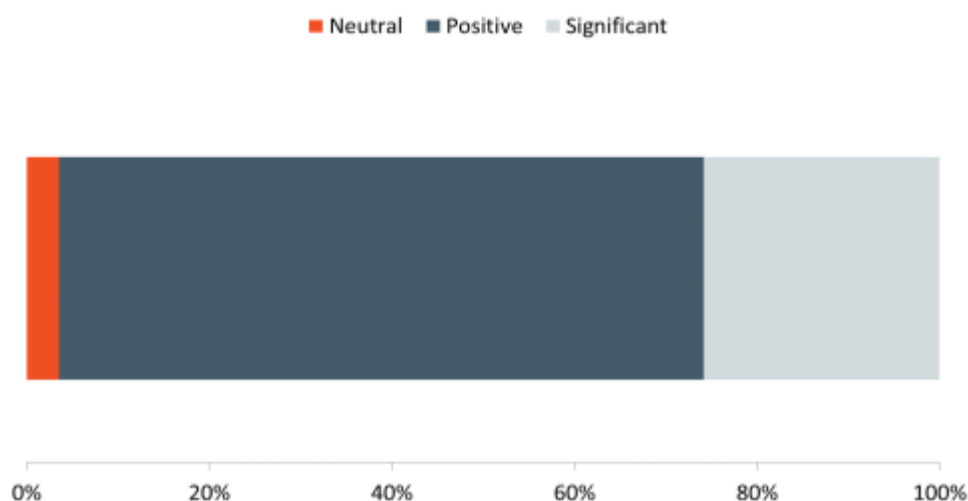
Figure 6-10 shows the average across all stakeholder groups. The figure, derived from the views of 85 stakeholder groups from 19 different Member States, found that 60 (71%) considered the OSH acquis to have had a positive influence on the overall safety and health of workers⁹². In comparison, 22 stakeholder groups (26%) from 7 different Member States found the OSH acquis to have had a significant influence, while only 3 stakeholder groups (4%) from Czech Republic and the Netherlands, respectively, found that the OSH acquis has not had any effect at all.

During interviews a number of national stakeholders made some interesting observations that should be highlighted. For instance, it was mentioned that, somewhat paradoxically, a large increase in the number of observed occupational diseases in France over the last 30 years

⁹² One stakeholder group covers all interviewed stakeholder organisations within a given Member State, e.g. the stakeholder group 'workers'.

coincided with what were seen as significant improvements in working conditions. It was suggested that this increase of occupational disease may, at least in part, be attributed to an overall greater awareness of occupational diseases. Similarly, in Finland the level of sickness absence is considered to have remained stable since the transposition of the earliest OSH Directives, while occupational accidents have decreased.

Figure 6-10 National Stakeholders' views on the effect on safety and health of workers caused by national legislation transposing the OSH acquis



Source: Member State interviews.

Note: The graph depicts the relative distribution of answers, across all Member States and stakeholders, across all Directives, to the question: "How has the health and safety of workers been affected by the national legislation transposing the Directive(s) e.g. absence from work (sickness absence, disability pensioning), accidents and quality of life?"

Figure 6-11 shows a breakdown of these responses between different stakeholder groups. The results show a high degree of consistency between the assessments of the various stakeholder groups, i.e. national authorities, employer and worker representatives, as well as other safety and health experts on the overall effect of the OSH acquis on the safety and health of workers.

Figure 6-11 *Relative score of national stakeholders' view on the impact of the OSH acquis on workers' safety and health*



Source: Member State interviews

Note: The graph depicts the relative distribution of answers by stakeholder group, across all Member States and across all Directives, to the question: "How has the health and safety of workers been affected by the national legislation transposing the Directive(s) e.g. absence from work (sickness absence, disability pensioning), accidents and quality of life?"

These relatively positive answers and trends are of course encouraging although arguably the attributes of the OSH acquis as an awareness raising mechanism may have sufficed to result in a 'positive' impact on the safety and health of workers, even if very few provisions had been effectively implemented. We therefore suggest some degree of cautiousness in the interpretation of these figures although they may point in a positive direction.

Yet, the tendency of a move towards a better workplace safety and health situation is supported by the recent Flash Eurobarometer 398 survey on working conditions (European Commission, 2014) in which 85% of respondents express satisfaction with workplace safety and health.

Subjective opinions of effectiveness of OSH Directives – EU stakeholders

In comparison to the relatively positive assessments of the effect of the OSH acquis on the safety and health of workers made by national stakeholders analysed above, Figure 6-12 below shows the aggregated score from 1-5 of 25 EU stakeholder organisations across all 24 Directives. As shown, respondents on average found that the OSH acquis has improved the safety and health of workers to a just above medium extent (3.45). Employers were generally the most positive with an average score of 3.7, while the workers themselves were the least positive with an average score of 3.2. Authorities and other OSH experts on average scored the Directives' effect on the safety and health of workers 3.5 and 3.4, respectively. However, despite these variations, all groups gave an average rating above the mid-point (3) on the scale suggesting an overall positive outlook.

Figure 6-12 EU stakeholder views on the effect on safety and health of workers caused by the EU Directive



Source: EU stakeholder interviews, n=25

Note: The graph depicts the average score provided by EU stakeholder (in total and according to specific stakeholder groups), as answers to the question: "To what extent has the Directives influenced the health and safety of workers?", rated on a scale of 1 to 5, where 1 indicates "to a very low extent", and 5 indicates "to a very high extent".

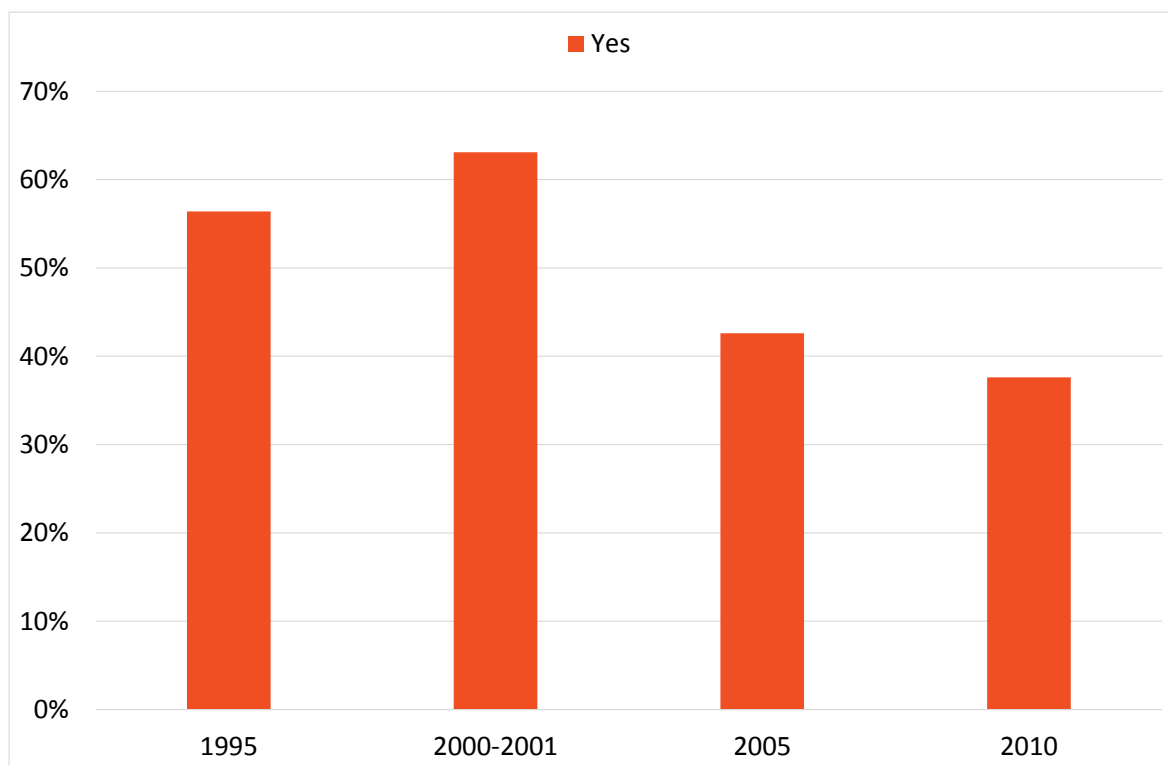
Subjective opinions of impact of work on health – data from large surveys

The EWCS, with data currently available from 1995-2010, presents the responses to a question "Does your work affect your health, or not?" This question is somewhat ambiguous as a number of published studies have suggested that being in work is good for your health, and yet the natural tendency on reading this question is to assume that any effect is negative. This ambiguity was recognised for the most recent survey (2010) with a supplementary added to determine whether this effect was mainly positive or mainly negative. To maintain consistency the responses to the initial question have been presented. It is interesting to note however that, in the last survey, approximately 25% of respondents who considered work to have affected their health considered this effect to have been positive.

One cause for caution over this data is that the number of countries in which the survey has been conducted has steadily increased. Thus, in 1991, the survey covered the 12 EU member states of the time (EU12); in 1995, 15 states (EU15). In 2000 the survey covered the EU15 countries plus Norway, and in 2001 the survey extension covered 10 new EU member states plus Bulgaria, Romania and Turkey. In 2005 the survey included 31 countries including the 27 current EU member states (EU27) plus Croatia, Turkey, Switzerland and Norway. In 2010 it covered the 27 EU Member States and seven further European countries.

The responses to this question from 1995-2010, illustrated in Figure 6-13, show an overall decline in the proportion of the workforce who report that their health is affected by their work. However, there is no way of telling from these results, to what extent this overall decline would have occurred without the implementation of the OSH acquis.

Figure 6-13 Does your work affect your health?

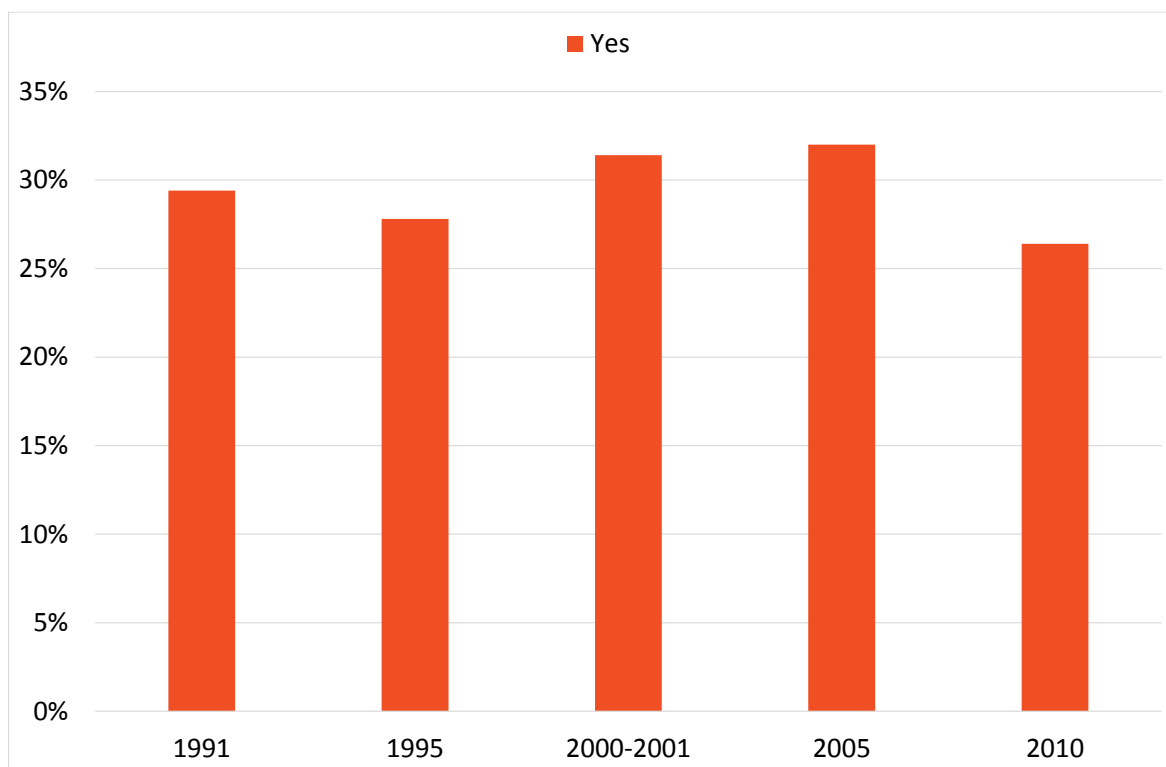


Source: EWCS 2010, N= 107898.

Note Question asked: Does your work effect your health? Percentages of respondents who answered yes are shown. The data for 1995 only cover EU12

Figure 6-14 (below) shows the overall answers to a second question as to whether workers find their health or safety to be at risk because of their work. This shows a slightly different picture in that, unlike the apparent recent decline positive responses to the earlier question, approximately 30% of workers questioned at each survey consider their health or safety to be at risk because of their work, a figure that is therefore relatively stable from 1991 to 2010.

Figure 6-14 Do you think your health or safety is at risk because of your work? Percentage answering yes.



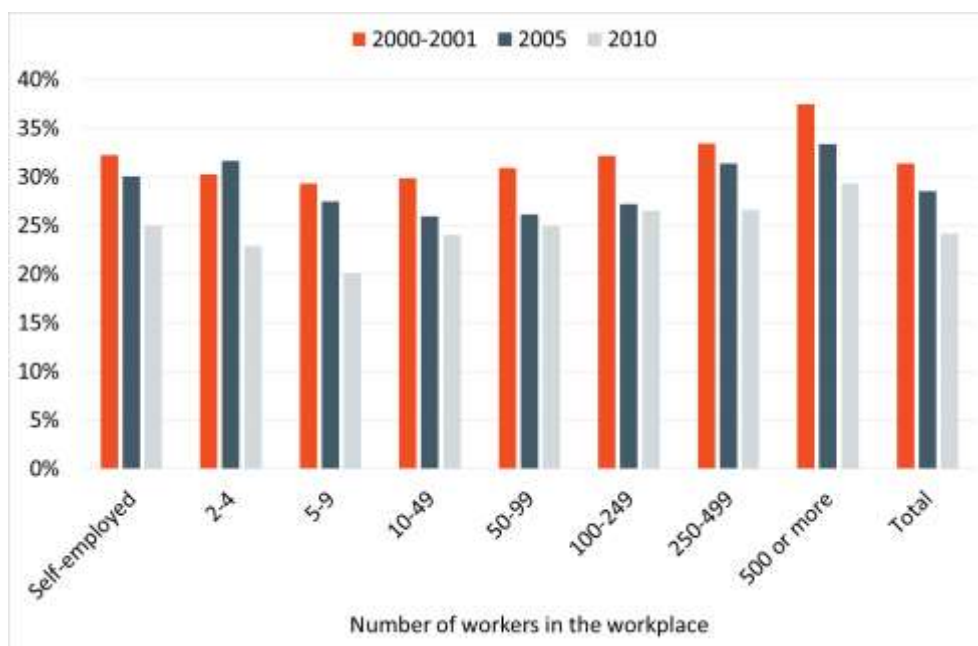
Source: Eurofound, EWCS.

Note: The data for 1991 and 1995 only cover EU-12.

Cross-analysing the responses to these questions with those to others concerning demographic aspects allows a more detailed analysis of the nature of the changes. Other questions permit the analysis of responses in respect of the number of people in their workplace (not necessarily equivalent to company size for companies with multiple worksites); workers in the public and private sector; workers in different industrial sectors; and workers of different ages and gender.

Figure 6-15 shows the analysis by company size. It shows that those working in larger companies are consistently most likely to report that they consider their health and safety to be at risk. Between 2000 and 2010 all groups showed a reduction in the percentage of workers who consider their health and safety to be at risk at work suggesting an improvement in overall perception of health and safety at work over that time. The reductions varied from 6-9% with those who work in workplaces with 5-9 workers showing the largest decrease and workplaces with 10-49 workers the smallest, although that for workplaces with 50-99 workers was very similar. Although there were differences between specific sizes of company, there was no consistent pattern to suggest any particular tendency for those in SMEs to consider their health and safety to be at risk more than those employed in larger organisations.

Figure 6-15 Change over time in the percentage of workers who consider their health and safety is at risk, according to the number of people working in the workplace



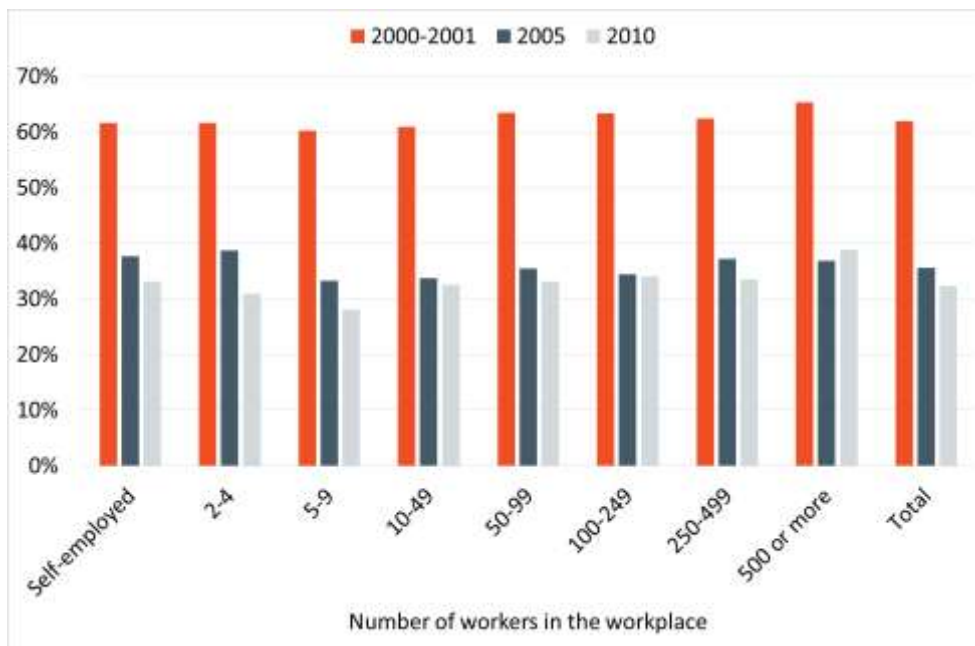
Source: EWCS 2000/2001, 2005, 2010, q66, N=87567.

Note: Question asked: Do you think your health or safety is at risk because of your work? Percentages of respondents who answered yes are shown.

Figure 6-16 shows the same analysis by company size for the question as to whether workers considered that their work affected their health. This shows a marked fall in each group from the first survey shown (2000/2001) to the two more recent surveys and, in all but the largest group, a further fall from 2005 to 2010. One point to note in this and subsequent figures relating to this question is that the main EWCS database contains a note "Slightly different questions in all waves logically confusing wording". However, examination of the on-line version shows the same wording for each survey.

The pattern of responses across different company size groups shows a similar broad pattern to the previous question, with workplaces with 5-9 workers reporting the largest decrease in perceived effect on their health and those with 500 and over workers reporting the smallest. Again, there is no general pattern to suggest those in SMEs considering their health more affected by their work, with a relatively small spread in range of changes.

Figure 6-16 Change over time in the percentage of workers who consider their work affects their health, according to the number of people working in the workplace



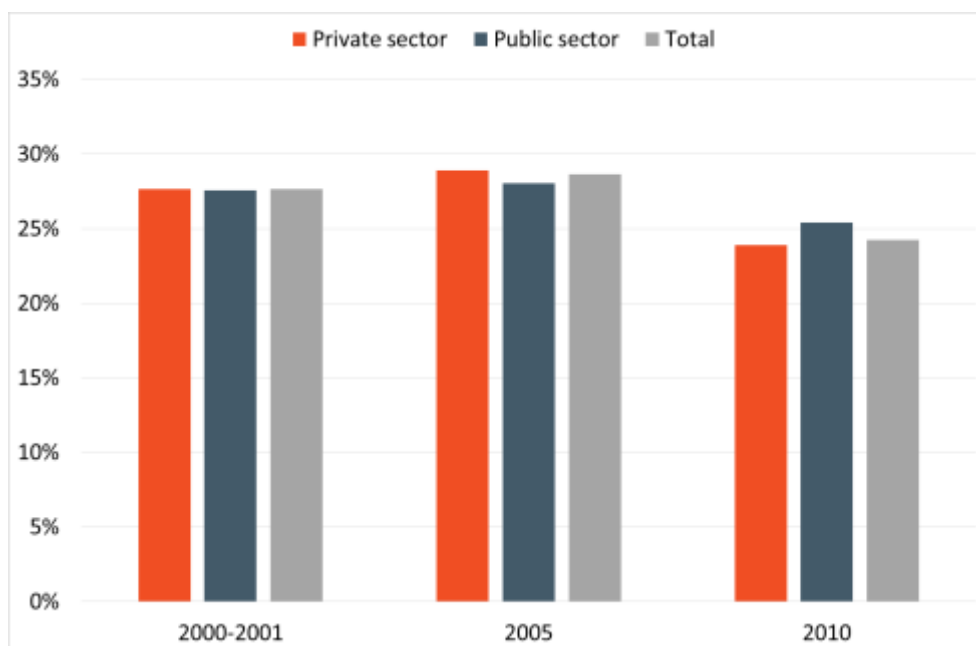
Source: EWCS 2000/2001, 2005, 2010, q67, N=88553.

Note: Question asked: Does your work affect your health? Percentages of respondents who answered yes are shown. Slightly different questions in all waves logically confusing wording.

Next, Figure 6-17 shows an analysis to differentiate those who report that they work in the public sector from those reportedly working in the private sector. Again the first analysis is of those who consider their health and safety to be at risk. The figure shows very little difference between the two groups and virtually no change from 2001/2001 to 2005 but then a reduction in both groups for 2010. The larger reduction for those working in the private sector means that, in this last survey, those working in the public sector were (slightly) more likely to consider their health and safety to be at risk.

Turning to Figure 6-18, this shows a similar analysis regarding whether those who work in the public and private sectors consider their work to affect their health. Again there is a marked fall but, on this occasion, it is between the 2000/2001 and 2005 surveys with a slight further decline from 2005 to 2010. As with the previous question the most recent survey shows a slightly higher proportion of workers in the public sector responding that they did think that their work affected their health.

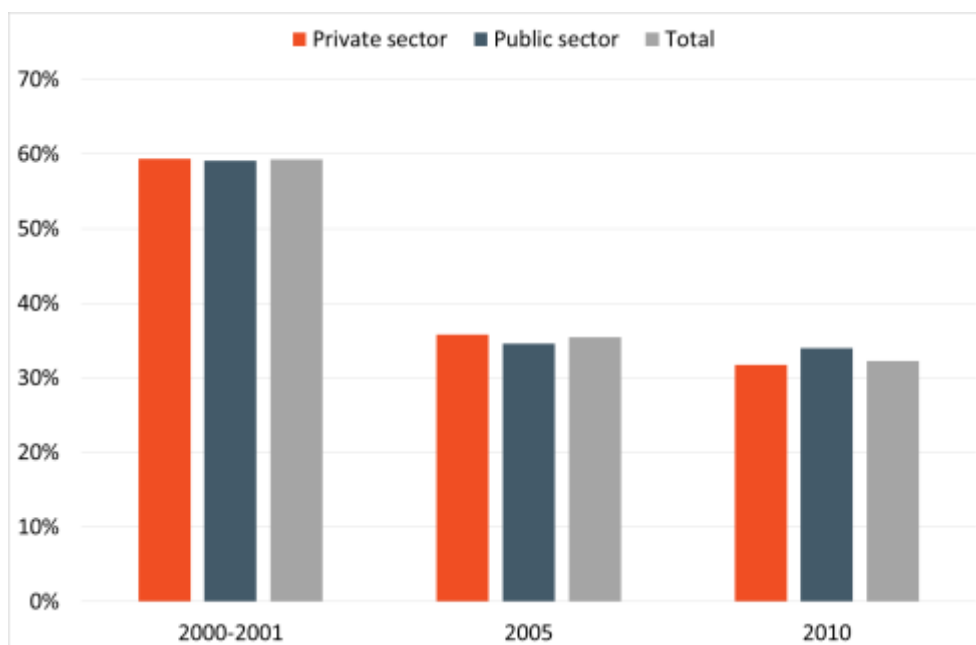
Figure 6-17 Change over time in the percentage of workers in the public and private sector who consider their health and safety is at risk



Source: EWCS, 2000/2001, 2005, 2010, q66, N= 78327, by public/private sector

Note: Question asked: Do you think your health or safety is at risk because of your work? Percentages of respondents who answered yes are shown. Based on EU-25 and answers have been adjusted to fit relative size of workforce in each member state.

Figure 6-18 Change over time in the percentage of workers in the public and private sector who consider their work affects their health

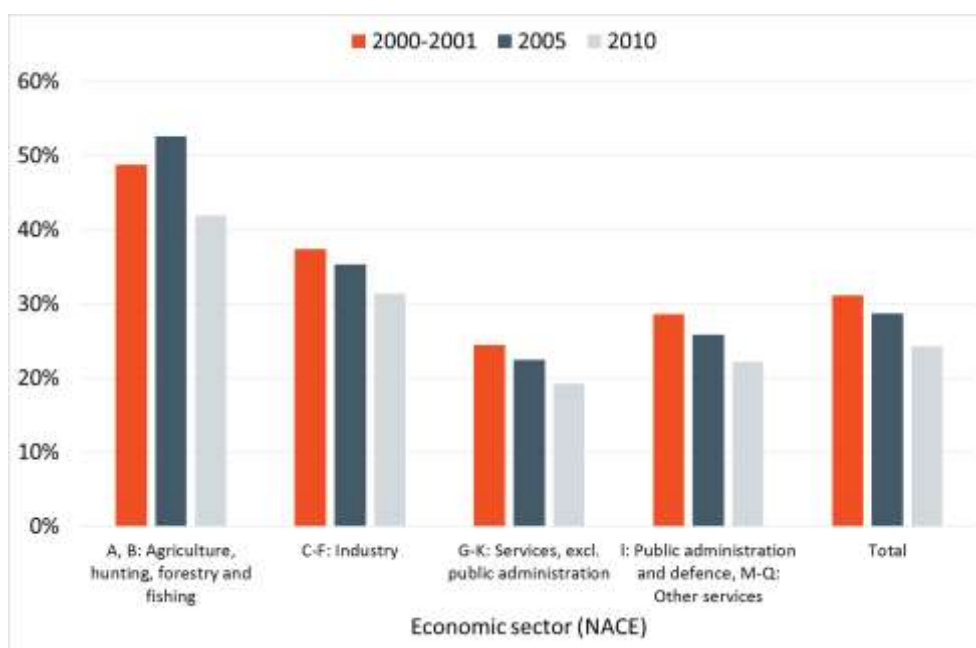


Source: EWCS 2000/2001, 2005, 2010, q67, N= 79014, by public/private sector

Note: Question asked: Does your work affect your health? Percentages of respondents who answered yes are shown. Based on EU-25 and answers have been weighted to fit relative size of workforce in each member state. Slightly different questions in all waves logically confusing wording.

Turning to Figure 6-19, this shows an analysis of responses to the first question on health and safety being at risk broken down by clusters of industrial sectors. The breakdown, provided within the database, was carried out to provide comparability across surveys. It appears to reflect a logical grouping with those engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals in one cluster, industrial and service sectors clustered and public sector providing the fourth main group. Each group shows a reduction from 2000/2001 to 2010 in the proportion of workers in that sector who report that they consider their health and safety to be at risk. It also shows an apparent ranking of groups, which appears to remain consistent over time, with those in the agriculture, hunting, forestry and fishing group most likely to consider their health and safety to be at risk and those in the services sector least likely.

Figure 6-19 Change over time in the percentage of workers who consider their health and safety is at risk, according to the industrial sector they work in

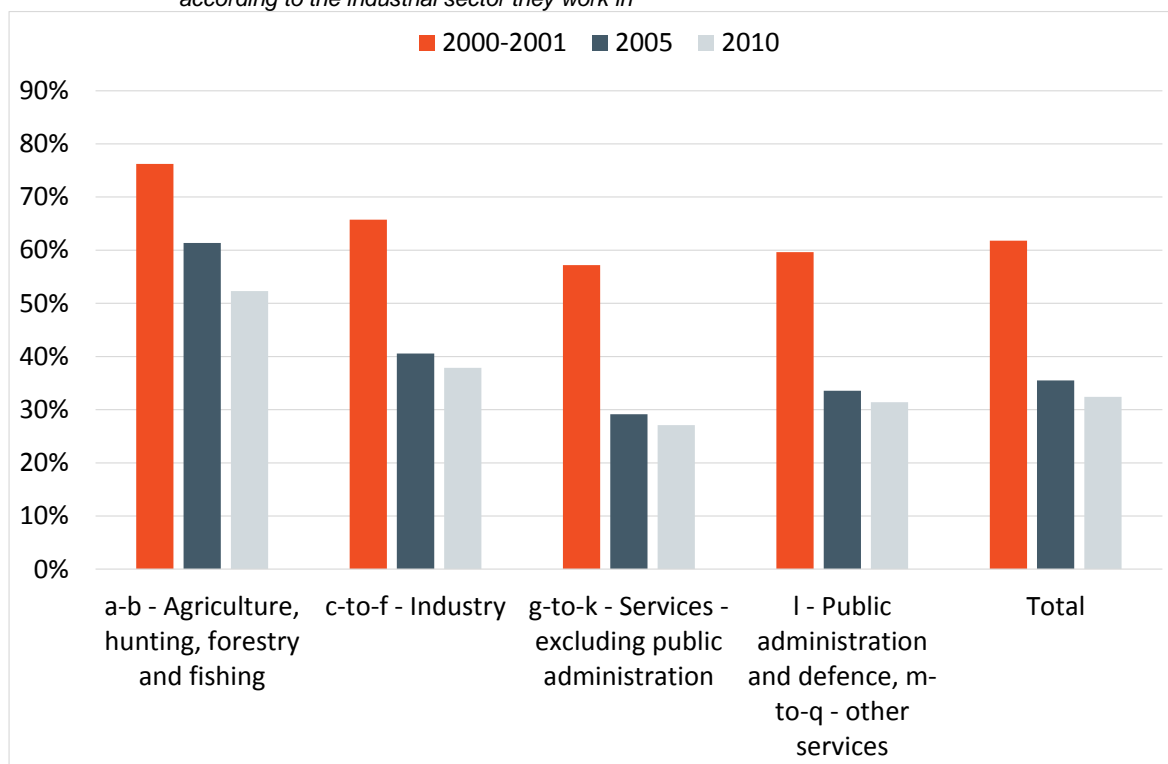


Source: EWCS, 2000/2001, 2005, 2010, q66, N=90239, by economic sector

Note: Question asked: Do you think your safety is at risk because of your work? Percentages of respondents who answered yes are shown. Based on EU-25 and answers have been weighted to fit relative size of workforce in each member state.

Turning to Figure 6-20, this shows an analysis of workers who consider their work affects their health, according to the industrial sector they work in. Again, each group shows a reduction from 2000/2001 to 2010 in the proportion of workers in that sector who report that they consider their work to affect their health. Responses also reflect a similar pattern between sectors with those in the agriculture, hunting, forestry and fishing group most likely to consider their work to affect their health and those in the services sector least likely.

Figure 6-20 Change over time in the percentage of workers who consider their work affects their health, according to the industrial sector they work in



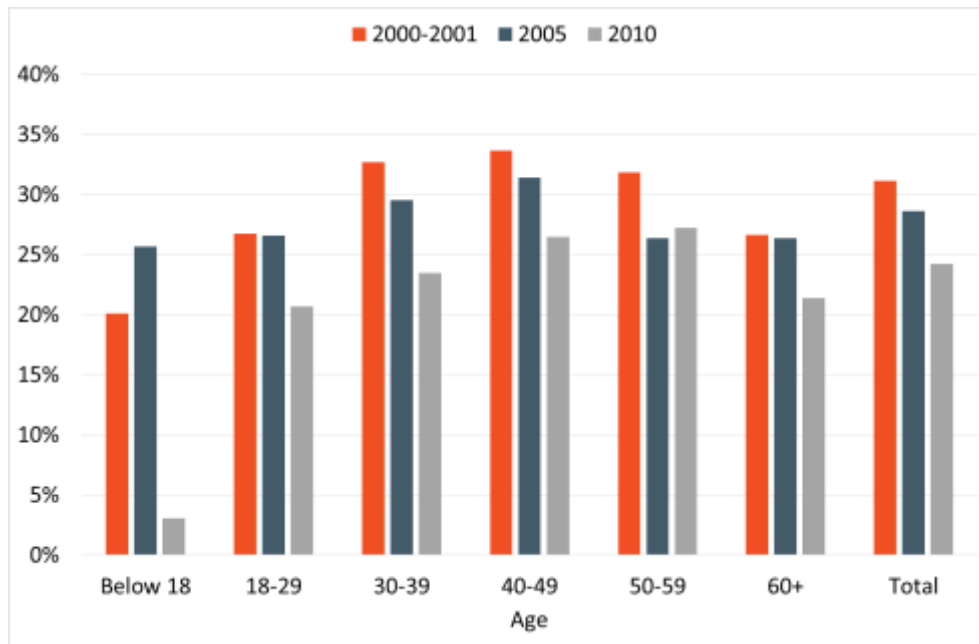
Source: EWCS, 2000/2001, 2005, 2010, q67, N=91333, by economic sector

Note: Question asked: Does your work affect your health? Percentages of respondents who answered yes are shown. Based on EU-25 and answers have been weighted to fit relative size of workforce in each member state. Slightly different questions in all waves logically confusing wording.

The next two figures analyse the responses according to the age of the respondents. Figure 6-21, shows an analysis of workers who consider their health and safety to be at risk due to their work. It shows a decline in most age groups from 2000/2001 to 2010, although the pattern of the change across the three surveys is not consistent. The least consistent is the youngest age group (below 18) who show an increase from 2000/2001 to 2005 and then a very marked fall to 2010. In general terms the figures show a flat 'U' curve relationship with those in the middle years of employment being most likely to consider their health and safety at risk. It is not possible to say whether this reflects a genuine change in the nature of the work performed by these people or a complex interplay between the different (and sometimes conflicting) factors which influence personal perception of risk.

In contrast, the responses to the second question on work affecting health, shown in Figure 6-22, show a much more consistent pattern of responses across the surveys, with consistently much higher percentages of positive responses in the first survey followed by (generally) a more modest reduction from 2005 to 2010. Again, a far smaller proportion of workers in the youngest category feel that their work affects their health than in any of the other age groups. However, it cannot be told whether this reflects a genuine variation due to the nature of the work these young people do, the fact that the influence of age-related health issues such as MSDs has yet to emerge, or some other factor.

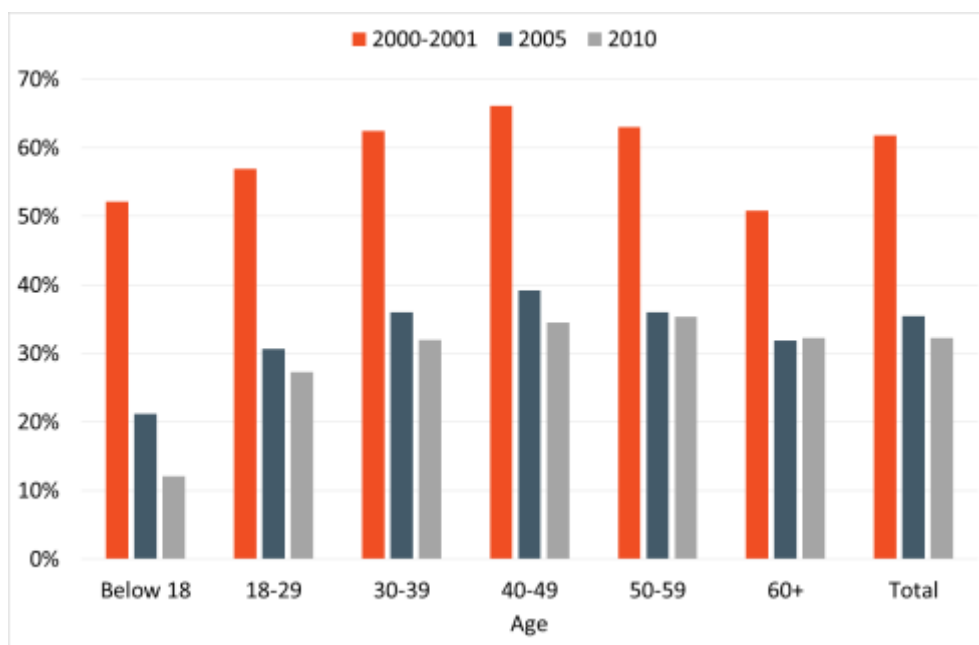
Figure 6-21 *Change over time in the percentage of workers who consider their health and safety is at risk, according to their age*



Source: EWCS, 2000/2001, 2005, 2010, q66, N=91019, by age group

Note: Question asked: Do you think your safety is at risk because of your work? Percentages of respondents who answered yes are shown.

Figure 6-22 *Change over time in the percentage of workers who consider their work affects their health, according to their age*



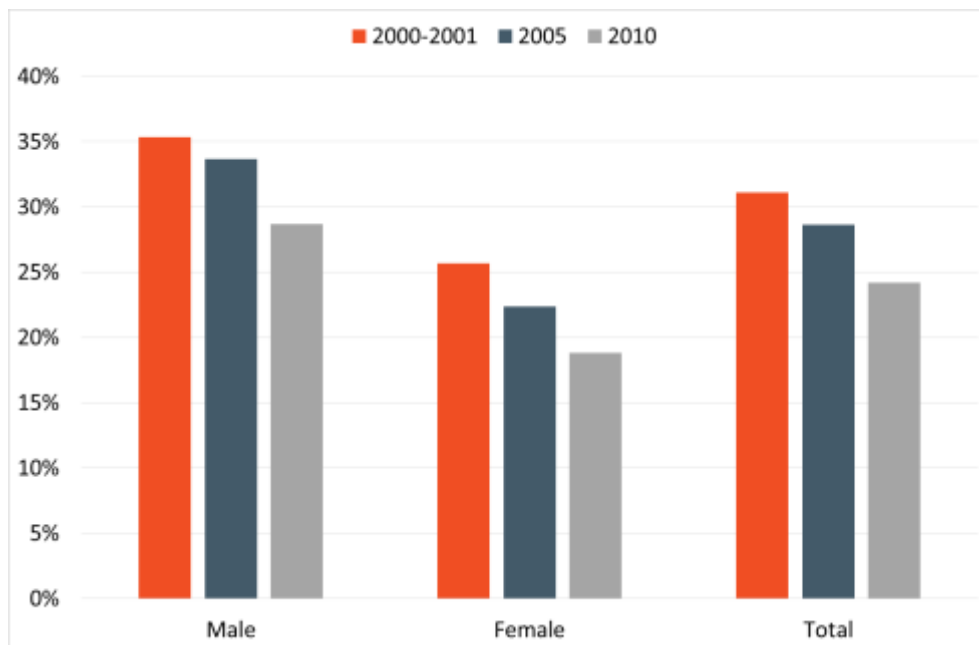
Source: EWCS, 2000/2001, 2005, 2010, q67, N= 92104, by age group

Note: Question asked: does your work affect your health? Percentages of respondents who answered yes are shown. Slightly different questions in all waves logically confusing wording.

The final two figures examine the responses to the same two questions subdivided according to the gender of the respondents. Figure 6-23, shows an analysis by gender of workers who consider their health and safety to be at risk due to their work whilst Figure 6-24 shows the same split for the

second question on work affecting health. Both show a consistent decline across the three surveys and, in each survey, they show males to be more likely to consider their health and safety to be at risk. However, although there are differences, the gender division in respect of work affecting health is much less marked.

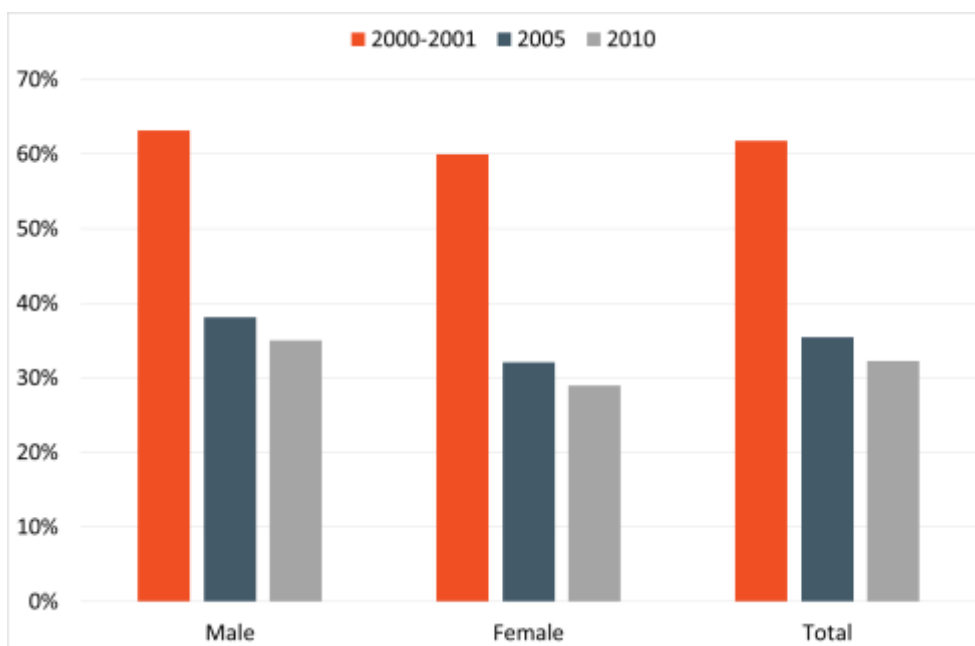
Figure 6-23 *Change over time in the percentage of workers who consider their health and safety is at risk, according to their gender*



Source: EWCS, 2000/2001, 2005, 2010, q66, N= 91017, by gender

Note: Question asked: Do you think your safety is at risk because of your work? Percentages of respondents who answered yes are shown.

Figure 6-24 *Change over time in the percentage of workers who consider their work affects their health, according to their gender*



Source: EWCS, 2000/2001, 2005, 2010, q67, N= 92108, by gender

Note: Question asked: does your work affect your health? Percentages of respondents who answered yes are shown. Slightly different questions in all waves logically confusing wording.

Safety and health trends in SMEs

One key issue addressed by the various data sources is that of the attention paid to OSH in smaller businesses. The suggestion from stakeholder interviews and the NIRs is that the overall compliance with CPMs and Directive requirements is generally lower in SMEs and micro-establishments, compared to larger establishments, and these analyses possibly give some insight into whether this is reflected in overall OSH data.

Data from accident records do not support this view. Comparisons can't be made of accidents in companies of different sizes because incidence figures are not available. However, as noted in Chapter 3, over 90% of establishments are classified as SMEs with approximately 66% of the workforce. As an approximate guide, for the most recent data, SMEs (<250) accounted for approximately 65% of the accidents which, with 66% of the workforce would appear to be in proportion. Certainly, it is not suggestive of a major imbalance. The absolute numbers suggest that trends in SMEs mirror the trends in larger enterprises and do not suggest significant differences in safety due to company size.

Similar considerations apply to the data from the European Working Conditions survey which shows that the proportion of workers who consider that their health is at risk due to their work does not vary significantly between different sizes of establishments. The same can be said about the proportion of workers who consider that their work affects their health.

All in all, the limited data on accidents and risk exposure indicates that workers in SMEs – despite their perceived lower levels of compliance with OSH requirements – are not experiencing adverse OSH effects compared to workers in large establishments. However, it should be noted that several sources of data indicate that underreporting of accidents is a known issue for SMEs. Also, there are published studies which demonstrate that SMEs in some specific sectors (e.g. construction) are

experiencing higher incidences of occupational accidents suggesting that care should be taken in making sweeping generalisations.

Conclusion

We can with considerable certainty point to a fall in the number of workplace accidents, some of which may be the result of unrelated structural changes, such as the shift of jobs from high risk economic sectors to lower risk tertiary sectors. Nonetheless, we may with some fairness assume – based on the analysis of the level of compliance in chapter 4 and the continued relevance established in chapter 5 – that a proportion of these improved safety standards stem from the implementation of the OSH acquis and consequent improved OSH awareness, especially in larger enterprises.

With details reported in various Directive reports, our analysis on the subject of occupational diseases shows less positive trends. New and emerging concerns such as the increasing cases of sick leave due to stress (which is not currently covered by the OSH acquis) or musculoskeletal disorders (where OSH coverage is incomplete), concerns about the risks of nanomaterials and the increasing knowledge showcasing risks associated with an increasing number of chemical and biological agents, all of these risks indicate that the present major health and safety concerns are likely to remain.

An almost identical conclusion was reached in the European Commission (2013b) impact assessment of the 2007-2012 OSH Strategy. However, the evaluation takes reservations for a limited amount of data on occupational diseases. While we agree that additional EU indicators are needed for a structured monitoring of occupational diseases, it is our assessment that the conclusion (that considerably less positive results have been achieved on bringing down work-related illnesses in comparison to bringing down the number of occupational accidents) is valid, as similar opinions have been continuously expressed during national and EU stakeholder interviews.

6.2.3 Key safety and health impact findings and conclusions by Directive

Overall impact

Assessing the effectiveness of each of the Directives has been challenging. The serious absence of any collated data on safety or health outcomes means that any material used has often been fragmented, sometimes only from a small number of MSs. Even the data that is available presents further challenges in terms of attribution. Many other changes have occurred over the life of the Directives in general and over the evaluation period in particular and it has seldom been possible to identify specific changes in objective outcome measures which can then be reliably attributed to the effects of the provisions of any one Directive (much less the effect of individual provisions).

Some very limited evidence has been identified in respect of intermediate impacts (such as compliance with requirements for risk assessments). These are all presented in the relevant Directive reports. In general however they demonstrate only limited quantitative evidence of the implementation of specific Directive provisions within the MSs, in some cases supplemented by expert estimates. It is noticeable that, even where the NIR template asked specific questions regarding the implementation of specific provisions MSs were usually unable to provide data. On rare occasions (usually where a detailed formal appraisal has been commissioned – such as that

for the DSE Directive) some quantitative material can be found, but such instances are the exception.

Inevitably therefore a greater reliance has been place on subjective opinion, relying on stakeholders at EU and MS level to provide some insight into the extent to which the provisions of Directives have been implemented and their effect on the safety and health of workers. Generally, these present the impression that the Directives collectively appear to have been reasonably successful in achieving their intended aims and benefitting the health and safety of workers as a result. Naturally opinions vary between different stakeholders and between different stakeholder groups – although at times opinions were remarkably consistent.

One general response, and it is not clear to what extent it is a generalisation and to what extent the finding can be extrapolated to each individual directive, is that the impact has been less in smaller businesses (grouped as SMEs although, in reality, experience suggests that the real differences are perhaps more at the lower end of the range, amongst what might be regarded as micro-businesses). The impression given is that, although there are exceptions, SMEs are considered to find it harder to comply (or simply don't comply due to a lack of awareness, knowledge, or finance). However, although this would seem to be the overall impression from interviewing stakeholders, an interesting divergence emerges in examining responses from governments within the NIRs. Here, many have responded either positively that SMEs find compliance (or whatever) no harder; or more neutrally that they have no evidence of any such problems. In contrast however, some MSs present a clear view that SMEs do find it harder to comply, offering a variety of reasons for them doing so.

The individual Directives often cover more than one disease, especially those directives that are of general nature or target specific types of workers (and all diseases are in principle covered by the Framework Directive). Therefore, it is important to keep in mind that changes in the prevalence and incidence are not only driven by changes in OSH. Moreover, disentangling the effect of one Directive from another is even more challenging, as the Directives sometimes overlap or supplement each other, and because legislation in other fields might also play a role (see more on this topic in the chapter on coherence). Thus, it is very difficult, if not impossible, to quantify the effect of one single Directive. That said, in this section we will summarize the results from the effectiveness evaluations from the Directive Reports. We will do so by taking a closer look at the different safety and health outcomes and how they relate to the different Directives. Although several Directives potentially affect more than one disease/accident, we have grouped them according to their main focus

Specific safety and health findings

Safety – Accidents and injuries

Although in-depth studies of safety would include measures such as unsafe behaviour, near-misses, or non lost-time injuries, the data available for analysis is restricted to collated statistics on accidents resulting either in four or more days absence from work (non-fatal accidents) or fatalities.

Safety hazards, potentially leading to accidental injury, are primarily covered in seven individual Directives, (the Construction Directive, the ATEX Directive, the Drilling Directive, The Mines and Quarries Directive, the Fishing Directive, The Medical Treatment on board vessels Directive and the Work Equipment Directive) plus of course the Framework Directive which addresses all risks to health and safety in a general manner. The individual Directives typically focus on specific high-risk

sectors although they are usually focussed on addressing specific issues regarded as presenting unique challenges to that sector rather than providing a broad perspective on all health and safety hazards within the sector (which are often addressed by other hazard-specific directives). As shown earlier, decreasing incidences of both fatal and non-fatal accidents have been observed across Europe. These trends might be related to the provisions in the Framework Directive, but also to some of the individual Directives, but trends might also differ between sectors. Data on fatal and non-fatal accidents are available from ESAW and EWCS. A major challenge in the Directive-specific analyses is that data is not always available for the specific sector covered by the Directive. For instance, it is not possible to separate accidents in mines and quarries from drilling accidents. Moreover, accident data is not available for workers at sea (as seafaring is part of the whole transportation sector).

Data from EU-15 (for which a sufficiently long time series is available) in the period 1998-2012 shows a decrease in the number of non-fatal and fatal occupational accidents within the construction sector. This could be considered to indicate a positive impact of the Constructive Directive on both fatal and non-fatal accidents although, as discussed earlier, attribution of any changes (or absence of change) presents considerable problems.

The Drilling Directive is specific to the mineral extraction industry and contains provisions to prevent accidents related to drilling activities including fire, explosions and blowouts of wells. The data shows that no major accidents have occurred since the adoption of the Drilling Directive. It is not possible to firmly establish the extent to which this is on account of the Directive or whether it would have happened regardless. Moreover, no decrease has been observed in occupational accidents.

The Mines and Quarries Directive contains provisions to prevent accidents in this sector, which is considered a high risk sector. The data shows that there has been a general decline in the rate of fatal and non-fatal accidents from 2008-2012 within the mines and queries sector (except for an increase in fatal accidents in 2011). It is not possible to infer that these trends are caused by the Directive as the statistics not only include fatal and non-fatal accidents in mines and quarries, but also accidents from drilling (covered by the Drilling Directive). However, these improvements could, at least partially, be attributed to the Directive.

The Work Equipment Directive contains provisions related to acute risks related to the use of work equipment (especially falls from heights) as well as more long term consequences of such accidents (including MSDs) and long-term exposure to workplace equipment not designed in accordance with good ergonomics principles. No EU level data is available on accidents related to the use of work equipment. National data from Denmark and the UK shows no clear trend, although data from the UK showed a decline in accidents from contact with moving machinery, falls from heights and struck by a moving vehicle. This gives a slight indication of changes relating to issues addressed by the Directive but once again, attribution of these as being an effect of the Directive is far from straightforward..

The ATEX Directive contains provisions to prevent injuries from thermal radiation, overpressure and exposure to smoke, fire and unintended releases. However, it is not possible to separate accidents related to ATEX. Thus, while fatal and non-fatal accidents have declined, it is not possible to determine to what extent the ATEX Directive have contributed to this development. Thus, no firm conclusion can be drawn based on the available statistical data.

The Fishing Directive contains provisions to reduce injuries and accidents on board fishing vessels (like falling over board, fires, colliding with items on the deck etc.). From the analysis of the incidence rates of fatal accidents in Denmark, Poland and the United Kingdom, respectively, it seems that the Fishing Directive has had very limited safety and health impact, if any. The improvements that could be traced in Poland occurred irrespective of the transposition of the Fishing Directive, while the improvements to the incidence rates for non-fatal accidents that occurred in Denmark were caused by a collected body of national legislation which collectively contained requirements and specifications far beyond those of the Fishing Directive. For instance, the collected Danish Regulation on working conditions on board fishing vessels apply to all fishing vessels with no delimitations to length and includes reporting requirements of accidents causing an absence of 1 day or more.

The Medical Treatment on Board Vessels Directive includes provisions related to managing accidents and ill health (and not prevention of accidents). It is therefore unlikely that the Directive in itself have had a major impact on the incidence of accident, but the Directive could have contributed to lowering mortality and fatal accidents. No EU level data is available regarding fatal accidents on fishing vessels. However, the prevalence of fatal accidents have fallen among seafarers in the merchant fleet in several Member States, but trends in the fishing industry seems to be less positive. It should be noted that these trends are based on a few Member States and data at the European level is not available. Thus rates might differ from Member State to Member State. While survival rates after accidents and serious illness might have improved, these trends might also be related to other factors and international conventions and agreements.

Health – MSDs

Data from the LFS survey for 2007, which marks the onset of the analysis period, clearly identifies musculoskeletal disorders (MSDs) as the main workplace health problem, at least in terms of self-report, with 54.2% of respondents indicating 'musculoskeletal disorders' as their most serious work-related health problem.

The hazards associated with MSDs are covered by several Directives, primarily the Manual Handling Directive, the Display Screen Directive and the Vibration Directive. In the latter case, back pain is seen as a potential consequence of excess exposure to whole body vibration, whilst excessive hand-arm exposure can lead to Hand-Arm Vibration Syndrome (HAVS) or, according to some authorities, Carpal Tunnel Syndrome (CTS). The Work Equipment Directive also includes references to poor working postures from inadequate attention to ergonomics principles which could give rise to posturally-related MSDs, although this is not usually seen as a primary focus of this Directive.

The analysis of the effectiveness of these directives are based on data from ESAW on back injuries and from the EWCS survey on self-reported back pain and sickness absence due to back pain. Whilst the ESAW database includes accidents resulting in back injury this provides no insight into the causal mechanisms involved. Many different injury mechanisms, not necessarily related to the hazards addressed by these Directives, can give rise to a back injury. Similarly, much back pain, particularly that associated with prolonged poor sitting postures, is of gradual onset and might not be regarded by all as an 'accidental injury'.

Similar shortcomings apply to the EWCS data in that it does not contain information on whether the pain arise due to exposure to manual handling, vibration or sitting at a display screen. Moreover, unfortunately the questions posed in the EWCS surveys differ between 2005 and 2010.

While the 2010 data encompass any worker who has experienced back problems/muscle pains due to any causes, the 2005 data specifically asks for back problems caused by carrying out work at a workplace. In other words, some of the back problems registered in the 2010 survey are caused by activities carried out outside a workplace e.g. by gardening at home. Even the 2005 data offers no guarantee. For example, it is widely recognised that disc prolapses occur as a consequence of a gradual process of degeneration of an intervertebral disc not as a traumatic 'injury'. Nevertheless, those suffering such pain are likely to attribute it to the action they were doing at (or just before) the time of onset of symptoms.

The Manual Handling Directive contains provisions to prevent MSD due to load handling (especially heavy loads). The principle impact of the Display Screen Equipment (DSE) Directive is intended to be a reduction in workstation related injury or ill-health, with particular reference to musculoskeletal disorders (MSDs), (although mental stress and possible risks to eyesight are also addressed). As noted above, the Vibration Directive contains provisions to reduce MSDs resulting from exposure to vibration.

Different data sources show different patterns of outcomes. ESAW data on accidents due to back pain in the period 2008-2012, analysing data from the main industrial sectors where manual handling activities might be concentrated, shows a progressive fall across the period (with a slight rise in 2011). Most of the change took place across the two early years (2008-2009) with a more stable pattern in recent years. However, analysing the same data in respect of those sectors where DSE work is more likely shows a different picture with marked fluctuations from year to year but showing an increase across the whole period of analysis (2008 – 2012). In comparison, self-report data on backache from the EWCS shows a different picture, with little real trend from 1991 to 2010 but a marked upward 'blip' in 2005. Analysing the same data sources in respect of the vibration directive shows very similar results, largely due to the lack of specificity possible in the analysis.

Extending the analysis to other MSDs, ESAW data for accidents resulting in pain in the upper extremities, again analysed for the 'DSE sectors' shows a marked fall from 2008 – 2009 but a stable picture since whilst EWCS data for the overall description 'work-related muscular pain'. No collated data sources are available to permit any analysis of the vibration-specific MSDs.

As noted above, although efforts have been made to focus the analysis on relevant sectors, it is not possible to determine to what extent these injuries and health problems are related to manual handling or DSE activities. Whilst the shortcomings in the data preclude a definitive conclusion, the available data does not indicate any significant improvements in these health indicators.

Thus, despite there being three Directives with a principle focus on MSDs, there is no reliable indication of a marked reduction in such problems which remain a major cause of injury and health problems at work.

Health – Psychosocial problems

Returning to the data from the LFS survey (2007) the second main work-related health problem in terms of the proportion of the workforce reporting is 'stress, anxiety and depression'. Although, as with MSDs, care should be taken over assuming attribution it would seem likely that problems arising from psychosocial risk factors in the workplace would primarily manifest themselves in this category. Apart from the Framework Directive, and a reference to mental stress in the DSE Directive there are no EU OSH Directives which can be regarded as having a potential impact on such hazards. With the possible exception of some of the provisions regarding software none of the

measures adopted through the DSE Directive would be expected to impact on the established psychosocial risk factors. With evidence that psychosocial problems are, if anything, increasing across the EU workforce the absence of any significant legislative measures must be seen as a gap in the EU OSH acquis.

Health – skin diseases and respiratory diseases

The LFS survey data provides one viewpoint on priorities within the EU. However, other data sets often provide a different perspective. Although the source used is not given, the EU-OSHA website describes skin diseases as ‘the second most common work-related health problem in Europe’⁹³. The report which this preamble introduces lists a large number of relevant EU legislation on cutaneous risks, including several from the OSH acquis: AOR Directive, CAD Directive (and subsequent Directives listing OELs for additional substances), Biological Agents; and the Use of PPE Directive.

Respiratory disease (occupational lung disease) covers many different diseases with a variety of causes. In the absence of overall collated statistics, key points from the European Lung Foundation provide an oversight into the scale and extent of the problem. Thus:

- › In Europe, over 39,000 deaths have been estimated for the year 2000 as a result of work-related exposures to dusts and fumes;
- › Up to 15% of all asthma cases are linked to occupational factors;
- › 15-20% of COPD cases are linked to factors in the workplace.

Add to these the burden of established occupational diseases such as pneumoconiosis, silicosis and asbestosis and a picture emerges of a significant cluster of health issues. With the exception of the AOR Directive, the Directives listed above can also be regarded as having a bearing on respiratory diseases. To these can be added the Asbestos Directive, and possibly elements of the Mines and Quarries and Construction Directives (although it must be said that the main focus of these two is on safety rather than health).

Artificial Optical Radiation can have adverse health effects ranging from minor problems, such as skin reddening, to more serious disease like cataracts and skin cancer. However, no data sources were found, as the current EU databases and surveys do not provide classification appropriate for AOR. The absence of data does not necessarily imply the absence of a health problem and especially the effects of exposure to AOR and diseases of the eye are well documented.

Data from EWCS shows an increase in workers experiencing skin problems and respiratory difficulties in the period from 1995-2005 among workers exposed to chemical agents at work. Thus, based on the available data, there is little substantive evidence to indicate that the CAD has had a marked positive health impact.

The Biological Agents Directive contains provisions for reducing or eliminating exposure to infections from biological agents due to inhalation (breathing in aerosols or vapours), ingestion (through poor hygiene or eating and drinking) and skin penetration (for instance through sharp needles) . These agents might cause allergies and asthma, toxic reactions or arthritis (possibly also

⁹³ https://osha.europa.eu/en/publications/reports/TE7007049ENC_skin_diseases/view

cancers). Data from EWCS shows that workers exposed to infectious agents more often report that their health is negatively affected by work. Moreover, the increase in sickness absence is higher among the workers exposed to infectious agents. Finally, the data also indicates that workers exposed to infectious agents more often report skin problems, headaches, respiratory problems and injuries. However, the analyses does not allow causal inferences and no firm conclusions about the health effects of the Biological Agents Directive can be drawn.

The provisions of the Use of PPE Directive are intended to influence the effective use of PPE at work. As such, different forms of PPE could have a potential impact on any of the outcomes listed above. Thus, the lack of any meaningful impact can in part be attributed to this Directive, although the data do not permit the identification of circumstances should (or could) have been worn and was not worn.

The main positive measures in terms of the risks from asbestos have been the ban on its use in specified processes and on activities which expose workers to asbestos fibres during the extraction of asbestos or the manufacture and processing of asbestos (or added asbestos) products (Article 5). Combined with other prohibitions these will have contributed to the significant reduction in asbestos useage across the EU-27. Health impacts are less easily demonstrated because of the long latency of asbestos-related diseases. Because of historical exposures, asbestos-related deaths (for example from pleural cancer) are predicted to continue to increase in a number of MSs for some years to come before any downturn can be expected. It is thus not possible at this stage to draw any clear inferences regarding the impact of the Asbestos Directive on the health of workers.

Health - Cancers

As noted above, other data sets on occupational health often provide a different perspective on priorities. The workers organisation ETUI suggest that 'cancer is now the main cause of "death by working conditions" in Europe'⁹⁴.

Work-related cancers are primarily covered in the Carcinogens and Mutagens Directive (and in the Asbestos Directive referred to above). Cancers are characterized by their severity (although there is a wide variation in 'survivability of different forms of cancer) and long-latency. Data on cancer incidences was retrieved from different European cancers registries. Some MS publish these data regularly, but not on a European level. Moreover, because of the long lag time between exposure and diagnosis of disease, it is unlikely that we have yet seen the peak in the incidence of long-latency cancers.

The Carcinogens and Mutagens Directive contains provisions to prevent a wide range of work related cancers. The most relevant work-related cancers are mesothelioma, sinonasal, lung and bladder cancer, non-melanoma skin cancer in men and mesothelioma, sinonasal, lung, breast and nasopharyngeal cancers in women. Because of the long latency period for developing cancer, there is no quantitative data on the impact of the Directive. However, exposure data on the ten most dangerous agents in 1990-3, 1999 and 2010 indicates a slight decrease suggesting little or no change.

The Asbestos Directive contains provisions to prevent cancers related to exposure to asbestos primarily mesothelioma and asbestosis (not a cancer), but also lung cancers and intestinal cancers.

⁹⁴ <https://www.etui.org/Topics/Health-Safety/Occupational-cancers>

As noted above, due to the long latency period for developing cancer related to asbestos, it is not possible to draw firm conclusions on the impact of the Directive for the next 15-20 years.

The AOR Directive and the Biological Agents Directive could also be relevant for preventing occupational cancers. However, cancers are not the primary focus in these Directives which are referred to elsewhere.

Health – physical agents

A cluster of OSH Directives share a common thread in that they all address the risks, primarily to health, due to workplace exposure to physical agents. They are also all framed around a common template and therefore, to some extent, share the measures adopted.

In addition to the Vibration and AOR Directives referred to previously, Directives address the risks from exposure to Noise and EMFs.

The Noise Directive contains provisions to prevent noise induced hearing problems. The data from EWCS on self-reported sickness absence and hearing problems does not indicate a decrease in hearing problems among workers exposed to noise, as could be expected as a result of the implementation of the Directive. Again, whilst there can be many potentially conflicting factors contributing to this there is no clear indication from the data that the Directive has had any effect in terms of reducing exposure and in the incidence of noise-induced hearing damage.

The EMF Directive has not been evaluated for effectiveness as it has yet to be widely implemented in its latest (2013) version.

Safety and Health – Vulnerable groups

Vulnerable groups of workers have become a particular focus of OSH concerns over recent years and the safety and health risks for several such groups are addressed by OSH Directives, specifically those relating to Pregnant Workers, Young People, and Temporary Workers. Others include migrant workers and, especially Older Workers who are increasingly recognised as an OSH concern due to the age demographics of the EU workforce.

The pregnant/breastfeeding Worker Directive differs from most other directives as it concerns the health and safety of the worker, but also that of their offspring. The Directive does not target potential risk factors associated with fertility, but adverse pregnancy outcomes. These outcomes are followed in several EU-databases that include a wide range of MS.

The data shows that from 2004 – 2008 the rate of fetal, neonatal and infant mortality decreased, the percentage of low birth weight babies remained stable and preterm deliveries rose. From 1999 to 2010 the rate of congenital anomalies have, overall, remained the same. Finally, childhood cancers have been increasing from 1970 to 1999 and more recent data suggests that trends have continued to increase after 1999. Thus, the data does not provide evidence that adverse pregnancy outcomes have declined in general. The analyses does not provide substantial evidence that the Directive have had a considerable effect on the health and safety of pregnant/breastfeeding women and their children in terms of pregnancy outcomes. However, the Directive might have improved well-being and reduced sickness absence among the mothers.

The Young People Directive targets young workers, because they are considered to be particularly vulnerable. Data on temporal changes in workplace hazards and injuries show a general decline.

Although young people appear to be more protected from more several hazards, as demonstrated by a lower rate of fatal accidents among young people, they seem to be more at risk for non-fatal accidents. It is, however, not possible to ascertain if this is due to greater susceptibility or because of the nature of the work.

The objective of the Temporary Worker Directive is to ensure that temporary workers are afforded the same level of health and safety protection as other workers. The Directive does not specify any particularly diseases but implies that temporary workers are more likely to be involved in accidents, because of inadequate training and information. There is no EU-level accident data among temporary workers, but the scientific literature shows that temporary workers are more often involved in accidents. However, this increased risk is especially related to lower job experience. Because temporary workers are overrepresented in the construction sector, the increased risk of accidents could also be related to the specific characteristics. Data from EWCS from 2010 shows that temporary workers are more likely to report higher job insecurity, but less likely to report negative consequences of their work on their health and have less sickness absence. A lower level of sickness absence could be the consequence of the higher job insecurity. Thus, there is no clear evidence that temporary workers are more likely to be involved in accidents related to their employment contract (or more negative consequences of their work). This could be an indication of a positive result of the Directive but the available data does not allow us to make such inferences. Thus no firm conclusion can be drawn regarding accidents or ill-health in this group.

Safety and health – general provisions

Two remaining Directives, the OSH Signs Directive and the Workplace Directive, make general provisions which potentially influence both safety and health in the workplace.

Most of the provisions in the Workplace Directive Most are related to the physical construction and layout/arrangement of workplaces, which are often addressed in other pieces of legislation. It is therefore impossible to establish a credible causality between the Directive and health and health and safety impacts. Furthermore, many of the provisions in the Directive relate more to well-being or welfare rather than health and safety. Thus, no conclusions can be drawn regarding the effectiveness of this Directive in terms of impacts on safety and health.

Lastly, in respect of OSH signs, a lack of quantitative data impedes firm conclusions about the effect of this Directive on the safety and health of workers. However, based on the tentative effect in workplaces and the assumption that OSH signs do affect the behaviour of workers, there are grounds to believe that the OSH Signs Directive has led to some degree of positive safety and health impacts. However, it is not possible to either quantify or even estimate this impact.

6.3 Effect of derogations and transitional periods (EQE2)

EQE2: What are the effects on the protection of workers' safety and health of the various derogations and transitional periods foreseen in several of the Directives concerned?

In this section we take a look at the possible effects of derogations and transitional periods for the individual directives and at the acquis as a whole.

6.3.1 Derogations

The impact of derogations on safety and health effects depends on the content of the derogations as well as the actual application of derogation in the MSs.

As reported in Section 4.2 (MQ2), the following eight Directives contain derogations: PPE Directive, Construction Directive, OSH signs Directive, Pregnant/breastfeeding Worker Directive, Young People Directive, Chemical Agent Directive, Vibration Directive and Noise Directive. However, not all derogations are OSH related. For instance, the Pregnant/breastfeeding Worker Directive contains a derogation regarding basic employment rights which is not likely to have a substantial impact on the effectiveness of the health and safety of workers.

Moreover, not all MSs have applied the allowed derogations. For instance, only two MSs make use of derogations applying to the Use of PPE Directive and under half of the MS make use of derogations relating to the Signs Directive, the Construction Directive and the Pregnant Workers Directive. Thus, at least hypothetically, these derogations are not likely to have had a major impact on safety and health effects. The most widely used derogations concern the prohibition of certain chemical agents (Chemical Agents Directive), the prohibition of employment of young people where such derogations are indispensable for their vocational training and the prohibition of night work for young people in specific areas of activity (Young Worker Directive) and the requirement to provide properly fitting individual hearing protectors in exceptional situations (Noise Directive).

There is no quantitative data available, which permits the assessment of the effect of any of the derogations applied within any Member State. However, the general opinion expressed in the national stakeholder interviews is that, generally, the use of derogations has not had any degree of measurable impact on the safety and health of workers. Rather, derogations constitute necessary exemptions that permit establishments to maintain compliance with the nationally transposed Directives.

6.3.2 Transitional periods

Eight Directives contain provisions for transitional periods including the Drilling Directive, the Mineral-extracting Industries Directive, the Fishing Directive, the Vibration Directive, the Noise Directive, the Work Equipment Directive, The Display Screen Directive, and the ATEX Directive. While eight Directives allow for transitional periods, the analyses of the individual Directives show that not all Members States applied them.

Member States were often granted a transitional period, because they were assessed to be unable to implement a given Directive within the standardized timeframe. Our analysis (based on interviews with national stakeholders) indicates that this was often indeed the case. One may therefore argue that fewer impacts were achieved during the transitional period compared to Member States that implemented a given Directive without the use of a transitional period. Yet, without a transitional period, implementation is likely to have been delayed in any case, thus possibly leading to infringements, and health and safety effects would not have been achieved in the meantime regardless.

Moreover, the use of transitional periods varied considerably from Directive to Directive. For instance, nine MSs made use of the transitional periods in the Mineral Directive, whereas 18 MSs made use of the transitional periods in the Noise Directive. The potential effects of transitional periods therefore vary from Directive to Directive. It should be kept in mind though that many of

these Directives were implemented more than 20 years ago, as emphasised by several national stakeholders who refused to comment on periods that were "long gone". However, the general opinion expressed in the national stakeholder interviews is that the use of transitional periods did not cause any major problems. In fact, interviews with stakeholders and relevant authorities have highlighted that the application of transitional periods were necessary in order to achieve a full, correct and effective implementation of the legislation. When viewing the OSH acquis as a whole, transitional periods are unlikely to have had a substantial impact on its effectiveness across all MS and over the span of the entire since the adoption of the Framework Directive in 1989.

As safety and health data does not exist on a yearly basis and as effects are rarely immediately measurable, it is difficult to examine traceable impacts in the specific year of Directive implementation. It is therefore not possible to identify, if specific impacts might have occurred earlier without a given transitional period (unless the transitional period spans a very long period). The assessment of transitional periods is therefore based on a more qualitative evaluation.

6.3.3 Conclusion on derogations and transitional periods

Qualitative evidence shows that the use of derogations has not had any degree of measurable impact on the safety and health of workers. Rather, derogations are generally regarded as necessary exemptions that permit establishments to maintain compliance with the nationally transposed Directives. The most widely used derogations concern the prohibition of certain chemical agents (Chemical Agents Directive), the prohibition of employment of young people where such derogations are indispensable for their vocational training and the prohibition of night work for young people in specific areas of activity (Young Worker Directive) and the requirement to provide properly fitting individual hearing protectors in exceptional situations (Noise Directive).

As regards transitional periods, Member States were often granted one, because they were assessed to be unable to implement a given Directive within the standardized timeframe. Our analysis (based on interviews with national stakeholders) indicates that this was often indeed the case. The general opinion expressed in the national stakeholder interviews is that the use of transitional periods did not cause any major problems. In fact, interviews with stakeholders and relevant authorities have highlighted that the application of transitional periods were necessary in order to achieve a full, correct and effective implementation of the legislation. When viewing the OSH acquis as a whole, transitional periods are unlikely to have had a substantial impact on its effectiveness across all MS and over the span of the entire since the adoption of the Framework Directive in 1989.

6.4 Effect of Common Processes and Mechanisms (EQE3)

EQE3: How and to what extent do the different Common Processes and Mechanisms that were mapped contribute to the effectiveness of the Directives?

The CPMs essentially constitute the toolbox with which to implement the OSH acquis. They are designed to work in tandem and, collectively, increase the safety and health of workers. In part due to the reciprocity and complementarity of the CPMs, these benefits cannot be separated and/or linked to the implementation of the individual CPMs. As a result, their effectiveness is measured on a bilateral basis, with one eye on their *individual* implementation in establishments and the extent

of compliance they instigate (assessed in Section 4.3 (MQ3)), and one eye on the extent to which they have *collectedly* managed to reduce accidents and work-related ill health (assessed in 6.2.2 (EQE1)). It thus naturally follows that their combined effectiveness has, in all practical terms, been covered in the above analysis on the effectiveness of the OSH acquis in EQE1. Therefore, as effects of individual CPMs cannot be quantified, this section will focus, in part, on the challenges and effects associated with the overall legislative design of the CPMs as they interact within the OSH legislative framework. Subsequently, we present the qualitative assessments on the relative importance of the CPMs and their contribution towards established safety and health impacts. Finally, we present additional CPM-specific comments and recommendations, which should however be viewed as a continuation of the EQE1 conclusions above.

6.4.1 Effectiveness of the overall design of the CPMs

In Section 4.3.2 (MQ3), we established that some confusion exists at enterprise-level, which can be derived from an inconsistent inclusion of provisions on CPMs in the OSH Directives. For instance, that employers are, at times, inclined to believe that several risk assessments should be made (one for each applicable Directive). Comments from employers regarding 'yet another risk assessment' suggest that, far from regarding the legislative package (as initially envisaged) as requiring one risk assessment covering, in varying amounts of detail, all risks encountered by workers, the legislation is seen by some employers as imposing a series of separate risk assessment requirements, e.g. one chemical risk assessment, one noise risk assessment and one manual handling risk assessment.

The confusion arises from the fact that although the CPMs stem from the Framework Directive, they are also (rather sporadically) included in the specific Directives to a varying degree. Some Directives contain specific provisions on all CPMs, while some only contain specific provisions on a few. When a specific CPM is included in a Directive, it may either contain additional detail or deviations from the CPM, as described in the Framework Directive, or it may simply be a statement that the CPM is applicable in accordance with the Framework Directive (although the latter is, effectively, already established through the application of the Framework provisions). CPMs with no additional Directive-specific requirements may, thus, either be exempted from the listed Directive provisions altogether or may be included as a 'without prejudice' clause, with no additional detail. We find that the logic and rationale behind the inclusion of CPMs, or lack thereof, in the specific OSH Directives are not inherently consistent, transparent or well-structured.

As a consequence, the collected OSH legislation is unnecessarily complex, which is mirrored and often exacerbated in the national provisions. An example of this can be found in our mapping of national provisions and implementation of the CPMs in Section 4.1 (MQ1). Here we reported that the national legislation often reflects the structure of the EU OSH legislation, with one framework law complemented with by-laws which transpose each individual Directive. The specific by-laws contain provisions specifying interactions between CPMs across Directives, generally by cross-references to the OSH framework act. However, this is not always done in a systematic fashion and cross-references are not sufficient to ensure a coherent and cohesive approach across legislation.

The evaluation team has experienced similar challenges due to this. It was often necessary to compare CPM provisions within a specific Directive to the corresponding ones in the Framework Directive in order to establish, with certainty, whether the Directive-specific provisions contain deviations, minor additional requirements or have been repeated with no practical alteration to

content. It is, thus, not surprising that some level of detail and consistency may be lost when transposed into national legislation. Likewise, it is not surprising that similar confusion may arise at enterprise level and particularly amongst SMEs. The Hungarian NIR confirms that confusion persists in SMEs, stating that SMEs often misinterpret the provisions of legislation or Directives (ref. NIR-HU).

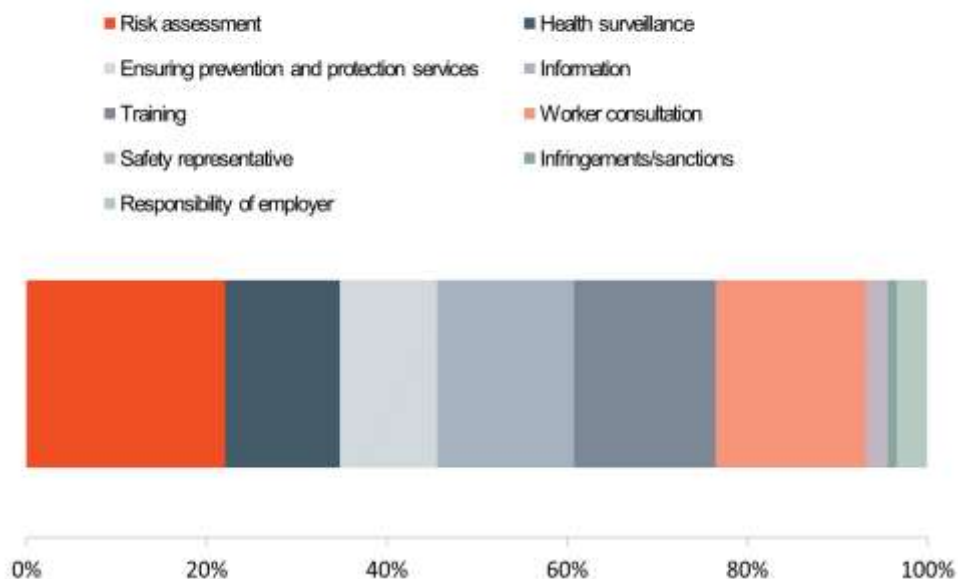
It is not possible, based on current data, to estimate the potential impact on this legislative complexity has on the effectiveness of the CPMs. However, these findings show that, to whatever extent possible, simplification is warranted. For more detail, please refer to Section 8.1 on internal coherence, which provides additional suggestions on Directive-specific provisions that may, potentially, be included in the Framework Directive in order to improve consistency and simplify existing OSH legislation.

6.4.2 Relative importance of CPMs (qualitative assessment)

In this subsection, we assess the relative importance of the six CPMs in order to gain a qualitative estimate on their respective effectiveness and impact on the safety and health of workers. As mentioned above, the Common Processes and Mechanisms, collectively constitute a common approach to managing health and safety in the workplace. Manifested, to some extent, within each of the Directives, they present this common approach in requiring, on the one hand, the assessment of risks to health and safety and, on the other, taking steps to remove hazards or reduce risks (i.e. risk management). The CPMs also support this core requirement to 'manage' or 'control' risks by ensuring the availability of suitable expertise; promulgating the passive (information and training) and active (consultation) of the workforce; and requiring health surveillance (although the value of the latter is sometimes questioned).

As discussed in Chapter 4 (particularly in Section 4.3 on compliance (MQ3)) and in the answer to EQE1 above, the CPMs have, generally, been relatively well implemented in the various Member States. Thus, in order to assess their effectiveness in terms of facilitating a removal hazards or reduction of risks, we, during this evaluation, asked national stakeholders to identify which key requirements have contributed the most to the safety and health impacts of the national legislation transposing the individual Directives. These responses are illustrated, across all Directives, in Figure 6-3 below.

Figure 6-3 National stakeholders' general views on the relative importance of KRs regarding their contribution to the effectiveness of the OSH acquis



Source: Member State interviews, MSs: 25, stakeholder groups: 64

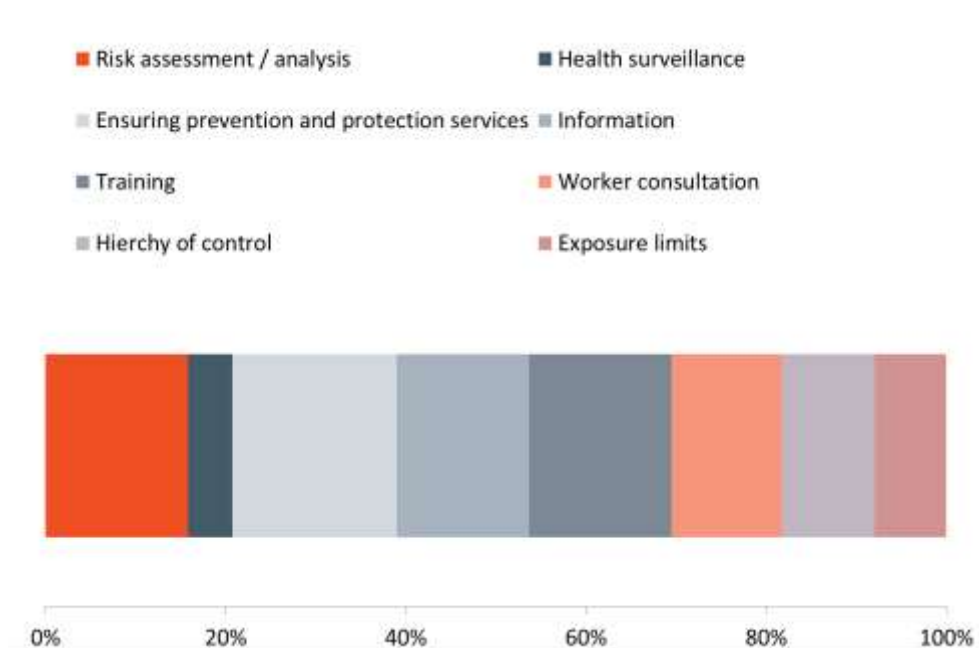
Note: The graph depicts the relative number specific KRs have been mentioned, across all Member States and stakeholder groups, when answering the question "Which key requirements have contributed the most to the safety and health impact of the national legislation transposing the Directive?"

As illustrated, national stakeholders most frequently report that risk assessment, as a CPM, contributes most to safety and health impacts, while information, training and consultation of workers are highlighted as the three next most important CMPs. Health surveillance and preventive and protective services are highlighted to a lesser extent than information, training and consultation of workers and notably less than risk assessments.

If we compare the national stakeholder assessments on the relative importance of the CPMs to those reported by EU stakeholders (illustrated in Figure 6-4), we find an interesting change in the emphasised CPMs⁹⁵.

⁹⁵ Please notice that a direct comparison can only be performed for the first six CPMs as the evaluation question posed to national and EU stakeholders, respectively, contained some variation. The last categories therefore differ.

Figure 6-4 General views on the relative importance of the different CPMs according to EU stakeholders



Source: EU stakeholder interviews, n: 18

Note: The graph depicts the relative number of times a specific CPM has been mentioned, across all Member States and stakeholder groups, when answering the question "Which key requirements have contributed the most [to the safety and health impact of the Directive]?"

While EU stakeholders still consider risk assessments to have contributed considerably to the effectiveness of the OSH acquis, they seem to find that ensuring prevention and protective services is the most important CPM across all Directives. Interestingly, this CPM is ranked sixth amongst the national stakeholders. There are several possible explanation for this difference.

One possible explanation is that some EU stakeholders have scored this CPM from an intuitive understanding of the phrase as 'the act of preventing risks, 'i.e. risk management', in accordance with the perspective aired at the Validation Seminar. It is our assessment that the actual meaning of the CPM, namely the requirement of ensuring sufficient competencies within the company to carry out activities related to the protection and prevention of occupational risks or alternatively acquiring those competencies from an external provider, may unfortunately, at least in some cases, not have been sufficiently clear to the interviewed EU stakeholder.

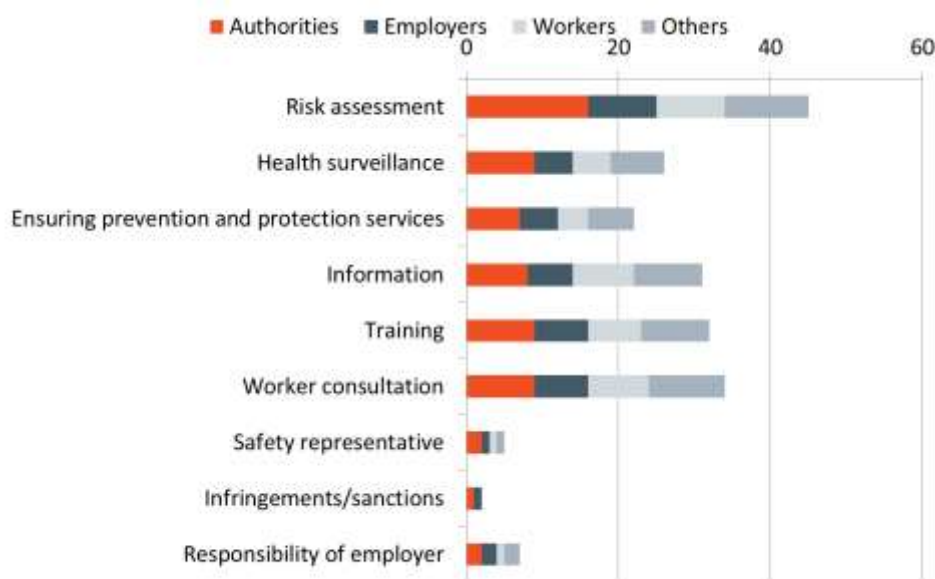
That being said, the two are not mutually exclusive as ensuring existence of necessary competencies is clearly a prerequisite, or at least a tool, for managing identified risks. The distinction therefore does not invalidate the results.

Another possible explanation for the different assessments on the importance of ensuring prevention and protective services may be found in the statements made during a handful of the EU interviews conducted. Some interviewees highlighted a problem that many external protection and preventive services design and target their products to larger companies, wherefore, their benefit is of little use to SMEs. In some cases, these stakeholders, thus, accentuated this CPM in order to direct attention to its importance and the inherent problems embedded in the CPM in their opinion. This understanding may also explain why national stakeholders did not rank that CPM very

highly, compared to the other CPMs, as it would not have had a significant impact on SMEs, which constitute the majority of establishments.

In order to assess whether different stakeholder groups have differing views on the relative effectiveness of the specific CPMs, Figure 6-5 below segregates the total relative importance of all CPMs across Directives, as illustrated in Figure 6-3 above, into the assessments provided by national stakeholder groups.

Figure 6-5 Most contributing key requirements across Directives according to national stakeholders



Source: Member State interviews, MSs: 25, stakeholder groups: 64

Note: The graph depicts the relative number of times specific KRs have been mentioned, across all Directives, Member States and stakeholder groups, when answering the question "Which key requirements have contributed the most to the safety and health impact of the national legislation transposing the Directive?"

The figure shows considerable conformity, particularly between workers and other OSH experts. Authorities seem to highlight risk assessments slightly more often than the remaining national stakeholder groups. In general, however, no notable difference has been observed between national stakeholder groups regarding the relative effectiveness of CPMs.

In summation, risk assessments are generally highlighted as the most effective CPM, by both national and EU stakeholders, across all stakeholder groups. Apart from risk assessments, national stakeholders highlight information, training and consultation of workers as the CPMs that have contributed the most to safety and health impacts across all Directives, while EU stakeholders highlight preventive and protective services.

While it would clearly be preferable to conduct an evidence based assessment of the impacts and specific contributions of the various CPMs, an analysis of this type is not possible at this point in time, mainly due to an overall lack of data. As, for instance, concluded by Mendeloff and Staetsky (2012), who investigated the impacts of risk assessments, it may be possible to find sporadic evidence on impacts, but it is difficult to draw any clear causal conclusions, as discussed in Section 6.2.1 above. Mendeloff and Staetsky highlight problems such as incomplete information about the

levels of risk assessments performed prior to implementation of the Framework Directive (i.e. baseline figures), insufficient data on the specific level of compliance and difficulties in isolating the contribution of risk assessments and, thus, accounting for other factors likely to affect safety and health performance in Member States.

6.4.3 CPM-specific comments and recommendations

In the following section, we supplement the qualitative assessments of CPM effectiveness with a few comments on the specific CPMs. Here we shall focus mainly on risk assessments as this evaluation has resulted in some additional findings that warrant brief discussion.

Risk assessments

As concluded in Chapter 4, most Member States report relatively high compliance levels with the requirement pertaining to execution of risk assessments. According to ESENER-2, 76% of all enterprises in EU-28 carry out risk assessments on a regular basis, although compliance varies considerable from MS to MS, ranging from 94 % of establishments in Italy and Slovenia down to 37 % in Luxembourg. National data generally places compliance at a slightly lower level at medium to high. These varying, yet relatively high levels of compliance, indicate that risk assessments may, potentially, have been effective at ensuring OSH at workplaces.

This notion was largely supported during national and EU stakeholder interviews conducted during this evaluation, although national stakeholders, as shown above, place notably more emphasis on the relative importance of risk assessments across Directives compared to EU stakeholders. Hence, although, as we stated in our describing of the *acquis* intervention logic in Section 2.3, it is not feasible to attribute OSH impacts to specific CPMs or KRs, we seem to repeatedly encounter an overall perception, and experience, amongst stakeholders that risk assessments have had a larger share in the development of OSH at workplaces. This is not surprising as risk assessments are, generally, viewed as the foundation for forming and applying a risk prevention strategy rather than as a reactive approach to occupational safety and health. In support of this view, the ESENER-2 survey shows that 90% of surveyed establishments in the EU-28 that carry out regular risk assessments regard them as a useful way of managing health and safety (EU-OSHA, 2015). This was a consistent finding across activity sectors and establishment sizes.

However, for risk assessments to effectively improve the safety and health of workers, they need to be performed accurately and regularly, they need to identify all workplace risks and hazards, and they need to result in an integral, comprehensive OSH management policies. However, national stakeholder interviewees, and NIRs, suggest that this may not always be the case, particularly in SMEs that lack the resources (human and financial) to identify and manage hazards adequately. For instance, Poland, in their National Implementation Report carried out by the Polish labour inspectorate in 2011, states that during checks carried out in small establishments with a high incidence of accidents at work, it was established that the majority of SMEs (more than 86%) carry out risk assessment yet "their quality continues to be unsatisfactory. In every fourth documentation of occupational risk assessments subjected to control, employers failed to identify a threat which ultimately resulted in an accident" (ref. NIR-PL, see also e.g. NIR-SI for similar statements).

As discussed in Section 4.3.3 (MQ3), if employers do not understand the concept and benefit of risk assessments, they are likely to reduce or limit resources (in terms of commitment as well as money and time) for this activity, which will most likely impair quality, as reported in the NIRs of Poland and Slovenia. In this context, evidence from case studies in Bulgaria and Spain suggests

that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring in the establishment in comparison to risk assessments performed by internal staff (EU-OSHA, 2013c). This, in turn, may entail that risk assessments become a mere formality and, therefore, do not ensure risk reduction or prevention in an establishment. This will, in turn, have a general impact on health and safety and business and priorities within an organisation.

In the context of SMEs, we concluded in Section 4.3.2 (MQ3) that the share of establishments that regularly undertake risk assessments increase in accordance with the size of the establishment. The same pattern can be seen regarding the use of internal staff when conducting risk assessments, as SMEs are more inclined to hire external service providers for the task. A possible consequence of this correlation is that, while risk assessments appear to be performed regularly in SMEs, they may not have the same quality as those performed in larger establishments, nor do they, the same extent, result in an OSH management approach which is integral to the particular business and priorities of the SME.

Another possible challenge to the effectiveness of risk assessments, raised during national stakeholder interviews, is, namely, that the requirement to perform regular risk assessments could divert attention from the actual objective which is to manage the risks associated with e.g. certain exposure levels established in other Directives. This issue was repeated, and emphasised, by several stakeholders at the Validation Seminar. Two common opinions were repeatedly expressed:

- 1 Risk assessments are an important tool and trigger for OSH developments in enterprises, and should be promoted. However, the concept should be developed further, and the Framework Directive should introduce a clearer definition of what a risk assessment entails.
- 2 Risk assessment must result in effective prevention measures. While simultaneously calling for additional emphasis on risk assessments, stakeholders expressed concern that inappropriate emphasis on risk assessments might serve as an obstacle for risk management and preventive measures. An interlinkage between these requirements might therefore be accentuated.

This problem of risk assessments potentially diverting focus away from risk management seems to apply to Member States, to varying degrees, depending on their individual approach to OSH management and their success in integrating post-risk assessment management in enterprises.

As discussed in Section 6.2.1 ESENER shows that 91% of those establishments that have identified a need for action during a risk assessment do in fact follow-up and take that action. While this does not define either the quality of the conducted risk assessment (e.g. number of unidentified hazards), or the preventive quality of the follow-up action, it does show that, according to ESENER, the performance of risk assessment does result in some level of subsequent risk management, in a significant proportion of surveyed establishments.

However, according to national stakeholders, one impediment to the link between risk assessments and risk management emanates from the experienced complexity of the OSH legal domain and the 24 Directives as reflected in a call for simplification across several Member States, as discussed above. This suggests that although the commonality of the approach can be seen by reviewing the various Directives (especially those covering physical agents) this is not reflected in recognising the common process embodied within them, leading to occasional misinterpretation of the intended model for risk assessments.

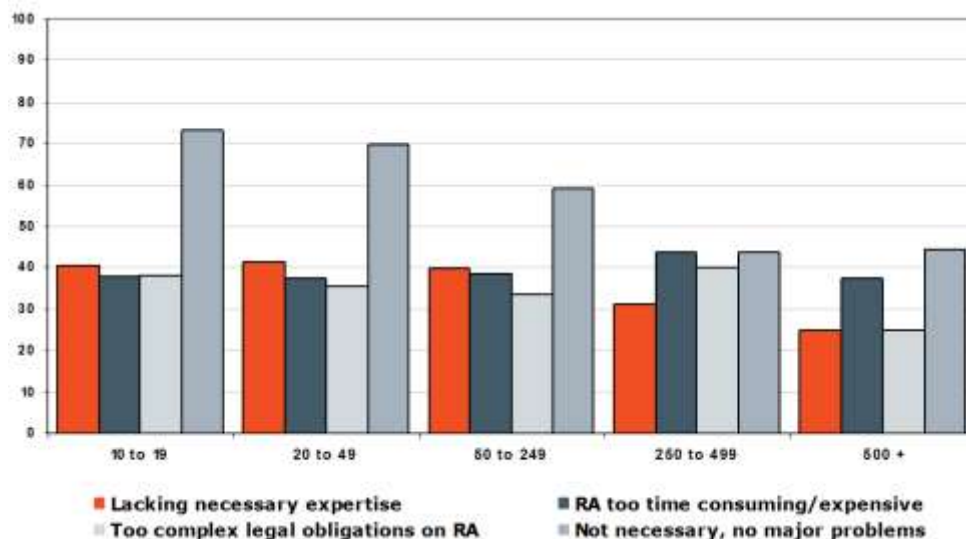
Another somewhat related impediment can be derived from the Directive Reports compiled during this evaluation. In several cases, evaluations on individual Directives resulted in conclusions regarding inadequate or insufficient risk assessment procedures for a given Directive, which did not adequately address Directive-specific hazards, risks, challenges and/or circumstances.

For instance, in the context of the Fishing Vessel Directive, according to national stakeholders in the marine sector, the general requirements to risk assessments are not suited for vessels and specific procedures / provisions for risk assessments should be established, which may deviate from, or add to those of, the Framework Directive (ref. Fishing Vessel Directive Report). Similarly, conclusions point to a need for Directive-specific requirements to risk assessment procedures in other Directive Reports, such as the Biological Agents Report, which calls for the risk assessment procedure to include requirements from the Chemical Agents Directive, and the AOR Report, which calls for a review of the risk assessment procedure to give particular attention to the extension of exposure beyond normal working hours (ref. e.g. Biological Agents Report, Vibrations Report, the AOR Report and the Mining and Quarrying Report). Findings show that unsuitable, generalised risk assessment procedures may further exacerbate the risk of employers not seeing and/or comprehending the benefit of performing a risk assessment at enterprise level, which, as discussed, is likely to reduce the resources put into the activity on part of the establishment, most likely to the detriment of its quality.

Another interesting finding from the recent ESENER-2 survey, discussed above in MQ3 above (cf. Figure 4-15, is the fact that the major reasons for not conducting risk assessments were that hazards were already known and that establishments concluded that they had no major problems. This clearly reveals the challenge of convincing establishments to perform risk assessments regularly, regardless of their prior disposition, as new risks may be detected in the process. In other words, the inability to recognise disadvantages in potential non-compliance, particularly in SMEs, constitutes another reason for increasing the effectiveness of the CPM by increasing the regularity, as well as the quality of performed risk assessments.

It is, to some extent, possible to compare the ESENER-2 findings on reasons for not conducting a risk assessment, previously illustrated in Figure 4-15 **Error! Reference source not found.**, to the corresponding variable from the ESENER 2009 survey (Figure 6-6 below) although the response options and the categorisation for establishment sizes have changed.

Figure 6-6 Reasons for not regularly carrying out a risk assessment in 2009, % of establishments



Source: ESENER, 2009

Note: The Figure shows the shares within establishments where risk assessment or similar measures are not carried out, EU-27.

If we do so, we see an identical pattern for the response option 'no major problems', which in both 2009 and 2013 is highest for the group of establishments with the fewest employees and then drops markedly from 72% to 43% in large establishments. Yet, the recent figures are generally higher, dropping from 82% for establishments with 5-9 employees believing that they have no major problems, 78% for establishments with 10-49 employees down to 59% for establishments with 250+ employees. This may point to a degree of saturation on part of establishments, or may alternatively point to a need for a new risk assessment campaign similar to one performed by EU-OSHA in cooperation with all Member States in 2008, which may have caused an immediate rise in awareness of the number of risks potentially detectable through risk assessments.

If we compare the figures for the administratively oriented response options concerning lacking necessary expertise/ too time consuming/ too legally complex (the latter two response options are aggregated to 'too burdensome procedure' in ESENER-2), we find that the reasons for not conducting a risk assessment are provided less often in ESENER-2 compared to in 2009, particularly amongst smaller establishments. For instance, in establishments with 10-19 employees administrative and procedural reasons are provided in approximately 40% of cases, while in ESENER-2 these figures are 33% (necessary expertise is lacking) and 24% (the procedure is too burdensome), respectively, for establishments with 10-49 employees. This finding reveals that establishments, to a lesser extent, refrain from conducting risk assessments because the procedure is regarded as too burdensome or because the necessary expertise is lacking (EU-OSHA, 2015). However, it should be noted that this trend diminishes for larger companies whose responses are more similar in 2009 and 2013, although some differences remain.

Although some potentials for improving the effectiveness of risk assessments can thus be identified, we wish to highlight the fact that the CPM remains a pivotal element of the OSH management system and that the potential of risk assessments should not be neglected. As a French OSH expert states in the course of a French case study, risk assessments performed in-house "not only gave employers responsibility for risk prevention, but also introduced the idea that this is a multidisciplinary activity, prompting institutional reform of the country's occupational health

services. In-house risk assessment has also required the development of a number of support mechanisms." (EU-OSHA, 2013c)

Preventive and protective services

The analysis of compliance in MQ3 showed that establish an actual compliance level with the CPM of preventive and protective services across Member States is challenging. However, we found that SMEs and micro enterprises appear to have a higher degree of non-compliance and also seem to rely extensively on external providers for preventive and protective services.

Furthermore, the CPM of Preventive and protective services is subject to varying assessments regarding its contribution to the safety and health impacts of the OSH acquis by national and EU stakeholders, respectively. While national stakeholders do not place significant emphasis on the CPM, EU-stakeholders find it to be the second most contributing CPM. As mentioned this may be explained by the fact that many external protection and preventive services design and target their products to larger companies wherefore their aid is of little use to SMEs, who make the most use of them. Clearly, this imbalance have reduced the effectiveness of the CPM to some extent, and constitutes room for improvement.

In MQ3, we also found that compliance tended to be highest in sectors which have traditionally been acknowledged to have more occupational accidents and diseases, such as Mining and quarrying, Manufacturing, Electricity, gas and water supply and Health and social work.

Information, training and consultation of workers

Apart from risk assessments, national stakeholders highlight consultations, training and information of workers as the three next important CMPs (cf. Figure 6-3). As OSH awareness is generally regarded as one of the most important OSH acquis impacts, this emphasis on the three awareness raising CPMs is not surprising. What is interesting, however, is that, considering their varied level of compliance across MSs, it is felt that the three CPMs contribute equally to OSH impacts. A clear indication of a potential improvement of the effectiveness of the training of workers is that training on prevention and measures related to psychosocial risks and risks associated with exposure to chemical and biological agents, radiation or dust hazards has been provided to less than half of the surveyed employee representatives. Of these, a total of 57 % report that they have received a sufficient amount of training. There is in other words a continued need for training on these matters, and on emerging risks in particular. As these proportions refer to the training of safety and health representatives, it is reasonable to assume that the training of workers is more limited. This indicates that while all evidence suggest that training and information is a pivotal element in the process of improving the safety and health of workers, the effectiveness of the CPM on training may have been moderate.

Interestingly, evidence suggests that ERs working in SMEs tend to be more satisfied with the training they receive, than those working in larger establishments indicating that effectiveness of the bilateral CPMs may have a higher degree of effectiveness than e.g. risk assessment, Preventive and protective services and health surveillance.

Health surveillance

Health surveillance is considered relatively important by national stakeholders while it was almost negligible according to the cross-Directive responses from EU stakeholders. Notably, the

effect of safety and health representatives was assessed to be more or less negligible (cf. Figure 6-4).

On the subject of health surveillance, this is curious as our analysis shows a clear correlation between the level of health surveillance and the presence of a safety and health representative. For instance, 75% of interviewed establishments with general employee representation regularly monitor the health of employees, while only 61% of establishments without ERs do so. Likewise, 62% of business with ERs regularly analyse causes of sickness absences while this figure is only 41% for establishment without ERs (cf. Figure 4-8). However, this correlation may not be transparent to stakeholders.

Furthermore, the relative dismissal of the impact of ERs made by national stakeholders may well stem from the fact that a considerable part of the European workers still do not in fact have a safety representative or any form of representation. National stakeholders may therefore not have considered safety and health representatives to have contributed to any significant extent to the effectiveness of the OSH acquis, although our analysis shows that they do in fact seem to have a tremendous effect on safety and health measures in establishments. For instance, according to the ESENER-2 survey, the second most cited factor as a driving force behind preventive action in the face of occupational safety and health risks is a demand by workers and their representatives (EU-OSHA, 2015).

Although health surveillance is regarded as a relatively valuable tool by national stakeholders (Figure 6-3), it should also be recognised that it is particularly useful in relation to types of risks and health outcomes where there are clear early warning signs and where the gathered information will provide valuable input to the risk assessment and design of preventive and protective actions. This is to some extent reflected in the acquis as specific Directives include specific requirements to health surveillance. However, the general requirement for health surveillance as stated in the Framework Directive does not incorporate such considerations.

6.4.4 Conclusion the effectiveness of CPMs

On the overall level, an analysis of the interlinkage of the CPMs across Directives, and thus their suitability to work in tandem and collectively increase the safety and health of workers, reveals that the collected OSH legislation is unnecessarily complex, in part, due to a seemingly unstructured and unsystematic inclusion (or lack thereof) of CPMs into the individual Directives. As the OSH acquis structure is often mirrored in the national provisions, with one framework law complemented with by-laws that transpose each individual Directive and contain cross-references to the OSH framework act (cf. Section 4.1 (MQ1)), these cross-references are also not always systematic at national level and not sufficient to ensure a coherent and cohesive approach across legislation. This, in turn, has caused some confusion at enterprise level, and particularly amongst SMEs, leading to misinterpretations of the provisions of legislation or Directives (ref. e.g. NIR-HU).

On the subject of specific CPMs, scientific literature as well as analysis of the dissemination of compliance levels across sectors indicate that non-recognition of non-compliance, particularly in SMEs, negatively impacts the effectiveness of the CPMs. This is supported by ESENER data that shows that establishments increasingly seem to believe that no major problems exist at the workplace. Such recognition may primarily be achieved by means of external intervention from inspectors and consequential iterative dialogue as discussed in Section 6.5 (EQE4) below.

In extension, the provision on risk assessment would benefit from being more inextricably linked to risk *management* and the proactive prevention of identified risks on part of employers, as stakeholders point to a tendency that risk assessment performance occasionally diverts attention away from managing identified risks, particularly in SMEs. This showcases the impact of non-recognition as SMEs tend to believe that, having followed legislative requirements and conducted a risk assessment, they are in compliance. Contrarily, risk assessments in SMEs are often of insufficient quality to ensure adequate risk management (ref. e.g. NIR-PL and SI, Validation Seminar, national stakeholder interviews).

Furthermore, a review of the risk assessment procedures is needed for some specific Directives, as the general procedure do not adequately address Directive-specific hazards, risks, challenges and/or circumstances. This is, inter alia, the case for the AOR Directive, the Biological Agents Directive, the Fishing Vessel Directive, the Mining and Quarrying Directive and the Vibration Directive.

Nevertheless, risk assessments are generally highlighted as the most effective CPM by both national and EU stakeholders across all stakeholder groups, and ESENER-2 data shows that 90% of surveyed establishments that carry out regular risk assessments regard them as a useful way of managing health and safety (EU-OSHA, 2015). Also on the positive side, establishments to a lesser extent than in 2009 refrain from conducting risk assessments because the procedure is regarded as too burdensome or because the necessary expertise is lacking (EU-OSHA, 2015).

It was concluded, in Section 4.3.3 (MQ3), that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring in the establishment and consequent risk reduction in comparison to risk assessments performed by internal staff (EU-OSHA, 2013c). As SMEs are more inclined to use external service providers, risk assessments in SMEs may not have the same quality as in larger establishments, nor to the same extent result in an OSH management approach that is integral to the particular business and priorities of the SME.

Apart from risk assessments, national stakeholders highlight information, training and consultation of workers while EU stakeholders highlight preventive and protective services as the CPMs that have contributed the most to safety and health impacts across all Directives.

On the subject of protection and preventive services, many external protection and preventive services design and target their products to larger companies wherefore their aid is of little use to SMEs, who make the most use of them. Clearly, this imbalance have reduced the effectiveness of the CPM to some extent, and constitutes room for improvement.

Finally, evidence suggest that training and information is a pivotal element in the process of improving the safety and health of workers. However, the effectiveness of the CPM on training seems to have been moderate and a continued need for training is expressed by employee representatives, particularly on emerging risks, indicating that the need for training of workers is likely to be even higher.

6.5 Effect of enforcement (EQE4)

EQE4: To what extent do sanctions and other related enforcement activities contribute to the effectiveness of the Directives?

In order for the OSH acquis to ensure a consistent, minimum level of protection for all European workers, implementation needs to be the same level in all Member States, and enforced to the same degree in all European establishments. This is a major challenge for the EU in light of the concerns of many Member States and stakeholders regarding the high level of regulatory pressure on establishments (COWI et. al, 2013). It is therefore highly relevant to assess the extent to which the various enforcement measures have contributed to the effectiveness of the OSH acquis and, thereby, attempt to identify those measures, which may provide the best results across MSs.

However, as shown in Section 4.5 (MQ5) the levels and organisation of enforcement measures used to ensure the proper implementation of national provisions are extremely varied, not only from Member State to Member State but from Directive to Directive and, furthermore, they address different hazards and Directive-specific challenges require different enforcement strategies. The effects of specific enforcement measures are therefore influenced by the highly differing characteristics of the nationally transposed provisions of any given Directive as well as the competence of the national organisation of enforcement authorities and inspectorates (cf. MQ5). In this section we provide an assessment of the overall effect of enforcement at EU-level and then assess the impact of enforcement in the Member States. Subsequently, we examine the specific case of enforcement in SMEs and finally, we assess the effect of the various enforcement measures that may be applied by national inspectorates.

6.5.1 Overall effect of enforcement

In order to gain an insight into whether enforcement is currently regarded as effective, in terms of improving the safety and health of workers, we have, during the present evaluation, asked EU stakeholders to provide an assessment of the extent to which they find that effective enforcement leads to higher levels of compliance with the Directives. Figure 6-7 thus shows the aggregated average for each stakeholder group of the score on a scale from 1 to 5 of the importance of enforcement provided for each Directive. In other words, it collates scores of the perceived importance of enforcement for all Directives into one score, which represents the OSH acquis.

Figure 6-7 EU stakeholder views on Importance of enforcement for achieving a high degree of compliance with the OSH acquis



Source: EU stakeholder interviews.

Note: The graph depicts the average score provided by EU stakeholders according to stakeholder groups when answering the question "To what extent do you consider that effective enforcement plays a role in relation to achieving a high degree of compliance with the key requirements?", rated on a scale of 1 (to a very low extent) to 5 (to a very high extent).

As illustrated in Figure 6-7, the total score across all EU stakeholder groups across all Directives is that enforcement is highly important for ensuring compliance (4.1). Other OSH experts agree with this perception providing an average score across Directives of 3.9. Both authorities and worker organisations find enforcement to be of very high importance with average scores as high as 4.6 and 4.5, respectively, across Directives. These scores imply that, according to workers and authorities, without enforcement many employers would comply with the OSH acquis to a significantly lesser extent.

It is important to highlight that these scores reflect the opinion of EU stakeholders on the importance of enforcement, and they do not reflect the actual level of enforcement that is applied across Member States. Rather, during interviews numerous stakeholders expressed a concern, which was repeated at the Validation Seminar, namely that the current level of enforcement of specific Directives is insufficient. This conclusion was for instance reached in the Fishing Vessel Directive Report, where compliance is limited by the fact that in most MSs very few inspections take place at sea when the vessel is operating and risks are most severe (ref. Fishing Vessel Directive Report).

Perhaps not surprisingly, employer organisations seemingly find the importance of enforcement measures to be markedly lower (3.25) than the other stakeholder groups. Yet, if we compare this average score to the recent ESENER-2 findings illustrated in Figure 6-1 and discussed in Section 6.2.1 (EQE1), which establishes that fulfilling legal obligations is the most cited reason for addressing safety and health (mentioned by 85 % of employers) and that avoiding fines from the labour inspectorate is the third most cited reason (78 %) (EU-OSHA, 2015), it may give cause to question the validity of the presented employer assessments.

Clearly, the relatively low score made by employers on the importance of enforcement measures may be a reflection of the fact that businesses would, apparently, abide by OSH legislation even without enforcement. Yet, this is mostly likely to be the case in sectors characterized by high numbers of accidents or safety and health risks that could result in sickness absence, which is financially measureable. In other words, businesses in such sectors have an economic incentive to comply which, to some extent, reduces the need for enforcement (for more information on economic incentives see chapter 7 on benefits, costs and broader effects; COWI et al., 2013 or EU-OSHA, 2010). However, it is our assessment that the relatively low scores made by employer organisations are more likely to reflect an attempt to minimise EU focus on enforcement in order to increase the autonomy and flexibility of businesses.

Therefore, to shed further light on the role that enforcement has played in securing OSH compliance and in extension the safety and health impacts identified above (EQE1), in the following subsection, we assess the changes to enforcement levels that have occurred in Member States in recent years as well the possible consequences of these changes.

6.5.2 Impact of enforcement in Member States

This analysis takes its departure from the mapping of enforcement authorities presented in Section 4.5 (MQ5). The mapping exercise revealed that although the total number of labour inspectors has remained constant in EU-27 from 2007 until 2012, the number of workers per labour inspector has decreased slightly from 12,226 to 11,982 inspectors, i.e. -2 % (cf. Table 4-8). It also revealed significant variations between Member States regarding the number of labour inspectors and workers per labour inspector with no common trend across Member States. In some countries, the data assessed in Section 4.5 (MQ5) clearly shows a significant decrease in the number of inspectors accompanied by a substantial increase in the number of workers per labour inspector. This trend is a direct result of the reduction in resources made available to enforcement bodies due to budgetary restraint policies across several Member States (COWI et al., 2013; European Commission, 2013; Kooperationsstelle Hamburg et al., 2010).

In light of the high importance of enforcement that was expressed by EU stakeholders, this trend is worrisome. Particularly so when this trend continues after a previous period of downsizing of national labour inspectorates in many Member States as reported in the Commission Communication on the practical implementation of the provisions of the Health and Safety at Work Directives as early as 2004. The 2004 implementation report suggests that, at that time, there was a chronic lack of resources to the labour inspectorates as well as a lack of uniformity in inspections across Member States. Furthermore, the report concludes that the introduction of the Framework Directive did not lead to increased inspection efforts.

If we assess the data extracted from the National Implementation Reports on the number of workers per labour inspector (calculated), the number of inspections per 100,000 workers and the number of inspections performed by each labour inspector (calculated) (Table 6-1 below), it allows us to expand on that analysis of the existence of inspectors to analyse the extent to which enforcement is actually carried out in the MSs.⁹⁶

⁹⁶ Please note that the Number of workers per labour inspector are the same figures as in Table XXX (MQ4), but they have been repeated here for comparison purposes.

Table 6-1 Number of workers per labour inspector (calculated), number of inspections per 100,000 workers and number of inspections performed by each labour inspector (calculated)

MS	2007	2012	Change 2007-12	2007	2012	Change 2007-12	2007	2012	Change 2007-12
	Number of workers per labour inspector			Number of inspections per 100,000 workers			Number of inspections per labour inspector		
AT	12,739	13,091	3%	3,470	2,060	-41%	442	270	-39%
BE	30,209	31,199	3%	924	856	-7%	279	267	-4%
BG	8,492	9,028	6%	1,373	2,482	81%	117	224	92%
CY	13,031	18,343	41%	1,560	1,432	-8%	203	263	29%
CZ	22,787	24,573	8%	na	na	na	na	na	na
DE	5,996	6,735	12%	2,647	2,092	-21%	159	141	-11%
DK	4,408	5,708	29%	1,818	1,881	3%	80	107	34%
EE	12,894	16,182	25%	534	603	13%	69	98	42%
EL	17,420	16,644	-4%	617	729	18%	107	121	13%
ES	25,282	18,387	-27%	1,089	1,558	43%	275	286	4%
FI	5,537	5,898	7%	910	1,048	15%	50	62	23%
FR	16,581	11,414	-31%	na	na	na	na	na	na
HU	32,248	37,522	16%	652	432	-34%	210	162	-23%
IE	27,832	19,761	-29%	609	660	8%	169	130	-23%
IT	64,857	73,505	13%	na	na	na	na	na	na
LT	7,186	6,509	-9%	87	51	-41%	6	3	-47%
LU	8,822	10,265	16%	na	na	na	na	na	na
LV	7,891	7,818	-1%	1,354	1,269	-6%	107	99	-7%
MT	17,267	12,164	-30%	863	1,314	52%	149	160	7%
NL	29,490	32,401	10%	319	276	-13%	94	89	-5%
PL	10,763	9,541	-11%	na	na	na	na	na	na
PT	17,995	11,629	-35%	1,180	1,185	0%	212	138	-35%
RO	17,782	15,070	-15%	1,405	1,503	7%	250	227	-9%
SE	12,648	18,628	47%	777	735	-5%	98	137	39%
SI	27,367	27,994	2%	na	na	na	na	na	na
SK	9,068	7,815	-14%	na	na	na	na	na	na
UK	11,156	12,230	10%	na	na	na	na	na	na
Total/average	12,226	11,982	-2%	1,177	1,172	0%	162	157	-3%

Source: National Implementation Reports. The data on number of workers per labour inspector has been calculated by the COWI evaluation team using Eurostat data on number of employed persons in the Member States (as the data presented by the Member States was in some cases inconsistent). The data on the number of inspections per inspector has also been calculated by using the same source of data on number of employed persons, the indicator on number of workers per labour inspector is more comparable across the Member States. The number of inspections per labour inspector has been calculated based on the previous two variables, wherefore data is not available for those MSs that did not report the number of inspections per 100,000 workers in the NIRs.

This data shows that while the average number of workers per labour inspector across all MSs has decreased, the number of inspections per 100,000 workers has remained remarkably stable at an average of 1175 inspections per 100,000 workers from 2007 to 2012 despite significant fluctuation across Member States (average calculated based on 19 MSs)⁹⁷. We also see that a labour inspector, on average, performs 157 inspections and that this figure has decreased slightly by 3 % since 2007 across the 19 MSs, for which data exists. These figures thus do not reveal overall downsizing of enforcement bodies, when assessed at EU level.

However, this data also confirms the great deal of variance in the level of enforcement across Member States. In fact the total number of workers per inspector varies from 5677 in Denmark to 73,505 in Italy in 2012. Number of inspections per 100,000 workers varies from 51 in Lithuania to 2482 in Bulgaria (2012), while the number of inspections performed by each labour inspector varies from 3 in Lithuania (next is Finland with 62 per inspector) to 286 in Spain. Insight into the latter indicator on the number of inspections performed by each inspector may speak of the effectiveness of national enforcement bodies, but may also hint to varying levels of inspection quality. In this regard, it should be noted that we have no knowledge of whether quality of inspections is likely to rise or fall with the number of inspections performed (e.g. due to gained experience and expertise or due to burden overload and less time spent on each inspection).

Furthermore, the data shows that some Member States have indeed experienced considerable decreases in number of inspections per worker, but in other Member States, the situation is the opposite. Generally, the 'old' Member States are prevalent in the first group, whereas the 'new' Member States are prevalent in the second. However, one important observation is that the respective increases or decreases of inspections per worker across MSs, observed in the NIRs, are not linked to previous levels of enforcement (e.g. number of inspections per 100,000 workers) and thus do not constitute a process of levelling out inspection frequencies across Member States. The NIR data is reasonably consistent with SLIC data, which also shows that inspectorates are subject to budget cuts in some 'old' Member States and that such cuts have not affected number of inspectors/inspections in all cases, but that they can have implications for salary levels and budgets for education.

One example of an 'old' MS is that of Sweden mentioned in MQ4 above. During the period from 2007 to 2012, the number of Swedish inspectors has decreased sharply, from 359 full time inspectors to 250 full time inspectors. As a result, the number of workers per labour inspector has increased substantially (by 47 % to 18,628 workers per labour inspector). Sweden now conducts 735 inspections per 100,000 workers, which means that employers are, on average, inspected once every 17.7 years (being once every 13.5 years in 2007). In contrast, MSs such as Malta or France have added to their enforcement budgets and considerably increased the number of inspectors (by 56 % and 46 %, respectively), while the number of workers per labour inspector has decreased accordingly. In Malta, this has resulted in 52 % more inspections being performed per 100,000 workers (1314), while inspectors also perform 7 % more inspections on average.

⁹⁷ No data is available from Czech Republic, France, Italy, Luxembourg, Poland and UK, and calculated averages exclude Slovakia and Slovenia as those figures of 73 055 and 0.073, respectively, compared to the remaining MSs, raise a question of data validity.

If we assess the correlation of the various indicators across MSs (in 2012), we find a number of interesting observations.⁹⁸ Firstly, and not surprisingly, there is a moderate negative correlation between the number of workers per labour inspector and the number of inspections that are performed per 100,000 workers within a given MS (correlation of -0.5). In terms of enforcement, this entails that if the EU wishes to align the level of enforcement across MSs, then it may be beneficial to assess whether the establishment of a minimum number of inspectors per 100,000 workers either in secondary legislation or guidelines may contribute to this aim.

Secondly, we also see a moderate positive correlation between the number of inspections per 100,000 worker and the number of inspections being performed by each labour inspector on a yearly basis (correlation of 0.54). This shows that higher levels of enforcement seems to be connected to the body of labour inspectors performing more inspections.

To further examine the development of enforcement from 2007 to 2012, Table 6-2 below shows the correlations between the changes in percentage of these indicators, i.e. whether changes to one indicator are likely to be linked to changes to another.

Table 6-2 Correlations between changes in enforcement indicators

	Change (%) in number of labour inspectors	Change (%) in number of workers per labour inspector	Change (%) in number of inspections per 100,000 workers	Change (%) in number of inspections per labour inspector
Change (%) in number of labour inspectors	1			
Change (%) in number of workers per labour inspector	-0.883184993	1		
Change (%) in number of inspections per 100,000 workers	0.275706061	-0.273463648	1	
Change (%) in number of inspections per labour inspector	-0.443982814	0.494801557	0.690216065	1

Source: COWI analysis

As can be expected, the Table illustrates that a decrease in the number of labour inspectors in a MS has largely been accompanied by an increase in the number of workers per labour inspector (thus simply pointing to the fact that a decrease of labour inspectors in a MS rarely reflects a corresponding decrease in employment). Furthermore, we find that increases to the number of inspections being performed per 100,000 worker is largely a result of inspectors running faster and/or being more effective (correlation 0.7), rather than more labour inspectors being employed (0.28, i.e. no statistical correlation).

⁹⁸ For interpretation of correlations we apply the following: Below +/- 0.3: No correlation; +/- 0.5: Moderate correlation; +/- 0.7: Strong correlation

To highlight differences across MSs, we may point to two groups of MSs which have responded differently to the budgetary challenges linked to enforcement during recent years. One group consists of four MSs (Bulgaria, Denmark, Estonia and Finland) which have all witnessed an increase to the number of workers per labour inspector, yet have also increased the number of inspections per worker and (consequently) the number of inspections performed by each inspector. The other group consists of five MSs (Austria, Belgium, Germany, Hungary and the Netherlands), which have also witnessed an increase to the number of workers per labour inspector while also experiencing a decrease in the number of inspections per inspector, which have of course led to a decrease in the overall number of inspections per worker.

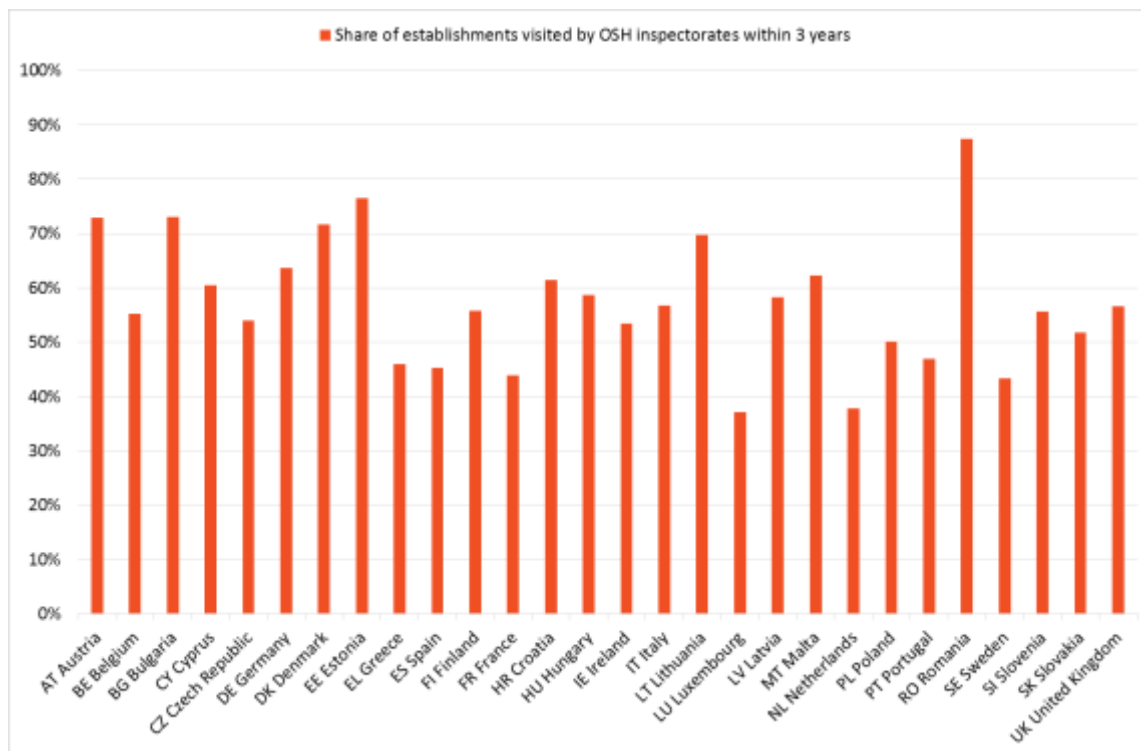
This example highlights the need to facilitate more inspections being performed in average by each inspector, particularly in those MSs, which seem to be less effective in terms of number of inspections per inspector. EPSU (2012) also refers to this issue of tasks devoted to labour inspectors as a major concern, and emphasises the need to reduce the administrative tasks assigned to labour inspectors in order to increase the number of controls despite resource deficits.

Several stakeholders (both EU and national) have raised concerns over this general lack of resources for inspection. For example, during the Validation Seminar, when discussing the chemical agents Directive some participants argued that the enforcement of the existing provisions of the CAD and CMD was poor. Like the EU stakeholders interviewed during this evaluation, many participants thought that better enforcement of existing provisions was important in order to improve working conditions.

The challenge stemming from a drop in resources allocated to labour inspectorates in some MSs has been highlighted by a number of international organisations such as the ILO (2010) and the European Federation of Public Service Unions (EPSU) (2012). These organisations point to the fact that differences in resource allocations available for enforcement in between countries is likely to lead to uneven levels of enforcement, which in turn compromises the overall EC goal of levelling the European playing field for businesses.

Data from ESENER (2009) confirmed the significant variations of labour inspections across Member States. As illustrated in Figure 6-8 below, the frequency ranges from 87% of surveyed establishments in Romania having been visited by a labour inspectorate who checked for safety and health issues within the past 3 years to 37% of surveyed establishments in Luxembourg.

Figure 6-8 Visits by labour inspectorates to check OSH conditions in the last 3 years, (% of establishments, EU-28)



Source: ESENER (2009)

Note: The figure shows the share of surveyed establishments to have answered 'Yes' to the question: "Has the [labour inspectorate] visited this workplace in the last 3 years in order to check health and safety conditions?"

Apart from the reduced compliance with the Directives, which may result from insufficient enforcement in MSs, another likely consequence is that MSs miss out on a potential source of guidance to establishments posed by labour inspectors. Labour inspectors can play a highly preventive part in establishments by identifying safety and health risks before accidents happen, and providing guidance as to how to eliminate or reduce hazards. However, to exploit this potential to the fullest entails training labour inspectors to provide them with information and knowledge enough to cope with emerging risks such and new realities (EPSU, 2012).

On this subject, Cardiff University et al. (2011) have assessed the impact of emerging trends and risks on labour inspection methodologies and concluded that labour inspectors should be further supported by means of a long range of support measures which include the following:

- › Training,
- › International collaborations on aspects of inspecting new and emergent risks,
- › Increased investments in IT support for intelligence gathering,
- › Dissemination and more systematic planning and coordination,
- › Improving relations between inspection and preventive services and other OSH experts,

- › Working with partner institutions and other authorities in relation to undocumented/undeclared work,
- › Better data collection on risk by cooperation with other stakeholders like health insurance bodies (e.g. data on significantly increased use of pharmaceuticals against depression at workplaces and data on MSD).

Conclusions highly similar to these were also reached in the Directive-specific evaluations of the Mineral extraction Directive and the Construction Directive, both of which highlighted a need for better consistency across MS inspections, which should be reached by means of guidance to inspectors, establishment of good practices and knowledge sharing (ref. Construction Directive Report and Mineral Extraction Directive Report).

It should be noted that as part of this analysis of enforcement, we have also sought to identify a statistic correlation between the level of enforcement across MSs (by means of each of the three indicators, i.e. workers per labour inspector, inspections per 100,000 workers, and inspections per inspector) and the level of compliance (by means of the share of establishments to have performed a risk assessment or to have an OSH policy according to ESENER 2009). No such correlation was identified.

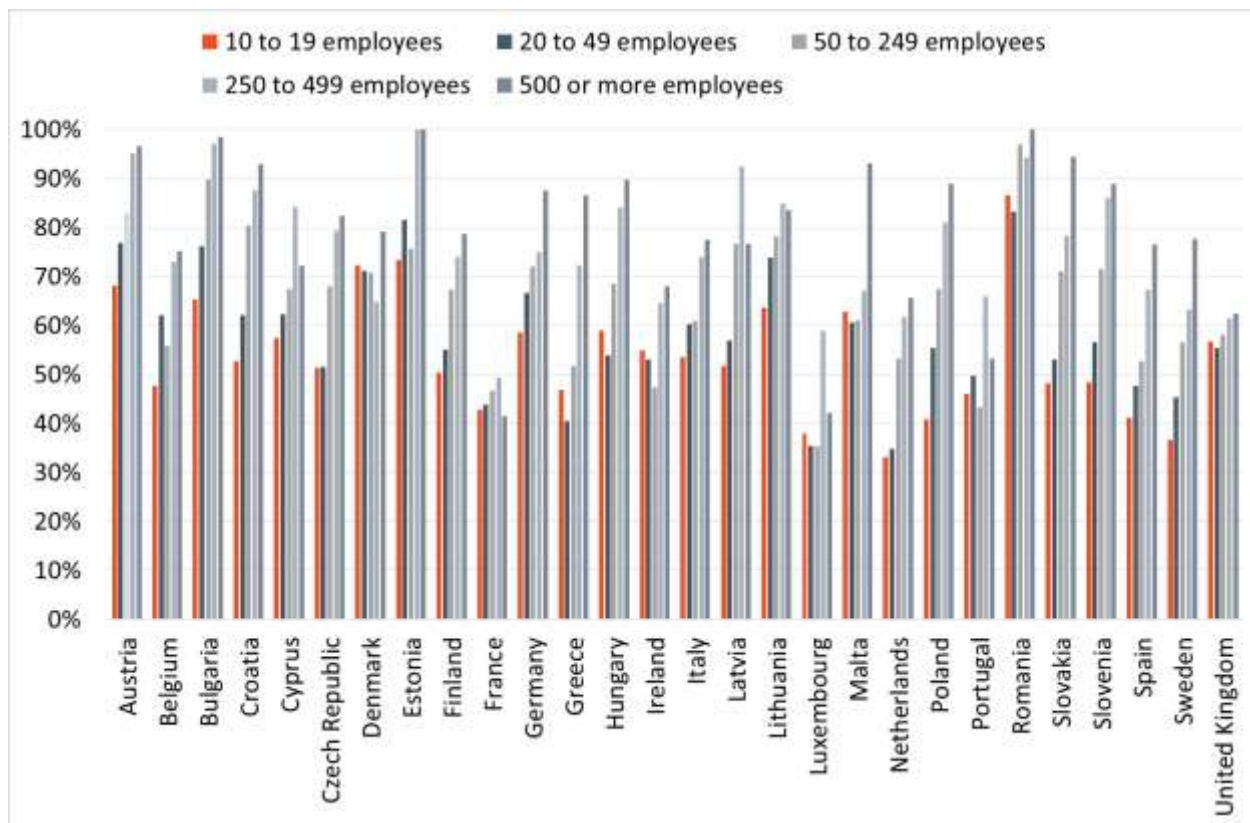
Furthermore, in section 6.2.1 on workplace impacts above, we referenced a survey of 26,571 EU-28 residents in which respondents assessed their own working conditions and provided their opinion on whether working conditions in their particular MS had improved, stayed the same or deteriorated over the last five years. In this survey, Estonia (42%), Malta (40%), Lithuania (27%), Latvia and Hungary (both 25%) are the only countries where at least one quarter of respondents think working conditions in their country have improved over the last five years (European Commission, 2014). If we compare these figures to the number of inspections, once again we see no consistent correlation as Estonia and Malta have had some increase in the number of inspections per worker, while Lithuania, Latvia and Hungary have experienced the opposite.

However, it is important to emphasise that as the indicators for compliance are indicative and furthermore are only available for 2009, the amount of data does not allow for a conclusion that enforcement does not contribute to compliance.

6.5.3 Enforcement in SMEs

In this subsection, we shall briefly discuss enforcement in the context of SMEs. Figure 6-9 below, therefore segregates the above ESENER data from Figure 6-8 on shares of establishments visited by labour inspectorates in the past 3 years by size of establishments. Notably, in light of the considerable changes to enforcement across MSs since 2009 and the lack of trend to be observed, we cannot assess the actual numbers depicted in Figure 6-9, as they are no longer representative. Yet, they serve the purpose of illustrating that, generally, the smaller the size of the establishment, the rarer the labour inspections.

Figure 6-9 Visits by labour inspectorates to check OSH conditions in the last 3 years, by size of establishment (% of establishments, EU-28)



Source: ESENER (2009)

Note: The figure shows the share of surveyed establishments, by number of workers employed, to have answered 'Yes' to the question: "Has the [labour inspectorate] visited this workplace in the last 3 years in order to check health and safety conditions?"

This trend is not surprising given the simple fact established in the Labour Market Overview, Chapter 3, that SMEs constitute 99.8% of all establishments (92.1% microenterprises). Furthermore, this trend is also illustrated by the findings of the evaluation of enforcement measures applied to ensure compliance with the Chemical Agents Directive (Kooperationsstelle Hamburg et al., 2010). This analysis pointed to the issue of lower compliance in SMEs – in part – due to "the slim chances of SMEs receiving a visit from inspectors", as noted by several interviewed stakeholders. This is a challenge, which is likely to increase in light of the diminishing enforcement resources in some MSs discussed above.

Clearly, this is problematic, considering our findings on a lack of recognition of non-compliance in SMEs discussed in Section 4.3.2 (MQ3). In this section, we concluded that SMEs tend to view compliance as the outcome of an external intervention rather than an on-going process requiring regular internal review. As a consequence, all SMEs studied by Fairman and Yapp (2005) believed that they were in compliance (i.e. 'that hazards and risks are already known' and that 'there are no major problems'), when in fact occupational health problems were present in at least 54 % of them. Non-compliance was linked with harm, and an underlying assumption was therefore that, if no harm was experienced then the establishment must be in compliance. If they were not in compliance, SMEs believed that external actors would let them know, that they would adjust according to received instructions and would then again be in compliance. This is ultimately summed up to a distinction between lack of recognition of non-compliance, remedied by means of

inspection, as opposed to a lack of awareness, which would necessitate more information. According to Fairman and Yapp (2005) more written and impersonal information would not lead to increased compliance because SMEs would filter it as non-relevant and ultimately ignore it. This conclusion is very much in line with the general opinion expressed by national stakeholders during this evaluation. Instead, Fairman and Yapp (2005) concluded that relative to other approaches, inspection worked for SMEs, because face-to-face interventions, discussions and negotiation allow SMEs to internalise the rules of the OSH acquis and to recognize a need for action.

6.5.4 Effect of various enforcement measures applied by inspectorates

The differentiation across MSs emphasises the fact that better implementation and enforcement of the EU OSH legislation does not solely rely on actions at EU level but depends largely on actions taken at Member State-level (European Commission, 2013b). It is therefore significant that, according to available literature and subsequently confirmed in interviews with EU stakeholders (cf. Figure 6-10 below), national labour inspectorates and other inspection agencies play a key role in ensuring enforcement. In this subsection, we therefore examine which enforcement measures applicable to MSs seem to be most effective in ensuring compliance.

Firstly, Figure 6-10 shows the relative frequency with which different factors have been mentioned as the most contributing to effective enforcement during EU stakeholder interviews.

Figure 6-10 Most contributing factors to effective enforcement according to EU stakeholders



Source: EU stakeholder interviews

Note: The graph depicts the relative number of times a specific measure has been mentioned when answering the question "Which factor contributes the most to effective enforcement of the key requirements (level of sanctions, number of visits, etc.)?"

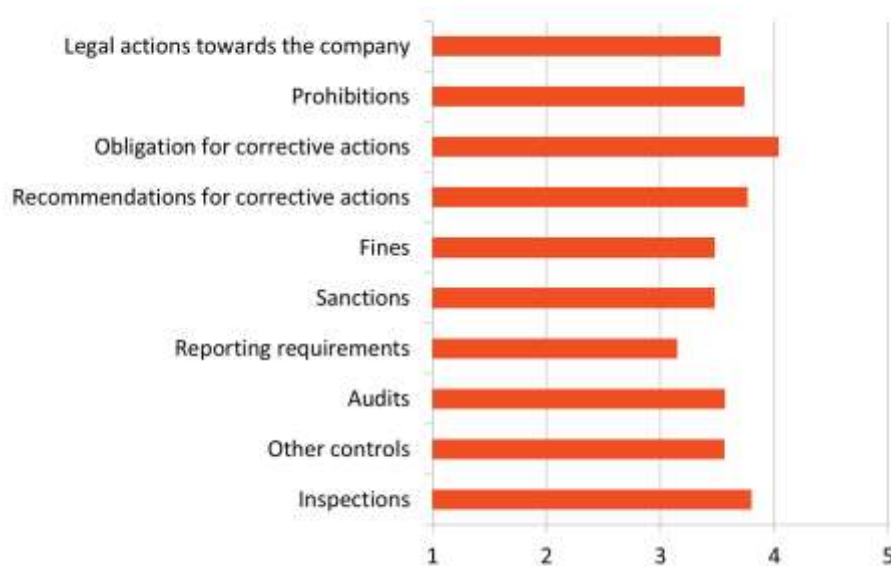
According to our EU stakeholder interviews, the frequency of inspections is the single most important trigger of compliance across all 24 Directives, followed by the quality of those inspections as the second most important factor, which largely corroborates the findings presented above.

The enforcement measure which receives the third highest score by EU stakeholders is enforcement combined with guidance. To combine enforcement with guidance is considered important by stakeholders, because many seem to find that two categories of non-compliant employers exist. One is referred to as the so-called 'bad seeds' who are purposefully non-compliant and the other is the 'uninformed' employers, who are non-purposefully non-compliant. This is what Fariman and Yapp describes as a lack of recognition. The argument often made by EU stakeholders is that by combining enforcement (inspections) with guidance, it would be feasible to provide a more detailed and better suited response to those employers who may wish to comply but lack knowledge on national provisions and necessary measures.

The last measure that was highlighted by EU stakeholders as an important factor for ensuring compliance is sanctions. In Section 4.5 (MQ5) above, we highlighted the case of Luxembourg in which labour inspectors can order the immediate cessation of work for the worker concerned in cases of blatant breach of the rules on minimum age for workers, working time and night work, weekly rest, statutory holidays, employment of pregnant women, breastfeeding and young workers. When labour inspectors consider that a situation might constitute a threat to workers' safety or health, they can require a technical check of machineries, changes to fix defects or work methods, stopping the activity of the workers at risk and evacuating the premises. According to national stakeholders in Luxembourg, these can be extremely effective sanctions.

In comparison, Figure 6-11 shows how national stakeholders have rated the effectiveness of a range of enforcement measures.

Figure 6-11 National stakeholder views on the relative importance of enforcement measures regarding their contribution to the effectiveness of the OSH acquis



Source: Member State interviews.

Note: Average scores, all stakeholder groups across all Member States, to the question: "Do you consider the following enforcement measures and sanctions to be effective? (On a scale of 1-5)".

As shown, apart from inspections, obligations and recommendations for corrective actions and prohibitions are the most effective enforcement measures. However, unlike EU stakeholders, the national stakeholder organisations generally find all measures of enforcement to be relatively

significant (although reporting requirements has the lowest score of 3.2 and is thus just above medium). This shows overall support of enforcement as a necessary means for ensuring national implementation across Directives.

6.5.5 Conclusions on the effect of enforcement

In conclusion, all evidence points to the fact that enforcement, and particularly the combined role of inspectors enforcing legislation and providing guidance on implementation, generally, has a significant influence on compliance with the OSH acquis. This is particularly true in SMEs, where non-compliance is prevalent. Two major concerns have been identified in this regard, which form the basis for our main conclusions on assessment on the effectiveness of enforcement:

Firstly, in light of the importance of enforcement for ensuring compliance, it is clearly problematic that the level of enforcement across MSs varies to an alarming extent. In fact the total number of workers per inspector varies from 5677 in Denmark to 73,505 in Italy in 2012. Number of inspections per 100,000 workers varies from 51 in Lithuania to 2482 in Bulgaria (2012), while the number of inspections performed by each labour inspector varies from 3 in Lithuania (next is Finland with 62 per inspector) to 286 in Spain.

Secondly, the number of inspections carried out per number of workers is generally insufficient. In Sweden, for example, which is not the MS with most workers per inspector, or the one with fewest inspections per 100,000 workers, employers are, on average, inspected once every 17.7 years.

This is further exacerbated by challenges stemming from a drop in resources allocated to labour inspectorates in many MSs. Some Member States have experienced a considerable decrease in the number of inspections per worker. While, in other Member States, the situation is the opposite. One important observation is that the respective increases or decreases of inspections per worker across MSs is not linked to previous levels of enforcement (e.g. number of inspections per 100,000 workers) and thus does not constitute a process of levelling out inspection frequencies across Member States. According to SLIC, inspectorates subject to budget cuts have, thus, not affected the number of inspectors/inspections carried out in all MSs, but that they can have implications on salary levels and educational/training budgets.

Notably, a majority of those MSs, which have managed to increase the number of inspections per worker from 2007 to 2012, have done so largely by increasing the number of inspections made by each inspector, i.e. by improving the effectiveness of national inspectorates. This approach may be recommendable across the EU, particularly in those MSs, which seem to be less effective in terms of number of inspections per inspector. This may, inter alia, be achieved by reducing the administrative tasks assigned to labour inspectors in order to increase the number of control inspections, despite current resource deficits in many MSs. Furthermore, because of the resource intensity of inspections, the role of others carrying out inspections (e.g. the colleges) could be investigated further.

Much evidence also points to the benefits associated with stressing the preventive and advisory role of inspectors. This is particularly true for SMEs because face-to-face interventions, discussions and negotiation allow them to internalise the rules of the OSH acquis and recognizes a need for action. However, to exploit this potential to its fullest entails training labour inspectors and providing them with sufficient information and knowledge to cope with emerging risks and new realities (EPSU, 2012).

6.6 Objective achievement (EQE7)

EQE7: To what extent are the Directives achieving their aims and what factors have particularly contributed to the achievement of the objectives?

The seventh effectiveness question posed in this evaluation reflects the essence of the effectiveness evaluation: The extent to which objectives have been reached. Therefore, the question calls for an assessment drawing on the findings presented in the previous sections on evaluation questions 1-6 and forming overall conclusions with regard to the effectiveness of the 24 Directives. In this section, we therefore seek to summarise the findings made so far and to further contextualise these and develop key conclusions on effectiveness.

6.6.1 Understanding of objectives

The first step in assessing the extent to which objectives have been achieved is to establish the nature of the objectives and what defines the desired end-situation, which should be achieved. The evaluation approached this through establishing intervention logics for each of the 24 Directives (as well as a generic intervention logic for the *acquis* as a whole). These intervention logics are described in the individual Directive reports. This exercise showed that objectives in terms of the desired health and safety impacts are typically not very clearly stated in the Directives – if at all.

It is obvious that, in general terms, the Directives aim to improve the health and safety situation for workers across the EU. However, the more specific intended impacts, such as – for example – the kinds of occupational diseases to be prevented or reduced are often not identified. This means that, for many Directives, there is no clear measuring stick against which to measure the progress towards achievement of objectives.

It must be recognised that this is also a reflection of the complex interrelations between exposures to various risks at the workplace and specific health and safety impacts – and between different OSH measures targeting various groups of workers, types of risk or sectors and their effects on levels of exposure. It is no easy task to define precisely what a Directive aims to do. Nevertheless, it is still striking that the legal texts of the Directives rarely offer much insight into the rationales behind the Directives and their intended safety and health impacts.

The understanding of objectives is furthermore challenged by the situation that the OSH *acquis* contains a mixture of Directives representing a goal and process-oriented approach and Directives representing a prescriptive approach.

The evaluation has analysed objective achievement, looking at objectives at different key levels following the intervention logic structure:

- › Objectives concerning specific requirements to be followed by employers – focusing in particular on the 'common processes and mechanisms', i.e. process-management actions to be taken (risk assessment, information, training, health surveillance, consultation).

- › Objectives concerning impacts at the workplace occurring as a result of implementing the specific requirements.
- › Objectives concerning the health and safety impacts occurring as a result of changes/impacts at the work place (i.e. reduced number of accidents or occupational disease).

6.6.2 Effectiveness – compliance and workplace impacts

Transposition

It is clear that a precondition for achieving objectives regarding compliance with specific requirements as well as workplace impacts is that the Directives have been transposed into Member State legislation. The evaluation shows that, generally, the Directives have been correctly transposed – and there are only few issues in this regard which have not been resolved and which still influence the level of implementation within the period covered by the evaluation (2007-2012). Derogations and transitional periods are not considered to have had a major impact on the implementation and effectiveness of the Directives.

Compliance – implementation on the ground

The next step in the assessment of the impact of the Directives is to consider whether establishments actually implement the requirements 'on the ground' and whether this leads to changes at the workplaces, which can help to reduce the exposure of workers to various OSH risks. In this regard, the evaluation has looked in particular at the common processes and mechanisms (CPMs) and the extent to which they are implemented.

Overall, the evaluation suggests that compliance with the CPMs is quite high. That is, the level of objective achievement in this area is – overall – quite high. However, there are differences between the CPMs and between Member States and compliance is particularly high in relation to the risk assessment requirement. It should be noted that this is largely based on subjective views and that there appears to have been very little systematic objective evaluation of compliance within MSs. Thus, requests for information as part of NIRs, or searches for information by national experts, have resulted in little objective material.

Information from various sources indicates that the presence of legal requirements are an important factor (but certainly not the only one) influencing the compliance behaviour of establishments. This suggests that, by requiring the introduction of such requirements in all MSs, the Directives will have had an impact on compliance behaviour.

One important observation in relation to implementation of the CPMs is that some Member States already had similar legislation in place, prior to adoption of the Framework Directive. The goal-process oriented approach was thus already enshrined in the legislative framework of some Member States, whereas others had to make considerable changes. This also means that the high level of objective achievement as regards compliance with CPMs cannot be ascribed to the Directives alone.

EU-level data on compliance is limited mainly to the ESENER survey, which was conducted in 2009 and data from the most recent survey conducted in 2014 has only been available to the evaluation to a limited extent. This means that it is not possible to assess changes in compliance over time in the evaluation period and hence, it is impossible to assess whether or not a particular

effect has occurred during the evaluation period. We can say with reasonable certainty that the Directives have had a positive impact on compliance with the CPMs, but whether this impact has been achieved during the implementation period or before is very uncertain. Precisely what happened after 2009 is also not clear from the existing data, although the available data from ESENER 2014 tends to confirm that levels of compliance have remained stable.

The evaluation shows that there are no clear differences between public and private establishments in relation to implementation of CPMs. However, when considering size of establishment, SMEs and micro-establishments generally display lower levels of compliance with the CPMs, compared to large establishments. Thus, achieving the goal of implementing the CPMs has been achieved to a much greater extent in larger establishments than in SMEs.

The evaluation has pointed to some factors which are considered to have affected the level of goal achievement in relation to CPM implementation. These include, in particular:

- › The Framework Directive in itself sets out the goal-process oriented approach and the CPMs thus provide a clear structure and approach to be applied. This has been common practise in some MSs for many years whereas others have had (and continue to have) a more traditional management system with prescriptive legislative approaches embedded in their regulatory regimes. Evidence from a variety of sources suggests that those MSs with regulatory systems with a longer tradition of goal-oriented and participatory OSH management tend to be associated with greater levels of OSH management practice implementation.
- › An analysis of the interlinkage of the CPMs across Directives, and thus their suitability to work in tandem and collectively increase the safety and health of workers, reveals that the collected OSH legislation is unnecessarily complex, in part, due to a seemingly unstructured and unsystematic inclusion (or lack thereof) of CPMs into the individual Directives. These problems are often transported into the national legal frameworks preventing a fully coherent and cohesive approach. This, in turn, has caused some confusion at enterprise level, and particularly amongst SMEs, leading to misinterpretations of the provisions of legislation or Directives.
- › The OSH acquis in itself represents a mix of the goal-process oriented approach and the prescriptive approach as mirrored in particular in some of the individual Directives. While not incoherent from a legal point of view, these two approaches are conceptually inconsistent and can work against each other in practise. On the one hand, the goal-process approach asks to identify the most suitable means to arrive at a certain end, whereas the prescriptive approach specifies the means to be applied.
- › Enforcement, and particularly the combined role of inspectors enforcing the legislation and providing guidance on implementation, is generally considered to have a significant influence on compliance with the OSH acquis. This is particularly true in SMEs, within which a lack of recognition of non-compliance is prevalent. Seen in this light, it is clearly problematic that the level of enforcement across MSs varies to a very high extent.
- › Strong evidence suggests that employee representation has noticeable influence on the proportion of establishments performing risk assessments and an even more pronounced impact on other key requirements. Data suggests that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring of OSH principles in the establishment in comparison to risk

assessments performed by internal staff. This is likely to impact on the position of health and safety generally within an organisation's business and priorities.

Improvements in working conditions

The next question in the impact chain is to consider whether compliance with Directive requirements has led to improvements in working conditions as could be expected. There is very limited information on this particular issue and the data is not consistent. Therefore, a way to approach this subject is to go one step ahead in the chain and consider whether exposure to various risk factors has decreased during the period. A decrease in exposure would be a good indicator that working conditions have improved as a result of compliance with the requirements. This is considered in the section below.

6.6.3 Effectiveness – health and safety impacts

Further in the impact chain, the question is whether the high level of compliance with the CPM requirements is translated into less exposure to risk factors and hence, fewer accidents at work and less work-related disease.

The data on work-related accidents and diseases shows in general that the incidence of accidents has decreased during the evaluation period, whereas the exposure to risks related to various occupational diseases has remained constant or increased, except for a few specific cases.

It is likely that the decrease in incidence of accidents at work can to some extent be ascribed to the implementation of the Directives, as this can be linked to the level of compliance with the CPMs. Increasing safety and reducing accidents is a key element in any risk assessment.

Subjective impressions, from surveys of the workforce, seem to suggest that, in general, there has been a reduction in the proportion of workers who consider that their health and safety is at risk from their work and who feel that work has affected their health.

Quantitative material is less readily obtained and that which is available is patchy, incomplete, and not readily related to the Osh Directive acquis. However, it is a key concern that exposure to risks related to various occupational diseases have typically either remained stable or increased during the implementation period. The two most prominent work-related diseases – stress and MSDs – have both seen substantial increases in exposure to related risk factors (although with stress it is perhaps understandable given that there are no specific OSH provisions which address psychosocial risks). MSDs however do have two specific Directives which address two major hazards contributing to MSDs.

A major problem in assessing the impact of the Directives on the health of workers is the inadequacy of the data systems available for making any such assessment. Even with the example of MSDs given above, it is not possible to establish the extent to which recorded MSDs were caused by risk factors encompassed by the Directives and therefore the extent to which adequate implementation of their provisions should have prevented them. Against this background, the limited data sources available generally suggest that the Directives are not effective at targeting occupational diseases.

We have just concluded that compliance with CPMs is generally quite high. This clearly leads to a key question of why we are only seeing a limited effect in terms of combatting occupational illness?

(why is a generally high reported level of compliance not leading to better results?). Based on the existing data, it is not possible to provide exhaustive answers to these questions, but some key factors emerge from the findings in this evaluation:

- › The compliance data might be misleading. There are some published studies which have suggested that the quality of compliance is often poor, so that even amongst those organisations who report compliance, the extent of effective compliance is likely to be less.
- › As part of this, risk assessment performance occasionally diverts attention away from managing identified risks, particularly in SMEs. This showcases the impact of non-recognition as SMEs tend to believe that, having followed legislative requirements and conducted a risk assessment, they are in compliance. Contrarily, risk assessments in SMEs are often of insufficient quality to ensure adequate risk management and, even in larger organisations, the risk management measures adopted may not be the most appropriate. Evidence from OSH practitioners, supported by material examined during this study (such as NIRs), suggests that the quickest, easiest, cheapest solution might be that adopted. As a specific example, a number of NIRs report that, in response to identified manual handling risks, organisations frequently resort to manual handling training regardless of whether or not it is the most appropriate.
- › There seems to be a general view that the Framework Directive, with its orientation towards a goal-process approach to OSH (rather than prescription) successfully lays out a suitable template for managing workplace risks – but not in itself enough to ensure that all risks are dealt with sufficiently. One criticism of the goal-setting approach is that the absence of prescriptive intermediate goals makes compliance harder to verify and, in the absence of that verification procedure, harder to enforce (especially in OSH cultures with a history of the prescriptive approach).
- › Even with a high level of good quality compliance with OSH requirements such a regime will be ineffective if the wrong provisions are adopted, either through initial misconceptions in formulating the provisions of a Directive or because the provisions originally formulated are no longer relevant to the hazards present in the workplace. It would be wrong to make sweeping generalisations here as the situation varies between Directives and the individual directive reports should be seen for more details on any particular subject. Thus, some directives do appear to still address the relevant risks correctly and do contain provisions which, if correctly and competently implemented, should result in suitable risk management. Directives such as those relating to noise and vibration fall into this category. Although those relating to MSDs appear to fall into the second category the reality is more complicated. The hazards addressed by the Manual Handling Directive for example still remain relevant – it is hazards not addressed by this Directive, which create further risks of MSDs which are omitted. Similarly, the hazards arising from working for prolonged periods with DSE still remain, it is just that the nature of the DSE encompassed by the prescriptive element which have lost relevance.
- › A further area where the inadequacies of the current OSH acquis can be identified relates to the somewhat piecemeal manner in which vulnerable groups are covered. Some such groups: pregnant workers, young people, temporary workers, have specific directives. However, each of these can be paralleled by another group who do not have specific protection: the susceptibilities of the fertility of male workers, older workers, migrant workers have all been recognised but are, in effect, only addressed by the general provisions of the Framework Directive. Older workers perhaps warrant particular mention as concerns about the

implications of an aging workforce pervaded many of the discussions and interviews carried out as part of the evaluation, as well as featuring in the research literature.

- › For some possibly vulnerable groups, the protection is even less as they are excluded from the provisions of the OSH acquis, either entirely or partly. Groups excluded in some way include the self-employed and home workers. The latter present particular challenges because, for example, developments in DSE and related technologies mean that DSE Users might perform their work at home, or at other remote locations. Then there are those whose work is within the home setting, such as domestic workers. In such cases, protection could almost be regarded as a 'Member State lottery' in that the extent to which you are offered protection, if at all, depends on which MS you work in as some MSs have already exercised their right to make more detailed provisions and extend OSH protection to such groups.

All of these factors present challenges in terms of evaluating the effectiveness of the existing provisions and of ensuring the ongoing relevance of the OSH acquis to the hazards and consequent risks faced by the EU workforce in the future.

6.6.4 Effectiveness of current data and systems enabling monitoring of the implementation of the Directives

As also described in the Commission's better regulation guidelines, part of effective regulation is monitoring to generate evidence on activities and impacts over time in a continuous and systematic way. The guidelines, among other things, state that the monitoring system should provide time series data, which is more reliable in explaining behaviour than one-off data collection exercises.

It is observed that the Directives, apart from most of them referring to the five-yearly reporting requirement, make little or no reference as to how they will be monitored. As shown in the analysis of EQE1-6, there are some important sources of data at the EU level, which do enable some monitoring of how the Directives have been implemented. ESENER, ESAW and EWCS do provide valuable input, but in terms of time-series based data suitable for monitoring of each individual Directive, these data sources certainly also have serious flaws. To mention the most important of these, the data from ESENER and EWCS are not annual (and hence not proper time series data) and all three data sources do not enable data drilling to the necessary detail required to monitor individual directives.

Most of the Directives are encompassed by the general requirement to report to the Commission about their implementation every five years⁹⁹. This evaluation report should be seen in conjunction with this procedure as it builds on the National Implementation Reports (NIRs) submitted by the Member States by December 2013. Having a report every five years from the Member States on the implementation of all these Directives hence also marks a unique opportunity for collecting data and filling gaps where sources such as those mentioned above, do not give sufficient insight. Our experience from working with the data in the NIRs is that they do provide some valuable information, but unfortunately, the quality varies between Directives and between Member States. This is partly because the respondents in the Member States have taken different interests in answering the questions posed in the questionnaire devised by the Commission¹⁰⁰. However, it is

⁹⁹ Ref. Framework Directive (89/391/EEC), Article 17a

¹⁰⁰ Ref. Commission Decision C(2011) 9200 final of 20.12.2011

our assessment, that it also has a lot to do with the fact that the questions are often phrased in an open and ambiguous manner, and can be (and have been) understood in many different ways. For this reason, the responses from the Member States are often not comparable and reflect different interpretations of the question posed. This reduces the value of the NIRs as a data source to an important extent.

On this basis, it is assessed that in order to make the Directives 'fit for purpose' there is a need to better define and execute the monitoring plan for the Directives. This includes considering the three key questions also posed in the better regulation guidelines: 1) What evidence needs to be collected?; 2) When and how should evidence be collected?; 3) Who will collect the evidence and from whom?

7 Benefits, costs and broader effects (EQE5-6)

EQE5: What benefits and costs arise for society and employers as a result of fulfilling the requirements of the Directives?

EQE6: To what extent do the Directives generate broader impacts (including side effects) in society and the economy?

This chapter focuses on the two questions (EQE5 and EQE6) presented above. The structure of this chapter differs slightly, as we have chosen to present the broader impacts, ascertained from EQE6, in relation to the findings on benefits resulting from EQE5, because they are closely related.

In brief, benefits refer to impacts to health and safety resulting from implementation of the OSH acquis. These impacts include direct benefits (reduction in health care costs) and what could be termed indirect benefits (increased productivity). Indirect benefits occur as a result in the reduction of work-related ill health and accidents, but do not directly relate to the objective of the acquis. Moreover, the acquis might also introduce non-financial benefits, such as improved wellbeing and quality of life for workers and broader benefits, such as improved company image for enterprises (these benefits are also often referred to as intangible benefits, as they cannot easily be translated into monetary value). Efforts to improve and ensure safe working conditions, however, come at a cost. These costs include possible investment in e.g. new safety equipment (substantive compliance costs) and administration, documentation and enforcement (administrative costs)¹⁰¹.

- › We present a more in-depth explanation of the various concepts used in this evaluation in section 7.1, followed by a presentation of various methodologies used to assess costs and benefits (section 7.2). We conclude this section with an assessment on the possibility of conducting a full cost benefit analysis of the OSH legislation across all MS.
- › In the next section (7.3), we continue with a presentation of the selected methodology for the present evaluation, including limitations and weaknesses in the available data sources.
- › Sections 7.4-7.6 present the results of the evaluation - findings regarding costs and benefits are presented separately. In section 7.4, we assess compliance costs arising from implementation of the acquis, followed by the analysis of potential benefits, including broader benefits. In section 7.5, we present the results from the literature review regarding cost benefit

¹⁰¹ In theory costs represents opportunity costs – the value of the forgone benefits because the resource is not available for its alternative use

analyses of different OSH initiatives from the enterprise perspective. Finally, we sum up the findings and present our conclusions and recommendations in section.

7.1 Key concepts and stakeholders

In this section, we present and define the key concepts used in this evaluation. Moreover, we introduce the stakeholders that are most likely to benefit and/or experience costs stemming from implementation of the OSH acquis. In the economic literature, these perspectives typically include; workers and families, employers or government. The analysis could include the perspective of a single group of stakeholder (i.e., employers) or could be an aggregate of all perspectives (hereon referred to as the societal perspective). This section functions as the conceptual framework for the analysis on the costs and benefits of the OSH acquis.

7.1.1 Definition of costs

It is clear from OSH literature on the economic aspect that there is no consensus on how costs should be categorised. For instance, Drummond (1997) recommends using the terms variable costs (such as man-hours or equipment), fixed/overhead costs (such as light, heat and rent) and resources consumed in other sectors (such as trade union activities). Others refer to direct and indirect costs (Drummond, 1997). In this evaluation, we refer to terms used in the standard cost model (SCM), which is a widely applied methodology for measuring administrative costs (The SCM Network). The terminology introduced in the SCM defines:

- › *Compliance costs* are all the costs of complying with regulation, with the exception of direct financial costs and long term structural consequences. In the context of the Standard Cost Model, these costs can be divided into:
 - › Substantive compliance costs (such as investments in safety equipment or physical changes in the workplace) and
 - › Administrative costs (such as documentation and information obligations).

In regard to administrative costs in the SCM, an important distinction must be made between information that would be collected by businesses in absence of legislation (business-as-usual) and information that would not normally be collected without legal provision. Costs that fall outside the business-as-usual category are denoted administrative burdens.

In the SCM, a distinction is also made between recurrent costs and one-off costs. One-off costs are administrative costs that are only sustained once in connection with an enterprises adapting to new, or amended, legislation/regulation. Recurrent costs are administrative costs which the business incurs on a regular basis in order to comply with legislation. These can arise at regular or irregular intervals.

Table 7-1 provides examples of different types of cost according to perspective or stakeholder groups. The examples have been taken from available literature on OSH interventions. Note that this table does not distinguish between compliance costs and administrative costs and burdens and, that the examples were not originally developed to assess costs related to implementation of the Directives. Still, the tables do provide an overview of the potential costs. In section 7.4, we take

a closer look at the compliance and administrative costs related to the provisions in the OSH Directives.

Table 7-1 Examples of different types of cost

Variable	Examples of cost categories
Workers and families	<ul style="list-style-type: none"> > Using personal safety equipment > Effort in adopting safety attitudes and healthy work and lifestyles
Enterprises	<ul style="list-style-type: none"> > Investments (e.g. in new safety equipment) > Engineering, consultancy and planning costs related to investment > Additional costs for changed working procedures and maintenance > Additional costs of substitution of products > Extra work time of personnel (e.g. meetings, training, inspections, involvement) > Purchase of internal/external OSH services > In-company activities (e.g. human resource management, OSH policy development and planning)
Government	<ul style="list-style-type: none"> > Safety and health legislation and inspection > Safety and health research, education and information

Source: This table draw on several sources including EU-OSHA (2014e), EU-OSHA (2002) and EU OSHA (2014)

7.1.2 Definition of Benefits

In economic terms, benefits, it can be argued, refer to the reduction of costs that would otherwise result from accidents and/or ill health. Thus, the term 'costs' may, in some cases, be confusing as it can refer to both the cost of implementation and the cost resulting from investments which reduce expenses in connection with health and safety, these are seen as benefits. In this evaluation, we focus on three types of avoided costs:

- > Direct costs
- > Indirect costs
- > Non-financial costs

Direct costs refer to health care and rehabilitation costs, whereas indirect costs refers to productivity loss, e.g. related to sickness absence. Non-financial costs refer to reduction in quality of life and/or pain and suffering of a disabled worker. Furthermore, we also consider the broader benefits for society at large, i.e. agenda setting and economic growth. These benefits are often denoted intangible, because they are difficult to measure and monetise and might fall on the workers, enterprises, governments or other stakeholders, like trade unions and tax payers.

Table 7-2 shows various type of economic cost resulting from work-related injuries and ill health according to the perspectives identified in the available literature.

Table 7-2 Examples of benefits (avoided costs)

Indirect costs	Direct costs	Administration costs	Insurance costs	Intangible costs
----------------	--------------	----------------------	-----------------	------------------

Workers and families	Loss of present and future income	Medical and rehabilitation costs (out of pocket spending)	Cost of waiting for treatment etc.	Time for claiming benefits Waiting time for treatment	Physical and moral pain and suffering Job satisfaction Motivation
Enterprise	Sick payments Production losses and disturbances Damaged equipment and company image		Cost of reintegration (disabled) workers Legal costs	Insurance premiums	Innovative capacity Company image Quality of products and services
Government	Sick payments State benefits (disability, early retirement) Tax revenue losses	Medical and rehabilitation costs	Administrative and legal costs		Agenda setting (national priorities) Integration of workers Employment and economic growth

Source: This table draw on several sources including EU-OSHA (2014e), EU-OSHA (2002) and EU OSHA (2014)

7.2 Methodologies for cost benefit analyses

In this section, we present some of the ideal methodologies for conducting cost benefit analyses. However, it is beyond the scope of this evaluation to identify and explain all relevant methodologies. A more thorough analysis of the different methodologies has been presented in a number of recent publications, as outlined in Table 7-3.

Table 7-3 Overview of literature focusing mainly on methodology

Author (year), title	Content
EU-OSHA (2014e). Estimating the costs of accidents and ill-health at work: a review of methodologies	This report builds on a comprehensive literature overview regarding methods for assessing cost of accidents and ill health. Thus, this report only concerns potential benefits.
Van Dongen et al (2014). Trial-based economic evaluations in occupational health.	This study outlines the main principles and pitfalls in economic evaluations in occupational health. This article mainly focus on interventions (not legislation)
CEPS, 2013. Assessing the costs and benefits of regulation	The study reviews current methods used to assess the costs and benefits of regulation to strengthen the identification and quantification of costs and benefits in impact assessments. It includes a detailed description and assessment of the SCM and other models to assess substantive compliance costs. The reports also points to future challenges of conducting CBA at the European level.
Uegaki, 2011. Economic evaluation of occupational health interventions from a company's perspective: a systematic review of methods to estimate the costs	This article builds on a systematic literature review of the methods used for assessing the indirect costs of health related productivity. This review only looks at research published in scientific journals. However, it provides a thorough overview of the quality of the methods used for assessing indirect costs from the enterprise perspective (not

of health-related productivity loss	specifically linked to the OSH Directives).
Uegaki. 2010. Economic evaluations of occupational health interventions from a corporate perspective – a systematic review of the methodological quality	This article builds on a systematic literature review to appraise the methodological quality of economic evaluations of occupational safety and health interventions from an enterprise perspective. It only include studies published in scientific journal before 2010.
Drummond et al (2007). Methods for the economic evaluation of health care programmes	This is a standard textbook on economic evaluations of health care programmes. However, the methodologies are useful for other fields of inquiry as well.
EU-OSHA (2002). Inventory of socioeconomic costs of work accidents.	This report builds on a literature. The report presents different categories of costs and benefits from different perspectives and identify useful methodologies. This source is somewhat old. However, it includes good examples of cost items for investment in health and safety.
SCM Network. The international Standard Cost Model Manual	This report outlines the main elements in and approach of the international standard cost model for assessing administrative costs of legislation. This model only concerns administrative costs.

Cost benefit analyses

According to the economic literature on methodology, the most preferable method for assessing the cost and benefit of the OSH acquis is a cost benefit analysis (CBA). The core question in a CBA is to assess whether or not a programme, policy or intervention is worth undertaking by considering whether or not the benefits outweigh the costs. The CBA is one of the most comprehensive types of economic evaluation. However, economic evaluations can also build on partial economic analyses, such as a cost analysis, which only considers the cost of a programme or piece of legislation, or a cost-of-illness analysis, which only considers the economic burden of a certain disease. In practice, a major challenge is typically that data is not available on all costs and benefits. Moreover, there is considerably controversy on which methodology to use to assess costs and benefits (EU-OSHA, 2014f). Later on in this section, we present some alternative methods for assessing costs and benefits respectively.

The CBA is a comparative analysis of alternative courses of actions (e.g. between different interventions, programmes or legislation) in terms of both their costs and benefits. In this type of analysis, the benefits of an intervention/programme or legislation is sought monetized in order to compare costs (Drummond et al, 1997). The CBA might include all costs and benefits for all stakeholders, which implies a societal perspective. However, in occupational research, it is common that CBAs only include the enterprise perspective – often denoted as business cases. A business case relies on data on the cost of the intervention and its effectiveness, and the results are typically interpreted as the difference between monetary benefits and monetary costs. Results are typically calculated as a cost-benefit ratio, a payback period (PP), net present value (NPV), internal rate of return (IRR), or a profitability index (PA) (EU-OSHA, 2014f).

Most OSH interventions are initiated at enterprise level – either to comply with legislation, in an effort to save money or for moral reasons. Consequently, most economic evaluations focus on the employer's perspective. However, this means that important outcomes, such as the value of worker health, are omitted. Moreover, a societal perspective is particularly useful and ensures that there is a net benefit, rather than simply shifting costs from one stakeholder to another (van Dongen, 2014).

Irrespective of perspective, a CBA requires that we have the following information:

- › **Benefits:** The number of accidents *avoided* and reduction in cases of ill health that has been achieved due to implementation of the Directives and a monetary value (unit costs) associated with fewer accidents/ less illness
- › **Costs:** The quantity of resources (e.g. investments, equipment, man-hours) used to comply with legislation and the unit cost of these resources.

We did not identify OSH related CBAs that included the societal perspective. However, in section 7.5.3, we present five selected case studies, which build on the principles of the CBA.

It is important to keep in mind that the complexity and requirements to data increases in accordance with the number of perspectives. Much of the literature available only includes one or a few Member State(s) or only one enterprise (when taking the employer's perspective). Therefore, a key challenge is to assess to what degree limited estimates can be transferred to other Member States (or enterprises) and to what degree these results can be generalized and applied to the entire EU. Therefore, when analysing quantitative estimates of costs and benefits, it is very important to consider exactly what the estimates cover and to what extent they are comparable to other estimates. Two issues are of particular mention:

- › **Benefit transfer**, which is a term that covers the use of estimates originally carried out in another context. Benefit transfer is commonly used with regard to non-marketed goods and services, but also in cases where benefit assessments are, for some reason or other, scarce. However, benefit transfer assumes that the baseline, context and characteristics are the same in the two situations and, if not, that the differences can be detected and corrected for.
- › **Risk of double counting** is a pertinent issue particularly when using estimates from different sources in one CBA or when drawing comparisons across different estimates. To avoid double counting it is important that the type of benefit and/or cost is valued according to a specific estimate, thereby ensuring that a cost item is not (indirectly) taken into account in a (net) benefit estimate and also covered under another cost estimate used in the analysis.

7.2.1 Assessing costs

As outlined previously, several Member States have used the SCM methodology to assess administrative costs and burdens resulting from the implementation of legislation, including OSH legislation. In line with the SCM methodology, the unit cost of an administrative effort consists of a tariff (wage costs plus overhead), which is multiplied by the effort involved. This requires the following information:

- › Time (the amount of time required to complete the administrative activity)
- › Quantity (the size of the population of business affected by the activity each year)

The SCM does include compliance cost, e.g. investments in OSH equipment. To assess compliance costs, detailed information on all activities and resources. Such resources may include staff hours, materials used, depreciation, overhead activities, square feet of office space, and traveling. The fact that workers may transferred from regular production activities in order to participate in activities related to intervention (implementation of the Directive) should be also be accounted for. The resources used can be measured using administrative databases, expert

panels, surveys or interviews with intervention participants and/or providers, intervention operation logs, or observations. Unit prices may be collected from administrative databases, scientific literature, vendors, and/or costing manuals (van Dongen, 2014). A previous report from The Centre for European Policy Studies and Economisti Associati (CEPS, 2010) to the European Commission outlined several models for assessing compliance costs, highlighting their individual strength and weaknesses. Two examples of such models are the Dutch Compliance Model, which mirrors the SCM, and the German Regulatory Cost Model for Citizens. For more details on these models, we refer to the CEPS report.

7.2.2 Assessing benefits

In this evaluation, we refer to benefits in terms of avoided costs, including direct health care costs, indirect productivity losses and non-financial costs in terms of reduced quality of life, and broader societal benefits, like improved company image. The latter benefits are often denoted intangible benefits, because there is no consensus on how to monetise or measure these benefits. Likewise, non-financial benefits also pose a specific challenge. However, they can be sought assessed using a contingent valuation approach such as willingness-to-pay (WTP) based on survey methods. This method is a tool that monetises intangible costs or benefits by asking respondents, *ex ante*, what they would be willing to pay to avoid the occurrence (or reduce the risk of) an event, for example injury or disability. It should be noted though, that a weakness of this approach is that the estimated values, for instance for the loss of life or physical pain and suffering, tend to be very context and job-specific (Drummond et al, 1997).

The assessment of avoided accidents and ill health should, ideally, be based on a randomized controlled trial. In real life this design is often not feasible – especially when evaluating legislation (as no control group exists). Thus, quasi-experimental designs or before- and after designs are often used as an alternatives. While the before and after design is, typically, the most feasible approach, it provides the 'weakest' evidence, because no alternative scenarios are considered – thus making causal inferences less robust. Furthermore, in general, studies utilising a non-randomised controlled trial design have a tendency to overestimate effects.

Getting causalities right is an important challenge in economic evaluations such as these. Careful assessment is necessary to ensure that observed benefits are attributable to the specific intervention, programme or legislation. Faulty assumption on type of causality can have serious repercussions on the validity of the results. For instance, a reduction in sickness absence could be the result of higher attendance, reduced workload or other organisational changes at the workplace (EU-OSHA, 2014f) and thus not be related to the *acquis*.

A specific challenge in assessing costs and benefits of OSH interventions is that while costs are incurred immediately, benefits are harvested at a later point in time and, therefore, the assessment might underestimate the actual value of the net benefits. This is especially the case when considering long-latency diseases, such as cancer (EU-OSHA, 2014f). This is because a discount rate is typically applied in CBA's and opting for a discount rate of 0% would be highly controversial. The choice of discount rate is often debated. Essentially, the discount rate aims to capture normal rates of return, to integrate externalities such as societal impacts and to take account of associated

risks as well as to consider social preferences. The Commission's impact assessment guidelines recommend a discount rate of 4%¹⁰².

7.2.3 Possibilities and challenges of conducting CBA of OSH legislation

To assess the economic benefits of reduction in accidents and ill health in Europe on the basis of avoided costs, two types of information are necessary: 1) the number of avoided cases of accidents and ill health and 2) the monetary value to attach to the identified cases (the unit value). The unit costs to society per incidence of workplace fatality, workplace non-fatal injury and work-related ill health are referred to as the 'appraisal values' (EU-OSHA, 2014e).

The UK is the only country with a national OSH accounting process designed to continuously update aggregate economic costs. Table 7-4 lists the appraisal values from the Health and Safety Executive in the UK (note that these appraisal values cannot directly be transferred to other EU countries). These appraisal values represent the aggregated costs for society. The HSE also estimated costs specifically for workers and employers (data not shown in the table). Whilst the appraisal values reflect a broad range of cost categories, for simplicity of presentation the appraisal values can be divided into two main component costs: non-financial human costs and financial costs. Non-financial human costs represent the value of 'human costs', sometimes described as 'pain, grief and suffering'. Financial costs are the sum of the following:

- › Net lost income, taking into account the offsetting of transfers from one party to another, e.g. benefits payments are a cost to Government, but an equal and opposite offsetting benefit to individuals
- › Cost of insurance and less compensation pay-outs to individuals
- › Production disturbance costs, such as cost of recruitment and work reorganisation
- › Health and rehabilitation costs, such as NHS costs
- › Administrative and legal costs, such as costs of administering benefit claims.

Table 7-4 Unit values for workplace injuries in the UK

Cost to society per case - average appraisal value estimates in Euro (£ in 2012 prices)			
	Non-Financial Human Costs (rounded)	Financial Costs (rounded)	Total Costs (rounded)
Fatal injuries	1,558,200 EUR (1,113,000£)	623,000 EUR (445,000£)	2,181,200 EUR (1,558,000£)
Non-fatal injuries (7 or more days absence)	27,720 EUR (19,800£)	13,580 (9,700£)	41,160 EUR (29,400£)
Non-fatal injuries (up to 6 days absence)	532 EUR (380£)	756 EUR (540£)	1,274 EUR (910£)
Ill-health (7 or more days absence)	26,600 EUR (19,000£)	23,520 EUR (16,800£)	50,120 EUR (35,800£)
Ill-health (up to 6 days	460 EUR (290£)	784 EUR (560£)	1,190 EUR

¹⁰² http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf

absence)			(850£)
----------	--	--	--------

Source: HSE. <http://www.hse.gov.uk/economics/eauappraisal.htm>

An EU-OSHA (2014e) report on estimating the costs of accidents and ill-health at work (based on a comprehensive literature review) conclude that the best approach to an EU-level calculation of costs of accidents and ill-health would rely on an aggregation on national calculations. This, however, requires a more in-depth examination of existing country specific literature and databases (which might not be translated into English) and an analysis of structural difference between Member States. Finally, the most important factor for making international comparisons is a standardisation of national methodologies. In this regard, the authors specifically highlight calculation models developed by the HSE and Safe Work Australia as good practice examples.

A report from the CEPS (Economistri Associati, 2013) for the European Commission analysed the possibilities of assessing the costs and benefits of regulation at the EU-level. The authors conclude that a cost benefit analysis is more challenging when conducted at the EU-level. One of the main problems relates to the data availability. The need to collect data from all Member States, or to extrapolate from some Member States, is complex and time consuming. To date there is no EU-level services dedicated to this particular purpose. Moreover, the multi institution and multi-level nature of EU policymaking makes it difficult to reach a sufficient level of accuracy in the analysis. Thus, at this point in time, it is not possible to conduct a full CBA of the OSH acquis. In the next section, we explain the methodological approach that we have used in the present evaluation.

7.3 Methodological approach in the present evaluation

The development of the methodological approach builds on the previous section that explained the different types of economic evaluation, including the data requirements for conducting a full economic analysis and the possibilities for conducting such an analysis across all MS.

It is beyond the scope of this evaluation to conduct a full cost-benefit analysis. Firstly, we do not have a counterfactual situation for comparison, which is key for conducting a full economic evaluation. Secondly, the literature review has shown that estimates of the appraisal values of work-related accidents in Europe are scarce. Thirdly, an assessment of the costs of implementing the Directives requires detailed information on the specific activities undertaken in order to comply with the Directive(s) from the organisations and enterprises affected by the legislation.

The aim of the evaluation on cost and benefit is to identify which benefits and costs society, employees and employers will incur as a result of the acquis. The analysis of benefits applies the perspective of 'avoided costs' i.e. in terms of reduction in sickness absence, accidents and ill health. Moreover, we also assess broader benefits, including agenda setting, learning, influencing national agendas, motivation of workers, innovation and productivity and employment and economic growth).

The evaluation of costs focuses, in particular, on administrative burdens and costs, as well as compliance costs in conducting risk assessments, carrying out risk management measures, providing training and information for workers, protective and preventive services and health surveillance. Finally, the analyses places particular emphasis on SMEs, assessing whether benefits and burdens are disproportionate to enterprise size.

7.3.1 Approach

The analysis therefore provides a qualitative evaluation of benefits and costs, drawing on available literature, interviews with EU and national stakeholders and the results from the evaluation of the implementation, effectiveness and coherence of the various Directives. When possible, we have also provided quantitative estimates from available literature. Moreover, we have reviewed available literature on e.g. cost benefit analyses of different types OSH interventions in enterprises. We triangulated these data sources in order to discuss and assess exactly which costs and benefits have arisen from implementation of the acquis.

We have answered the previous questions (EQE 1 to 4) in this chapter, using a bottom-up approach, based on the Directive-specific analyses. However, to answer questions EQE 5 and 6 we will rely on a top-down approach. This means that we take our point of departure in the discussion on costs and benefits of the acquis by focusing on the common processes and mechanisms.

We are aware that cost and benefits may differ from one Directive to another, however our focus has been placed on the common processes and mechanisms (CPMs), identified as the most important requirements across the acquis. However, we do include findings from implementation of individual directives when assessing administrative costs and burdens – more specifically when assessing the reporting obligations arising from the acquis.

It should be noted that although the evaluation focuses on the period 2007 -2012 to assess which costs and benefits the acquis brings to society, it can be necessary to look at changes before and after implementing the Directives. Whenever possible, we have focused on the period 2007- 2012.

7.3.2 Overview of data sources

As stated previously, it is beyond the scope of this evaluation to conduct a full economic evaluation and, therefore, we have taken a more pragmatic approach. The basic principle is to triangulate available data and analyse possible mechanisms through which costs and benefits arise from the acquis. In brief, the analysis builds on the following data sources:

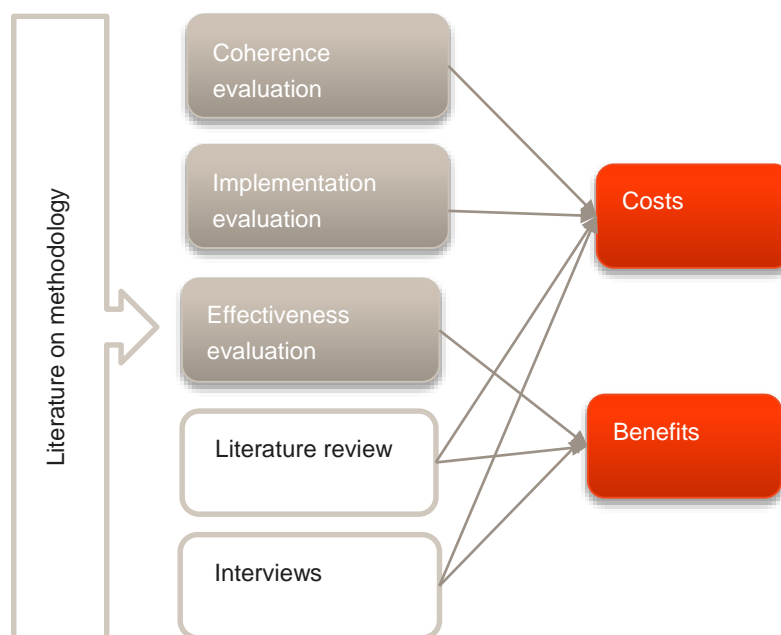
- › Interviews with national and EU-stakeholders on cost and benefits related to the acquis
- › A literature review of other studies including a review of methodologies, estimates of cost and benefits from previous studies and business cases on the profitability of OSH from the enterprise perspective.

Moreover, the analysis will also draw on the results from the evaluation of the implementation, effectiveness and coherence of the acquis including:

- › An assessment of the administrative burdens arising from inconsistencies and overlaps in the legislation (part of the evaluation of coherence)
- › A mapping exercise of the practical implementation of the common processes and mechanisms (part of the evaluation of the implementation)
- › An assessment of the effectiveness regarding health impacts of the acquis (part of the evaluation of the effectiveness)

Figure 7-1 shows the overall framework for the data triangulation.

Figure 7-1 Overview of the combination of data sources



In the next two subsections, we outlined the principles of data collected from the interviews with the stakeholders and the literature review. For more details on the evaluation on effectiveness, implementation and coherence, we refer to the chapter on methods.

Interviews with stakeholders

We interviewed 44 EU-stakeholders from 33 different institutions and organisations. Those represented were workers organisations (n=5), employer organisations (n=17) and others (n=9). Moreover, we interviewed a range of national stakeholders (n=542) including national authorities, labour inspectorates and worker and employer organisations. We asked the national and EU-stakeholders to assess the cost and benefits of the Directives. The interview guide included questions on compliance costs and administrative burdens, as well as direct and indirect benefits and broader benefits. For more information on the interview guide, we refer to 9.6.4Appendix I and 9.6.4Appendix H.

The majority of the EU stakeholder reported that their knowledge was limited and many simply refrained from answering. Moreover, very few provided a quantitative assessment on the magnitude of the costs and burdens and only few stakeholders had strong opinions on the topic. We have therefore not quantified the responses, due to the limited numbers of answers. Instead, we present the various statements qualitatively. However, because the comments and opinions were fragmented, and scarce, they do not allow us to assess whether or not these opinions are shared by the majority or simple an individuals' viewpoint. Consequently, the results should be interpreted with caution. For more information on the interviews, we refer to section 2.4.3 and section 2.4.4

The literature review

We conducted the literature review to identify studies that either quantitatively or qualitative asses the cost and benefits of OSH. The literature review covers reports and article published in scientific journals. We primarily focused on more recent publications (i.e. after 2000). The review includes

sources that present results from other literature or studies, as well as sources that present primary sources and results.

The literature review, however, revealed several shortcomings and weaknesses regarding availability, relevance and methodological quality of the available literature. Most importantly, we did not identify any full CBA of the OSH legislation that looked at the societal perspective – at either Member State or European level. Moreover, the literature reviews rather consistently show that there are few evaluations of OSH initiatives at enterprise level which include or consider monetised benefits. According to Uegaki et al (2010), economic evaluations of OSH are still in their infancy, and several authors conclude that the methodological quality is generally poor (Uegaki, 2010; EU-OSHA, 2014e).

We did, however, identify several studies building on the methodology that investigated both costs and benefits, which we denote as profitability studies. We also identified studies that investigated either costs or benefits of OSH from the societal perspective. The identified studies have been presented in the three tables below. We categorized the literature according to their focus – costs, benefits or profitability (both costs and benefits). However, it should be noted that this serves as an overall categorisation. Thus, whilst we categorised the ISSA study in the table regarding profitability studies, we also refer to this particular study in the analyses of costs and benefits irrespectively.

Some of the shortcomings, in relation to the literature on costs, benefits and the profitability are presented in the following paragraphs. For a more detailed presentation of the individual studies, we refer to the tables. Note, that these tables do not give a full presentation of study content. The tables focus on the information used in the present evaluation.

Table 7-5 lists the literature on **costs** related to OSH regulation, including administrative and substantive compliance costs. We identified three national studies from Ireland (Newell, 2014), Britain (HSE, 2003) and Greece (OECD, 2014) that investigated administrative costs based on the SCM. However, these studies did not differentiate between costs arising from the OSH acquis and those from national transposition. Moreover, only selected obligations were included in the studies. We also identified two studies that investigated compliance costs. The first study investigated compliance costs in Britain focusing on company size (HSE, 2003). The other study included both MS and non-MS (ISSA, 2012). However, this study did not estimate compliance costs stemming from regulation per se –rather from different types of OSH investments that could be related to the acquis. It is also worth noting that there does not seem to be consensus on how to differentiate between administrative costs and compliance cost, and none of the studies explained why some obligations were considered an administrative costs and others not. The report from ETUI (Vogel, 2010) strongly criticises the SCM for differentiating between administrative and substantive compliance costs. We therefore provide a brief overview of some of the main criticisms.

Table 7-6 lists the literature on potential **benefits** of OSH regulation which stem from avoided health care costs, productivity losses and reduced quality-of-life and broader impacts. We, primarily, identified studies from Britain (HSE, 2003 and 2005), the Netherlands (Koningsveld, 2003)) and Australia (Safe Work Australia, 2012). Clearly a major shortcoming is the lack of European studies, as this limits transference of findings (as outlined in the previous section). Moreover, it is important to note that the studies do not present estimates of avoided costs (rather the total costs of work related accidents and ill health). Therefore, the estimates do not show the benefits stemming from the OSH acquis. Finally, our conclusion based on the literature review is that there are insufficient studies investigating broader societal benefits.

Table 7-7 lists literature on costs related to the **profitability** of OSH. It would be preferable to include studies that addressed the societal perspective and focused on OSH legislation. However, all identified studies took point of departure in the enterprises perspective, which meant that important cost and benefits for other stakeholders were ignored. Moreover, a major consideration was, to what degree were the findings from these case studies transferrable to other enterprises. The strength of these studies, however, was that they assessed both costs and benefits building on the principle of a CBA.

Table 7-5 Overview of literature focusing on costs

Author (year), title	Scope and limitations	Type of results
Vogel et al (2010). Better Regulation: a critical assessment. ETUI	This report analyses how the SCM has been used to assess the costs of OSH regulation. The report aims to inform the debate on 'Better Regulation'.	Critical viewpoint of the shortcomings of the SCM in relation to OSH.
OECD (2014). Measurement and reduction of administrative burdens in 13 sectors in Greece	This study assess information obligations stemming from OSH and Employment relations legislation in Greece based on the SCM. The assessment relies on interviews with business and experts (no information of number of participants).	Quantitative estimates of the costs of information obligations of OSH in Greece (include costs from legislation at national and EU level).
Newell (2014). Workplace health and safety: Establishing the administrative burden of regulation, and assessing the use of information as a means of addressing the burden and improving perceptions	This dissertation assesses the level of OSH awareness and administrative burdens of OSH legislation based on a survey among Irish enterprises (n=205).	Quantitative estimates (percentages) of the compliance and self-evaluated burden of the OSH legislation (the enterprises ranked different requirements in terms of their economic burden).
EU-OSHA (2010). European incentives to improve occupational safety and health: a review from the European perspective	This review evaluates existing systems providing economic incentives for OSH in Europe to motivate enterprises to improve OSH.	The report offers best practice recommendations and summarises the effectiveness of different economic incentive schemes.
The Department for Business, Enterprises and Regulatory Reform (2009). The good guidance guide: taking uncertainty out of regulation.	This report investigates SMEs view of government guidance from 750 SMEs and from over 90 face to face consultations with SMEs.	Provide insight into the experience of SMEs regarding their use of accompanying measures.
The Department for Business, Enterprises and Regulatory Reform (2008). Improving outcomes for health and safety.	The review considered how OSH regulation affects Enterprises where the overall risk of injury or ill health is relatively low, focusing in particular on SMEs. The review was based 120 formal responses and held over 50 with different OSH stakeholders.	Provide information on the advantages and disadvantages of using external consultancy – especially for SMEs.
HSE (2003) Cost of compliance with health and safety requirements in SMEs.	This study (n=2.015 enterprises) combined with on-site visits (n=30 enterprises) to assess to what extent the cost of OSH compliance are disproportionate across different sizes of sectors. It included enterprises from five sectors (agriculture/forestry, construction, manufacturing, transport and health). As well as general health and safety expenditure, five pieces of regulation were chosen to be included in the study. These were Management of Health and Safety at Work, Control of Pesticides, Control of Substances Hazardous to Health (COSHH), Manual Handling Operations and Noise.	Quantitative estimates (in pounds) on the cost of health and safety in the previous 12 months. The study provides estimates for different types of legislation and specific requirements, like risk assessments. The estimates are presented as the absolute amount per enterprise and the average spend per employee.

HSE (2005) Annex 2: The administrative burden Measurement Exercise (ABME)	The ABME was a cross-government exercise, carried out in 2005, to assess the cost of administrative burdens in Britain. It estimated the cost to business associated with complying with administrative tasks (form filling, record keeping etc.) to calculate an estimated total annual administrative cost of all legislation in force in May 2005. No information on the data collection.	Quantitative estimates (in pounds) of the administrative burden of health and safety legislation. Moreover, a list of the most burdensome requirements are given.
---	--	---

Table 7-6 Overview of literature focusing on benefits

Author (year), title	Scope and limitations	Type of results
HSE. Cost to Britain of workplace fatalities and self-reported injuries and ill-health in 2012/2013*	The results only concerns Britain. However, the methodology used is to date the most comprehensive and represent one of the most reliable estimates of the potential benefits of OSH.	Estimates (in £) of avoided costs of ill health and accidents by perspective and type of costs including direct, indirect and reduced quality-of-life (in percentage as total costs). This study also include time trends and the percentage of costs attributable to incidences causes under and over six days of absence.
Safe work Australia (2012). The cost of work-related injury and illness for Australian employers, workers and the community 2008-2009*	This report presents estimates of avoided costs related to work-related injuries and ill health for Australian employers, workers and the community. This report does not cover MS	Estimates of work related ill health and accidents by perspective (in percentage of total costs) and by type of costs (direct and indirect). This study also provides estimates according to the severity of the incidence including short and long absence, partial and full incapacity and fatalities.
Haslam et al (2010). Perceptions of occupational injury and illness costs by size of organisation	This study explores the extent to which organizations monitor and use information on accidents and ill health. Interviews were conducted with 212 representatives from 49 small- and medium-sized enterprises (SMEs) and 80 large organizations. Only enterprises from the UK participated in the study. Moreover, the study do not present estimates of cost.	Results are presented as percentages of enterprises on their assessment of the financial impact of accidents and ill health.
Eurostat (2004), Statistical analysis of socio-economic costs of accidents at work in the EU-Union	This report presents the results from a pilot study to estimate the costs of accidents based on data from LFS and ESAW and a survey among companies and victims of accidents at work. Several shortcomings were reported. First, only enterprises from 3 MS participated. Second, enterprises found it difficult to assess health care and rehabilitation costs. Third, only the costs of ill health were not included.	Estimates (in EUR) of the cost of accidents in Europe.
Koningsveld et al (2003). National costs of working conditions for workers in the Netherlands in 2001	This study estimated the costs of work related accidents and ill health in the Netherlands. No information on methodology.	This study reports the burden (as a percentage of total costs) according to specific diagnoses.
Rissanen et al (2014). cost of lost labor input. Draft Translation.	This report presents estimates of costs of lost labor input in Finland. The report differentiates between direct costs, denoted as lost labor input, and indirect costs that include all other costs. Because no estimate on indirect costs were available, this assessment builds on the assumption that	The report presents estimates (in EUR) of the total indirect and direct costs of work related accidents and disease.

	indirect costs are 3-4 times higher than the direct costs.	
--	--	--

*This source also provides information on methodology

Table 7-7 Overview of literature focusing on the profitability

Author (year), title	Comments	
European Commission (2011). Socioeconomic cost of accidents at work and work-related ill-health*	This report builds on results from the BenOSH study, which consists of a literature review on the potential benefits of OSH and an economic cost benefit analysis of 56 prevention projects. Only assess the profitability from the enterprise perspective.	This reports provides estimates of OSH investments in different types of enterprises and sectors and for different sizes of enterprises.
EU-OSHA (2014f). The business case for safety and health at work: Cost-benefit analyses of interventions in small and medium-sized enterprises*	EU-OSHA (2014f) reviewed existing case studies (n=91) of economic evaluations from the enterprise perspective. Moreover, 13 new case studies of OSH-related interventions in European SMEs were developed in the course of this study. These interventions were described using a common template and were assessed using a common accounting model. Of the 91 cases studies identified in the literature, the majority of studies came from North America. However, the report also contributed with 13 new case studies – focusing on SMEs. Only considers the profitability from the enterprise perspective.	Estimates of the profitability of the cases studies are expressed in terms of the payback back period
Tompa et al., 2009. A systematic review of workplace ergonomic interventions with economic analysis*	This article presents the result of a systematic literature review of the occupational health and safety intervention literature to synthesize evidence on financial merits of such interventions. Only considers the profitability from the enterprise perspective.	While the economic evaluation of interventions in this literature warrants further expansion, the authors conclude that they found a sufficient number of studies to identify strong, moderate, and limited evidence in certain industry-intervention clusters. The review also provided insights into how the methodological quality of economic evaluations in this literature could be improved.
ISSA (2012). Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health	This study investigated the micro-economic effects of workplace prevention on the company's bottom line based in on interviews with 300 enterprises from 16 countries ¹⁰³ (of which the majority were non-European). The analyses were based on prevention accounting (similar to cost benefit analyses). However, because this study only comprises a few MS transferability of the results for EU might be limited. Moreover, the preventive measures investigated in the study is not directly linked to the requirements in the Directives.	Quantitative estimates (in EUR) of the costs of different preventive measures and benefits (direct, indirect and intangible). This study also present the enterprises assessment of broader impacts. Finally this study assess the profitability in terms of the ROI (return on prevention indicator) representing the ratio between the monetary benefit of prevention and the cost of prevention.

Triangulation of data sources

To assess the cost and benefit of the acquis, we have triangulated the results from the various sources of information, described earlier in this section. This allows us to compare and discuss findings and strengthens the validity of the results.

¹⁰³Australia, Austria, Azerbaijan, Canada, Czech Republic, Germany, Hong Kong, Republic of Korea, Romania, Russian Federation, Singapore, Sweden, Switzerland, Turkey, United States and Viet Nam

The analysis consists of four main themes, which also determines the structure of the remainder of the chapter. These themes include:

- › Administrative costs and burdens (costs)
- › Substantive compliances costs (costs)
- › Avoided cost (benefits)
- › Broader benefits (benefits)
- › Profitability (costs and benefits)

Further, as a basic rule, the sections covering these four themes begin with a general analysis, drawing on findings from the evaluation on implementation, effectiveness and coherence. In the two costs sections, the analysis commences with a review of the different obligations stemming from the OSH acquis. We then present the findings from the EU and national stakeholders and the literature review. Finally, we discuss and triangulate the various data sources. The last section on profitability stands out, as it only draw on case studies from the literature review. Table 7-8 shows the main data sources used in the different sections.

Table 7-8 Data triangulation

	Analysis	Effectiveness, implementation and coherence	Interviews	Literature
Administrative costs and burdens	Review of information obligations stemming from the directives	Input from implementation evaluation on more stringent/detailed requirements in MS	Interviews with national and EU stakeholders on administrative costs and burdens	- HSE (2005) - Newell (2014) - OECD (2014) - Vogel (2010)
Substantive compliance costs	Review of the costs stemming from the CPMs	Input from the implementation evaluation on the level of compliance and national transposition Input from the coherence evaluation on costs due to inconsistencies and overlaps	Interviews with national and EU stakeholders on compliance costs and burdens	- ISSA (2012) - HSE (2003) - The Department for Business, Enterprises and Regulatory Reform (2008, 2009) - Newell (2014) - EU-OSHA, 2010
Benefits (avoided costs)		Input from the effectiveness evaluation on health impacts	Interviews with national stakeholders on benefits	- HSE - Haslam (2010) - Safe work Australia (2012) - Eurostat (2004) - Koningsveld et al (2003) - Rissanen (2014) European Commission (2011)
Broader benefits		Input from the evaluation of the implementation evaluation on	Interviews with national stakeholders on benefits	- ISSA (2012)

		transposition		
Profitability	See Table 7-7.			

7.4 Analysis of compliance costs

In this section, we present the results on the analysis of the compliance costs stemming from the acquis. In accordance with the SCM methodology, we divide the analysis into two parts. In the first part, we investigate administrative costs and in the second part, we look at substantive compliance costs.

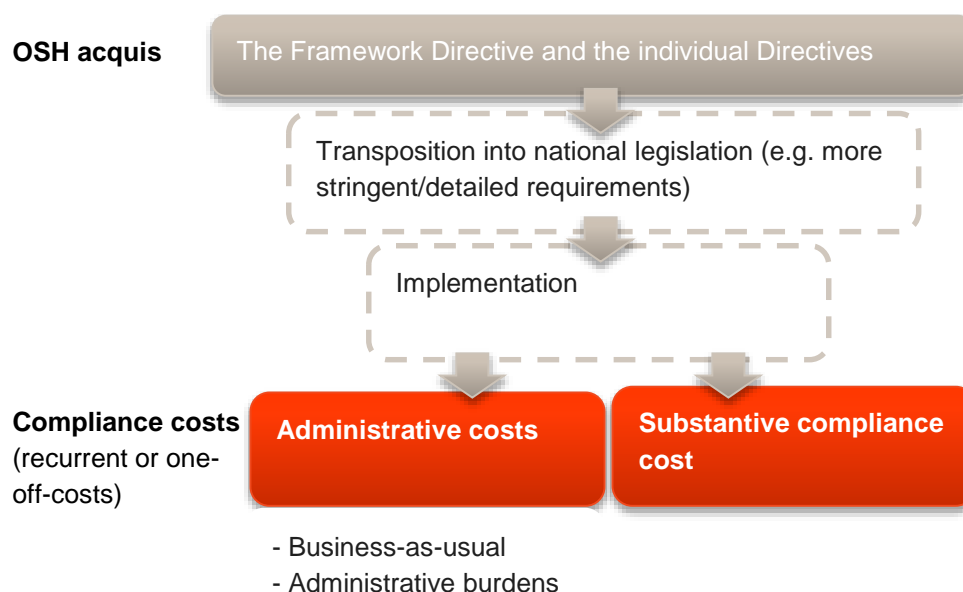
We have outlined the conceptual framework in Figure 7-2. This figure also illustrates that the administrative and substantive compliance costs may stem from the acquis, the national legislation and/or the specific implementation in the enterprises. Previously, in section 7.1, we described the main concepts used in this evaluation in depth.

In brief, compliance costs consist of substantive compliance costs and administrative costs. The administrative costs stem from information and reporting obligations, whereas substantive compliance costs stem from other costs, like investment costs e.g. in new equipment and other health and safety efforts. Moreover, the SCM further divides administrative costs into administrative burdens and business-as-usual. The latter covers activities that the enterprises would carry out regardless of legislative requirements; whilst administrative burdens only include costs that directly stem from legislative requirements (activities that are not part business-as-usual). There are a number of reasons for enterprises to carry out business-as-usual OSH activities. For example, enterprises might wish to achieve OSHAs 18001 certification, or OSH activities might also be a requirement from clients, insurers or partners (Newell, 2014).

In practice, however, the available data does not allow us to make a clear distinction. Firstly, the EU and national stakeholders rarely distinguished between administrative and substantive compliance costs. The main reason is that these are rather technical terms. Secondly, the SCM does not cover substantive costs, and we therefore included costs studies that used different terminology (not separating between the two concepts). Thirdly, the studies that did apply the SCM seemed to classify legal obligations differently.

Finally, we also differentiate between recurrent and one-off-costs. One-off-costs are only sustained once, when enterprises adapt to a new or amended legislation/regulation or make an investment in health and safety equipment. Recurrent costs refers to obligations that regularly, irregularly or constantly arise when complying with the legislation.

Figure 7-2 Overview of costs stemming from the OSH acquis



7.4.1 Administrative costs and burdens

We present the findings from the different data sources separately. We begin this section with the analysis on reporting obligations arising from the OSH acquis followed by findings from the interviews with EU and national stakeholders and the literature review. Finally, we discuss and triangulate the findings from the different data sources.

Reporting obligations

We screened all directives to identify the following administrative obligations, which we denote as reporting obligations:

- › The obligation to supply information (on request or automatically) to the competent authorities
- › The obligation to keep certain documents at the workplace (e.g. health record, explosion protection document, risk assessment) in view, for example, of an inspection.

Next, we assess whether the identified reporting obligations are one-off-costs or recurrent costs, and finally we discuss to what degree the reporting obligations are likely to differ between Member States and individual enterprises. However, the Country Summary Reports, which analysed the national transposition, did not specifically focus on reporting obligations, but on the transposition of the CPMs. Differences among Member States is therefore analysed in greater depth in the next section on substantive compliance costs related to the CPMs.

We found that 15 out of the 24 Directives contain reporting obligations. The remaining nine directives, shown in

Table 7-9, do not contain reporting obligations. Moreover, this table shows that none of the worker specific directives contains reporting obligations.

Table 7-9 Directives that do not contain reporting obligations

General Directives	Hazard specific Directives	Worker specific
Council Directive 89/654/EEC (workplace)	Council Directive 90/269/EEC (manual handling of loads)	Council Directive 92/85/EEC (pregnant/breastfeeding workers)
Council Directive 89/656/EEC (PPE)	Council Directive 90/270/EEC (display screen equipment)	Council Directive 91/383/EEC (temporary workers)
Council Directive 92/58/EEC (OSH signs)	Directive 2006/25/EC (artificial optical radiation)	Council Directive 94/33/EC (young people at work)

Table 7-10 shows that the majority of the obligations fall on enterprises. In four directives, one or more reporting obligations fall on the relevant authority (government). For instance, the Asbestos Directive (article 21) states that Member States *"shall keep a register of recognised cases of asbestosis and mesothelioma"* and Article 9 on prohibitions in the Chemical Agents at Work Directive states "that the competent authority shall request the employer to submit the following information...(.)..". Likewise, in the Noise and EMF Directive, MS must report the use of derogations to the Commission. Moreover, the MS are also obligated to submit a single report on the practical implementation (Article 17a in the Framework Directive). However, it is also important to note that many of the reporting obligations falling on the enterprises indirectly and implicitly implies administrative burdens on the national authorities. For instance, Article 17 in the Biological Agents Directive states that the Commission shall have access on data on fatal accidents and disease resulting from exposure to biological agents. However, it does not explicitly state that MS must report these data to the Commission.

Table 7-10 Overview of Directives containing reporting obligations by perspective

	Enterprise	Government
General Directives		
Directive 89/391/EEC (Framework Directive)	Yes	
Directive 2009/104/EC (work equipment)	Yes	
Hazard specific		
Directive 2002/44/EC (vibration)	Yes	
Directive 2003/10/EC (noise)	Yes	Yes
Directive 2004/37/EC (carcinogens or mutagens)	Yes	
Council Directive 98/24/EC (chemical agents at work)	Yes	Yes
Directive 1999/92/EC (ATEX)	Yes	
Directive 2000/54/EC (biological agents)	Yes	
Directive 2009/148/EC (asbestos)	Yes	Yes
Directive 2013/35/EU (electromagnetic fields)	Yes	Yes
Sector specific		
Council Directive 92/57/EEC (temporary or mobile construction sites)	Yes	
Council Directive 92/104/EEC (surface and underground mineral-extracting industries)	Yes	

Council Directive 92/91/EEC (mineral-extracting industries through drilling)	Yes	
Council Directive 92/29/EEC (medical treatment on board vessels)	Yes	
Council Directive 93/103/EC (work on board fishing vessels)	Yes	

The following three tables show the specific reporting obligations stemming from the acquis. A general observation was that the Directives do not specify reporting frequencies. Instead, the frequency depends on workplace operations or stipulations in national legislation. Moreover, the reporting obligations are recurrent costs that will occur at irregular intervals (as the SCM specifies that only the introduction of new or amending legislation will impose a one-off cost).

Table 7-11 shows the reporting obligations stemming from the general directives, including the Framework Directive and The Work Equipment Directive. The Framework Directive does not specify any reporting frequencies. More specifically, the Framework Directives states that: "Member States shall define, in the light of the nature of the activities and size of the undertakings, the obligations to be met by the different categories of undertakings in respect of the drawing-up of the documents provided for in paragraph 1 (a) and (b) and when preparing the documents provided for in paragraph 1 (c) and (d)".

However, the analysis shows that, invariably, frequency will depend on workplace operations and activities, as shown in the examples below:

- › Regarding the obligation to record the inspections of work equipment in the Work Equipment Directive, the directive states that inspection must to place before and after installation of new equipment or if moved to a new site or location. Thus, this reporting obligation depends on the installation activities at the workplace.
- › In the Temporary or mobile construction sites Directive, it is specified that the employer must draw up the health and safety plan before setting up the construction site. Likewise, the client or the project supervisor must communicate a prior note to the relevant authority before the work starts. Further, the [Non-binding Guidance for Good Practice for Understanding and Implementing Council Directive 92/57/EEC](#) explains that the safety and health plan is a dynamic document that should be updated throughout the project.
- › In the Mineral extracting Directive, it is specified that the health and safety plan must *"be drawn up prior to the commencement of work and be revised if the workplace has undergone major changes, extensions or conversions"*.

Table 7-11 Information obligations stemming from the general directives

Directive	Information obligations
Directive 89/391/EEC (Framework Directive)	<p>Article 9:</p> <p>1. "The employer shall:</p> <p>(a) be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks;</p> <p>(c) keep a list of occupational accidents resulting in a worker being unfit for</p>

	work for more than three working days; (d) draw up, for the responsible authorities and in accordance with national laws and/ or practices, reports on occupational accidents suffered by his workers".
Directive 2009/104/EC (Work equipment)	Article 5: Inspection of work equipment 3."The results of inspections shall be recorded and kept at the disposal of the authorities concerned. They must be kept for a suitable period of time".

Table 7-12 Reporting obligations related to the sector specific directives

Directive	Information obligations
Council Directive 92/57/EEC (temporary or mobile construction sites)	Article 3: Appointment of coordinators — Safety and health plan — Prior notice 2. "The client or the project supervisor shall ensure that prior to the setting up of a construction site a safety and health plan is drawn up in accordance with Article 5 (b)". 3."In the case of constructions sites... the client or the project supervisor shall communicate a prior notice drawn up in accordance with Annex III to the competent authorities before work starts".
Council Directive 92/91/EEC (mineral-extracting industries through drilling)	Article 3: General obligations 2."The employer shall ensure that a document concerning safety and health, hereinafter referred to as 'safety and health document'". 4."The employer shall, without delay, report any serious and/or fatal occupational accidents and situations of serious danger to the competent authorities". Annex, Part A: "Where hydrogen sulphide or other toxic gases are or may be present in the atmosphere, a protection plan detailing the protective equipment available and the preventive measures taken must be held at the disposal of the competent authorities".
Council Directive 92/29/EEC (medical treatment on board vessels)	Article 2.1(c):"Each Member State shall take the measures necessary to ensure that... the content of the medicines and medical equipment included in the medical supplies shall be detailed on a checklist..." Article 3.3:"Each Member State shall take the measures necessary to ensure that... the contents of the medical supplies, as regards antidotes, shall be detailed on a check list..."
Council Directive 93/103/EC (work on board fishing vessels)	Article 3: General provisions 1. "Member States shall take the measures necessary to see that: (c) any occurrences at sea which affect or could affect the safety and health of the workers on board are described in a detailed report to be forwarded to the relevant competent authorities and are recorded carefully and in detail in the ship's log..."

Table 7-13 Overview of reporting obligations by perspective (hazard specific directives)

Directive	Enterprise
Directive 1999/92/EC (ATEX)	Article 8: Explosion protection document: "In carrying out the obligations laid down in Article 4, the employer shall ensure that a document, hereinafter referred to as the 'explosion protection document', is drawn up and kept up to date".
Directive 2000/54/EC (biological agents)	<p>Article 7: Information for the competent authority</p> <p>1. "Where the results of the assessment referred to in Article 3 reveal risk to workers' health or safety, employers shall, when requested, make available to the competent authority appropriate information on..."</p> <p>2. "Employers shall inform forthwith the competent authority of any accident or incident which may have resulted in the release of a biological agent and which could cause severe human infection and/or illness".</p> <p>3. "The list referred to in Article 11 and the medical record referred to in Article 14 shall be made available to the competent authority..."</p> <p>Article 11: List of exposed workers</p> <p>1. "Employers shall keep a list of workers exposed to group 3 and/or group 4 biological agents, indicating the type of work done and, whenever possible, the biological agent to which they have been exposed, as well as records of exposures, accidents and incidents, as appropriate".</p> <p>Article 13: Notification to the competent authority</p> <p>1. "Prior notification shall be made to the competent authority of the use for the first time of..."</p>
Directive 2013/35/EU (electromagnetic fields)	<p>Article 8: Health surveillance</p> <p>2. "The employer shall take appropriate measures to ensure that the doctor and/or the medical authority responsible for the health surveillance has access to the results of the risk assessment referred to in Article 4".</p>
Directive 2009/148/EC (asbestos)	<p>Article 4:</p> <p>3. "The notification referred to in paragraph 2 shall be submitted by the employer to the responsible authority of the Member State, before the work commences, in accordance with national laws, regulations and administrative provisions".</p> <p>Article 13:</p> <p>1. "A plan of work shall be drawn up before demolition work or work on removing asbestos and/or asbestos-containing products from buildings, structures, plant or installations or from ships is started.</p> <p>3. At the request of the competent authorities, the plan referred to in paragraph 1 must be notified to them before the start of the projected work".</p> <p>Article 19.2: "The employer must enter the workers responsible for carrying out the activities referred to in Article 3(1) in a register..."</p> <p>Article 21: "Member States shall keep a register of recognised cases of asbestosis and mesothelioma".</p>
Directive 2002/44/EC (vibration)	<p>Article 8: Health surveillance</p> <p>2. "Member States shall establish arrangements to ensure that, for each worker who undergoes health surveillance in accordance with paragraph 1, individual health records are made and kept up-to-date. Health records shall contain a summary of the results of the health surveillance carried out. They shall be kept in a suitable form so as to permit any consultation at a later date, taking into account any confidentiality. Copies of the appropriate records shall be supplied to the competent authority on request. The individual worker shall, at his request, have access to the health records relating to him personally".</p>
Directive	Article 10: Health surveillance

2003/10/EC (noise)	<p>3. "Member States shall establish arrangements to ensure that, for each worker who undergoes surveillance in accordance with paragraphs 1 and 2, individual health records are made and kept up to date. Health records shall contain a summary of the results of the health surveillance carried out. They shall be kept in a suitable form so as to permit any consultation at a later date, taking into account any confidentiality. Copies of the appropriate records shall be supplied to the competent authority on request. The individual worker shall, at his or her request, have access to the health records relating to him or her personally".</p> <p>Article 11: Derogations</p> <p>3. "Every four years Member States shall forward to the Commission a list of derogations referred to in paragraph"</p>
Directive 2004/37/EC (carcinogens or mutagens)	<p>Article 3: Scope — determination and assessment of risks</p> <p>2. "The employer shall supply the authorities responsible at their request with the information used for making the assessment".</p> <p>Article 4: Reduction and replacement</p> <p>2. "The employer shall, upon request, submit the findings of his investigations to the relevant authorities".</p> <p>Article 6: Information for the competent authority</p> <p>"Where the results of the assessment referred to in Article 3(2) reveal a risk to workers' health or safety, employers shall, when requested, make available to the competent authority appropriate information on..."</p> <p>Article 14: Health surveillance</p> <p>8. "All cases of cancer identified in accordance with national laws and/or practice as resulting from occupational exposure to a carcinogen or mutagen shall be notified to the competent authority".</p> <p>Article 15: Record-keeping</p> <p>2. "Those documents shall be made available to the responsible authority in cases where the undertaking ceases activity, in accordance with national laws and/or practice".</p>
Council Directive 98/24/EC (chemical agents at work)	<p>Article 10: Health surveillance</p> <p>"...Copies of the appropriate records shall be supplied to the competent authority on request. The individual worker shall, at his request, have access to the health and exposure records relating to him personally. Where an undertaking ceases to trade, the health and exposure records shall be made available to the competent authority".</p> <p>Article 9: Prohibitions</p> <p>3. "When derogations are permitted pursuant to paragraph 2, the competent authority shall request the employer to submit the following information..."</p>

Differences in national legislation

It is important to note that the OSH Directives lay down minimum requirements. This means that the national legislation can vary (i.e. impose more detailed or protective measures), but cannot set requirements that contradict those of the directives e.g. less stringent limit values. In this evaluation, we focused on more stringent/detailed requirements related to CPMs. However, we did identify two examples of more detailed/stringent requirements implemented in several Member States relating to reporting obligations. For example, regarding the Construction Sites Directive 92/57/EEC, several Member States impose minimum qualifications with regard to coordinators, or require a signed document for the appointment of a health and safety coordinator for a construction site and of his/her acceptance (whereas Directive 92/57/EEC only requires this appointment).

Another example is the requirement that undertakings carrying out demolition or asbestos removal work should be in possession of an official licence (while Directive 2009/148/EC (asbestos) only requires firms to provide evidence of their ability in this field). We also assess more stringent/detailed requirements in relation to the assessment of the compliance costs in section 7.4.2.

EU and national stakeholders viewpoint

We asked the national and EU-stakeholders to assess if the Directives led to administrative costs or burdens. The main opinion among the EU-stakeholders is that, if any, administrative costs or burdens are driven by the national transposition of the Directive, rather than by the Directive itself. This is contradictory to the national stakeholders, who express the opinion that the Framework Directive has caused an increase in administrative costs (albeit to lesser extent than the increase in compliance costs, which we will discuss later). This view should, however, only be seen as an indication, as many of the stakeholders found it difficult to answer this interview question. In addition, there seems little consensus on what is covered by administrative costs.

Findings from the literature review

We now present findings from three recent national studies (Ireland, Greece and the UK) investigating administrative costs and burdens of OHS legislation. Note that the studies do not cover the same obligations, nor do they use the same methodology. Moreover, the studies also address costs stemming from national legislation and is therefore not restricted to burdens arising from the Directives.

In Greece, OECD (2014) investigated administrative costs and burdens from information obligations related to OSH and employment relation regulation based on interviews with business of the experts. The analysis included information obligations stemming from EU and national legislation as well as other regulation, but only covered a selection of all obligations relevant to OSH and Employment Relations¹⁰⁴:

- › Obligation to report within 24 hours accidents at work (The Framework Directive)
- › Obligation to keep records relating to health and safety and physical agents - noise, vibration and optical radiation (the Framework Directive and the Vibration, Noise and Artificial Optical Radiation Directive)
- › Obligation to report and keep records relating to health and safety on construction sites (Temporary and Mobile Construction sites)

The OECD analyses found that the most burdensome information obligation related to OSH, is the obligation to report and keep records relating to health and safety on construction sites. However, a high percentage (80%) of this obligation was business-as-usual, which means that the enterprises would continue to fulfil this obligation irrespective of the legislation. The same applies for the two other obligations. Because administrative burdens only include those activities that are not business as usual, it follows that the actual burden is rather small. In Table 7-14, we have

¹⁰⁴ Obligation to report information about individual employee joining and leaving an employer, Obligation to report and update the annual personnel list to the Labour Inspectorate, Obligation to maintain and retain records of employees annual leave, Obligation to produce payslips including minimum wage information and retain payslip records

summarised some of the main findings as regards information obligations related to the OSH Directives.

Table 7-14 Cost of selected information OSH obligations in Greece

Directive	Information obligations	Main findings
Directive 89/391/EEC (Framework Directive)	Obligation to report within 24 hours accidents at work	This obligation was one of the least burdensome information obligations and 70% was considered business-as usual. The actual practices vary significantly from enterprise to enterprise. However, most of the interviewed enterprises announced accidents by fax.
Directive 89/391/EEC (Framework Directive) Directive 2002/44/EC (vibration) Directive 2003/10/EC (noise) Directive 2006/25/EC (artificial optical radiation)	Obligation to keep records relating to health and safety and physical agents - noise, vibration and optical radiation	Most of this obligation is perceived as business as usual (80%) due to internal safety standards in the enterprises or the service requirements set forth by manufacturers. It is also worth noting that most of the enterprises states that they would perform measurements irrespective of the obligation to assess how equipment is performing and whether there is a need of service.
Directive 92/57/EEC (temporary or mobile construction sites)	Obligation to report and keep records relating to health and safety on construction sites	The process of maintain records relating to health and safety on construction sites accounts for a large percentage of the administrative cost assessed in the study. However, the administration costs relating to the costs were considered to be business-as-usual (90%) due to internal quality assurance processes (mainly in large enterprises) and because the records were considered evidence in case of a legal dispute. In terms of compliance, only a small proportion of SMEs appears to comply.

Source: OECD (2014). Measurement and reduction of administrative burdens in 13 sectors in Greece

The Health and Safety Executive (2005) in the UK have also used the SCM to assess the administrative burden of regulation for enterprises in 2005 (the ABME project). The ABME estimated the total annual administrative cost of health and safety legislation to be 2.8 billion EUR (£2.032 billion). Moreover, the ABME identified ten regulations that account for 77% of HSE's total annual costs, shown in Table 7-15. However, there is little available information on the methodology and the content of the specific obligations.

Table 7-15 Top ten health and safety administrative burdens in the UK

UK regulation	Top administrative burdens
Management of Health and Safety at Work Regulations 1999 (transposing the Framework Directive)	Risk management and risk assessment (includes the assessment of risk and the follow-up measures to manage risks)

Gas Safety (Installation and Use) Regulations 1998 ¹⁰⁵	Landlords' gas safety check
Lifting Operations and Lifting Equipment Regulations 1998 (transposing the Work Equipment Directive)	Checking and recording examinations of equipment
Control of Substances Hazardous to Health Regulations 2002 (transposing the Biological Agents, Chemical Agents and the Carcinogens and Mutagens Directive)	Risk assessment Employee training and maintaining records of training
Manual Handling Operations Regulations 1992 (transposing the Manual Handling Directive)	Risk assessment Information to employees
Health and Safety at Work Act 1974 (transposing the Framework Directive)	Health and safety policy statement Health and safety information to employees
Control of Asbestos at Work Regulations 2002 (transposing the Asbestos Directive)	Compiling information on emergency arrangements for the emergency services
Safety Representatives and Safety Committees Regulations 1977 (transposing the Framework Directive)	Providing information to safety representatives to enable them to fulfil their functions
Construction (Design and Management) Regulations 1994 (transposing the Temporary or Mobile Construction Site Directive)	Preparing rules for the management of health and safety. Updating the health and safety file and delivering it to the client on completion of the job
Provision and Use of Work Equipment Regulations 1998 (transposing the Work Equipment Directive)	Checking and recording examinations of equipment

Source: <http://www.hse.gov.uk/simplification/annex2.htm>

Note: This figure takes into account the removal of “business as usual” costs – costs for activities that businesses would do anyway regardless of legislation.

The report from HSE (2005) also highlights the fact that the costs of some requirements are large – simply because the requirements apply to all enterprises, while other requirements only apply to enterprises in a certain sector, which minimises the total cost. This means that costs stemming from requirements that apply for all enterprises (such as risk assessment) can be quite small for the individual enterprise whilst, from the societal perspective, they are very costly. Moreover, HSE also notes that health and safety regulations are of a goal-setting nature, and do not specify, for example, how information is to be disseminated to others, or how records are to be kept. Thus, actual interpretation of legal requirements (by businesses, advisors, insurers, or others) can sometimes contribute towards high administrative costs in complying, rather than the law itself (HSE, 2005). We will provide more information on this topic in section 7.4.2 on compliance costs.

The third study by Newell (2014) is based on a survey among enterprises in Ireland. In the survey, the researchers asked the enterprises to rank the most burdensome OSH administration activities defined by the national OSH legislation. These activities included:

- › OSH training
- › Inspections/audits
- › Safety statements

¹⁰⁵ It is not clear from the report what part of the OSH legislation this particular obligation refer to

- › Contractor-related documentation
- › Records of inspection of work equipment
- › Risk assessments
- › Maintaining a permit to work system
- › Investigation of accidents/incidents

Note that this study did not assess the degree to which obligations were business-as-usual. Moreover, this study did not identify the specific pieces of legislation related to the activities above¹⁰⁶.

Table 7-16 shows that the most burdensome obligation was completing the risk assessment (26% of all respondents). There was no statistically significant difference between small, medium and large enterprises. It is not clear whether risk assessments include preventive health and safety measures.

Table 7-16 *Most burdensome requirements among Irish enterprises*



Source: Newell (2014) Workplace health and safety: Establishing the administrative burden of regulation, and assessing the use of information as a means of addressing the burden and improving perceptions

Although the SCM methodology has been widely applied in several Member States, it has also received a fair amount of criticism. For instance, the SCM is based on the assumption of full compliance and the model provides a limited accuracy of estimates (CEPS, 2013). Moreover, the European Trade Union Institute (ETUI, 2010) has questioned whether or not the SCM is suitable to assess OSH legislation. More specifically, ETUI questions whether legal requirements can be translated into substantive compliance costs and information obligations (administrative costs and

¹⁰⁶ The wording in the questionnaires was "The following list summarises many of the administrative activities that organisations undertake in order to comply with the OSH legislation. Please rate the administrative activities in terms of the amount of time and effort that they take up"

burdens). According to ETUI, the Framework Directive (and most other OSH Directive) contain few detailed substantive rules (such as exposure limits, medical checks etc.). Rather, they lay down general objectives and establish procedures in order to create a management system, which forges a link between health and safety at work as part of a business management system. This makes the distinction between information obligations and other substantive compliance costs meaningless, because the production, processing and passing on of information are the building blocks of that process: "Without regular information input, there cannot be a preventive approach, only case-specific reaction. Without information, consultation of workers and their representatives is meaningless. Without information, public policing and enforcement is reduced to responding to the most serious occurrences like fatal accidents. Without information, there is no hope of integrating health and safety into company strategy". (ETUI, 2010).

Discussion of findings across the data sources

The analysis on reporting obligations stemming from the *acquis* shows that 15 of the 24 Directives contain reporting obligations. None of the worker specific directives have reporting obligations. In general, these obligations falls primarily on the employer. While, a few of the EU stakeholders expressed the opinion that administrative costs, in general, stem from complying with national legislation rather than the OSH *acquis*, national stakeholders do not share this viewpoint. Moreover, available literature, which uses the SCM to assess administrative costs, does not separate between costs stemming from national and/or EU legislation. This limits our ability to draw conclusions. Thus, while more stringent/detailed requirements could increase the administrative costs for enterprises, we cannot draw any firm conclusions based on the available data presented in this section. However, the data points to the implementation at enterprise level as a key factor for determining the costs, because the provisions do not stipulate how and how often requirements must be implemented.

The results from the OECD (2014) study from Greece shows that a high proportion of the administrative cost are business-as-usual and that these costs would therefore exist without legislation. This suggests that the actual administrative burden is low. However, according to the report from CEPS (2013), the assessment of business-as-usual is often arbitrary and even if we base the assessment on interviews with enterprises, it is unclear to what extent they differentiate between what is business-as-usual and what is not. Nevertheless, the aim of the goal-oriented goal-process is the integrate OSH into the general management in the enterprises. Thus, consequently, one could argue that most OSH activities, in principle, will become business-as-usual.

Although the SCM provides a common methodology for assessing administrative costs, several reports have questioned whether findings can be transferred (from one MS to another) due to a low level of accuracy in the estimates (ETUI, 2010; CEPS, 2013,). In the available literature presented here, it is difficult to estimate whether some requirements are more costly than others, as the studies are not directly comparable. Moreover, while two studies show that risk assessments are most costly, it is unclear whether the estimates also include preventive and protective measures.

Finally, administrative costs and burdens are only part of the aggregated costs of compliance. In the next paragraph, we therefore look into the overall compliance costs related to the common processes and mechanisms.

7.4.2 Assessment of the cost of substantive compliance

In this section, we focus on the compliance costs related to the common processes and mechanism (CPMs) including:

- › Risk assessments
- › Internal and/or external preventive and protective services
- › Information and training of workers
- › Health surveillance
- › Consultation of workers

As noted in the beginning of section 7.2.1, separating between substantive compliance costs and administrative costs has proven somewhat difficult in practice. Thus, we are aware that some of the studies presented earlier classified some of the CPMs, such as risk assessment, as administrative costs.

Analysis of the compliance costs related to the CPMs

Initially, we will identify those stakeholders most affected by the provisions, and determine whether the CPMs imply recurrent or one-off-costs. We will then discuss the possible effects of more stringent/detailed requirements, compliance, derogations, overlaps and inconsistencies. This analysis draws on the findings from the chapter on implementation and effectiveness presented earlier in this report and the coherence evaluation presented in Chapter 8.

We described the obligations stemming from the CPMs in chapter 6. Based on an analysis of the content of the obligations, we find that all costs stemming from the CPMs are recurrent costs that fall on the enterprises. Whereas, few of the costs stemming from the CPMs fall on Governments, the OSH acquis will, however, have an indirect effect on Governments. For instance, as outlined in the European Treaty Article 4, Member States are obliged to take appropriate measures to ensure fulfilment of the obligations – that is ensuring enforcement of the Directives. For more information on enforcement we refer to section 4.5.

Previously, in the section 7.4.1, we suggested that the costs stemming from provisions related to reporting obligations are likely to be determined by enterprises practices and working conditions. Likewise, the CPMs are goal-oriented, which means, that the provisions do not stipulate prescriptions on *how* or *how often* enterprises should carry out the different obligations. Moreover, the preventive and protective measures initiated at enterprise level rely on the risk assessment. This strongly suggests that the actual costs, to a large extent, is determined by the enterprises' operations and working environment. However, in this regard, it should be noted that we did identify fundamental differences among the different Directives. While the Framework Directive is clearly goal-oriented (i.e. process-based) other Directives are significantly more prescriptive in their nature (e.g. the DSE Directive).

In the analysis of the national transposition, we also looked for more detailed/stringent requirements, which potentially could imply higher compliance costs for enterprises. The CSRs identified a number of more stringent/detailed requirements related to the scope and relevant definitions as well as provisions setting limit values. In the CSRs, we identified the following examples:

- › In relation to the Directive 98/24/EC (chemical agents), a considerable number of Member States (n=16) set more stringent limits for some substances, or have limits for substances for

which there is no EU limit. Similarly, more stringent limit values have been identified in eight MS, in relation to Directive 2004/37/EC (carcinogens or mutagens).

- › A large number of Member States (n=11) have included domestic servants in the definition of 'employee' when transposing the Framework Directive, setting a broader scope of application.
- › With regard to the PPE Directive, four Member States have extended the scope to include personal protective equipment used by all or some of the emergency or rescue services, when this is excluded from the Directive scope.
- › In relation to the Young Workers Directive, a large number of Member States have set a broader scope albeit in different ways.

For more information on more detailed/stringent requirements, we refer to the Directive Reports.

Assessing whether the national legislation imposes an additional burden is, complex. Firstly, not all detailed/stringent requirements can be categorised as a burden, some simply provide additional information and/or definitions. Secondly, the degree to which implementation becomes a burden might depend on the amount of support available to enterprises, i.e. in terms of accompanying measures to aid a correct and effectively implemented legislation (however developing accompanying measures also come at a cost especially for Governments and social partner, which might imply a shift in costs from enterprises to other stakeholders). Thirdly, many of the MS already had OSH provisions in place before transposing the CPMs. While more stringent/detailed requirements are likely to increase the compliance costs in general, we cannot draw any firm conclusion as to the extent of the costs.

Compliance level

Non-compliance and level of compliance is, in general, an important consideration, when assessing compliance costs. Hypothetically, we would expect compliance costs to be higher in enterprises that fully comply with legislation compared to enterprises with a low level of compliance. At the same time a low level of compliance might also suggest that enterprises find the provisions particularly burdensome. Finally, previously we found that a substantial variation in costs is likely to stem from different practices within the enterprises. While differences in practices might not necessarily reflect the level of compliance, it does present a challenge in assessing the cost of compliance in a normal business (which is the foundation in the SCM model).

Overall, the analysis shows that compliance differs among Directives, Members States and CPMs. Thus, while the analysis generally points to a lower level of compliance among SMEs, lower compliance is primary related to the Construction Directive, the ATEX Directive, the Medical treatment on board vessels Directive and the Vibration Directive. In contrast, some Directives have not resulted in differences in compliance levels for SMEs compared to larger establishments (e.g. Biological Agents Directive and the AOR Directive). According to stakeholder interviews and National implementation Reports, the smaller impact of the OSH provisions on the behavior of SMEs is most often a result of the SMEs, and in particular the microenterprises, facing difficulties in complying with transposed national legislation on occupational safety and health. Financial constraints were mentioned as the key reason for not being able to comply with provisions and to employ and acquire necessary expertise, technical capacity and knowledge (cf. Section 4.7 (MQ7) on SMEs and micro establishments, which contain references and quotes from the NIRs in

question). This finding is in line with the European Commission's Evaluation of the European Strategy 2007-2012 on health and safety at work (European Commission, 2013b).

However, it is interesting that the most cited reason for not conducting risk assess among non-compliant enterprises is not, as expected, that this obligations is perceived to be too burdensome. Rather, the most cited reason for non-compliance is that the enterprises believe that workplace hazards and risks are already known; or they simply believe themselves to have no major OSH problems. This imply that the enterprises perception of relevance might be an important factor for compliance. Later in this section, we elaborate on measures to reduce burden on SMEs.

Derogations

Previously, in section 4.2 and section 6.3, we analysed to what extent Member States made use of derogations and if this use is like to influence the effectiveness of the acquis. In this section we therefore presents the main findings from these analyses to assess if these derogations reduced compliance costs for enterprises.

The CSRs show a mixed picture regarding the MSs use of derogations. MS most frequently make use of derogations laid down in Directive 98/24/EC on Chemical Agents (the prohibition of using certain chemicals) and Directive 94/33/EC on Young Workers (the prohibition of employing young people in the case of adolescents where such derogations are indispensable for their vocational training and the derogation from the prohibition of night work for young people in the case of adolescents and in specific areas of activity). However, there is no data supporting or deputing an impact on the effectiveness. Likewise, we do not have any evidence that the use of derogations should have reduced the burden on enterprises. However, while it is possible that derogations have reduced the burden on enterprises, the analysis of the reporting obligations, presenting in section 7.4.1, showed that derogations are likely to increase the costs for Governments, as we identified specific provisions for reporting obligations relating to the use of derogations.

Costs arising from overlaps and inconsistencies

The analysis of costs arising from overlaps and inconsistencies in legislation draws on the findings presented in chapter 8. For more details, we refer to this chapter, which also presents recommendations. The analysis on internal coherence of the 24 OSH Directives has not resulted in the identification of major coherence issues. There are no contradictory provisions and very little overlap between the OSH Directives. The legal articulation between OSH Directives through in-built mechanisms (e.g. specific scope, without prejudice clauses, exemptions, *lex specialis* principle) has, in most cases, contributed towards reducing overlaps and contradictions between provisions, as explained in chapter 8. Furthermore, among those overlaps identified, the majority do not, in practice, result in double regulation (e.g. double reporting requirements) and therefore do not lead to additional cost when applied by employers.

However, the analysis of compliance (section 4.3) do point out that employers might experience additional burdens resulting from confusion about the requirement to conduct risks assessment as stipulated in the Framework Directive and the most of the Directives regulating specific risks. For instance, employers are at times inclined to believe that several risk assessments should be made (one for each applicable Directive). The confusion arises from the fact that although the CPMs stem from the Framework Directive, they are also (rather sporadically) included in the specific Directives to a varying extent. Some Directives contain specific provisions on all CPMs, while some only contain specific provisions on some of them. Also, when a specific CPM is included in a Directive, it may either contain additional detail or deviations from the CPM, as it is described in the

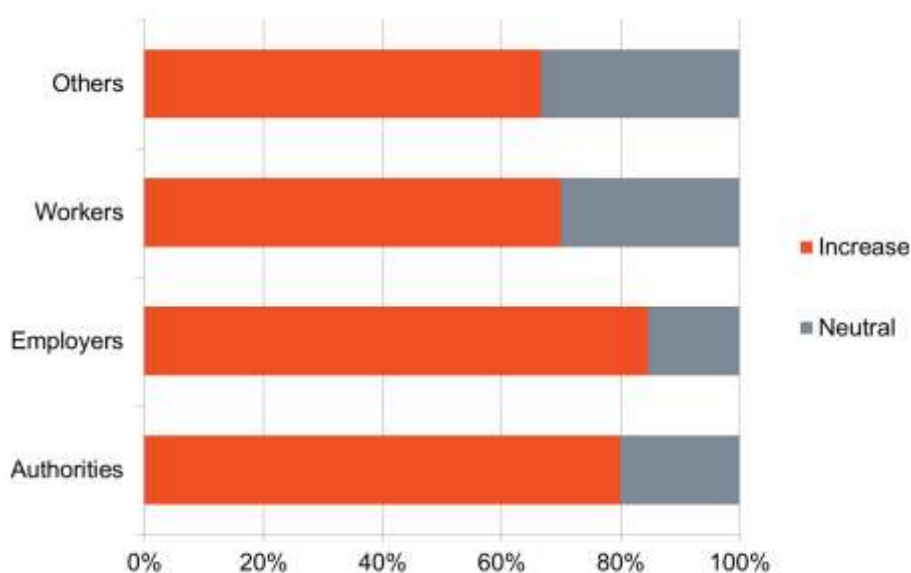
Framework Directive, or it may simply be a statement that the CPM is applicable in accordance with the Framework Directive, although the latter is effectively already established through the application of the Framework Provisions. Thus, this could lead to an increased burden for employers.

Several interfaces were identified between the OSH Directives and other EU measures and/or policies. Among these interfaces, few coherence issues arose. In several instances, international conventions (i.e. 15 ILO Conventions and one IMO Convention) ratified by some Member States set additional or more stringent requirements than the EU acquis. Thus, overall we conclude that no major costs arise from overlaps and/or due to external inconsistencies.

National and EU Stakeholders assessment

Figure 7-3 shows that most Member State stakeholders claim that there have been compliance costs associated with the Framework Directive. Not surprisingly this applies, in most cases, to employers.

Figure 7-3 National stakeholder views on the development of compliance costs due to the Directive



Source: Member State interviews.

Note: Stakeholder views, across all Member States, on the question: "Are employers experiencing increased compliance costs (costs which would not have occurred without the Directive) from the implementation of national legislation based on the Directive(s)?"

Many of the EU stakeholders interviewed found it difficult to put precise figures on actual compliance costs stemming from implementation of the Framework Directive, although many of the national stakeholders (about half) suggested that the additional costs (both compliance and administrative costs) were significant – in particular for SMEs and microenterprises with limited resources, knowledge and time.

However, many of the EU and the Member State stakeholders expressed the opinion that the increased compliance costs could be regarded as an investment in safety and health improvement, and that the increased safety and health benefits, in many cases, outweigh the increased compliance costs. Thus, among many stakeholders there is an awareness and recognition of the

benefits involved in compliance. In other words, compliances costs are often seen as necessary short-term costs incurred with the aim of realising long-term benefits.

It should, in this context, be noted that while risk assessments – as discussed when answering EQE3 – have by many Member State stakeholders been assessed to be the largest contributor to the effectiveness of the Framework Directive, they are not assessed to be the most costly CPM. More stakeholders point to the provision of information and training of workers as the most costly, along with ensuring preventive services and actions such as organising and adapting work to workers in the effort to improve safety and health. Other important cost items include access to safety and health expertise, be it internal or external, as well as the acquisition of equipment to meet proper safety and health standards.

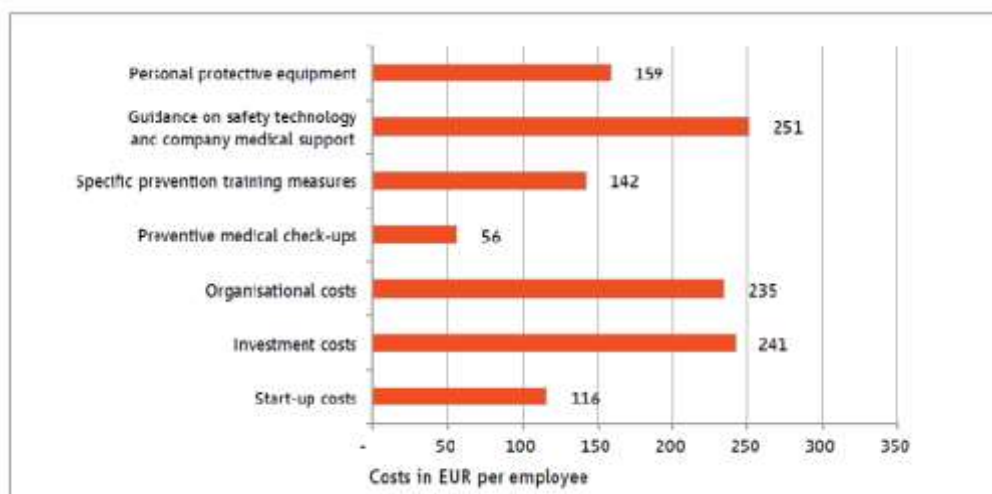
The EU-stakeholders representing authorities and employers assess that the compliance costs are higher among SMEs, because SMEs rarely have the expertise in-house and often have to rely on external experts or consultants.

Findings from the literature review

The International Social Security Association (ISSA) (2012) estimated the cost per employee (in EUR) for different types of OSH activities. The estimate is based on quotations from 300 companies from 16 different countries (of which the majority are non-European countries). It should be noted that the study was not designed to estimate the cost of compliance with the Directive, but to assess the cost of different types of preventive measures. The enterprises were asked to "estimate, for each individual cost type, the occupational safety and health costs (in your currency) per employee accrued by your company in 2009".

Figure 7-4 shows that the most significant costs rated by the enterprises are guidance on safety technology and company medical support, investment costs and organisational costs. The report does not state whether these costs were one-off costs or recurrent costs. Moreover, it is difficult to draw any conclusions regarding the cost of the CPMs from this study, because items were not directly linked to the OSH acquis.

Figure 7-4 Estimates of costs per employee for different OSH activities



Source: ISSA (2013), Calculating the international return on prevention for companies: Costs and benefits of investments in occupational safety and health. ISSA

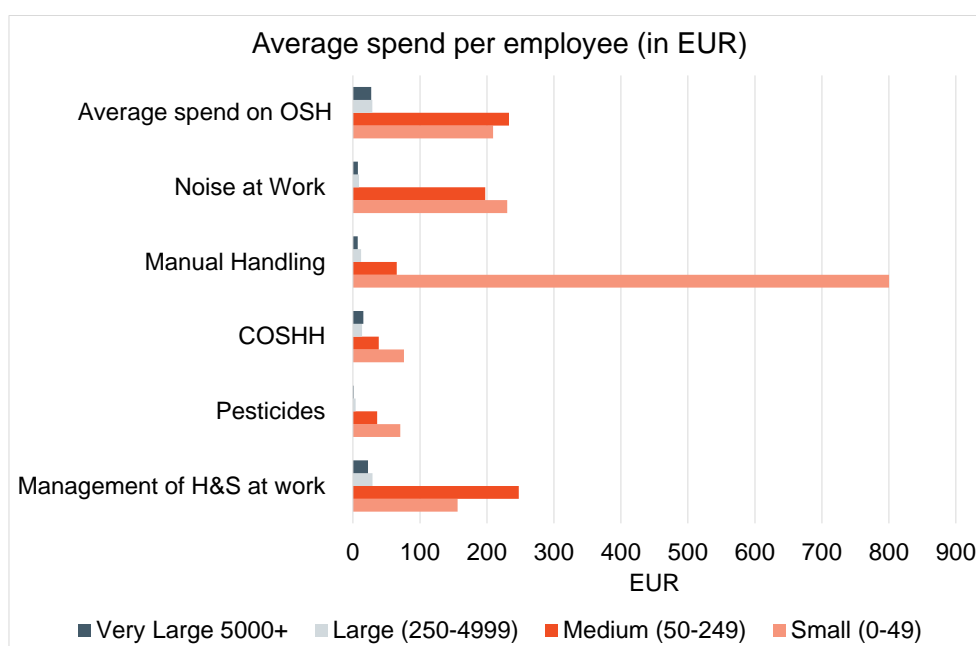
SMEs

The Health and Safety Executive in the UK conducted a large survey study (n=2.015 enterprises), combined with on-site visits (n=30 enterprises), to assess the extent of disproportion in the cost of OSH compliance across differently sized sectors. The study included enterprises from five sectors (agriculture/forestry, construction, manufacturing, transport and health). As well as general health and safety expenditure, five pieces of regulation were included in the study. These were Management of Health and Safety at Work Regulations (transposing the Framework Directive), Control of Pesticides Regulations (Transposing the Biological Agents at Work Directive), Control of Substances Hazardous to Health (COSHH) Regulations (transposing the Carcinogens and Mutagens Directive), Manual Handling Operations Regulations (transposing the Manual Handling Directive) and Noise at Work Regulations (transposing the Noise Directive). It should be noted that the HSE study on compliance costs suffered from a low response rate (10-24% depending on sector) and that the study is not representative for all enterprises in the UK. For more details, we refer to the full report (HSE, 2003).

All respondents in the study estimated how much they had spent on health and safety during the previous 12 months (March 2001 – March 2002). On average, smaller companies spent just over 5,600 EUR (£4,000), compared to more than 37,800 EUR (£27,000) for medium sized companies, almost 588,000 EUR (£420,000) for large organisations, and almost 882,000 (£630,000) for very large organisations.

When calculated per employee, the most noticeable finding, is the relatively small amount spent per employee for large and very large organisations when compared to small and medium-sized organisations. The amount spend per employee is very similar across large and very large organisations. For organisations with less than 250 employees the amounts spend per employee are also broadly similar. There are however some variations in relation to specific regulations. For example, SMEs spent considerably more per employee than larger organisations on the Noise at Work Regulations, Management of Health and Safety at Work Regulations, and on the Manual Handling Regulations, as shown in Figure 7-5 .

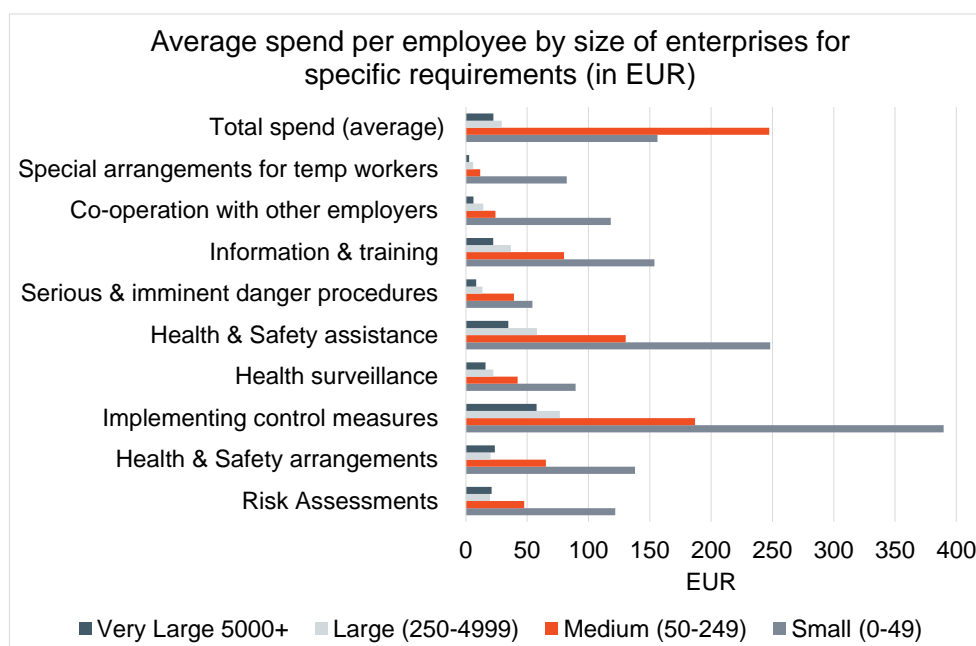
Figure 7-5 Average spend per employee by size of enterprise



Source: Adapted from HSE, 2003. Cost of compliance with health and safety requirements in SMEs.

The study also looked at the costs of more specific requirements under the different pieces of legislation. Figure 7-6 shows the average amount spend per employee in relation to the Management and Safety at Health Regulation. The greatest expenditure by far, relates to implementing control measures, followed by providing health and safety assistance. The smallest average spent amount relates to making other special arrangements for temporary staff, young people etc. and co-operation with employers with whom the respondent organisation shared the workplace.

Figure 7-6 Average spend per employee for action taken in relation to the Management of Health and Safety at Work Regulations



Source: Adapted from HSE, 2003. Cost of compliance with health and safety requirements in SMEs.

For the other pieces of legislation, the study found that:

- › **Noise:** The greatest expenditure was on reducing noise and 'other' actions. These 'other' actions primarily included audiometry tests, noise assessment tests and getting new, quieter equipment. The least expenditure was on maintenance and review.
- › **Manual handling:** The greatest expenditure was on changing work practices and new equipment. The least expenditure was on risk assessments and reviewing assessments
- › **Pesticide control:** The greatest expenditure items were related to controlling and confining application of pesticides and the least was application notifications and restrictions.
- › **COSHH:** The greatest expenditure was on control measures, and the least on the time spent deciding what to do.

In the section on the analysis of compliance costs, we referred to the difference in the goal – oriented and prescriptive approach. We explained the CPMs (as set out in the Framework Directive) is based on a goal-oriented approach. A report from the UK (Department for Business

Enterprise and Regulatory Reform, 2008) suggests that while the goal oriented approach provides enterprises with flexibility, it may give rise to certain challenges for SMEs, especially regarding risk assessments, because this approach requires enterprises to have a degree of OSH understanding and knowledge. However, SMEs often lack specific criteria that can provide them with reassurance of their compliance (which might lead to over- or under compliance). Moreover, SMEs might not know where to look for guidance, including free support from local and national authorities.

Previously in the section on compliance (4.3), we found that the share of risk assessments being performed by internal staff increases along with the size of the establishment. This correlation reflects the fact that large enterprises have the necessary human resources to perform risk assessments in house, while micro enterprises and SMEs are forced to acquire the service from external providers, while having less financial resources at their disposal. According the report from Department for Business Enterprise and Regulatory Reform (2008), third parties (like business consultants, health and safety experts, lawyers, financial service companies, and occupational health professionals) play a significant role in shaping how employers experience and feel about health and safety. Today, health and safety consultancy is one of the fastest growing business-to-business sales sectors in the UK with services to SMEs as a key growth area.

Third parties and the use of external services might affect the costs positively or negatively. On the one hand, competent advice on specific health and safety issues, where this is not already available in-house, is likely to be cheaper for enterprises. On the other hand, third parties are increasingly imposing their own health and safety requirements on business. More and more often, procurers, insurers and training providers demand health and safety assessment, compliance and/or forms of pre-qualification from clients that want to work with them. For many of the employers that face them, these requirements have become a significant source of health and safety bureaucracy.

SMEs in particular struggle to act as informed consumers of third party advice: knowing when –and when not – it is in their interest to buy in health and safety support. This is because they may not know what the law does – and does not – require. Thus, partially because of this lack of knowledge of their legal responsibilities, they are vulnerable to third parties who exaggerate what the law requires and / or the difficulties of self-compliance. Moreover, as mentioned earlier, SMEs are less likely to know what free advice and support is available and the cost of finding out what they need to do and what government advice is available can be high.

Measures to reduce burdens on SMEs

At both EU and national level, policy attempts have been made to reduce the regulatory burdens (including administrative costs) in general and particularly for SMEs. At the EU level, the Better Regulation Program to simplify and generally improve the regulatory environment is designed to cut red tape, improve the quality of regulation and design better laws for consumers and business alike. In a similar vein the REFIT program is the European Commission's Regulatory Fitness and Performance program.

Moreover, in 2007 the European Commission launched the Action Programme for Reducing Administrative Burdens in the EU. The final report of this action programme, however, found that achieving reductions in the administrative burdens of OSH regulation is problematic, as it would be difficult to reduce or remove OSH regulation without negatively impacting the protection afforded by the regulation. In conjunction with the Programme, EU-OSHA developed the Online Interactive

Risk Assessment Tool (OiRA) to assist micro and small enterprises with the risk assessment process (Newell, 2014).

Finally, in 2011 the Commission published a report on minimizing regulatory burden for SMEs and adapting EU regulation to the needs of micro-enterprise. This report outlines the concept of "Think Small First" and sets out how the Commission will use exemptions and specific lighter regimes for SMEs and microenterprises. In response to this report, UEAPME, the European Association of Crafts, Small and Medium Enterprises, published a position paper dated 27 January 2012 highlighting its strong disagreement with the suggestion of exempting micro-enterprises and SMEs from the written risk assessment procedure.^[1] While fully supporting simplification of procedures of record keeping, it highlights that the principle of exempting SMEs from obligations goes against the "Think Small First" principle, which states that legislation should be tailored to the needs of SMEs and not apply only to large companies while leaving SMEs in a legislative vacuum at EU level.

Similarly, on 30 June 2010, the European social partners in the construction industry (namely the European Federation of Building and Woodworkers and the European Construction Industry Federation), representing a particularly dangerous sector from an OSH perspective, published a position paper which stated that "the adoption of the recommendations as proposed by the HLG [High Level Group on Administrative Burdens¹⁰⁷] could endanger one of the main EU social policy pillars, namely occupational health and safety".^[2] It criticised in particular the recommendation to exempt certain companies from written risk assessment procedures, explaining that the risk level in small firms in the construction sector is by no means lower than that in larger companies and that, since the construction sector is characterized by firms of different sizes working together, this distinction would *de facto* mean a discrimination with regard to the right to physical integrity between workers of small and larger companies.

However, it should be noted that in the Communication from the Commission on better regulation for better results from 2015, the Commission states that "many EU rules are as pertinent for smaller business as they are for large companies: a worker business making artisan products have the same right to health and safety protection as someone on the shop floor in a huge factory. But if the legislative framework is too complicated, too burdensome, or too bureaucratic, the risk is that smaller businesses are simply not able to follow it – so workers are not protected".

In the analysis of the national transposition (presented in 4.1) we find that eleven Member States have introduced specific exemptions to the key requirements laid down in the Framework Directive for SMEs and micro-enterprises. The majority of these exemptions relate to having an OSH Committee or similar organisation, having a health and safety representative or worker representative, requirements on training of workers, consultation of workers and information for

^[1] UEAPME, Position Paper, *UEAPME position on the Report from the Commission to the Council and the European Parliament "Minimizing regulatory burden for SMEs – Adapting EU regulation to the needs of micro-enterprises"* (COM (2011) 803 final of 23.11.2011), Brussels, 27.01.2012

¹⁰⁷ The group advises the Commission on how to reduce administrative burdens linked to its legislation. Examples include recommendations concerning the facilitation of electronic invoicing and the exemption of micro enterprises from EU accounting rules

^[2] Joint Position Paper of the European Social Partners in the Construction Industry, *On the findings of the High Level Group (HLG) on the Action Programme for reducing Administrative Burdens in the European Union*, COM(2007) 23 final, Brussels, 30.06.2010

workers and the (written) documentation of risk assessments. On average, the exemptions will apply to those enterprises with fewer than eleven workers.

Fifteen Member States have established a lighter regime for SMEs and micro-enterprises. This lighter regime often relates to different types of preventive and protective services which are to be set up according to the size of the enterprise (n=10).

We also found that almost half of the Member States make use of financial incentives for SMEs and micro-enterprises to encourage compliance with the Framework Directive. There is no apparent 'trend' in the type of financial incentives offered. The box below summarises findings from an EU-OSHA (2010) review of the effects of different incentive schemes for improving enterprises motivation to improve OSH.

Table 7-17 Effectiveness of economic incentives to improve OSH

Effectiveness of economic incentives to improve OSH	
The effectiveness of specific government (external) incentives was not always clear. Findings included that:	
1	Tax reductions can be effective in helping an organisation invest more in OSH. This type of incentive can, obviously, only be effective for organisations paying corporate tax.
2	Linking economic incentives to audits/intervention programmes was another promising way of improving OSH.
3	Matching funds – where governments provide a grant proportional to the amount of money spent by an organisation on workplace health – are a potential method to improve OSH. This type of economic incentive has high administrative costs for both the organisation involved and the government.
Insurance-related economic incentives were an effective way to motivate organisations to invest in OSH. Evidence suggests that economic incentives alter employees' behaviour or incident rates in organisations. There has been a reasonable amount of research regarding experience rating in worker's compensation, which usually consists of a bonus-malus system for insurance premiums based on the individual accident rates of a company. The literature review analysed several research papers about the effectiveness of experience rating and found at least moderate evidence that it reduces the number of insurance claims.	

Source: EU-OSHA (2010). European Incentives to improve occupational safety and health: a review from the European perspective.

In the chapter on the implementation, we also identified a number of accompanying actions initiated at MS level. The evaluation shows that in all MS, without exception, guidance documents are by far the most common initiative in respect to supporting implementation of the Directive. Most accompanying actions and strategies aim at influencing behavioural changes, improving sector and risk specific knowledge and implementing legislation. Furthermore, it is clear that the number of accompanying actions vary greatly from Directive to Directive and from MS to MS. It should be noted that these primarily aim at increasing compliance – not reducing administrative or substantive burdens. However, one could argue that accompanying measure could reduce the burden by simplifying OSH legislation.

However, the EU and national stakeholder expressed a need for more targeted guidance and information documents specifically directed towards certain sectors and, especially, SMEs. Nine Member States have highlighted these SME-related gaps. Stakeholders often called for the development of additional practical documents per sector, especially for SMEs, guiding them

through the drafting of, notably, risk assessments. In that respect, some stakeholders stressed that it is more efficient to highlight and target one topic (risk) per year than to publish extensive reports and brochures.

The quality of guidance and support tools are also crucial. Thus, simply looking at the number of guidance document does not in it-self provide evidence of adequate guidance for SMEs. A report from the Depart of Businesses, Enterprises and Regulatory Reform (2009) in the UK concludes that: "The way that government guidance is currently produced and disseminated leaves SMEs with a great deal of uncertainty, deterring them from using it and creating additional costs for their businesses. Many businesses are unclear about whether following guidance means they have complied with the law. They do not always know where to get the right help. Firms are put off by the amount of information included in guidance and receive conflicting messages from different parts of the Government". Thus, our data strongly indicate that more and better guidance are needed to support implementation in SMEs.

Discussion of findings and data sources

The substantive compliance costs stemming from the CPMs primarily fall on the enterprises. Moreover, because the CMPs are more goal setting than prescriptive in nature, the costs will depend on the enterprises interpretation and operations. Whilst we identified several more stringent/detailed requirements in a large number of MS, it is not possible to conclude whether more/stringent or detailed requirements will impose additional costs for enterprises. Moreover, other factors, such as the availability and quality of accompanying measures and external consultancy might affect costs as well.

A report from the UK finds that the third sector (e.g. insurers and OSH consultancy) have a considerable impact on how enterprises think and feel about OSH. Moreover, the third sector might affect costs negatively or positively. While highly specialised consultant might be cheaper, the third sector increasingly demand health and safety assessment, compliance and/or forms of pre-qualification from clients that want to work with them. For many of the employers that face them, these requirements have become a significant source of health and safety bureaucracy. SMEs in particular struggle to act as informed consumers of third party advice: knowing when –and when not – it is in their interest to buy in health and safety support.

We identified several initiatives to reduce burdens on SMEs at national and EU level, including financial incentives, exemptions and lighter regimes and guidance and support. While, EU social partners representing SMEs do not support the exemption of SMEs from obligations, some evidence exists supporting the effectiveness of financial incentives. Finally, we identified a need for more and better guidance for SMEs that are especially tailored to the needs and challenges faced by SMEs.

The National and EU stakeholder express the opinion that costs are likely to be higher for SMEs. A study from Britain (HSE, 2003) investigated whether the costs stemming from selected OSH obligations increase in accordance with the size of enterprise. The study showed that SMEs spent considerably more per employee than larger enterprises – especially on the Noise at Work Regulations, Management of Health and Safety at Work Regulations, and on the Manual Handling Regulations. Moreover, it is also interesting that this study assessed that risk assessments are one of the least burdensome requirements. This is in contrast to the findings from studies that looked at administrative burdens. It is not possible to compare the estimates from the various studies, as different methodologies have been used. Moreover, the previous studies on administrative burdens

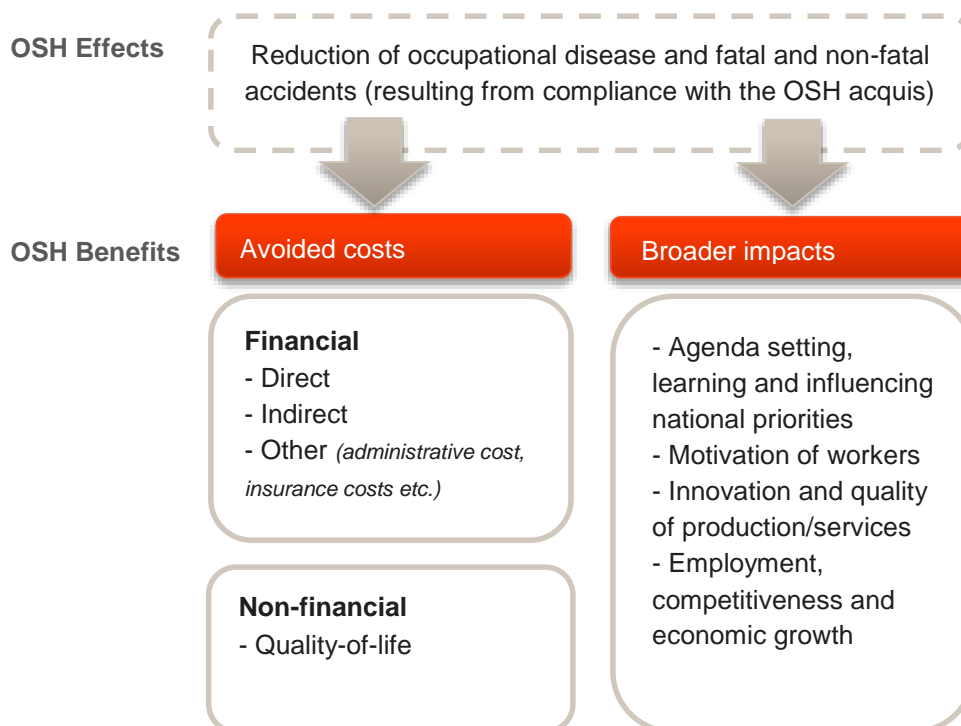
compares information requirements with other administrative burdens, while the HSE study on compliance cost also include substantive cost, e.g. investment costs. Moreover, the studies based on the standard cost model assess the burden of information costs as the sum of costs across all enterprises, while the HSE study calculated the cost per employee, which could be part of the explanation for the different findings. However, it is not always clear from the identified studies if risk assessment includes preventive and protective measures, making comparisons spurious.

7.5 Analysis of benefits

In this section, we present the findings from the analysis of the benefits stemming from the OSH acquis. As outlined previously, we denote the benefits of the Directives as the avoided costs that would otherwise result from cases of accidents and ill health. Moreover, we also look into the broader benefits, which we denote intangible benefits, because we cannot transfer these benefits into a monetary value. Moreover, these benefits might fall on a wider range of stakeholders, including the injured workers' family, trade unions, taxpayers etc. We outline the conceptual framework in Figure 7-7.

As shown in the figure, we also divided avoided costs into financial and non-financial costs. The non-financial costs include quality of life of the worker. The financial costs include direct health care costs related to treatment and rehabilitation of injured and ill workers and the indirect costs relates to productivity losses due to sickness absence and damaged equipment. As shown in the figure, the avoided costs might fall on the worker, the enterprises and the government. For more information on the definitions, we refer to section 7.1.2.

Figure 7-7 Overview of different types of benefits that might arise from the OSH Acquis



We developed the analyses based on information retrieved from interviews with EU and national stakeholders, the literature review and from the previous analyses of the acquis' effect on health and safety.

7.5.1 Avoided costs

The avoided costs of the OSH acquis clearly depend on the extent to which the Directives have had positive effect on work related occupational diseases and accidents. Thus, in the first section, we analyse the avoided costs stemming from the acquis based on findings from the effectiveness evaluation (section 6). Next, we present the findings from the interviews with the EU and national stakeholders followed by the findings from the literature review. Finally, we discuss and triangulate the findings from the different data sources.

Analysis of avoided costs stemming from the acquis

It is important to stress, that there are considerable methodological challenges associated with quantifying and documenting the contribution of the Directives to specific health and safety outcomes. Firstly, there is limited consolidated EU level data available on specific outcomes, and secondly, outcomes are influenced by numerous factors other than those addressed by the Directives. In other words, even where changes can be documented, it would be difficult to isolate the Directive's influence and establish a precise connection between any OSH-related improvement and the identified health outcome.

The evaluation on the effectiveness of the acquis has shown a reduction in the number of workplace fatal and non-fatal accidents. This reduction is, however, can be attributed to a range of different factors, including structural labour market changes, such as, change of job from high-risk economic sectors to lower risk tertiary sectors. Nonetheless, we may in all fairness assume that the reduction in accidents is, at least to some degree, related to the OSH acquis, especially in larger enterprises.

The trend in occupational diseases is less promising and the analysis of the major causes of occupational diseases are likely to remain, such as psychosocial job strain. Moreover, a particular concern is the increasing number of cases of sick leave due to stress or musculoskeletal disorders (not sufficiently covered by the OSH acquis), concerns about risks of nanomaterials and electromagnetic field hazards and biological agents. Moreover, we also identified some cases of unintended (negative) effects, which we present in the last section on broader effects.

However, we cannot conclude that preventive OSH measures do not benefit enterprises and workers. This is exemplified in the cost benefit studies presented in section 7.5.3, which provides case studies showing that interventions to reduce MSDs and work related stress can be profitable for the enterprises.

Finally, it should be noted that while it would be preferable to conduct an evidence based assessment of the impacts and specific contributions of the various CPMs, such an analysis is not possible at this point mainly due to an overall lack of data. However, our research shows that across all Directives, risk assessments were highlighted by both national and EU stakeholders as the most important CPM followed by training, information and the consultation of workers.

EU and national stakeholders viewpoint

The analysis on the Directives' effectiveness showed that the majority of both national and EU stakeholders assessed that the OSH acquis has contributed positively to the safety and health of workers. Moreover, the stakeholders emphasised the importance of risk assessments (although national stakeholders more often than EU stakeholders emphasised the importance of risk assessments). Finally, the interviews with national stakeholders showed that interviewees felt that

injuries and ill health at work might be particularly burdensome to SMEs as major work accidents could result in closure, whereas this is not likely in the case of large companies.

These assessments, however, represent subjective evaluations that cannot be quantified in economic terms. We therefore reviewed the available literature to identify studies or reports that calculated the benefits of OSH regulation on monetary terms.

Findings from the literature review

As reported earlier in section 7.2.3 there is a lack of EU-level estimates of the cost of occupational accidents and ill health in general. In 2003 Eurostat (2004) conducted a pilot study to estimate the costs of accidents based on data from LFS and ESAW and a survey among companies and victims of accidents at work (not work-related illness). Eurostat estimated that in year 2000, the costs of accidents at work are at 55 billion € in EU-15 corresponding to 0.64% of GDP. This was a pilot study, however, and the authors reported several shortcomings in the methodology (as described in section 7.3.2).

Table 7-18 shows estimates presented at a technical meeting that brought together experts to explore means to estimating the costs of poor occupational safety and health at the EU-28 level¹⁰⁸. The meeting built on EU-OSHA's project 'Estimating the cost of accidents and ill health at work'. These estimates show a large variation between MS in the economic burden resulting from accidents and ill health (ranging between 1-3% of GDP). Note that the methods and costing models to derive an estimate for the individual countries vary considerably (for instance, the estimates do not include the same cost categories). Moreover, as shown in the table, the estimates covers different years. Therefore, we caution against comparing these estimates directly.

Table 7-18 Occupational accidents and ill-health as percentage of GDP

MS	Estimate % share of GDP	Year
The Netherlands	3.0	2004
Finland	2.0	2000
Spain	1.7	2004
UK	1.0	2010
Slovenia	3.5	2000
Germany	3.1	2011
Austria	2.7	2008

Source: EU-OSHA, <https://osha.europa.eu/en/seminars/costs-of-poor-osh-towards-an-eu-28-estimate/1-irastorza-eu-osh.pdf>

Type of benefits

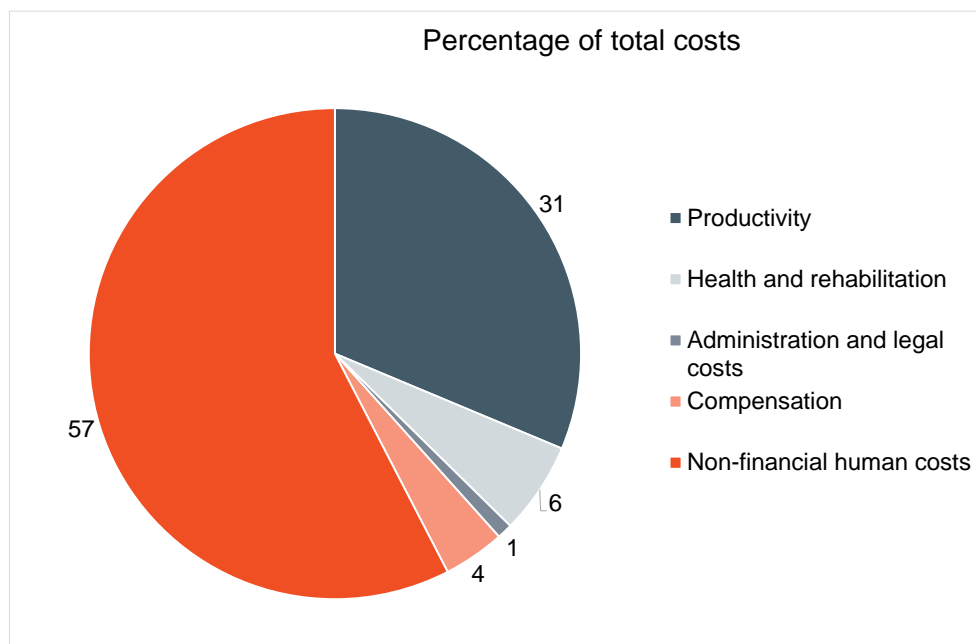
In the section on definitions and methods for assessing benefits, we explained that benefits could be divided into different types of avoided costs including: 1) direct, 2) indirect and 3) other avoided costs. The literature does not allow us to assess the avoided cost per se (as this estimate is derived from the effectiveness of the OSH Acquis). However, we did identify estimates of the total

¹⁰⁸ <https://osha.europa.eu/en/seminars/costs-of-poor-osh-towards-an-eu-28-estimate>

costs of work related accidents and ill health in different countries. We primarily identified studies from Britain, the Netherlands, the US and Australia.

Estimates from the HSE shows that the cost of workplace injury and ill health by type (denoted as cost categories). Figure 7-8 shows that the main costs stems from non-financial quality of life losses accounting for 57% of total costs. Among the financial costs, productivity losses (indirect costs) represent the largest cost accounting for 31% of total costs followed by health and rehabilitation costs (6%), administrative costs (1%) and compensation (insurance costs) (4%).

Figure 7-8 Distribution of types of costs of workplace injuries and ill health in Britain (2012/13)



Source: Adapted from HSE: Costs to Britain of workplace fatalities and self-reported injuries and ill-health 2012/2013

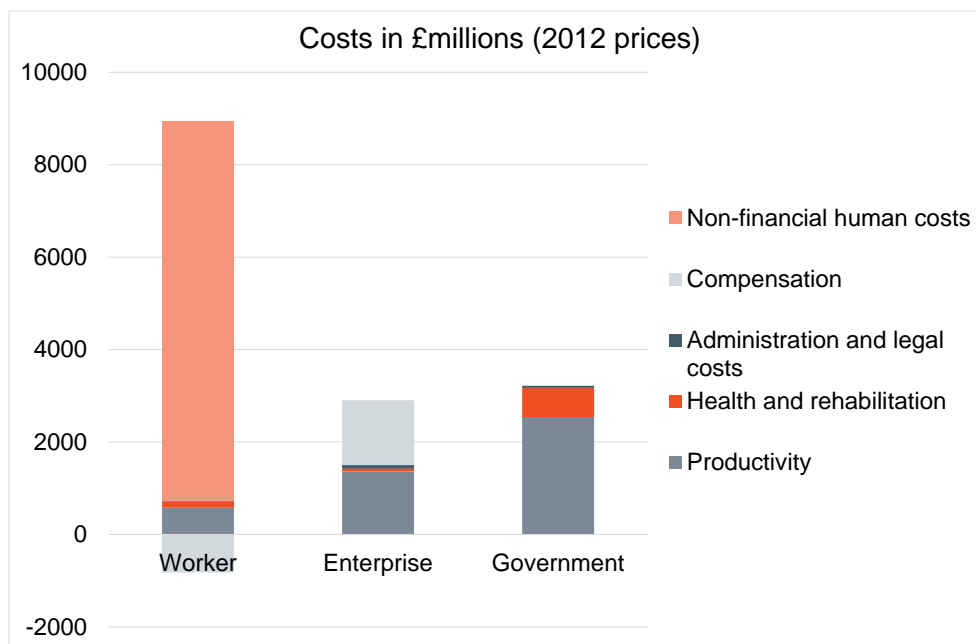
The Ministry of Social Affairs and Health in Finland (2014) also estimated the total costs of direct and indirect costs due to occupational accidents and ill health. However, the Ministry of Social Affairs and Health used a different categorisation of direct and indirect costs than the HSE. The Ministry defined direct costs as lost labour input and health care costs, whereas indirect costs included all other costs, such as lost production, loss of sales, image losses etc. Based on insurance data, the Ministry of Social Affairs and Health estimated the total indirect costs at EUR 487 million in Finland. Moreover, the Ministry noted that there currently no reliable ratio between direct and indirect costs exists, but that a conservative estimating imply that the indirect costs are 3-4 times higher (the report, however, does not specify how this ratio was produced).

Avoided costs differ among stakeholders

Benefits in terms of avoided costs, however, differ among stakeholders, as shown in Figure 7-9. The figure shows that non-financial costs represent the largest burden on workers, while compensation and productivity costs represent the largest burden on enterprises and productivity and health care/rehabilitation costs are the largest burden on governments (note that the compensation costs for workers shows as negative, since it is an inflow for the worker). The figure also shows that the worker and the government bear the main burden of occupational diseases and accidents. Thus, they are the stakeholders most likely to benefit from a positive effect of the OSH acquis.

Healthcare costs represent most of the direct costs of an injury or illness, so require less approximation than other cost types. However, the apportionment of cost to workers and families, government and, to a lesser extent, employers varies tremendously from country to country — or even from condition to condition — according to the healthcare system, and a method or data source useful for one may not apply to the other.

Figure 7-9 Costs of workplace injuries and ill health in Britain (2012/13) by type and stakeholder



Source: Adapted from HSE: Costs to Britain of workplace fatalities and self-reported injuries and ill-health 2012/2013

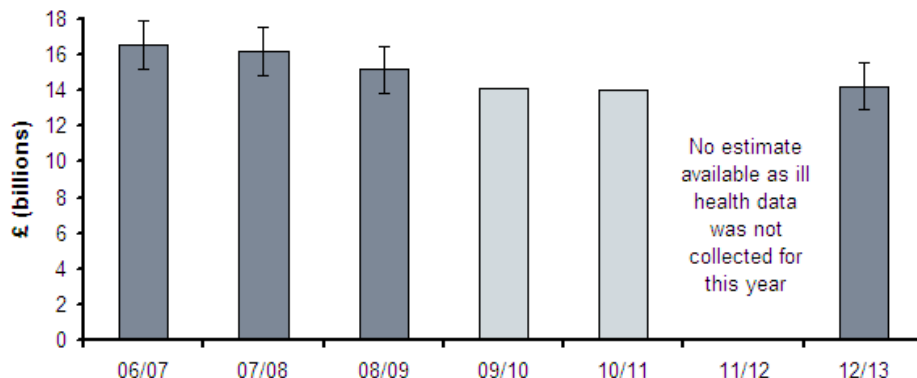
The HSE estimated that 57% of the total costs fell on the workers, whilst 23% fell on the Government and 20% on the enterprises. Estimates from Safe Work Australia (2012) shows a somewhat similar pattern. However, the percentage of the cost of work related injuries and ill health for Australian employers in 2008/09 is only 5% of the total cost, whereas 74% fall on workers and 21% on the Government. Note that the two studies are not directly comparable because of different methodologies and cost items. However, we caution against generalising these estimates to other countries, as previous studies have shown remarkable differences in work status and productivity costs between MS

Figure 7-10 shows the trend in the cost of workplace injuries and ill health. The figure shows that the total costs have fallen by 14% since 2006/07 reflecting downward movements in the number of cases. The total cost shows signs of levelling off in recent years. Although, these numbers might not be directly transferrable to the whole EU, they gives an indication that the decreasing trends in accidents have been followed by a considerable cost saving.

Moreover, the data on trends in fatal accidents showed that in the period 2007 – 2012 the total number of fatal accidents fell from 3,616 to 2,770 in EU. Thus, fatal accidents fell by 22% (838 accidents). While the unit costs from the UK cannot be generalised directly to all MS, a calculation based on these unit costs for fatal accidents gives an impression of the magnitude of avoided costs at the EU level. The appraisal value for fatal accidents (including financial and non-financial costs) was 2,181,200 Euros. Thus, based on this appraisal value the avoided total costs in 2007 -20012

would be 1.8 billion EUR in rounded numbers (522 million EUR from financial costs and 1.3 billion EUR from quality of life costs).

Figure 7-10 Costs to Britain of workplace injuries and new cases of work-related illness, 2006/07 to 2012/13 (2012 prices)



Source: Costs to Britain of workplace fatalities and self-reported injuries and ill-health 2012/2013

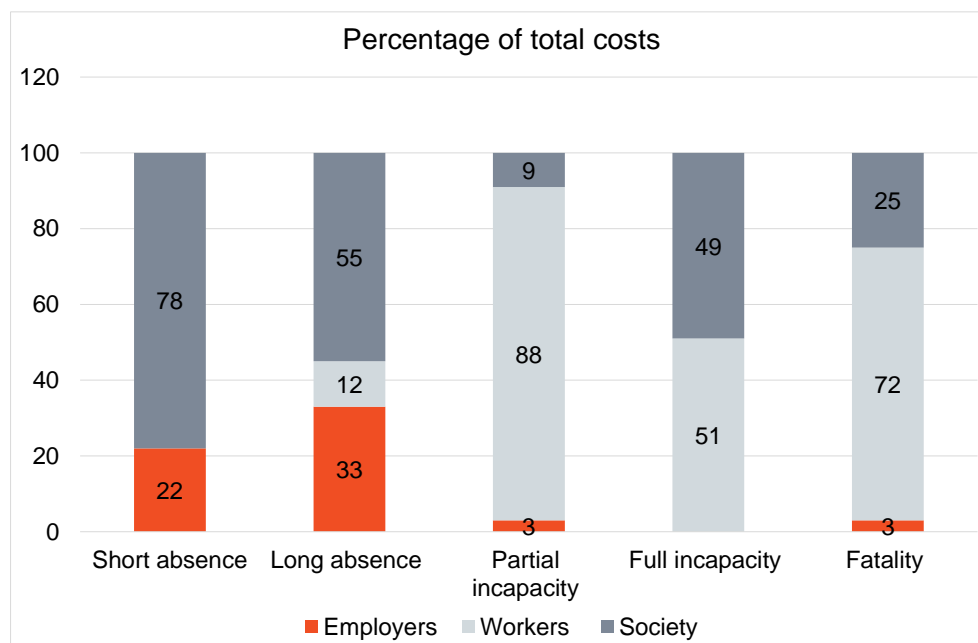
Note: Costs for 2006/07, 2007/08, 2008/09 and 2012/13 are shown in dark grey and include an error bar to show the 95% confidence interval around the estimate. Cost estimates for 2012/13 are independent of cost estimates for 2006/07-2008/09 and can be reliably compared to these.

Furthermore, Health Work Australia (2012) I showed that in the period 2000-01 to 2008-09 the proportion of costs borne by workers increased, while the proportion of costs borne by government decreased. This difference is mainly accounted for by the growth in average weekly earnings and the effect this has on human capital costs and the distribution between worker and government.

Cost rises with the severity of the incidence

The share of costs paid by the worker, employer and society also depends on the type and severity of the health problem. Thus, the share of costs borne by the worker and society rises with the severity, whereas the employer bears most of the costs of short-term injuries and diseases (Safe work Australia, 2012). The HSE study also found that whilst non-fatal injuries and work related injuries resulting in under six days of absence from work account for 65% of cases, their contribution to the total costs are small (less than 5%). Likewise, the BenOSH (EC, 2011) estimated the economic burden of accidents at work and work-related ill health borne by enterprises. Based on 401 case studies, the study found a median of €1,651.54 for cases of low severity, of €4,985.9 for medium severity and of €11,661.69 for high severity.

Figure 7-11 Distribution of total costs of work related injury and illness by severity category 2008-09 in Australia



Source: Safe Work Australia (2012). The cost of work-related injury and illness for Australian employers, workers and community: 2008-09

A recent report from OECD (2010) finds an increase in the number of disability claims because of mental health problems in several MS. Thus, mental health problems are now the biggest single cause for a disability benefit claim in most countries and accounts for almost half of all new claims in Denmark, the Netherlands, Sweden and Switzerland. One major explanation for the increasing number of inflows into disability benefits on grounds of mental health conditions can be attributed to changes in the workplace that have increased the prevalence of work-related stress. In the Netherlands, Koningsveld (2003) estimated (in 2001) that two particular diagnoses are responsible for 83% of the cost of work-related ill health: musculoskeletal disorders (43%) and psychosocial disease (40%). Other diagnoses resulting in relatively high costs are: heart and vascular disease (5%), nervous system including the eyes and ears (4%), and occupational accidents (4%).

SMEs

Quantifying benefits for SMEs has proven to be a very difficult task, because SMEs rarely track the cost and benefits of initiating OSH initiatives. Instead, OSH is often an integral part of management. However, the costs are a particular concern for SMEs, which accounts for 82% of occupational injuries and 90% of all fatal accidents. Furthermore, a serious incident can lead to closure of a business due to the direct costs of dealing with the incident or the loss of contract/customers. For example, 60% of companies that have a disruption, which lasts for more than nine days, go out of business. Thus, it is usually more difficult for SMEs to recover from a serious accident, because key workers cannot easily be replaced and because short-term interruptions to business can lead to dissatisfied clients/breach of contract (European Parliament, 2010).

Despite this, the burden of occupational injury and ill health might be a particular concern among SMEs. Recent research shows that SMEs are less likely to perceive that the injuries and ill health are a substantial cost compared to large companies. A survey among 300 SMEs and 80 large companies show that only 10% of SMEs reported that injuries represent a substantial business

cost (compared to 56% of large companies). Most of the SMEs were unsure about the financial impact of work related illness.

The SMEs did not measure costs related to injuries and only 12% of SME representatives recognized the benefits of costing health and safety failures, whereas two-thirds of those from large organizations recognized some benefit in measuring cost. Finally, the survey also showed that health and safety investments are driven by a range of different factors (not only by cost reduction) and that human cost is also an important consideration for SMEs (Haslam, 2010).

Discussion of findings and data sources

There is no EU-level data on the costs of these accidents – however, some MS have conducted national estimates based on different cost models, and EU-OSHA therefore recommends a standardization of methods to produce reliable EU-level estimates. Based on the national calculations, the costs of work-related accidents and occupational disease range between 1-3.1 % of GDP.

Data from Britain shows that potential benefits in terms of avoided costs primarily stem from non-financial quality of life losses, which accounts for 57% of the total cost work related ill health and accidents. Productivity losses account for 31 %, making it the second largest cost category, whilst health care and other types of costs accounts for 11 %. Thus, the main benefits arising from the OSH Acquis is most likely to stem from reductions in quality of life losses and productivity losses.

Moreover, the data from Britain shows that most of the costs of accidents and ill health fall on the worker (primarily from quality of life losses). Governments bear 23 % of costs and enterprises 20% of costs. These benefits primarily stem from avoided loss of productivity. While governments are slightly more likely to benefit than enterprises (3 percent point), estimates from Australia shows a somewhat larger difference between stakeholder groups. Thus, the distributed of costs might differ considerably from MS to MS.

During the period 2007 – 2012, the costs of accidents and ill health have declined by 14 % in Britain. As reported earlier, we cannot quantify how much of this decline can be attributed to the OSH acquis, but the trends indicate that the OSH acquis have resulted in avoided costs – assuming that the trend in Britain can be extrapolated to other MS. As we outlined in section 7.2.3, generalising from one MS to another is very problematic. Finally, data from different MS shows that mental health problems and MSDs are accounts for the percentage of costs. As the evaluation have shown that these diseases are not currently covered adequately in the acquis and that there is no sign that these diseases have declined, it is also clear that the acquis has not fulfilled its full potential in terms of reducing direct and indirect costs.

7.5.2 Broader benefits

In this section, we take a closer look at the broader benefits, which might include

- › Agenda setting and influencing national priorities
- › Motivation of workers
- › Innovation and quality of production/services

› Employment, competitiveness and economic growth

Moreover, broader benefits might also include unwanted side effects.

Analysis of broader benefits stemming from the acquis

We start out by summarising findings from the evaluation of the health and safety impacts related to broader benefits and the unwanted side effects.

First, the evaluation of the national transposition based on the CSRs shows very clearly that the EU OSH acquis is the reference frame for national OSH regulatory regimes and therefor contributed to agenda setting and have influenced national priorities. The significance of the Directives in setting the scene for OSH regulation in the EU is therefore very high.

Secondly, the evaluation of the compliance at the enterprise level shows that the existence of legal obligations, i.e. national provisions, including enforcement by labour inspectorates, are the most important reason for addressing OSH. The second most highlighted reason for addressing safety and health is the demand of employees and employee representatives, which is a direct result of OSH awareness. While increased awareness on safety issues across the EU is not simply a result of the OSH acquis alone, EU and National stakeholders agree that the OSH acquis, and its accompanying actions, such as campaigns from social partners, have contributed to this increased awareness and thus to workplace impacts.

It is more complex to assess the potential benefits of the OSH acquis on innovation and improved production and services, because technological improvements and innovations might also contribute to better OSH (reverse causality). For example, improved trawling equipment on fishing vessels, improved personal protective equipment, and machinery that produces less noise or vibration, all contribute to the improved safety and health of workers. Yet, to claim that such technological improvements stem from the implementation of the OSH acquis would clearly be a simplification, as technological improvements are largely a result of market demand.

Unwanted side effects

During the evaluation of the implementation and effectiveness, we did come across some potentially unwanted side effects related to the CPMs and the individual directives. Most importantly, we found that stakeholders most often assess the risk assessment to be the most important driver for the effectiveness. However, several stakeholder also points to some unwanted side effects, because the requirement of performing regular risk assessments might divert attention away from the actual goal of managing those risks associated with e.g. certain exposure levels established in other Directives. This issue was repeated and emphasised by several stakeholders at the Validation Seminar held in Brussels on December 9, 2014, as part of the present evaluation. At the Validation Seminar, two overall opinions were repeatedly expressed:

- 1 Risk assessments are an important tool and trigger OSH developments in enterprises, however, the concept should be developed further, and the Framework Directive should introduce a clearer definition of what a risk assessment entails.
- 2 Stakeholders expressed concern that inappropriate emphasis on risk assessments might serve as an obstacle for risk management and preventive measures.

EU and national stakeholders viewpoints

The EU-stakeholders also report several broader effects of the OSH directive. Stakeholders representing employer organisation often report that compliance with the directives leads to improved company image and employment. Stakeholders representing worker organisations report that compliance with the directives leads to higher motivation of workers and more safe development of children. Finally, stakeholders representing authorities assess that the directives ensures more people in the labour force and safe development of children.

Table 7-12 shows the national stakeholders assessment of broader societal effect of the directives. The figure shows that the national stakeholders rate motivation of workers, agenda setting and learning highest. Some differences are seen between different groups of stakeholders and the figure shows that they in general assess these benefits to be small to moderate.

Not surprisingly, the largest impact – but probably least wide ranging – is that of increased awareness and knowledge about occupational safety and health, which is the conclusion of all national stakeholders. This impact has, for example, materialised through the incorporation of accident prevention and safety and health issues into the curriculum in various apprenticeship training programmes. Furthermore, it has materialised via public OSH related databases, which have grown in both scope and number.

The broader or long-term impacts such as productivity, competitiveness and employment are almost equally valued, while there are fewer expectations to innovation. Some stakeholders also argue that gains to competitiveness can be negative, this is especially the case in Member States where the degree of compliance with the legislation is very low. It is also an issue facing micro establishments and SMEs, as the degree of compliance in smaller companies tends to be low. Non-complying small enterprises can, thus, gain a competitive edge in comparison to their complying counterparts; and hence skew competition.

Figure 7-12 Extent to which the transposition of the Framework Directive has contributed to broader effects in society according to national stakeholders



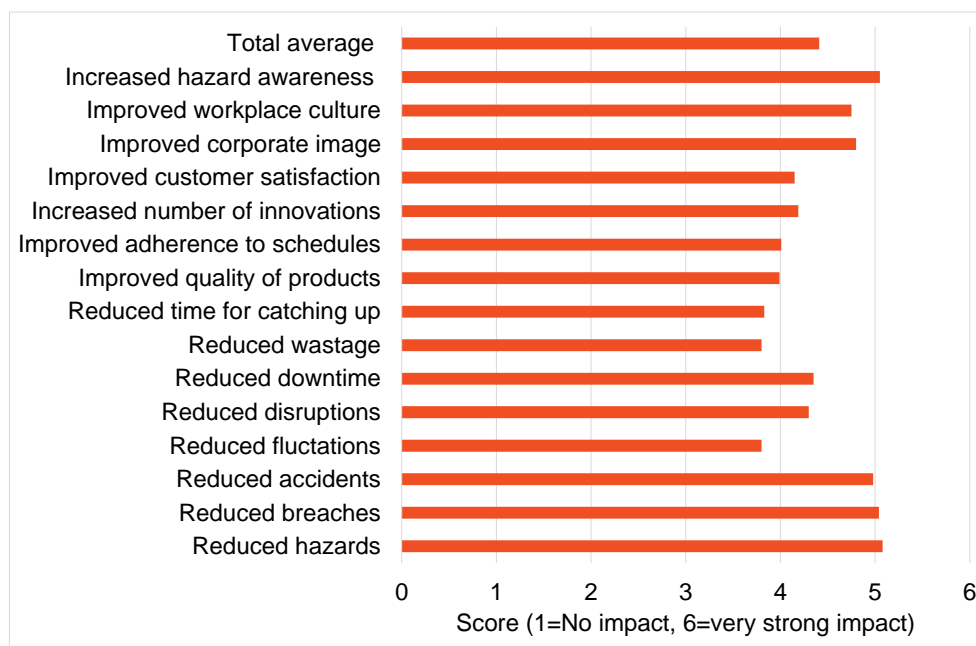
Source: Member State interviews.

Note: Average stakeholder scores, across all Member States, to the question: "To which extent do you consider that the implementation of the legislation transposing the Directive(s) you are commenting on has contributed to creating broader/unintended effects in society? (rate on a scale of 1-5)".

Findings from the literature review

Table 7-13 shows results from the ISSA (2013) report on how enterprises assess the direct and indirect effects on OSH activities (the majority of which were non-MS). Note that the figure includes both broader benefits as well as direct and indirect financial benefits. The enterprises score the impact on increased hazard awareness, reduced hazards, reduced breaches and reduced accidents highest.

Figure 7-13 Assessment of the effects of OSH activities



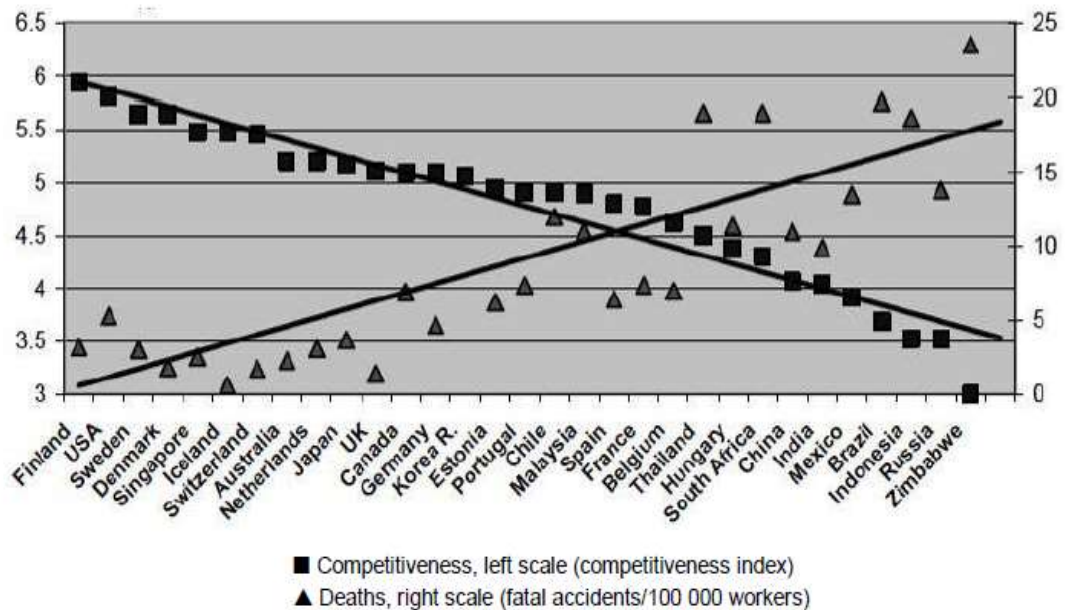
Source: ISSA (2013), Calculating the international return on prevention for companies: Costs and benefits of investments in occupational safety and health.

Based on two previous studies, the BenOSH study also looked into the relation between health and economic performance. The first study by Ridge et al. investigated the link between health and economic performance including GDP, growth, productivity and the level of employment. The study showed that if the proportion of people with ill health increases, economic growth would slow down. Furthermore, work-related factors play an important role since 11% of the impact of general health on economic performance is attributable to work-related ill health.

The other study by Suhrcke et al found that health is a strong predictor of economic growth. Health leads to economic growth by increased savings, investment in human capital, labour market participation, foreign direct investment and productivity growth. However, the relation and influence of health on economy (and economic growth) is complex. It is clear that human capital is necessary for a successful economic outcome and since health is an important component of human capital, it has an influential effect. At the same time, economic constraints (job insecurity, etc) in turn effect workers health. These mechanisms make it difficult to determine the impact of health on the economy (European Commission, 2011).

Figure 7-14 shows that countries with the best records on accidents at work are the most competitive. According to the authors of the BenOSH study this shows that poor working conditions put a heavy burden on the economy and hinder economic growth.

Figure 7-14 Competitiveness and accidents at work



Source: ILO, 2006

Source: European Commission (2011). Socioeconomic cost of accidents at work and work-related ill health.

Notes: The graph is based on data from the World Economic Forum and the Lausanne International Institute for Management Development (IMD), coupled with data from the ILO.

7.5.3 Business cases: costs and benefits from the enterprise perspective

We now take a closer look at the available literature that investigates the profitability of OSH. Thus, in this section, we present the findings from different business cases that assess both costs and benefits of OSH from an enterprise perspective. The available studies calculate the profitability as a Profitability Index or the Payback period:

- › **The Profitability Index** is defined as the present value of expected cash flows over the value of the Initial Investment. It is a ratio of the present value or cash flows and the initial investment. A Profitability Index of one yields the internal rate of return. A Profitability Index of less than one suggests that the project should be rejected and value of one or greater suggests that investment should be accepted. If there is a choice between two or more alternative projects, the one with the largest PI should be chosen.
- › **The payback period (PP)** is the amount of time before the initial investments are earned back, or the length of time required for cumulative incoming returns to equal the cumulative costs of an investment. The PP is usually measured in years. A PP of 2 to 3 years is usually accepted in industry; because of increasing uncertainty, the time horizon of economic decisions rarely exceeds a period of 4 years.

We present five separate case: 1) MSDs, 2) work-related stress, 3) Aggression at work, 4) Construction sites and 5) SMEs.

MSDs

MSDs is strongly related to disability and sickness absence. Several OSH Directives aim at preventing MSD, more specifically the Manual Handling Directive which includes specific key requirements to avoid, or reduce, risks associated with manual handling of loads, including training of workers and ensuring preventive or protective services. No changes to MSDs were observed on a European level, however, but no firm conclusion could be drawn.

So far, the literature review shows that interventions that are based on a combination of several active components are most likely to be effective (Tullar et al., 2010). Tompa et al (2009) conducted a review of the financial merits of ergonomic interventions. The review concluded that there was strong evidence of financial merit from ergonomic interventions in the manufacturing and warehouse sector, moderate evidence of financial merit in the administration and health care sectors and insufficient evidence of financial merit in other sectors.

EU-OSHA (2014f) reviewed existing case studies including economic evaluations from the enterprise perspective. In total, the review identified 91 individual studies (of which eight case studies were conducted in the EU, whereas the majority of studies came from North America). The review found that the strongest evidence for the profitability of ergonomic interventions and disability management programmes. Ergonomic interventions were also the most common type of intervention in the literature. Possible explanations of the profitability of ergonomic interventions might be related to the low costs of the interventions (training, simple equipment etc.), and the high relevance of ergonomics, because MSD is a major cause of absenteeism and low productivity (EU-OSHA, 2014f).

In the box below, we present calculations from the BenOsh study (EC, 2011) on preventing back pain in health care. Note that the calculations assume a positive effect on back problems due to working equipment and training. The box shows three different scenarios. The two first scenarios are based on the same intervention (equipment and training), but with different assumptions about the reductions of costs in relation to back pain. Only scenario 2 (with the most optimistic assumptions) provides a positive return. Finally, scenario 3, which consists of a more comprehensive intervention, shows a positive result for the enterprise (although barely).

Table 7-19 Preventing back pain in health care: a cost-benefit analysis from the workplace perspective

Preventing back pain in health care: a cost-benefit analysis from the workplace perspective		
Scenario 1	Scenario 2	Scenario 3
The total investment including 150 high-low beds that make is easier for nurses to move residents + training in proper use for 75 caregivers (125,430 EUR). The first scenario is based on the assumption that cost due to back pain could be reduced by 50%	Same investment as scenario 1. This scenario is based on the assumption that cost due to back pain could be reduced by 60%	The total investment includes the investment in high-low beds combined with a three hour training session on lifting and moving techniques (5,175 EUR). Based on this combination the calculation is based on the assumption that costs due to back pain is reduced by 70%
A negative present value (profitability index: 0.98)	A positive present value (profitability index: 1.16)	A positive present value (profitability index: 1.05)

Source: European Commission (2011). Socioeconomic cost of accidents at work and work-related ill-health.

Note: Profitability index (amount of euros returned for each euro invested)

Work related stress

Significant changes to workplaces over the past decades have resulted in new occupational safety and health challenges, including a faster work pace and more intense work periods. In addition, the economic crisis has resulted in increasing pressure being placed on both employers and workers to remain competitive (EU-OSHA, 2014g).

A report from EU-OSHA (2014g), based on a literature review, concluded that evidence would suggest that appropriately planned and implemented workplace interventions, focusing on preventing stress, improving psychosocial work environment and promoting mental health, are cost effective. Moreover, there is some evidence that positive work factors, such as work engagement and job resources, might be related to employee health and performance.

Based on the findings from the BenOSH study (European Commission, 2011), we present a business case study on preventing stress in a small consultancy company. The case study is based on calculations from a consultancy company employing 10 experts and administrative personnel. The company experienced financial difficulties and one of the employees suffered a nervous breakdown and was off sick for 514 days. The workplace paid his salary for six weeks (7,020 EUR). The box below presents three scenarios.

Table 7-20 Stress in a small consultancy company: a cost-benefit analysis from the workplace perspective

Stress in a small consultancy company: a cost-benefit analysis from the workplace perspective		
Scenario 1	Scenario 2	Scenario 3
Internal discussion among staff and management on how to provide more support (250 EUR). The first scenario is based on the assumption of cost due to stress cases of 1%	Same investment as scenario 1. This scenario is based on the assumption on a cost reduction due to stress of 5 %	Same investment as in scenario 1 and 2 plus an additional training course for the board and management (2,400 EUR first year, hereafter 1,200 EUR). The scenario is based on the assumption of a cost reduction of 30%
A negative present value (profitability index: 0.93)	A positive present value (profitability index:3.39)	A positive present value (profitability index (1.2)

Source: European Commission (2011). Socioeconomic cost of accidents at work and work-related ill-health.

Note: Profitability index (amount of euros return for each euro invested)

Aggression at work

Aggression (including verbal and physical abuse) from clients and customers is a particular concern among human service workers. Exposure to aggression can have severe physical and mental consequences for the worker and might lead to sickness absence and disability. The BenOHS study (European Commission, 2011) has provided a business case on the profitability of investing in prevention of aggression and violence against bus drivers. The case study was conducted in a large public transport company in Berlin (BVG). Annually BVG recorded 200 annual assaults (mainly targeting security personnel and inspectors) which resulted in fewer than three days absence and 400 attacks which resulted in more than three days absence.

The box shows the results for three different scenarios, all of which yield a positive result – although the most comprehensive intervention (scenario 3) is barely profitable. However, the authors note that this intervention is more likely to improve health and safety in general and increase productivity compared to the other two scenarios.

Table 7-21 Prevention of aggression against busdrivers

Prevention of aggression against busdrivers		
Scenario 1	Scenario 2	Scenario 3
The total investment included de-escalation courses for about 300 bus drivers. The first scenario is based on the assumption that cost would be reduced by 70%	Same investment as scenario 1. This scenario is based on the assumption that cost could be reduced by 90%	Same scenario as 1 and 2 + staff involvement in preventive activities, coordination with police and incident log/prevention guide. Based on this combination the calculation is based on the assumption of a cost reduction of 95% in the long run
A positive present value (profitability index: 1.20)	A positive present value (profitability index: 1.50)	A positive present value (profitability index: 1.1)

Source: European Commission (2011). Socioeconomic cost of accidents at work and work-related ill health.

Note: Profitability index (amount of euros return for each euro invested)

Construction

The construction sector is characterised by a high incidence of accidents and workers exposed to heavy lifting. Directive specific key requirements include safety and health plans, communication with competent authorities, training of workers and ensuring preventive or protective services.

A report from EU-OHSA (2014f) found that few economic evaluations had been performed in the construction sector. However, the authors conducted 13 business cases studies, seven of which were conducted in the construction sector. These are presented in Table 7-22 (the other cases are presented in Table 7-23 on SMEs). The study found that four of the seven case studies in small-sized construction companies provided a profitable return on sickness absence due to MSDs, accidents and noise and dust reduction. Most of the interventions in the cases included more than one active component.

Table 7-22 Business cases conducted in the construction sector

Sector	Description	Results	Payback period (years)
Construction	Training in correct lifting, exercises (taught by a gymnast), lifting equipment, reminders about safe lifting, incentives (from health insurance)	Reduction in back pain and sick leave due to back pain	2.16
Construction	Individual visits from a physiotherapist, a rest break tool, training (in empowerment)	Reduction in musculoskeletal disorders and related absenteeism	<1.00

Construction	Renting equipment for handling window panes during deliveries (charged to customers)	Elimination of absenteeism due to occupational accidents and ill health, improved productivity	2.62
Construction (agriculture)	Implementation of equipment to reduce physical strain in load handling	Reduction of related incidents, improvement in quality of work	<1.00
Agriculture/construction	Implementation of equipment to reduce accident risks and physical strain	Reduction in accident risks and physical strain, improvement in productivity	>4
Construction	Automatisation through provision of equipment	Reduction in accident risks and physical strain, improvement in productivity	3.20
Construction	Use of a material lift, continuous training, OSH awareness raising initiatives.	Productivity raised up to 30 %, improvement in quality of work and working conditions (noise, dust), reduction in sick leave	1.31

Source: EU-OSHA (2014f). The business case for safety and health at work: Cost-benefit analyses of interventions in small and medium-sized enterprises: Cost-benefit analyses of interventions in small and medium-sized enterprises

SMEs

In the previous section, we analysed specific considerations regarding the cost and benefits for compliance with OSH regulation. In short, we found that SMEs have higher compliance costs, but also have a higher benefits, because accidents typically will have a more significant negative impacts on SMEs. However, SMEs are less likely to measure the costs of accidents and less likely to perceive OSH as a financial investment. Many owners consider OSH an economic burden, which is too costly and unrealistic for SMEs to implement. Moreover, accidents are, typically, a rare incident in most SMEs thereby supporting an ad hoc approach to health and safety (Hasle & Limborg, 2006). Thus, it should be borne in mind that, as SMEs have relatively small workforces, interventions targeting low-probability incidences (such as serious accidents) could possibly be underestimated as they are unlikely (EU-OSHA, 2014f).

A report from EU-OSHA (2014f) on the cost benefit of OSH interventions in SMEs conducted 13 business cases in SMEs. A short description is presented Table 7-23 (note that business cases conducted in the construction sector is presented in Table 7-22).

Table 7-23 Examples of business cases in SMEs

Sector	Description	Results	Payback period (years)
Manufacturing	Purchase of individual air cleaning and supply systems, in collaboration with workers	Improved productivity due to enhanced protection and ergonomics of new personal protective equipment	1.00
Manufacturing	Implementation of equipment to reduce concentration of flour particles in the air	Elimination of baker's asthma cases	3.40
Waste management	Training and improved PPE to reduce slip and trip accidents	Reduction in accidents (20 %)	1.3
Manufacturing	Training and issuing of instructions	Reduction in delivery accidents (67 %)	<1.00

Agriculture	Implementation of equipment to reduce physical strain in load handling	Improvement job tenure, improvement in productivity	>4
Manufacturing	Use of lifting equipment and a film-stretching machine in the packaging sector.	Reduction in back pain, improvement in productivity and reliability.	2.00

Source: EU-OSHA (2014f). The business case for safety and health at work: Cost-benefit analyses of interventions in small and medium-sized enterprises

Based on the case studies the authors conclude that:

- › wide-ranging interventions appear to be more profitable than interventions targeting a particular issue related to the sector of the enterprise
- › Interventions that mainly concern training and organizational change appear to be more profitable compared to interventions based on technical changes, such as personal protective equipment
- › participatory interventions that include workers appear to be most profitable
- › more research is needed on the business case for OSH in SMEs.

7.6 Summary of the magnitude of costs and benefits

Table 7-24 below summaries the findings presented previously in this chapter. While it is not possible to quantitative assess the cost and benefits in monetary terms, we have rated the magnitude of the different types of cost and benefit categories according to stakeholder group (+++=to a high degree, +=to a medium degree and + = to a low degree) based on a qualitative assessment on the available data. An empty cell indicate that no significant costs or burdens were identified for the specific stakeholder group. The available studies do not allow us to draw firm conclusions on whether some CPMs are more costly than other CPMs. Some of the studies points to risk assessments as the most costly requirement, while others do not. Moreover, we have not included broader benefits in the table, as the data does not allow us to make inferences about the magnitude of broader benefits.

Overall, the analyses shows that administrative and substantive compliance costs primarily fall on the employer. We have therefore rated administrative and substantive costs equally, because it has proven difficult to separate the two based on the available data.

The analysis of reporting obligations stemming from the acquis shows that 15 of the 24 Directives contain reporting obligations. None of the worker specific directives contain such obligations. Overall, the reporting obligations primarily fall on the employer. These obligations will impose recurrent costs that depend on the enterprise's operations and working environment, and the available literature suggests that a high percentage of administrative costs are business-as-usual meaning that the enterprises would comply with the obligations irrespective of OSH legislation.

Because the CMPs and the identified reporting obligations are more goal setting than prescriptive in nature, the costs will depend on the enterprise's interpretation and practices. Whilst, we identified several more stringent/detailed requirements in a large number of MS, it is not possible to conclude whether more/stringent or detailed requirements will impose additional costs for enterprises. Many other factors might also influence the compliance cost – especially the availability of support and accompanying measures in MS. However, it should be noted that developing more accompanying measures also comes at a cost – primary for governments or

social partners. We also looked at costs stemming from overlaps from coherence issues, e.g. additional burdens from double regulation, and investigated if derogations reduced the compliance costs. The coherence evaluation finds that there are no major internal or external coherence issues. Furthermore, among the few internal overlaps identified, a large majority do not result in double regulation in practice (e.g. double reporting requirements) and therefore do not lead to additional cost when applied by employers. It is not possible based on the available data to assess if the use of derogations have reduced the implementation costs.

A report from the UK finds that the third sector (e.g. insurers and OSH consultancy) have a considerable impact on how enterprises think and feel about OSH. Moreover, the third sector might affect costs negatively or positively. While highly specialised consultant might be cheaper, the third sector increasingly demand health and safety assessment, compliance and/or forms of pre-qualification from clients that want to work with them. For many of the employers that face them, these requirements have become a significant source of health and safety bureaucracy. SMEs in particular struggle to act as informed consumers of third party advice: knowing when –and when not – it is in their interest to buy in health and safety support.

All stakeholder groups are likely to benefit from positive health and safety effects. The benefits for workers, primarily, stem from avoided non-financial cost (quality of life), while most of the financial costs, primarily avoided productivity losses, benefits both governments and enterprises (as shown in the table below). While we have rated indirect benefits for governments and enterprises equally, these available data are based on estimates from only one MS. Due to differences in the national social insurance and health schemes, we caution against generalising across the entire EU, as distributions might differ considerably from MS to MS.

Moreover, the available studies on benefits do not estimate the actual benefits stemming from the acquis. Rather, they estimate the monetary benefits of reductions in occupational accidents and ill health in general. As reported earlier, these reduction might not only be attributable to the acquis. While the effectiveness evaluation shows that the OSH acquis has primarily had an effect on accidents, data from several MS clearly shows that MSDs and mental health problems are among the most costly occupational diseases. Thus, it is unlikely that the OSH acquis has achieved its full potential in terms of ensuring economic benefits for the enterprises, governments and workers.

Our analysis also points to several broader societal benefits. While there are few empirical studies on the subject, data from the interviews and other surveys shows that stakeholders primarily highlight increased OSH awareness. Moreover, the analysis of the national transposition of the acquis clearly shows that the Directives have influenced national agenda and the influenced the OSH awareness in enterprises. The evidence for innovation and quality of products are weaker, but the available literature also points to a link between competitiveness and accidents.

Table 7-24 Overview of the magnitude of costs and benefits according to stakeholder group.

		Enterprise	Worker	Government
Costs	Substantive compliance costs arising from requirements from CPM	+++		+
	Administrative costs and burdens arising from reporting obligations	+++		+
Benefits	Direct		+	++

	Indirect	+++	+	+++
	Non-financial (quality of life)	+++		

While most of the available literature focus on either costs or benefits, we also identified case studies that assess the profitability of different OSH activities. The available reviews found that there is strongest evidence for the profitability of ergonomic interventions and disability management programmes (from the enterprise perspective). Ergonomic interventions were also the most common type of intervention in the literature. Possible explanations of the profitability of ergonomic interventions might be related to the low costs of the interventions (training, simple equipment etc.), and the high relevance of ergonomics, because MSD is a major cause of absenteeism and low productivity. Moreover, the available literature on case studies suggests that wide-ranging interventions appear to be more profitable than interventions targeting a particular issue related to a specific sector or type of enterprise. Moreover, interventions that mainly concern training and organizational change appear to be more profitable compared to interventions based on technical changes, such as personal protective equipment. Finally, the case studies shows that participatory interventions that include workers appear to be most profitable and that more research is needed on the business case for OSH in SMEs.

Table 7-24 do not differentiate between SMEs and large enterprises. However, the National and EU stakeholder express the opinion that costs are likely to be higher for SMEs. This findings is corroborated in a study from the HSE in Britain that showed that SMEs spent considerably more per employee than larger enterprises. We identified a range of EU and national level initiatives to reduce costs for SMEs:

- › Eleven Member States have introduced specific exemptions to the key requirements laid down in the Framework Directive for SMEs, and micro-enterprises.
- › Fifteen Member States have established a lighter regime for SMEs and micro-enterprises.
- › Finally, all MS, without exception conclude that guidance documents are by far the most common action undertaken to support the implementation.

It should be noted that EU social partners representing SMEs do not support the exemption of SMEs from legal OSH obligations. While, some evidence support the effectiveness of financial incentives, EU and national stakeholder expressed a need for more targeted guidance and information documents specifically directed towards certain sectors and, especially, SMEs.

8 Assessment of coherence

This chapter describes the main findings in relation to both internal coherence i.e. between the 24 OSH Directives covered by the evaluation, and external coherence, i.e. between on one hand the EU OSH acquis, and, on the other hand, other measures and/or policies at European and international level.

8.1 Coherence and complementarity between the OSH Directives (EQC1)

EQC1: What, if any, inconsistencies, overlaps, or synergies can be identified across and between the Directives (for example, any positive interactions improving health and safety outcomes, or negative impact on the burdens of regulation)?

8.1.1 General observations on ‘internal’ coherence

This section provides an overview of findings related to the ‘internal’ coherence of the OSH acquis, its internal logic and legal structure. It focuses first on inconsistencies, overlaps or synergies per Common Processes and Mechanisms on a pan-Directive level as defined for the purposes of this assessment (see section 2.2.2) and then considers other key requirements for which some issues of internal coherence have been identified, namely limit values, protection of workers at particular sensitive risks and inspection and enforcement measures.

Our preliminary findings were supplemented by additional analysis of the legal articulation between OSH Directives through in-built mechanisms (e.g. specific scope, without prejudice clause, exemptions, *lex specialis* principle, definitions).

While mapping potential interfaces, overlaps and inconsistencies, we complemented our findings with information from the interviews of EU and national stakeholders and from the NIRs.

8.1.2 Common Processes and Mechanisms

This section is divided per CPM. With regard to the CPMs, the evaluation is presented per directive or group of directives, as follows:

- › The Framework Directive
- › Workplaces, equipment, OSH signs, personal protective equipment, ATEX¹⁰⁹
- › Physical agents
- › Chemical agents
- › Biological agents
- › Sector specific
- › Workload and ergonomic aspects
- › Vulnerable workers

The grouping of the directives facilitates the identification of potential overlaps and inconsistencies between Directives regulating similar sources of risks.

CPM 1: Conducting a risk assessment across the Directives

The assessment of coherence (potential overlaps and inconsistencies) of this CPM covers:

- › The procedure to conduct the risk assessment
- › The employer obligation to be in possession of an assessment including groups exposed to particular risks.
- › Requirements linked to the adoption of risk management measures derived from the risk assessment are also covered in each sub-section below.

As shown in the table below, the obligation to carry out a risk assessment is reflected in different ways across the directives: only a few directives do not set risk assessment procedures. Out of those which include an obligation to carry out a risk assessment, the majority (15) establishes detailed risk assessment procedures. Eight directives provides for an obligation to be in possession of an assessment. Out of the 24 directives which provides for some form of risk assessment procedures, all except one refers to risk management measures, undefined or detailed.

¹⁰⁹ These groups include the following directives: Directive 89/654/EC (workplace) and Directive 92/58/EEC (OSH signs), Directive 2009/104/EC (work equipment) Directive 89/656/EEC (PPE), Directive 1999/92/EC (ATEX)

Table 8-1 Overview of obligations to carry out risk assessments in the Directives

	89/391 (framework)	86/654 (workplace)	2009/104 (equipment)	89/656 (PPE)	92/58 (OSH signs)	1999/92 (ATEX)	90/269 (load)	90/270 (DSE)	2002/44 (vibration)	2003/10 (noise)	2013/35 (EMF)	2006/25 (AOR)	2004/37 (CM)	98/24 (CA)	2009/148 (asbestos)	2000/54 (biological)	92/57 (construction)	92/104 (extracting)	92/91 (drilling)	92/29 (medi.treatment)	93/103 (fish. vessels)	92/85 (pregnant)	91/383 (temporary)	94/33 (young worker)
No risk assessment procedure		x			x												x			x	x		x	
General risk assessment procedures	x																	x	x					
Specific and detailed risk assessment procedures			x	x		x	x	x	x	x	x	x	x	x	x	x						x		x
Obligation to be in possession of the risk assessment	x								x	x	x	x		x				x	x					
No risk management measures derived from risk assessment				x																				
Reference to undefined risk management measures	x						x	x										x	x					
Reference to detailed risk management measures			x			x			x	x	x	x	x	x	x	x						x		x

Source: Consultant's analysis of the Directives' provisions

Framework Directive

The requirement to conduct a risk assessment is set as a general, 'a minima', principle in the Framework Directive, while most Directives regulating specific risks and requesting employers to carry out a risk assessment define in detail the elements/risks that must be covered by this assessment. However, in some cases, these detailed provisions are not directly linked to the specific scope and could apply to all workers regardless of the risks or the sector. Therefore these requirements could bring an added value to the general principles set in the Framework Directive.

Most OHS Directives with a risk assessment procedure require the update or periodical repetition of the risk assessment, although this requirement varies from one Directive to another. Directive 89/656/EEC (PPE) provides that the assessment shall be reviewed if any changes are made to any of its elements. The two mining extractive industry Directives (92/104/EEC and 92/91/EEC) require that the health document, which contains the risk assessment, must be kept up-to date. According to all four physical agents Directives and Directive 98/24/EC (chemical agents), the risk assessment shall be kept up-to-date on a regular basis, particularly if there have been significant changes which could render it out-of-date, or when the results of health surveillance show it to be necessary. Moreover, all four physical agents Directives set the obligation to carry out the risk assessment at suitable intervals. Finally, Directive 2004/37/EC (carcinogens or mutagens) and Directive 2000/54/EC (biological agents) mention that the assessment shall be renewed regularly and in any event, in case of change. Such differences may be confusing for the employer, e.g. in terms of timing and circumstances, which trigger an update of the risk assessment. In workplaces with several agents, the employer may need to update or review the risk assessment under different circumstances for each agent. This can lead to additional burden for employers.

In some cases, requirements under the daughter Directives establish a more multidisciplinary, integrated approach reflecting the complementarity of all CPMs when it comes to achieving the maximum possible degree of workers' protection. This connection between different CPMs could bring added value if associated with a general requirement set within the Framework Directive and applicable across all specific Directives. The analysis has identified two such instances:

- › All physical agents Directives require that the employer must give particular attention, when carrying out the risk assessment, to appropriate information obtained from health surveillance, including published information, as far as possible. A similar requirement is set under Directive 98/24/EC (chemical agents). This connection between the results of health surveillance and the assessment of the risks can have an added value within the general principle of conducting a risk assessment.
- › All physical agents Directives and Directive 92/85/EEC (pregnant workers) provide that the risk assessment shall be planned and carried out by competent services or persons taking particular account of the provisions of Article 7 of the Framework Directive (protective and preventive services).

The Framework Directive requires employers to be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks. With regard to this provision, one of the requirements set by the four physical agents Directives could apply to all Directives irrespective of the risk covered. These Directives stipulate that the risk assessment shall be recorded on a suitable medium; according to national law and practice and also that the data obtained from the risk assessment shall be preserved in a suitable form to permit

consultation at a later stage. This requirement is general and reflects an aspect of the principle of prevention that could be applicable in all risk assessment procedures.

The Framework Directive provides that subsequent to the risk assessment and as necessary, the preventive measures and the working and production methods implemented by the employer must ensure an improvement in the level of protection afforded to workers with regard to safety and health and be integrated into all the activities of the undertaking and/or establishment and at all hierarchical levels. The risk management measures set in the other Directives are very specific and cannot be replicated to all occupational risks with the exception of the provision of Directive 2013/35/EC (EMF) requiring that the amended protection and prevention measures must be preserved in a suitable traceable form so as to permit consultation at a later stage.

Workplaces, equipment, OSH signs, PPE, ATEX

Directive 89/654/EC (workplace) and Directive 92/58/EEC (OSH signs) do not contain any risk assessment procedure and derived risk management measures. Directive 89/654/EC (workplace) relies on minimum requirements and control measures to avoid occupational risks at workplaces. Directive 92/58/EEC (OSH signs) requires employers to take into account any risk assessment as set out in Article 6(3) of the Framework Directive when providing OSH signs, where hazards cannot be avoided or adequately reduced by other means. This lack of risk assessment measures under these Directives is not considered as an inconsistency since their scope and aim do not really entail the need for a specific risk assessment. The risk assessment is covered under the Framework Directive and the relevant individual Directives.

Directive 2009/104/EC (work equipment) and Directive 89/656/EEC (PPE) include specific risk assessment provisions. One inconsistency was identified between Directive 2009/104/EC (work equipment) and some physical agent Directives. Pursuant to Directive 2009/104/EC (work equipment), in selecting the work equipment, the employer must pay attention to the specific working conditions and characteristics and to the hazards present in the undertaking or establishment, in particular at the workplace, for the safety and health of the workers, and any additional hazards posed by the use of the work equipment in question. Several other Directives include in their risk assessment references to work equipment.

Physical agents

Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise) and Directive 2006/25/EC (AOR) require that employers must take into account in their risk assessment information provided by the manufacturers of work equipment in accordance with the relevant EU Directives. Such requirement could however apply to all work equipment and not only to the one that are sources of noise, vibration, artificial optical radiation.

The physical agents Directives as the majority of OSH Directives contain provisions on risk assessment. They cross-refer and specify the provisions of Directive 89/3891/EEC (Framework Directive) on risk assessment in order to cover the particular risks caused by noise, vibration or optical radiation. The risk assessment procedures are very similar across the physical agents Directives with some differences linked to the specificities of each directive. For example, Directive 2003/10/EC (noise) contains specific provisions related to noise (e.g. exposure to impulsive noise, interactions between ototoxic substances and between noise and vibration, availability of hearing protectors with adequate attenuation characteristics).

However, the employer obligation to give particular attention to the extension of exposure beyond normal working hours as set by Directive 2003/10/EC (noise) could apply to workers exposed to vibration and artificial radiation. The extension of exposure beyond normal work hours can also increase the risk from vibration. This is sometimes taken into account by national legislation¹¹⁰. To the extent that some adverse effects of AOR exposure relate to the effects of chronic rather than acute exposures a similar provision could also apply to workers exposed to artificial optical radiation.

The Physical Agents Directives have quite similar approaches to control risks from exposure. All the Directives mention that the risk arising from exposure must be eliminated or reduced to a minimum. They all set two types of management measures derived from the risk assessment procedure depending on either the exceedance of action limit values/action levels, or exceedance of exposure limit values with the exception of Directive 2006/25/EC (AOR), which requires employers to take risk management measures only if the risk assessment indicates that exposure limit values may be exceeded and in cases where they are exceeded. Furthermore the content of the risk management measures despite certain specificities linked to the particular physical hazards are quite similar between the four Directives.

Despite similarities in the risk management measures between the four physical agents, only Directive 2003/10/EC (noise) sets as a follow-up measure to eliminate or reduce exposure to a minimum appropriate work schedules with adequate rest periods. Such requirement could however apply to workers exposed to all physical agents independently of their specificities and level of risk. There are also a number of requirements which although present in other physical agents directive are not included in Directive 2002/44/EC (vibration), as follows:

- › The risk assessment should be followed by measures related to the limitation of the duration and intensity of the exposure. It is however difficult to justify due to the characteristics of the risks derived from vibration that such measure does not apply in this case.
- › Appropriate personal protective equipment should be available. Such requirement is however considered less appropriate for risks deriving from vibration where the main measures to limit vibration are the choice of appropriate work equipment. Furthermore there is currently no personal protective equipment able to limit the risks from vibration.
- › The delimitation of areas and restriction access in case of exceedance of exposure limit values: the characteristic of the risk and its diffusion (it is unlikely that all a surface area is subject to vibration) explain that such requirement is not relevant to vibration.
- › Conversely, only Directive 2003/10/EC (noise) sets as a follow-up measure in case of exceedance of limit values, appropriate work schedules with adequate rest periods. Such requirement could however apply to workers exposed to vibrations independently of their specificities and level of risk.

¹¹⁰ For example, the UK Regulation on vibration (The Control of Vibration at Work Regulations 2005) requires that the risk assessment must take into account any extension of exposure at the workplace to whole-body vibration beyond normal working hours, including exposure in rest facilities supervised by the employer

Chemical agents

All the chemical directives provide that the risk assessment must take into account the nature, degree and duration of worker's exposure to chemicals agents. Since Directive 98/24/EC (chemical agents) contains such provision, it is unnecessary for Directive 2004/37/EC (carcinogens or mutagens) to replicate it under its risk assessment requirement. Such overlaps however do not lead to double regulation in practice.

Since the provisions of Directive 98/24/EC (chemical agents) must apply without prejudice to the more stringent and/or specific provisions contained in Directive 2004/37/EC (carcinogens or mutagens), the following risk assessment measures under Directive 98/24/EC (chemical agents) will also apply to carcinogens and mutagens:

- › Information on safety and health to be provided by the supplier
- › The circumstances of work involving such agents
- › The effect of preventive measures taken or to be taken
- › The conclusions to be drawn from any health surveillance already undertaken
- › Additional information needed for the risk assessment that the employer must obtain from the supplier or from other readily available sources
- › Assessment in case of activities involving exposure to several hazardous chemical agents, based on the risk presented by all such chemical agents in combination.

However one provision from Directive 2004/37/EC (carcinogens or mutagens) requiring employers to supply authorities responsible at their request with the information used for making the assessment could also apply to all chemical agents under Directive 98/24/EC (chemical agents). This provision is not tailored to the specific hazards and risks derived from carcinogens and mutagens.

The provisions of Directive 2004/37/EC (carcinogens or mutagens) on risk assessment state that the assessment shall be renewed regularly and in any event when any change occurs in the conditions which may affect workers' exposure to carcinogens or mutagens. They also require that the employer shall supply the authorities responsible at their request with the information used for making the assessment. They finally require employers to give particular attention to any effects concerning the health or safety of workers at particular risks. These provisions since they are considered more favourable for the health and safety of workers should also apply in case of workers exposed to asbestos

The three chemical Directives follow different approaches with regard to the derived risk management measures. This is mainly due to the specificity of the risk covered and the different hazardous properties of these agents (e.g. carcinogens or mutagens/ asbestos/ hazardous chemical agents). All Directives set less stringent risk management measures if the risk of exposure according to the risk assessment is low, apart from the CMD. The lack of exemptions is justified by the specific hazard posed by carcinogens and mutagens.

- *Demarcation of risk areas*

Although the three Directives do not apply the same risk management approaches and structure, one risk management measure from Directive 2004/37/EC (carcinogens and mutagens) could apply to exposure to all hazardous chemical agents under the Directive 98/24/EC (chemical agents). Only Directive 98/24/EC (chemical agents) does not set measures related to the demarcation of risk areas and use of adequate warning and safety signs including 'no smoking' signs in areas where workers are exposed or likely to be exposed. Such requirement could limit worker exposure to hazardous chemical agents and could be replicated under this Directive.

- *Provision on the register of workers*

Directive 2004/37/EC (carcinogens or mutagens) and Directive 2009/148/EC (asbestos) both contain provisions requiring employers to register workers exposure. However the provisions under Directive 2009/148/EC are more stringent since they require employers to indicate the nature and duration and the exposure to which they have been subjected, whereas Directive 2004/37/EC (carcinogens or mutagens) requires that employers must indicate only if available the exposure to which they have been subjected. As there are no major differences of risk between the characteristics of the substances covered by these Directives (asbestos is a carcinogen), such difference in the wording of these two provisions does not seem to be justified.

- *Substitution requirements*

Directive 98/24/EC (chemical agents) provides that, in order to eliminate or reduce to a minimum exposure to hazardous chemical agents, substitution shall be the preferred solution, whereby the employer shall avoid the use of a hazardous chemical agent by replacing it with a chemical agent or process which, under its condition of use, is not hazardous or less hazardous to workers' safety and health.

Directive 98/24/EC (chemical agents) requires the employer to reduce the use of a carcinogen or mutagen at the workplace, in particular by replacing it, in so far as is technically possible, by a substance, preparation or process which, under its conditions of use, is not dangerous or less dangerous to workers' health or safety.

The substitution requirements under Directive 98/24/EC (chemical agents) are less stringent. Substitution must be the preferred option, whereas the Directive 2004/37/EC obliges employers to substitute these agents but sets exceptions (in so far as is technically possible/ if the nature of the activity so permits). One could argue that the substitution requirements under the Directive 2004/37/EC could also apply to all hazardous substances independently of the level or type of risk, as is the case in certain MSs (e.g. Germany¹¹¹). On the other hand, the more serious potential health outcome from exposure could justify the current setting with more stringent requirements of substitution in relation to carcinogens and mutagens. In addition, any more stringent requirement on substitution may involve a significant compliance cost for employers.

Biological agents

Directive 2000/54/EC (biological agents) contains a detailed risk assessment procedure. Although chemical agents and biological agents entail very different hazards and risks, certain risk

¹¹¹ The Federal Ordinance for the Protection against Hazardous Substances of 26 November 2010 applies the substitution requirements of Directive 2004/37/EC to all hazardous substances

assessment requirements under Directive 98/24/EC (chemical agents) could also apply to the risk assessment of biological agents:

- › the effect of preventive measures taken or to be taken must be included in the risk assessment procedure.
- › the employer shall obtain additional information which is needed for the risk assessment from the supplier or from other readily available sources, considering that Certain biological agents such as bacteria can be sold to laboratories for research purposes.
- › the risk assessment must take into account conclusions to be drawn from any health surveillance already undertaken¹¹².
- › certain activities within the undertaking or establishment, such as maintenance, in respect of which it is foreseeable that there is a potential for significant exposure, or which may result in deleterious effects to safety and health for other reasons, even after all technical measures have been taken, shall be included in the risk assessment
- › the risk assessment may include a justification by the employer that the nature and extent of the risks make a further detailed risk assessment unnecessary.

CPM2: Preventive and protective services

Framework Directive

Article 7 of the Framework Directive requires the designation of preventive and protective services, internal or external. The employer may take responsibility for the protective and preventive measures, provided he/she is competent and if Member States have defined the categories of undertakings in which this is possible (in the light of the nature of the activities and size of the undertakings).

This CPM applies to establishments/undertakings rather than to specific risks. Every establishment/undertaking should have such services or persons designated as responsible for protective and preventive activities that cover all the risks present in this establishment or undertaking and all personnel (including any specific and/or vulnerable group of workers). The analysis has not revealed any coherence issues, nor have stakeholders raised concerns in relation to this CPM. Only one instance of possible streamlining has been identified in relation to the Framework Directive and Directive 91/383/EEC (temporary workers).

Directive 91/383/EEC (temporary workers) includes more specific requirements on the duties of preventive and protective services in relation to temporary workers. Member States must ensure that workers, services or persons designated to carry out preventive and protective activities are

¹¹² Note that Directive 2000/54/EC (biological agents) under Article 14 requires that workers must undergo health surveillance prior to exposure which would implicitly mean that the result of health surveillance is taken into account for the risk assessment. Furthermore the risk assessment under Directive 2000/54/EC requires taking into account knowledge of a disease from which a worker is found to be suffering and which has a direct connection with his work.

informed of the assignment of temporary workers to the extent necessary to carry out adequately their protection and prevention activities for all the workers. This requirement could apply to all new workers and workers who need specific attention (e.g. young workers and pregnant/breastfeeding workers) due to the risks they encounter.

CPM3: Information to Workers

Framework Directive

Article 10 of the Framework Directive regulates the workers' right to information concerning the safety and health risks, protective and preventive measures and activities in respect of both the undertaking and/or establishment in general, each type of workstation and/or job, and the implementation of measures on first aid, fire-fighting and evacuation. Information rights extend to the external workers' employers. Finally, Article 10(3) sets out more advanced information requirements towards workers with specific safety and health functions or responsibility, in order to carry out their functions, including access to the risk assessment and protective measures, to the list/reports on occupational accidents and information relevant to the implementation of the preventive and protective measures, e.g., information yielded from inspection agencies.

The Framework Directive sets out the requirement of providing information to workers in a general manner. This general wording could potentially cover and include every kind of specific information. Moreover, all individual Directives (apart from the ATEX Directive) also contain specific provisions on information for workers that apply to the specific risks or workplaces they cover. Furthermore, all these Directives apart from Directive 2004/37/EC (carcinogens or mutagens), Directive 2009/148/EC (asbestos), Directive 2000/54/EC (biological agents) and Directive 92/29/EEC (medical treatment on board vessels), include a 'without a prejudice clause' referring to Article 10 of the Framework Directive, but this shall not be considered as a consistency issue because these provisions:

- › only repeat the requirement to provide information on all the measures to be taken concerning safety and health of worker that is already included in the Framework Directive information-related requirement, or;
- › specify, detail and list more examples in a non-exhaustive way, without contradicting the general principle set out in the Framework Directive.

However, in some cases, these additional details and examples of information to be communicated to the workers are more general and could bring an added value to the general principles set in the Framework Directive:

- › Directive 2009/104/EC (work equipment), Directive 98/24/EC (chemical agents), Directive 92/57/EEC (construction sites), Directive 92/104/EEC (mineral-extracting industries) Directive 92/91/EEC (drilling) and Directive 93/103/EC (work on board fishing vessels) require that the information should be comprehensible to workers concerned, not only in specific sectors of activity or in relation to specific equipment, but also in relation to, e.g., specific risks. This may entail additional cost (e.g. translation if needed for non-native speaker workers, simplification of technical information).

- › The physical agents Directives as well as Directive 98/24/EC (chemical agents), Directive 2009/148/EC (asbestos) and Council Directive 92/85/EEC (pregnant workers) all specifically include the outcome/results of the risk assessment in the information to be communicated to workers and do not reserve this right only to workers with specific functions in protecting the safety and health of workers, or workers' representatives with specific responsibility for the safety and health of workers as under the Framework Directive. It would be more coherent including it directly in the Framework Directive.
- › The physical agents Directives require additionally that information relating to the results of the risk assessment shall include an explanation of their significance and potential risks. The scope of these Directives does not justify limiting this requirement only to them. Streamlining this requirement through inclusion in the Framework Directive would allow to improve the quality and comprehensiveness of the information provided to the workers.
- › The physical agents Directives mention the circumstances in which workers are entitled to health surveillance as part of their right to information. As health surveillance is a general requirement set out by the Framework Directive, it seems logical that information on the circumstances under which workers are entitled to health surveillance is part of the general information requirement.
- › The physical agents Directives and Directives 2004/37/EC (carcinogens or mutagens), 2009/148/EC (asbestos) and 2000/54/EC (biological agents) include safe working practices to minimise exposure or risks from exposure as part of the information for workers. Information on safe working practices could be part of the information communicated to workers also in other cases (e.g., manual handling of loads, display screen equipment, work equipment, sector-specific Directives etc.). The same can be argued about the requirement to provide workers with information on how to detect health effects of exposure and how to report them, which is only set in the physical agents Directives.
- › Some Directives lay down specific requirement on information for workers in particular cases; Directive 2004/37/EC (carcinogens or mutagens) in case of abnormal situations, Directive 2009/148/EC (asbestos) in case of excess of exposure limit values, Directive 2000/54/EC (biological agents) in cases of accidents or incidents. Workers shall be informed as soon as possible of the occurrence of such cases and receive information on the causes and mitigation measures. Similarly, Directive 2009/104/EC (work equipment) requires ensuring that all workers have at their disposal adequate information that contains at least information concerning foreseeable abnormal situations. Accidents, incidents or abnormal situations may occur in relation with other risks and not only carcinogens/mutagens, asbestos, biological agents and work equipment (e.g. chemicals, ATEX) and this in all type of workplace.
- › Only Directive 91/383/EEC (temporary workers) sets a requirement regarding the timing of providing information to workers stipulating that this should be done before workers take up activity. Although this is justified by the specific character of temporary or fixed-term employment, it reflects a general principle that could be specified in the Framework Directive.

Workplaces, equipment, OSH signs, PPE, ATEX

Directive 1999/92/EC (ATEX) is the only individual directive that does not include a requirement in relation to information for workers. The Framework Directive applies.

The risk of explosion in workplaces covered by the mineral-extracting industries does not fall under Directive 1999/92/EC (ATEX). However, both Directive 92/104/EEC (mineral-extracting industries) and Directive 92/91/EEC (drilling) require that information is provided to workers, inter alia, on the measures taken to avoid, detect and combat the starting and spread of fires and explosions and to prevent the occurrence of explosive and/or health-endangering atmospheres. There is no clear justification why such a requirement would not apply to risk from explosion covered by Directive 1999/92/EC (ATEX).

Physical agents

In relation to information to be provided to workers, all physical agents directives include a 'without prejudice' clause referring to the relevant article of the Framework Directive while setting additional requirements which are relatively general and found in an almost systematic way in all physical agents directives. In some instances, requirements that could be applicable to all physical agents are not included in all physical agents Directives, as follows:

- › Only Directive 2003/10/EC (noise) includes a requirement to provide information relating to 'the nature of the risks'.
- › Only Directive 2003/10/EC (noise) and Directive 2006/25/EC (AOR) include a requirement on information to workers on the proper/correct use of PPE.
- › Finally, only Directive 2013/35/EU (EMF) sets a specific information requirement concerning workers at particular risk, as referred to in this Directive (i.e. workers who wear active or passive implanted medical devices, such as cardiac pacemakers, workers with medical devices worn on the body, such as insulin pumps, and pregnant workers).

Chemical agents

Similarly to the physical agents Directives, Directive 98/24/EC (chemical agents) includes a 'without prejudice' clause referring to the Framework Directive and additional requirements, such as information on the hazardous chemical agents occurring in the workplace, access to any safety data sheet provided by the supplier. Some provisions on information in Directive 2004/37/EC (carcinogens or mutagens) and Directive 2009/148/EC (asbestos) could also apply to all chemical agents under Directive 98/24/EC since they are unlikely to be tailored to the specific hazards and risks derived from carcinogens, mutagens and asbestos:

- › Directive 2004/37/EC (carcinogens or mutagens) is the only of the three chemical directives:
 - › to establish access of workers and/or any workers' representatives to anonymous collective information.
 - › to require the employer to keep an up-to-date list of the workers engaged in the activities posing an occupational risk and to ensure access rights to the list (for the doctor and/or competent authority/persons and the exposed workers themselves).
- › Details concerning information relevant to PPE are not provided under Directive 98/24/EC (chemical agents) whereas the other two chemical agents directives include information on wearing and use of PPE.

With regard to Directive 2009/148/EC (asbestos) some information requirements under Directive 2004/37/EC (carcinogens or mutagens) could also apply to workers exposed to asbestos since they are considered more favourable for their protection:

- › workers' information on the steps to be taken by workers, including rescue workers, in the case of incidents and to prevent incidents
- › timely information to workers and/or their representatives, on the causes of abnormal exposure and the mitigation measures taken or to be taken.

Biological agents

Directive 2000/54/EC (biological agents) sets two types of information requirements. One general requirement applies to all workers exposed to biological agents (e.g. information and training on potential risks to health, hygiene requirements). It also sets more specific requirement requiring employers to provide written instruction to workers in case of serious accident or incident or in case of handling a group 4 biological agent.

Several physical agent Directives contain an employer obligation to inform on how to detect health effects of exposure and how to report them. Since there are adverse health effects of exposure to biological agents, such information obligation could also apply for biological agents.

CPM4: Training of Workers

Article 12 of the Framework Directive sets training requirements for three groups/categories of workers (all workers, external workers, workers' representatives). Only Directive 89/654/EEC (workplace), Directive 92/57/EEC (temporary or mobile construction sites), Directive 92/29/EEC (medical treatment on board vessels) and Directive 92/85/EEC (pregnant/breastfeeding workers) do not include a training of workers requirement.

Framework Directive

The Framework Directive sets the general principle of ensuring adequate training to all workers, in particular in the form of information and instructions specific to their workstation or job. At the same time, most individual Directives also contain specific provisions on training of workers that apply to the specific risks or workplaces they cover and most of these provisions include a 'without prejudice' clause referring to Article 12 of the Framework Directive. This shall not be considered as a consistency issue because, as in the case of the requirement relevant to information for workers, these provisions:

- › either only repeat the requirement to provide information on all the measures to be taken concerning safety and health of worker that is already included in the Framework Directive information-related requirement;
- › or detail and list more examples in a non-exhaustive way, concerning the type of information to be provided to workers, without contradicting the general principle set out in the Framework Directive.

However, in some cases, the additional details and examples of training that should be provided to the workers are more general and could bring an added value to the general principle set in the Framework Directive:

- › Although this is mentioned only in Directive 89/656/EEC (PPE), a requirement for the employer to organise demonstrations could constitute an effective form of training, complementing information and instructions in various other cases, apart from the use of PPE. For example, demonstrations would also be compatible with work equipment, in relation to manual handling of loads (e.g. how to lift loads) but also in relation to specific risks (e.g. how to execute tasks involving biological agents or asbestos).
- › Similarly, training should result in workers being able to perform and execute their tasks safely, bearing in mind the risks they are exposed to when tasks are not performed correctly. Such a requirement is explicitly set only in Council Directive 90/269/EEC (manual handling of loads) that refers to 'proper training and information on how to handle loads correctly' and potential risks if these tasks are not performed correctly. The rationale of this requirement could be of general application.
- › Directive 89/656/EEC (PPE), Directive 2009/148/EC (asbestos), Directive 92/104/EEC (mineral-extracting industries), Directive 93/103/EC (work on board fishing vessels) explicitly mention that training instructions must be understandable/comprehensible to the workers concerned. Instructions given in the course of training should be comprehensible to workers concerned not only in specific sectors of activity or in relation to specific equipment or risk factors, but in general.
- › All physical agents Directives include safe working practices among the training topics. Similarly, precautions to be taken to prevent exposure are listed among the training topics in Directive 2004/37/EC (carcinogens or mutagens), Directive 98/24/EC (chemical agents) and Directive 2000/54/EC (biological agents). Hence, this requirement already applies to all risks and, for clarity, could be set as a general principle in the Framework Directive.
- › Only the new EMF Directive (2013/35/EU) links training (and information) to workers at particular risk. As this group of workers can be present in any workplace and perform activities that could entail any of the risks covered by the Directives, any link between them and training would make sense in a more general context and not exclusively in relation to electromagnetic fields.
- › Directive 2004/37/EC (carcinogens or mutagens), Directive 2000/54/EC (biological agents) and Directive 2009/148/EC (asbestos) include special circumstances and what to do in that case among the issues to be covered by training. In principle, all workers, in all sectors of activity should be prepared and able to cope with any potential exceptional situation like an incident, an accident etc.

Workplaces, equipment, OSH signs, PPE, ATEX

Directive 89/656/EC (PPE) complements the general principle of the Framework Directive as regards training, requirement to use instructions and, if appropriate, specific demonstrations in the wearing of PPE. These requirements are not set in a separate provision but included in subparagraphs of Article 4 (General obligations). Several other individual directives include specific training of workers related to the correct use of PPE:

- › Directive 2003/10/EC (noise) – training on correct use of hearing protectors
- › Directive 2006/25 (AOR) - training on proper use of appropriate PPE

- › Directive 2004/37/EC (carcinogen and mutagens) - training on wearing and use of protective equipment and clothing
- › Directive 2000/54/EC (biological agents) training on wearing and use of protective equipment and clothing

The above duplications could be seen as overlaps, to the extent that Annex II of the PPE Directive comprises a non-exhaustive list of items of PPE that are covered by its scope, including hearing protection, respiratory protection, skin protection etc. Training of workers under the PPE Directive should in that case be sufficient to cover all kinds of PPE used in different activities and linked with a variety of risks.

Directive 2009/104/EC (work equipment) provides that without prejudice to Article 12 of the Framework Directive employers must take the necessary measures to ensure that workers given the task of using work equipment receive adequate training, including on any risks which such use may entail; and in case of repairs, modifications, maintenance or servicing.

- › Other Directives also include requirements on training of workers linked to work equipment. Council Directive 92/104/EEC (mineral-extracting industries) and Council Directive 92/91/EEC (drilling) define written instructions specifying rules to be observed to ensure the safety and health of workers and the safe use of equipment (including emergency equipment) as a minimum safety and health requirement for every workplace within their scope.

The scope of the work equipment Directive covers work equipment in the sense of 'any machine, apparatus, tool or installation used at work' and applies in all sectors of activity as covered by the Framework Directive with no differentiation of workplaces. Therefore, it could be argued that multiple references to training in these four Directives relating to work equipment could be seen as overlaps.

Physical agents

All physical agents Directives include a common provision on information and training, without distinguishing what should constitute the object of information and what should be part of training. Therefore, the above findings on information for workers also apply as regards training.

Chemical agents

Some provisions on information from Directive 2004/37/EC (carcinogens or mutagens) and Directive 2009/148/EC (asbestos) could also apply to all chemical agents under Directive 98/24/EC (chemical agents) as they are not tailored to the specific hazards and risks derived from carcinogens and mutagens and asbestos:

- › Directive 2004/37/EC and Directive 2009/148/EC include training requirements relevant to the potential risks/effects to health.
- › Hygiene requirements are a part of training only under Directive 2004/37/EC.
- › Finally, while health surveillance is of equal importance in relation to all chemical agents, only Directive 2009/148/EC (asbestos) includes the requirement to provide training on medical surveillance requirements.

CPM5: Health Surveillance

Article 14 of the Framework Directive set general principles on health surveillance of workers, in particular the employer's obligation to ensure that all workers receive health surveillance appropriate to the risks they incur at work and at regular intervals.

The Framework Directive only regulates few aspects of health surveillance of workers. The table below shows in details how the health surveillance provisions are drafted across Directives outlining differences and similarities. It only covers those directives which have established more detailed and specific health surveillance requirements.

Table 8-2 Health surveillance provisions across Directives

	89/391 (framework)	90/270 (DSE)	2002/44 (vibration)	2003/10 (noise)	2013/35 (EMF)	2006/25 (AOR)	2004/37 (CM)	98/24 (CA)	2009/148 (asbestos)	2000/54 (biological)	92/104 (extracting)	92/91 (drilling)	91/383 (temporary)	94/33 (young workers)
Directives setting requirements on health records			X	X	X	X	X	X	X	X				
Directives providing practical recommendations for the health surveillance/clinical assessment of workers in an Annex							X		X	X				
Explanation on the purpose/aim/objective of health surveillance			X	X	X	X								
Health surveillance to be taken into account in the application of risk management measures			X					X	X	X				
Health surveillance in cases of exposure above limit values			X	X	X	X								
Health surveillance compulsory in cases where a binding biological limit value has been set								X						
Type of health surveillance to be carried out – specific examinations		X							X					
Health surveillance 'at regular intervals'	X	X					X			X	X	X		X
Specific time when health surveillance shall take place (prior to work, exposure, once every x years etc)		X					X		X	X	X	X		X
Medical examinations or surveillance made available during hours chosen by the worker					X									
No financial cost (especially in relation to health surveillance) for the employees	X	X			X									X
Doctor or authority responsible for health surveillance to be familiar with each worker's exposure conditions or circumstances							X		X	X	X			
Employer ensure access to the results of risk assessment for the person/authority responsible for health surveillance						X								
Workers to be informed by whoever carrying out the health surveillance on the results which relate to them personally			X	X		X		X						
Workers to be informed regarding any health surveillance to undergo after the end of exposure								X	X	X				
Employer to be informed of any significant findings from the health surveillance, taking into account confidentiality			X			X								
The employer shall review the risk assessment			X	X		X	X	X	X					
The employer shall review the risk management measures			X	X		X		X						
Employer to take account advice from those responsible for health surveillance in implementing risk management measures			X	X		X		X	X					
Employer to arrange continued surveillance and provide for a review of the health status of other worker similarly exposed			X	X		X	X	X	X	X				

Source: consultant's analysis of the Directives' provisions

Framework Directive

Some individual directives set general health surveillance provisions that could potentially bring an added value to the general principle of health surveillance under the Framework Directive:

- › Only Directive 2013/35/EU (EMF) specifies that medical examinations or surveillance shall be made available during hours chosen by the worker. This is applicable to any health surveillance procedure. Therefore it could be added to the Framework Directive.
- › Directive 2006/25/EC (AOR) sets an additional, more specific requirement for the employer to ensure that the person responsible for the health surveillance, has access to the results of the risk assessment where such results may be relevant to the health surveillance. There is a similar requirement under Directives 2004/37/EC (carcinogens or mutagens), 2009/148/EC (asbestos) and Directive 2000/54/EC (biological agents) according to which those responsible for the health surveillance must be familiar with the exposure conditions or circumstances of each worker. Similarly, this general requirement could apply to all risk assessment and, therefore, be included in the Framework Directive.
- › The Framework Directive does not set specific follow-up measures to health surveillance e.g. informing the employer of any significant findings from the health surveillance, taking into account medical confidentiality, etc. (see Table above). It does not seem justified that follow-up measures as a general principle are applied only for some agents. The same provision could apply to all health surveillance procedures as it is not exclusively linked with the specific nature of each risk and therefore it could be included in the Framework Directive.

The Framework Directive does not regulate health records, whereas almost all individual Directives containing a provision dedicated to health surveillance include specific requirements and specifications about health records (e.g. access rights, duration). The requirement to keep health records is directly linked with the requirement to ensure that workers receive health surveillance appropriate to the health and safety risks they incur at work. Therefore it does not seem justified to include a relevant obligation only in relation with specific risks; this is an obligation that could be streamlined under the Framework Directive and apply to all health surveillance procedures.

Physical agents

All physical agents directives set requirements on health surveillance. The relevant provisions contains a 'without prejudice' clause referring specifically to Article 14 of the Framework Directive while at the same time establishing more detailed requirements regarding health surveillance. These provisions are overall similar across the physical agents Directives, with the following exceptions:

- › The requirement to take into account health surveillance in the application of risk management measures only applies in relation to vibration and not to all physical agents but this difference does not seem to be justified by the specific scope and could be extended to the other physical agents Directives.
- › The requirement to inform workers on the results which relate to them personally is set by all physical agents directives except the Noise Directive.

- › Only Directive 2002/44/EC (vibration) requires that the employer shall be informed of any significant findings from the health surveillance, taking into account any medical confidentiality.
- › Two requirements are included in all physical agents Directives but Directive 2013/35/EC (EMF): the obligation placed on the employer to review the risk assessment on the basis of findings from health surveillance and the requirement for the employer to take into account advice from persons responsible for health surveillance in implementing risk management measures (including the possibility to assign alternative work).

Chemical agents

All the three Directives set health surveillance requirements. Directive 98/24/EC (carcinogens or mutagens) provides a specific definition for health surveillance as the assessment of an individual worker to determine the state of health of that individual, as related to exposure to specific chemical agents at work. The health surveillance provisions under the other two chemicals directives follow a similar approach, while containing some additional requirements specific to the risks they cover (e.g. specific chest examinations for asbestos). However two requirements on health surveillance from Directive 98/24/EC could also apply to all chemical agents under Directive 98/24/EC (chemical agents) since they are unlikely to be tailored to the specific hazards and risks derived from asbestos:

- › The doctor or the authority responsible for the health surveillance must be familiar with the exposure conditions or circumstances of each worker
- › The workers concerned or the employer can request a review of the results of health surveillance

Directive 2009/148/EC (asbestos) requires mandatory health surveillance prior to exposure whereas Directive 2004/37/EC (carcinogens or mutagens) only requires health surveillance to be carried out for workers for whom the results of the risk assessment reveal a risk to health or safety. Directive 2004/37/EC provides for health surveillance at regular intervals, if appropriate, whereas under Directive 2009/148/EC, a new assessment must be available at least once every three years for as long as exposure continues. Unlike Directive 2009/148/EC, the health surveillance requirements under Directive 2004/37/EC do not provide that the person responsible for medical surveillance may indicate that medical surveillance must continue after the end of exposure for as long as they consider it necessary to safeguard the health of the person concerned.

The health surveillance requirements under Directive 2009/148/EC (asbestos) are therefore more stringent than the ones under Directive 2004/37/EC (carcinogens or mutagens). Such difference is not justified by the specific hazards of asbestos which is classified as a carcinogen.

Biological agents

Among the Directives that sets health record requirements, only Directive 2000/54/EC (biological agents) does not explicitly require keeping them up to date.

CPM6: Worker Consultation

The provisions on consultation of workers across Directives do not give rise to any coherence issues. Most of the individual Directives simply make a cross-reference to the relevant provisions of the Framework Directive, while some set specific consultation requirements.

8.1.3 Other key requirements

Limit values

None of the physical agent Directives contain the same requirements concerning the procedure of adoption of limit values. Directive 2002/44/EC (vibration) and Directive 2003/10/EC (noise) do not include provisions related to the procedure of adoption of new or amended limit values. Directive 2002/44/EC (vibration) only provides that amendments of 'non-essential elements' and of a purely technical nature to the Annex can be done through comitology. Directive 2003/10/EC (noise) provides that amendments of a purely technical nature shall be adopted by the Commission in line with:

- › the adoption of directives in the field of technical harmonisation and standardisation with regard to the design, building, manufacture or construction of work equipment and/or workplaces;
- › technical progress, changes in the most appropriate harmonised European standards or specifications and new findings concerning noise.

The limit values and action levels set under Directive 2013/35/EC (EMF) and the risk they cover cannot be compared to the ones under Directive 2003/10/EC (noise) or Directive 2002/44/EC (vibration) concerning action values. However, under Directive 2013/35/EC, the Commission is empowered to adopt delegated acts under certain conditions amending, in a purely technical way, the Annexes, so as to, among others, make adjustments to the action levels where there is new scientific evidence, provided that employers continue to be bound by the existing emission limit values.

Unlike the other physical agent directives, Directive 2006/25/EC (AOR) explicitly mentions that any modification of the exposure limit values set out in the Annexes must be adopted by the European Parliament and the Council in accordance with the procedure laid down in Article 137(2) of the Treaty.

Workers at particular sensitive risks

Directive 89/654/EEC (workplace), Directive 92/57/EEC (construction sites) and the two Directives on mineral extracting industries provide that pregnant women and nursing mothers must be able to lie down to rest in appropriate conditions¹¹³. Directive 2013/35/EU (EMF) prescribes that when carrying out risk assessment, the employer must give particular attention among others to pregnant workers. Directive 98/58/EC (pregnant workers) does not include in its Annexes I and II references to electromagnetic fields. In order to ensure better clarity and avoid that provisions on pregnant workers are spread across different directives, the streamlining of these provisions under Directive 98/58/EC (pregnant workers) could be considered.

Inspection and enforcement measures

The Framework Directive does not set a general principle on penalties; only Directive 2013/35/EU (EMF), Directive 2006/25/EC (AOR) and Directive 2009/148/EC (asbestos) stipulate that MS shall provide for adequate penalties in the event of infringement of transposing legislation. Directive

¹¹³ Note that Directive 98/58/EC (pregnant workers) prohibits underground mining work for pregnant workers, workers that have recently given birth and workers who are breastfeeding.

94/33/EC (young workers) also requires that MS shall lay down any necessary measures applicable in the event of failure to comply with transposing legislation.

Finally, only Directive 92/85/EEC (pregnant workers) sets a specific judicial protection provision to enable all workers who should themselves be wronged by failure to comply with the obligations arising from this Directive to pursue their claims by judicial process (and/or, in accordance with national laws and/or practices) by recourse to other competent authorities.

Directive 92/57/EEC (construction sites) sets requirements concerning inspection of specific work equipment usually used in a construction site (scaffolding, lifting devices and accessories, cofferdams). This inspection obligation is fulfilled by the employer and it only applies to certain types of work equipment, complementing the general obligation of employers to inspect work equipment under Directive 2009/104/EC (work equipment). Work equipment is defined as 'any machine, apparatus, tool or installation used at work' and could therefore also cover those used in a construction site.

Hence, the requirements of Directive 2009/104/EC to record and keep the results of inspections and keep them at the disposal of the authorities concerned as well as to provide physical evidence that the last inspection has been carried out when work equipment is used outside the undertaking, also apply to work equipment used in construction sites. In the absence of a 'without prejudice' clause, this leads to an overlap as far as the work equipment covered by Directive 92/57/EEC is concerned.

8.1.4 Conclusion

Overall, the EU OSH acquis is coherent. Despite some stakeholders' views and comments, no contradictions or overlaps leading to double regulation between the requirements of the OSH Directives have been identified, with the exception of one instance concerning Directive 2009/104/EC (work equipment) and Directive 92/57/EEC (construction sites) in relation to inspection requirements. The inclusion of a 'without prejudice clause' in Directive 2009/104/EC would ensure that equipment inspected under Directive 92/57/EEC (e.g. scaffolding) are not subject to other inspection requirements under Directive 2009/104/EC.

Specific Directives have been developed in line with the Framework Directive, by setting additional requirements in relation to specific places, activities, risks or groups of workers. As the specific Directives have been adapted from 1989 to 2013, some provisions of a general nature which could be considered as part of a framework have been introduced in the different specific Directives. The table below lists by CPM and key requirements the provisions we would recommend to streamline under the Framework Directive based on their general nature.

Textbox 8-1 General provisions to be streamlined under the Framework Directive

CPM1: Risk assessment and derived risk management measures

- › To update or periodically repeat the risk assessment
- › To record the risk assessment on a suitable medium and to preserve in a suitable form the risk assessment to permit consultation at a later stage
- › To take particular attention, when carrying out the risk assessment, to appropriate information obtained from health surveillance, including published information, as far as possible.
- › To preserve in a suitable traceable form the protection and prevention measures derived from the risk assessment.
- › To review the risk assessment based on the outcome of health surveillance

CPM2: Preventive and protective services

- › To ensure that workers/services/persons designated for carrying out preventive and protective activities are informed and remain updated on all new workers and on the status of duties of all workers and/or about any specific element (e.g. young, pregnant) so as to be able to perform their duties covering all the personnel in the establishment/undertaking in an effective way.

CPM 3: Information to workers

- › To inform all workers concerned in a comprehensible manner
- › To inform all workers on the outcome/results of the risk assessment including an explanation of their significance and potential risks, on the circumstances in which workers are entitled to health surveillance, on safe working practices, in cases of abnormal situations, and before they take up an activity.
- › To inform workers about any significant findings from the health surveillance, taking into account any medical confidentiality

CPM 4: Training requirements

- › To organise training demonstrations where relevant
- › To train workers on safe working practices to minimise exposure and on how to perform and execute tasks to avoid risks
- › To ensure that workers at particular risk are subject to particular attention when drawing up and/or providing training.
- › To ensure that workers are trained on how to act in case of special/abnormal circumstances (e.g. accident, incidents)

CPM 5: Health surveillance

- › To ensure that medical examinations or surveillance must be made available during hours chosen by the worker
- › To ensure that the doctor, the occupational health professional or the medical authority responsible for the health surveillance, has access to the results of the risk assessment where such results may be relevant to the health surveillance.
- › To ensure that the doctor or the authority responsible for the health surveillance must be familiar with the exposure conditions or circumstances of each worker
- › To take into account advice from the people/authority responsible for health surveillance in implementing risk management risks including assigning alternative work
- › To ensure that result of health surveillance are kept under health records

Inspection and enforcement requirements

- › MS shall provide for adequate penalties in the event of infringement of transposing legislation
- › MS must introduce into their national legal systems such measures as are necessary to enable all workers who should themselves wronged by failure to comply with the obligations arising from this Directive to pursue their claims by judicial process (and/or, in accordance with national laws and/or practices) by recourse to other competent authorities.

The same types of findings were identified but within groups of Directives that regulate very similar types of risks and contain very similar risk management measures. This is mainly the case for the chemical agent Directives and physical agent Directives. In some instances, the provisions identified below could also be considered for application across the whole body of OSH legislation. In such cases, the streamlining within one group of directives rather than in the Framework Directive should be considered as an alternative.

The provisions listed in the table below are not included in all physical agent Directives but they could apply to all physical agents independently of the risk they cover.

*Textbox 8-2 Provisions which could apply to all physical agents directives***CPM1: Risk assessment and derived risk management measures**

- › The risk assessment must give particular attention to the extension of exposure beyond normal working hours under the employer's responsibility.
- › The risk assessment must be followed by measures related to the limitation of the duration and intensity of the exposure
- › As a follow-up measure in case of exceedance of limit values, appropriate work schedules with adequate rest periods must be set up.

CPM 3 and 4: Information and training to workers

- › Workers must be informed and trained on the nature of the risk
- › Specific information and training measure for workers at particular risk must be set up

CPM 5: Health surveillance

- › Health surveillance must take into account the application of risk management measures
- › Workers must be informed on the result of health surveillance which relate to them personally
- › Employers must be informed of any significant findings from the health surveillance, taking into account any medical confidentiality.
- › obligation to review the risk assessment based on the findings from health surveillance
- › employer's obligation to take account of advice from health surveillance bodies

We recommend including these provisions in all physical agent Directives to ensure consistency across these four directives. An alternative would be to merge the physical agent Directives into one Directive. It would contain general provisions applying to all physical agents, complemented with specific provisions on each physical agent. This would ensure consistency across the requirements applying to all agents and could facilitate their application at the workplace. On the other hand, the differences in the risk involved, the approaches to risk management and the setting of different limit values justify the existence of distinct directives. A merging of the directives may lead to further confusion.

Concerning the chemical Directives, it is important to note that the provisions of Directive 98/24/EC (chemical agents) apply without prejudice to more stringent and/or specific provisions contained in Directive 2004/37/EC (carcinogens or mutagens) and that the provisions of Directive 2004/37/EC (carcinogens or mutagens) apply to asbestos whenever these provisions are more favourable to health and safety at work. Therefore the analysis focused on the identification of provisions under Directive 2004/37/EC (carcinogens or mutagens) and Directive 2009/148/EC (asbestos) that could apply to all chemicals and on measures under Directive 2009/148/EC (asbestos) that could apply to Directive 2004/37/EC (carcinogens or mutagens).

The table below lists the provisions that should apply to all chemical agents covered under Directive 98/24/EC (chemical agents) independently of the level and type of risk they entail.

Textbox 8-3 Provisions which could apply to all chemical agents directives

CPM1: Risk assessment and derived risk management measures

- › The obligation to supply the authorities responsible at their request with the information used for making the assessment
- › Measures related to the demarcation of risk areas and use of adequate warning and safety signs for relevant hazardous chemical agents. This would involve the development of selection criteria as to which hazardous chemical agents should be covered by this management measure.
- › Substitution requirements

CPM 3 and 4: Information and training to workers

- › Access of workers and/or any workers' representatives to anonymous collective information
- › Employer obligation to keep an up-to-date list of the workers engaged in the activities posing an occupational risk and to ensure access rights to the list (for the doctor and/or competent authority/persons and the exposed workers themselves).

CPM 5: Health surveillance

- › Measure requiring that the doctor or the authority responsible for the health surveillance must be familiar with the exposure conditions or circumstances of each worker and the possibility to review the results of the health surveillance, upon request of the worker concerned or the employer.

We would therefore suggest streamlining these provisions under Directive 98/24/EC (chemical agents) which would enhance the protection of workers exposed to chemical agents. We however do not recommend the merging of the two Directives, since the hazardous properties of carcinogens or mutagens require specific risk management measures that are not necessary for hazardous chemical agents covered under Directive 98/24/EC (e.g. the obligation to manufacture and use carcinogens or mutagens under a closed system where technically possible). Furthermore the structure of the risk management measures is not similar between the two directives and would not facilitate the merging of the two Directives.

We also recommend that the following provisions under Directive 2009/148/EC (asbestos) should apply to all carcinogens under Directive 2004/37/EC (carcinogens or mutagens):

- › Employer obligation to indicate in the register on worker exposure the nature and duration and the exposure to which they have been subjected
- › Mandatory health surveillance prior to exposure
- › Health surveillance at regular intervals
- › Medical indication where necessary to continue health surveillance after exposure

Directive 2009/148/EC sets very specific measures applying to worker exposure to asbestos dust during removal of asbestos and demolition work. Furthermore more favourable provisions under Directive 2004/37/EC (carcinogens or mutagens) must apply to asbestos. We therefore do not recommend the merging of Directive 2004/37/EC (carcinogens or mutagens) and Directive 2009/148/EC (asbestos) but rather suggest some clarifications (e.g. guidelines for employers) on what would be the more favourable provisions of Directive 2004/37/EC (carcinogens or mutagens) applying to workers exposed to asbestos.

The analysis identified similar types of inconsistencies concerning Directive 2009/104/EC (work equipment), Directive 1999/92/EC (ATEX) and Directive 2000/54/EC (biological agents).

We recommend that Directive 2009/104/EC (work equipment) should include a provision requiring employers to take into account in their review information provided by the manufacturers of work equipment in accordance with the relevant EU Directives. This is particularly relevant in relation to the remarks made on coherence with the Machinery Directive. In parallel such provisions should be removed from Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise) and Directive 2006/25/EC (AOR).

Concerning Directive 1999/92/EC (ATEX), which does not have any specific worker information requirement, we suggest including relevant information requirements on explosive atmosphere under Directive 92/104/EEC (mineral-extracting industries) and Directive 92/91/EEC (drilling).

Despite the differences between the chemical agent Directives and Directive 2000/54/EC (biological agents) several provisions applying to workers exposed to chemical agents could also apply to worker exposed to biological agents. We would recommend the inclusion of the following provisions of Directive 98/24/EC (chemical agents) under Directive 2000/54/EC (biological agents) in view of enhancing worker safety:

- › The obligation during the risk assessment to take into account the effect of preventive measures, to obtain additional information from suppliers, to take into account conclusions to be drawn from health surveillance, to include activities with foreseeable exposures in the risk assessment and include a justification by the employer that the nature and extent of the risks make a further detailed assessment unnecessary.
- › The obligation to update health record.

We would also recommend including in Directive 2000/54/EC (biological agents) the obligation to inform workers on how to detect health effects of exposure and how to report them as required under certain physical agent Directives.

By virtue of its structure, the OSH acquis includes similar common processes and mechanisms (CPMs) that are regulated across directives. However, while the general requirement is set by the Framework Directive, the other OSH directives refers to the Framework Directive (typically through a cross-reference to the provision relevant to a specific CPM) or establishes more detailed requirements targeting to the particular risks covered by the individual directive, hence not leading to overlaps as the various requirements for one CPM will apply in a complementary and tailored to the risk fashion. The few overlaps identified i.e. when an identical requirement features in different directives do not lead to double-regulation as the similar requirements are set by directives that do not apply to the same workplace or workers, or the employer will apply this identical requirement only once. In the latter case, such overlaps could be corrected for enhanced legal clarity. These include:

- › Directive 89/656/EC (PPE) sets requirement to use instructions and, if appropriate, specific demonstrations, in the wearing of PPE while several other individual directives include specific training of workers related to the correct use of PPE. Such duplication could be seen as overlaps as training of workers under the PPE Directive should be sufficient to cover all kinds of PPE used in different activities and linked with a variety of risks. We therefore suggest replacing the training provisions on PPE in different individual directives by one separate, distinct provision under the PPE Directive.

- › the training provisions on work equipment in Directive 92/104/EEC (mineral-extracting industries) Directive 92/91/EEC (drilling), should be deleted as these requirements are already covered under Directive 2009/104/EC (work equipment).

Finally, even if no overlaps were identified, in order to ensure legal clarity we would recommend reviewing Directive 92/85/EEC (pregnant workers) to streamline the provisions on pregnant workers and breastfeeding workers under other OSH Directives and to align the terms nursing mothers and breast-feeding workers in the Directives.

8.2 Coherence between the OSH Directives and other EU measures and/or policies and international instruments (EQC2)

EQC2: How is the interrelation of the Directives with other measures and/or policies at European level also covering aspects related to health and safety at work, such as EU legislation in other policy areas (e.g. legislation: REACH, Cosmetics Directive, Machinery Directive, policy: Road Transport Safety, Public Health, Environment Protection), European Social Partners Agreements or ILO Conventions?

8.2.1 General observations on ‘external’ coherence

This section presents the findings related to the ‘external’ coherence of the OSH acquis; the interrelation of OSH Directives with other measures and/or policy measures also covering aspects related to health and safety at work, both at European and international levels.

The methodology followed for EQC 2 is similar to the methodology followed under EQC1. However, in addition to mapping overlaps and inconsistencies, we also mapped interfaces and gaps.

Following the same approach as EQC1 while mapping potential interfaces, overlaps and inconsistencies, we complemented our findings with information from the interviews of EU and national stakeholders.

Results of the interviews on the one hand complemented the identification of non-OSH EU legal acts and on the other hand provided additional information on the evaluation of coherence between OSH and non-OSH EU legislation. As for sub-question 1, any available information relevant to the evaluation of coherence has also been extracted from the NIRs.

8.2.2 Coherence between OSH Directives and relevant, non-OSH EU legislation

The overview of interfaces (overlaps, inconsistencies, gaps, synergies) between OSH Directives and relevant, non-OSH EU legislation shows that, in several cases, one specific non-OSH EU act or several inter-related non-OSH EU acts are relevant in terms of coherence to a group of OSH Directives. Therefore, such interfaces are introduced below per non-OSH EU legislation.

Machinery Directive

Directive 2006/42/EC (machinery) applies to machines which include interchangeable equipment, safety components, lifting accessories, chains ropes and webbing and removal mechanical

transmission devices. In order to be allowed to place machinery on the market manufacturers must ensure among others that it complies with relevant health and safety requirements set under Annex I of the Machinery Directive. This Directive presents interfaces with a number of OSH Directives.

Interfaces with the Work Equipment Directive

With regard to the Work Equipment Directive, the definition of work equipment is broader than that of machinery, but machinery for professional use accounts for an important category of work equipment.

Pursuant to the Work Equipment Directive, employers are required to make available to workers work equipment suitable for the work to be carried out and which complies with the provisions of any relevant EU Directive which is applicable to it and to the minimum requirements laid down in its Annex I to the extent that no other Directive is applicable. In other words, the machinery falling under the scope of the Machinery Directive will have to comply in priority with the health and safety requirements under the Machinery Directive and not the ones set under Annex I to the Work Equipment Directive.

The Machinery Directive does not apply to the placing on the market of used or second-hand machinery. As underlined by the guide on the application of the Machinery Directive, machinery that were placed on the market before the application of the Machinery Directive are therefore subject to the Work Equipment Directive Annex I health and safety requirements.¹¹⁴

The health and safety requirements under the two Directives are not similar as the requirements under the Machinery Directive are often more elaborated, e.g. the lighting ergonomic requirements. The Machinery Directive contains requirements that do not exist under the Work Equipment Directive e.g. on design of machinery to facilitate its handling. However these differences can be explained by the difference of approach: the Machinery Directive considers the equipment from a manufacturing perspective when the Work Equipment Directive sets requirements applicable at the workplace during the use of the equipment.

Under the Machinery Directive manufacturers must provide several types of instructions to ensure that machinery is used safely (e.g. indication whether a specific training is required, indication on the type and frequency of inspections and maintenance required)¹¹⁵. These instructions constitute an essential tool to enable employers to apply the provisions under the Work Equipment Directive. Therefore, there is an instance of positive synergy between the two Directives.

Interface between the Machinery Directive and the physical agent Directives

Concerning the physical agents Directives, Annex I to Directive 2006/42/EC (machinery) includes health and safety requirements on physical agents e.g. the reduction of noise, vibration and radiation as part of the machinery design and construction.

¹¹⁴ Guide to application of the Machinery Directive, 2nd Edition June 2010, European Commission (Enterprise and Industry). Available at:

http://ec.europa.eu/enterprise/sectors/mechanical/files/machinery/guide_application_directive_2006-42-ec-2nd_edit_6-2010_en.pdf

¹¹⁵ See for further details Point 1.7.4 Annex I to Directive 2006/42/EC on instruction requirements

Employers can rely on information on machinery and equipment physical effects as generated under Directive 2006/42/EC (machinery) where carrying a risk assessment on relevant individual risks. Such synergies are sometimes reflected in the individual OSH directives e.g. Directive 2003/10/EC (noise) requires employers to give particular attention to information on noise emission provided by manufacturers of work equipment in accordance with the relevant EU directives.

Interface between the Machinery Directive and the PPE Directive

The Machinery Directive provides that machinery must be designed and constructed to take account of the constraints to which the operator is subject as a result of the necessary or foreseeable use of PPE. It also requires that instructions to the protective measures must include where appropriate the PPE to be provided. Such requirements are seen as positive synergies leading to a better application of the PPE Directive.

Interface between the Machinery Directive and the ATEX Directive

Concerning explosions, Annex I point 1.5.7 of the Machinery Directive requires that machinery must be designed and constructed in such a way as to avoid any risk of explosion posed by the machinery itself or by gases, liquids, dust, vapours or other substances produced or used by the machinery. It adds that Machinery must comply, as far as the risk of explosion due to its use in a potentially explosive atmosphere is concerned, with the provisions of the specific Community Directives. The application of Directive 2006/42/EC (machinery) prevents or limits workers exposure to explosions at the workplace.

Directive 2013/30/EU Safety of offshore oil and gas operations

Directive 2013/30/EU sets minimum requirements for preventing major accidents in offshore oil and gas operations and limiting the consequences of such accidents. In particular, the Directive sets extensive requirements to the operator/owner (report on major hazards, internal emergency response plan and design notification). Unlike Directive 92/91/EEC (drilling), Directive 2013/30/EU does not set minimum safety requirements (e.g. on rescue, fire safety) but rather sets procedures to ensure that these safety requirements are correctly applied and implemented.

Directive 2013/30/EU mentions that it applies without prejudice to the requirements laid down in Directive 92/91/EEC (drilling). In other words the requirements of these two Directives will both apply to offshore oil and gas sites.

Operators/employers of an off-shore oil and gas operation will both have to prepare a health and safety document under Directive 92/91/EEC and reports on major hazards, internal emergency response plan and design notification under Directive 2013/30/EU. Several instances of potential overlaps between the reporting requirements under the two Directives have been identified. These are to some extent justified by the different scope of the two directives. Directive 92/91/EEC sets measures targeting health and safety of workers whereas Directive 2013/30/EU set general safety measures to avoid major accidents which are not specific to workers.

In order to limit these overlaps and to build synergies between the two reporting requirements, Recital 26 of Directive 2013/30/EU provides that the report on major hazards should be complementary to the safety and health document referred to in Directive 92/91/EEC. In the same vein, Annex I to Directive 2013/30/EU requires that the report on potential hazards, the notification of well operations must contain information relevant to other requirements under this Directive obtained pursuant to the major accident prevention requirements of Directive 92/91/EEC. Such interface between the two reporting systems should be further clarified through guidelines to

ensure that operators/employers adequately reflect information in safety and health documents into the different reporting documents under Directive 2013/30/EU (safety of offshore oil and gas operations).

Directive 92/91/EEC also requires that employer must, without delay, report to the competent authorities any serious and/or fatal occupational accidents and situations of serious danger. This information can be used by competent authorities to report information required under Annex IX, point 2) of Directive 2013/30/EU (i.e. fatal accident, serious injuries to five or more persons).

Member States must ensure that workers' representatives are consulted at the relevant stages in the preparation of the report on major hazards for a non-production installation. Recital 18 provides that such consultation should be carried out in accordance with Directive 92/91/EC.

Employment rights related acts

Several EU legal texts set employment rights related to pregnant workers. Firstly, both the Charter of Fundamental Rights of the European Union and Directive 2006/54/EC (equal treatment) set provisions aiming at protecting workers against discrimination linked to pregnancy and maternity. In addition, Directive 2003/88/EC (working time) sets rules on working time.

Directive 92/85/EEC (pregnant workers) also sets rules that relate to employment rights/labour law, notably on night work, maternity leave, time-off for pre-natal examination and employment rights as such. Member States have often transposed the Directive through a combination of labour law and OSH-related legislation reflecting the dual nature of the Directive. However, the objectives of these texts are different. Directive 92/85/EEC (pregnant workers) specifically aims at improving the safety and health at work of pregnant workers and workers who have recently given birth or who are breastfeeding, while Directive 2006/54/EC (equal treatment) focuses on ensuring the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation. In addition, Directive 2006/45/EC contains a without prejudice clause which refers to provisions concerning the protection of women as regards pregnancy and maternity, and would therefore apply to Directive 92/85/EEC (pregnant workers). Therefore, it is considered that there is no coherence issue in this instance.

Both Directive 92/85/EEC (pregnant workers) and Directive 94/33/EC (young workers) set specific night work requirements. Directive 94/33/EC (young workers) also sets specific working time and rest periods for young workers.

According to Recital 14 of Directive 2003/88/EC (working time) specific standards laid down in other Community instruments relating, for example, to rest periods, working time, annual leave and night work for certain categories of workers should take precedence over the provisions of this Directive. The working time provisions under Both Directive 92/85/EEC (pregnant workers) and Directive 94/33/EC (young workers) are very specific to a category of worker at particular risk they take precedence over the general requirements under Directive 2003/88/EC (working time). There is no coherence issue in this instance. Despite the fact that no coherence issues were identified, the streamlining of provisions setting specific employment conditions and rights for pregnant and young workers under the current EU labour legislation (e.g. Working Time Directive) should be considered for better clarity. This streamlining should at least apply to the provisions setting employment rights that are not directly linked to the health and safety at work of young people and pregnant workers (e.g. working time provisions allowing young people to combine work with school

attendance or time off for ante-natal examinations and prohibition of dismissal of pregnant workers).

EU legal framework on public procurement

Public procurement policy includes certain considerations relevant to occupational health and safety. The legal framework in the EU is provided by the Procurement Directives, namely Directive 2014/24/EU replacing Directive 2004/18/EC on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, Directive 2014/25/EU replacing Directive 2004/17/EC coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors and Directive 2014/23/EU on the award of concession contracts.

All these directives specifically stipulate in their recitals that ‘measures aiming at the protection of health of the staff involved in the production process, the favouring of social integration of disadvantaged persons or members of vulnerable groups amongst the persons assigned to performing the contract or training in the skills needed for the contract in question can also be the subject of award criteria or contract performance conditions provided that they relate to the works, supplies or services to be provided under the contract’. Examples of such criteria or conditions cover the employment of long-term job-seekers, the implementation of training measures for the unemployed or young persons. The relevant provision concerning the award criteria mentions ‘social characteristics’ as a possible criterion, without further detail or specific reference to occupational health and safety obligations on behalf of the tenderers.

Moreover, all EU public procurement Directives define ‘work’ as the outcome of building or civil engineering works taken as a whole which is sufficient in itself to fulfil an economic or technical function and include an elaborate listing of construction works in their Annexes. Therefore this Framework interacts with the works carried out in construction sites.

It should be noted here that the previous Directive 2004/18/EC explicitly included obligations relating to employment protection provisions and working conditions as obligations to be considered when executing the works. The new Directive 2014/24/EU only sets the non-payment of taxes or social security contributions as a ground for exclusion.

The existence of the guidelines *Buying Social – a guide to taking account of social considerations in public procurement*¹¹⁶ partially addresses the taking into account of occupational health and safety aspects in public procurement, albeit to a lesser extent. In order to promote the implementation of OHS requirements, the Commission encourages contracting authorities to include social considerations and take into account social policies through the implementation of socially responsible public procurement (SRPP) procedure. As regards the construction sector, the document *Buying Social – a guide to taking account of social considerations in public procurement*, gives indicative examples of how social concerns can be included in the technical specifications of public works contracts (*inter alia*, compliance with certain ILO Conventions, adoption of measures aiming at avoid accidents on the construction site, such as signposting, conditions for storage of dangerous products or routes for transport of equipment).

¹¹⁶ DG Employment, social affairs and equal opportunities (2010), [*Buying Social – a guide to taking account of social considerations in public procurement*](#).

Directive 97/70/EC (safety regime for fishing vessels of 24 meters)

This Directive implements the Torremolinos Protocol adopted in 1993 under IMO relating to the Torremolinos International Convention for the Safety of Fishing Vessels adopted in 1977.

The Fishing Directive has a broader scope than Directive 97/70/EC, as the latter applies to fishing vessels of 24 meters and more (compared to 15 or 18 metres for the Fishing Directive). Directive 97/70/EC (safety regime for fishing vessels of 24 metres) applies without prejudice to the Fishing Directive. In other words, the requirements of both Directives both apply to fishing vessels over 24 metres.

Directive 97/70/EC lists safety standards for sea-going vessels. Some of the requirements of the annexes of the Fishing Directive are also covered under Directive 97/70/EC (e.g. seaworthiness and stability, mechanical and electrical installations, radio installation, fire detection and firefighting). However, the requirements set by Directive 97/70/EC to avoid accidents at sea are more focused on the design and structure of the vessels while the Fishing Directive concerns primarily the safety of workers while the vessel is at sea.

Therefore, there are no overlaps between the minimum health and safety requirements under the Fishing Directive and the safety standards under Directive 97/107/EC, but both Directives are complementary. However, it was highlighted during EU stakeholder interviews and in the NIRs that the fact that the annexes to the Fishing Directive cover similar issues as Directive 97/70/EC is problematic and causes unnecessary confusion. It was thus stated that fewer pieces of EU legislation was preferable and should be sought whenever fusion is possible.

REACH Regulation

Article 2(4) of Regulation (EC) No 1907/2006 (REACH) provides that it applies without prejudice to EU workplace legislation including Directive 98/24/EC (chemical agents), and Article 14(1) of REACH states that a chemical safety assessment (CSA) shall be performed and a chemical safety report (CSR) completed without prejudice to Article 4 of Directive 98/24/EC (chemical agents) on risk assessment. At the same time, Article 1(3) of the Framework Directive provides that it “shall be without prejudice to existing or future national and Union provisions which are more favourable to protection of the safety and health of workers at work”. This shows that the legislator’s intention was to ensure that OSH legislation (including Directive 98/24/EC) and REACH acts co-existed without one prevailing over the other, because of their difference of scope, actors involved and obligations as underlined in the paragraphs below.

The aim of REACH as described in its Article 1(1), is to ensure a high level of protection of human health and the environment, including the promotion of alternative methods for assessment of hazards of substances, as well as the free circulation of substances on the internal market while enhancing competitiveness and innovation. It covers workers, consumers and the environment whereas Directive 98/24/EC only focuses on the protection of workers.

Whereas REACH places obligations on the manufacturers, importers, downstream users, in the supply chain, Directive 98/24/EC (chemical agents) imposes requirements on the employers, who could be manufacturers, importers, downstream users, distributors or suppliers under REACH.

Unlike REACH that only applies to chemical substances placed on the market OSH chemical legislation applies to worker exposure to chemical agents released by any work activity, whether or not produced intentionally and whether or not placed on the market

A 'generic' risk assessment under REACH is carried out by registrants of chemical substances at the beginning of the supply chain¹¹⁷ whereas, under Directive 98/24/EC (chemical agents), employers must carry out a risk assessment at a specific workplace.

Worker exposure to chemical substances is initially controlled under REACH through risk management measures identified by registrants and circulated in the supply chain by safety data sheets (SDS). SDS should reflect all the identified uses of the chemical substances in the supply chain and related control measures. Under the Directive 98/24/EC (chemical agents) worker exposure to chemical agents is mainly controlled by measures identified through the employers risk assessment. The employer risk assessment should take into account the information provided in the SDS for the chemicals present in the workplace.

Unlike the REACH Registration procedure, which sets differentiated requirements and exemptions based on the tonnage of chemical substances placed on the market¹¹⁸, Directive 98/24/EC (chemical agents) applies to all chemical agents at the workplace independently of the quantity used at that workplace.

SDS are the main tool for ensuring that suppliers communicate enough information along the supply chain to allow safe use of their substances and mixtures. Annex II of REACH, which sets the requirements for the compilation of SDS, refers a few times to Directive 98/24/EC (chemical agents). These references relate to the use of data from the SDS generated through REACH in the implementation of OSH requirements. It mentions that information provided in the SDS must meet the requirements set out in the Directive 98/24/EC (chemical agents). It also provides that the information on the SDS must enable the employer to determine whether for any hazardous chemical agents present in the workplace, risk to the health and safety of workers arising from their use should be assessed (i.e. information on occupational exposure controls) and to set control measures according to Article 5 of Directive 98/24/EC (chemical agents) (i.e. handling and storage of chemicals). Please note that measures set under the SDS are not binding on downstream users and therefore employers.

As mentioned in the guidance for employers on controlling risks from chemicals, occupational exposure limits (OELs) are reference levels for control of exposure to hazardous substances. An OEL is the level that describes 'adequate control of exposure by inhalation'.¹¹⁹

OELs can differ from one country to another. For any chemical agent for which an indicative OEL value is established at EU level, Member States must establish a national exposure limit value, taking into account the Community indicative limit value, determining its nature in accordance with national legislation and practice¹²⁰. In other words Member States can set higher or lower values IOELs. Binding OELs (BOELs) are adopted taking into account socio-economic factors feasibility factors as well as the factors considered when establishing IOELs. For any chemical agent for which a BOELV value is established at EU level, Member States must establish a corresponding

¹¹⁷ This assessment according to Annex I of REACH must however consider all stages of the life-cycle of the substance resulting from the manufacture and identified uses

¹¹⁸ The authorisation and restriction obligations are not based on tonnage.

¹¹⁹ European Commission, guidance for employers on controlling risks from chemicals Interface between Chemicals Agents Directive and REACH at the workplace (October 2010)

¹²⁰ Information retrieved from explanatory text on OELs and their procedure of adoption available at: [file:///C:/Users/fp/Downloads/EMPL-2008-01677-00-00-EN-ORI-00%20\(3\)%20\(2\)%20\(1\).pdf](file:///C:/Users/fp/Downloads/EMPL-2008-01677-00-00-EN-ORI-00%20(3)%20(2)%20(1).pdf)

national binding OEL value which can be stricter, but cannot exceed the Community limit value¹²¹. These OELs are adopted based on the independent opinion of the SCOEL and in cooperation between Member States and the Commission.

REACH, introduced a new approach to set exposure reference levels of chemicals based on human health and environmental effects covering all the exposure routes and the environmental compartments. Manufacturers or importers manufacturing or importing more than 10 tonnes of a chemical substance subject to registration must derive levels of exposure to the substance above which humans should not be exposed, known as Derived No Effect Levels (DNELs) in their registration dossier (See Annex I point 1 of REACH). All relevant exposure routes must be taken into account when defining DNELs (i.e. oral, dermal and inhalation).

REACH also requires that Derived Minimum Effect Levels (DMELs) must also be set by registrants for substances where no safe threshold can be set (e.g. carcinogenicity).

DNELs/DMELs are also part of the risk characterisation to determine an unacceptable risk that would justify a restriction. Member States Competent Authorities or ECHA and ECHA's Risk Assessment Committee (RAC) set up the DNELs/DMELs on the basis of the registration dossier. DNELs/DMELs established by registrants are also part of the risk characterisation in the authorisation procedure in view of assessing if the applicant's proposed risk management measures are appropriate and effective. The RAC may re-define DNELs/DMELs during evaluation of applications for authorisation and establish a 'reference DNEL' and dose response curves for non-threshold substances. Unlike OELs the DNELs cannot differ from one Member State to another.

The main differences between DNELs and OELs are their objective and the methodology used for their derivation. OELs are explicitly developed for occupational safety purposes whereas DNELs were not preliminarily intended to play a role within occupational health and safety but to oblige industry to implement risk management measures in case exposures to a chemical exceed the DNEL. The REACH guidance for DNELs suggest using default factors if substance specific data is missing, whereas for OELs most countries as well as SCOEL argue that expert judgment is needed to fill this data gap and that no default factors should be provided¹²². Furthermore the point of departure of the analysis is not similar¹²³. The table below shows how DNELs and IOELs differ for the same substances.

¹²¹ Ibid.

¹²² Information retrieved from conference document on harmonising OELs and DNELs at European Level - a position paper reflecting the results at the OEL-conference in Dortmund by Fritz Kalberlah, FoBiG GmbH, Freiburg (2007) available at:

<http://www.baua.de/cae/servlet/contentblob/676676/publicationFile/48386/Vortrag-17.pdf>

[http://www.baua.de/cae/servlet/contentblob/676676/publicationFile/48386/Vortrag-](http://www.baua.de/cae/servlet/contentblob/676676/publicationFile/48386/Vortrag-17.pdf)

[17.pdf](http://www.baua.de/cae/servlet/contentblob/676676/publicationFile/48386/Vortrag-17.pdf)<http://www.baua.de/cae/servlet/contentblob/676676/publicationFile/48386/Vortrag-17.pdf>

¹²³ Information retrieved from a presentation of Tim Bowmer RAC Chairman, DNEL setting using ECHA Guidance: NMP and DCB as examples at the REACH and Occupational Safety and Health (OSH) legislation , November 2014 available at:

http://ec.europa.eu/enterprise/sectors/chemicals/reach/events/index_en.htm#h2-2

Table 8-3 How DNELs and IOELs differ for the same substances

Substance	DNELs	IOELs
1,4 dichlorobenzene	0,6 ppm	20 ppm
N-methyl-2-pyrrolidone	10 mg/m ³ ≈ 2.5 ppm	10 ppm

Source: ECHA and SCOEL websites

It is important to note that, since 1991, around 200 IOELs have been adopted. In comparison since 2008 around 12 500 DNELs have been set through the REACH registration procedure.

Annex II Section 8 of REACH requires that the SDS must specify currently applicable specific control parameters including the national occupational exposure limit values and biological limit values that correspond to EU occupational exposure limit values and biological values in accordance with Directive 98/24/EC (chemical agents) and Directive 2004/37/EC (carcinogens and mutagens). It also mentions that, where a Chemical Safety Report is required, DNELs must be given for the relevant exposure scenarios. This scenario creates confusion in particular for the downstream users which may receive on the same substance two different values reported in the SDS. The process of adoption of OELs under Directive 98/24/EC (chemical agents), which unlike DNELs are only applicable to workers exposed to chemical agents; the methods to derive them¹²⁴, are different to those for DNELs under REACH. However, neither the REACH Regulation nor Directive 98/24/EC (chemical agents) set a mechanism to articulate the application of OELs under the national legislation¹²⁵ and DNELs for the same chemical substances¹²⁶. This can lead to potential overlaps and confusion among employers on which limit values they must take into account in their risk assessment. In particular, as indicated above, the SDS under REACH mentions both the OELs and the DNELs applicable to the chemical while OELs and DNELs values may differ. This raises confusion as to which value must be used for the risk assessment with some consequences on choosing the appropriate risk management measures.

Employers carrying out a risk assessment procedures and setting management measures under Directive 98/24/EC (chemical agents) and Directive 2004/37/EC (carcinogens or mutagens) must rely on the information transmitted down the supply chain through the safety data sheets under REACH (including results of the Chemical Safety Assessment (CSA), such as exposure scenarios and information on exposure control measures and on handling and storage).

Annex II point 7 of REACH provides that information on the SDSs on handling and storage must assist the employer in devising suitable working procedures and organisational measures according to Article 5 of Directive 98/24/EC.

¹²⁴ Mainly through an independent body SCOEL whereas most DNELs are set by registrants. However as already mentioned in the main text DNELs can be revised by Member State Authorities and RAC during the restriction and authorisation procedures.

¹²⁵ The values introduced at national level can be more stringent from the ones adopted at Union level and can differ from one country to another.

¹²⁶ Please note however that Articles 5(4) and 5(6) of Commission Decision 95/320/EC setting up SCOEL contain provisions requiring the collaboration of SCOEL with other scientific committees and Union Agencies.

Annex II point 8.2.1 of REACH provides that information on appropriate control measures (e.g. personal protective equipment) under SDSs must be sufficient to enable the employer to carry out an assessment of risk to the safety and health of workers arising from the presence of the substance or mixture in accordance with Articles 4 to 6 of Directive 98/24/EC

Moreover, information on chemical substances generated under REACH and communicated through SDSs can be useful for drawing up safety and health guidance documents. Information on workers' exposure to chemicals generated under REACH could also be useful for the health surveillance of workers and to fulfil essential health and safety requirements, including in relation to protection from harmful atmospheres. In other words the safety data sheets provide important information to employers to perform their risk assessment at the workplace and to adopt the adequate risk management measures. However some employers expressed their concern on the difficulties they encounter to use information from the SDSs. They stress that it is a very complex and burden exercise to use information from SDSs. The risk management measures under the SDSs can potentially contradict the OSH measures (e.g. SDSs requiring the use of half mask and gloves in a specific material whereas OSH preventive measures require for the same substance no mask and gloves from another material¹²⁷). Article 6 Directive 98/24/EC (chemical agents) provides that, in order to eliminate or reduce to a minimum the risk from a hazardous chemical agent to the safety and health of workers at work, "substitution shall by preference be undertaken". Directive 2004/37/EC (carcinogens or mutagens) provides that the employer must reduce the use of a carcinogen or mutagen at the place of work, in particular by replacing it, in so far as is technically possible, by a substance, preparation or process which, under its conditions of use, is not dangerous or is less dangerous to workers' health or safety, as the case may be. Under REACH the substitution principle applies, under the provisions on both restriction and authorisation, even though until now few substances are subject to authorisation and restriction. In the case of restriction, substitution is encouraged by the limitations (which may be a prohibition) imposed on the manufacture, use and/or placing on the market of the substance while authorisation puts strong pressure on companies to move to alternatives within a defined timeframe.

One could argue that REACH will generate more data which will support employers to identify alternatives which are less hazardous than the chemical substances previously used..

According to Article 58(2) of REACH it is possible to exempt from the authorisation requirements uses or categories of uses *"provided that, on the basis of the existing specific Community legislation imposing minimum requirements relating to the protection of human health or the environment for the use of the substance, the risk is properly controlled"*. The Decision to grant an exemption from the authorisation requirement under Article 58(2) of REACH is taken by the Commission, based on ECHA's recommendations. The applicability of Article 58(2) of REACH on the basis of OSH legislation, in particular where an OEL has been adopted, is under discussion and also subject to judicial review in the General Court¹²⁸

¹²⁷ Example retrieved from a presentation of Demi Theodori BUREAU REACH RIVM Netherlands, improving safety and health at work by strengthening OSH and REACH synergies at the REACH and Occupational Safety and Health (OSH) legislation, November 2014 available at:
http://ec.europa.eu/enterprise/sectors/chemicals/reach/events/index_en.htm#h2-2

¹²⁸ Case T-360/2013

Concerning the interface between REACH and Directive 2009/148/EC (asbestos), REACH prohibits in its Annex XVII (entry 6) the manufacture, placing on the market and use of asbestos fibres and of articles and mixtures containing these fibres added intentionally. It allows, however, MSs to exempt the placing on the market and use of diaphragms containing chrysotile under very strict conditions. It also permits the use of articles containing asbestos fibres already installed and/or in service before 1 January 2005, although MSs may restrict, prohibit or make the use of such articles subject to specific conditions until they are disposed of or reach the end of their service life.¹²⁹

Such restrictions are in line with Directive 2009/148/EC (asbestos) which provides that, without prejudice to the application of other Union provisions on the marketing and use of asbestos, activities which expose workers to asbestos fibres during the extraction of asbestos or the manufacture and processing of asbestos products or the manufacture and processing of products containing intentionally added asbestos must be prohibited, with the exception of the treatment and disposal of products resulting from demolition and asbestos removal, which includes recycling of waste containing asbestos.

It is interesting to note that in the opinion by RAC and SEAC (as part of the on-going process to amend the restriction in entry 6 of Annex XVII to REACH) the benchmark value used in the worker risk assessment considered by the Committee was of 250 f/m³ which is 400 times lower than the value for maximum airborne fibre concentration in the Asbestos Directive. The value used by ECHA was derived using current ECHA guidance for DNEL/DMEL derivation. Such a difference indicates that perhaps the limit value for airborne asbestos (or at least for chrysotile) could need reconsideration. SCOEL is currently considering the need to review the limit values for asbestos.

CLP Regulation

The CLP Regulation entered into force on 20 January 2009. It was adopted to align EU law to the United Nations Globally Harmonised System criteria for classification and labelling of hazards, in order to facilitate trade while protecting human health and the environment. The CLP Regulation regulates the classification procedures. Title III provides rules for labelling of substances and mixtures according to any hazard identified. Title IV sets in place requirements for the packaging of hazardous substances or mixtures (design, materials, fastenings). Finally, Title V refers to the harmonised classification and labelling of substances.

Directive 98/24/EC (chemical agents), Directive 2004/37/EC (carcinogens or mutagens) Directive 94/33/EC (young workers) and Directive 92/85/EC (pregnant workers) were recently amended by Directive 2014/27/EU in order to align the previous classification and labelling system with the new system laid down in the CLP Regulation.

As underlined by the Commission guidance¹³⁰ on the new labelling systems, the new CLP Regulation will oblige employers to revise certain measures under these Directives (e.g.

¹²⁹ According to the interpretation of the Commission's services responsible of REACH, communicated to MSs and members of RAC and SEAC Committees of ECHA, the exemption covers not only the placing on market and use of diaphragms containing asbestos (for existing electrolysis installations) but also of bulk asbestos fibres used exclusively for the maintenance and repair of such diaphragms.

¹³⁰ European Commission, Chemicals at work – a new labelling system, Guidance to help employers and workers to manage the transition to the new classification, labelling and packaging system (February 2013)

identification of hazardous chemicals, the risk assessment and derived measures, the safe use handling and storage of chemicals substances).

Finally Directive 2014/27/EU amended Directive 92/58/EEC (OSH signs) which now refers several times to the CLP Regulation. Annex I point 12 of Directive 92/58/EEC provides that if there is no equivalent warning sign under this Directive for areas, rooms or enclosures used for the storage of significant quantities of hazardous substances or mixture the relevant hazard pictograms as laid down in the CLP Regulation must be used.

Annex III point 1 provides that containers used at work for chemical substances or mixtures classified as hazardous according to the criteria for any physical or health hazard class in accordance with CLP Regulation, and containers used for the storage of such hazardous substances or mixtures, together with the visible pipes containing or transporting such hazardous substances and mixtures, must be labelled with the relevant hazard pictograms in accordance with that Regulation.

Such references reflect and implement the complementarity between the CLP Regulation and Directive 92/58/EEC (OSH signs).

Please note that some stakeholders have raised some comments on the consistency of the CLP Regulation and Directive 98/24/EC (chemical agents) concerning the use of man-made mineral fibres. See for further details the Directive 98/24/EC (chemical agents) Specific Report.

ATEX Equipment

Directive 1999/92/EC (ATEX) lays down the minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres at the workplace whereas Directive 94/9/EC (ATEX Equipment) applies to the placing on the market, putting into service and design of equipment¹³¹ and protective systems intended for use in potentially explosive atmospheres. Directive 94/9/EC (ATEX Equipment) is a New Approach Directive laying down essential elements and safety requirements further developed through standardisation. Directive 2014/34/EU adopted in February 2014 is a recast of Directive 94/9/EC (ATEX Equipment). It contains new provisions in line with the 'new legislative framework' for marketing of products (rules on market surveillance, accreditation bodies, CE marking) and will come into force in April 2016.

The main interaction between the two Directives concerns the selection of equipment and protective systems to be used in the different zones as defined under Directive 1999/92/EC (ATEX).

According to Annex II B) of Directive 1999/92/EC (ATEX), if the explosion protection document based on a risk assessment does not state otherwise, equipment and protective systems for all workplaces in which explosive atmospheres may occur must be selected on the basis of the categories set out in Directive 94/9/EC. It specifies that in zone 0 or zone 20 category 1 equipment

¹³¹ 'Equipment' means machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

applies, in zone 1 or zone 21, category 1 or 2 equipment applies and in zone 2 or zone 22 category 1,2 or 3 equipment must apply.

As underlined in the ATEX Equipment guidelines, work equipment not falling under the definition of 'equipment given in Directive 94/9/EC cannot be compliant with this Directive; it must nevertheless be compliant with Directive 1999/92/EC'¹³².

In the NIRs, some Member States expressed some concerns on the different definitions of zones across the EU¹³³ leading to situations where in one country certain equipment can be used under a certain zone whereas this is not the case in another country creating barriers in the free movement of goods despite the adoption of Directive 94/9/EC (ATEX equipment). Other Member States also identified difficulties in the application of Directive 1999/92/EC (ATEX) for equipment and protective systems placed on the market before the entry into force of Directive 94/9/EC (ATEX equipment) and equipment not falling under Directive 94/9/EC (ATEX equipment).

Sharp Injuries Directive

Directive 2010/32/EU (sharp injuries) was adopted in order to give legal force to the Framework Agreement on prevention from sharp injuries in the hospital and healthcare sector concluded by the EU social partners EPSU (European Public Services Union) and HOSPEEM (European Hospital and Healthcare Employers' Association) on 17 July 2009. The Directive aims at achieving the maximum possible level of safety and protection against occupational incidents through the prevention of sharp injuries to workers caused by all medical sharps, including needle-sticks.

The Directive applies to individuals who work in the hospital and healthcare sector and sets-up an integrated approach to prevent sharp injuries. It contains provisions on risk assessment and prevention, use of safe equipment, workers' participation and information, training and awareness raising, health assessment and health records.

It builds upon several provisions of Directive 2000/54/EC (biological agents). It provides that the hierarchy of general principles of prevention according to Articles 3, 5 and 6 of Directive 2000/54/EC is applicable. It requires that the risk assessment and health surveillance must be in compliance with the relevant provisions of Directive 2000/54/EC. Finally Clause 6 of the Directive provides that if the assessment reveals that there is a risk to the safety and health of workers due to their exposure to biological agents for which effective vaccines exist, workers shall be offered vaccination. Such provision already exists under Article 14(3) and Annex VII to Directive 2000/54/EC. Such overlap does not lead to double regulation in practice.

Despite these close links with Directive 2000/54/EC (biological agents), the scope of Directive 2010/32/EU does not cover all the categories of workers that might be exposed to infection through sharp injuries (e.g. workers dealing with special/ contaminated waste management treatments or researchers in laboratories). The broadening of the scope to all workers exposed to sharp injuries could have a positive impact on limiting worker exposure to biological agents.

¹³²Guidelines on the application of Directive 94/9/EC of the European Parliament and the Council of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres (fourth edition-updated December 2013 available at: http://ec.europa.eu/enterprise/sectors/mechanical/files/atex/guide/atex-guidelines_en.pdf

¹³³ Since OSH Directives are 'a minima' Directives Member States can apply more stringent requirements

Directive 2009/13/EC (MLC) and Directive 2008/106/EC (minimum level of training of seafarers)

In May 2008, the European Community Shipowners' Associations (ECSA) and the European Transport Workers' Federation (ETF) concluded an Agreement on the ILO Maritime Labour Convention (MLC). The Agreement was later implemented by Directive 2009/13/EU, which entered into force at the same time as the MLC on 20 August 2013. The Agreement includes all mandatory clauses of the MLC, leaving out non-mandatory clauses. The MLC and therefore Directive 2009/13/EC apply to all commercial seagoing ships, excluding fishing vessels. The Agreement contains Articles from the MLC related to medical treatment on board vessels.

Directive 2009/13/EC has a more limited scope than Directive 92/29/EC (medical treatment on-board vessels). It only covers commercial seagoing ships excluding fishing vessels, warships, inland navigation, sheltered waters or waters where port regulation applies, whereas Directive 92/29/EC applies to all vessels including harbour vessels but excluding inland navigation vessels, warships, pleasure boats, tugs operating in harbour areas. Similarly to Directive 92/29/EC, it applies to all seafarers, defined as any person employed on board of seagoing ship, which therefore excludes staff on shore.

Directive 2009/13/EC provides that the Agreement shall not affect any law, custom or agreement which provides for more favourable conditions for the seafarers concerned. It adds that the terms of this Agreement are, among others, without prejudice to the provisions under the Framework Directive and to Directive 92/29/EEC (medical treatment on board vessels). This means that commercial seagoing ships falling under Directive 2009/13/EC will also have to comply with Directive 92/29/EC. Directive 2009/13/EC requires that all ships shall carry a medicine chest, medical equipment and a medical guide. Such requirements are already covered under Directive 92/29/EC (medical treatment on board vessels) which requires that any vessel must carry appropriate medical supply including medical chest¹³⁴ as detailed in its Annex. This medical supply must be accompanied by guides and instruction to their use. This overlap does not lead to double regulation in practice.

Directive 92/29/EC requires that vessels with a crew of 100 or more workers and engaged in international voyage of more than 3 days must have a doctor responsible for medical care on board. A similar requirement applies in Directive 2009/13/EC. This overlap does not lead to double regulation in practice.

Directive 92/29/EC requires that workers on board vessels must be granted access to medical consultation by radio to facilitate assistance in case of injuries or emergency. A similar requirement applies under Directive 2009/13/EC except that it mentions that this medical consultation can be done either by radio or satellite.

Directive 92/29/EC requires that people receiving professional maritime training and intending to work on board ship are given basic training in the medical and emergency measures to be taken in the event of an accident or serious medical emergency. Furthermore, the captain and any delegated worker must receive special training updated periodically (at least every five years), taking into account specific risks for each category of vessels. According to Annex V to Directive 92/29/EC this special training must include among others basic understanding of physiology,

¹³⁴ For each of its life-rafts and life-boats, every vessel flying its flag or registered under its plenary jurisdiction carries a watertight medicine chest. [...]

symptomatology and therapeutics, the ability to perform basic types of treatment and supervise emergency. This Annex also mentions that this training should take account of the programmes of instruction detailed in relevant recent international documents.

Similarly Directive 2009/13/EC requires that ships which do not carry a medical doctor have at least one seafarer trained to provide medical care and/or first aid. It specifies that this training must meet the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

Directive 2008/106/EC implements the IMO Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) into EU law. The 1995 Convention has been ratified by 4 Member States (Denmark, Latvia, Lithuania and Spain). It is also subject to a proposal of a Council Decision to authorise its ratification¹³⁵. The Directive applies to all commercial seagoing ships. It excludes fishing vessels, warships, leisure boats, wooden ships and, hence, has a more limited scope than Directive 92/29/EC.

Directive 2008/106/EC provides requirements for the minimum safety training of seafarers, and the specific trainings for seafarers designated to provide medical first aid on board ship, and seafarers designated to take charge of medical care on board ship. As mentioned above, Annex V to Directive 92/29/EC requires that the captain and delegated workers' training take account of the programmes of instruction detailed in relevant recent international documents. In other words this training in case of commercial seagoing ships should take into account the Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

The description of the medical training provisions under these three Directives shows that Directive 92/29/EC and Directive 2009/13/EC set equivalent training requirements for commercial seagoing ships. This potential overlap does not lead to double regulation in practice but may be confusing as similar requirements are set by different texts.

Coherence between OSH Directives and other EU policies

Nor the analysis, nor interviews with stakeholders have revealed any specific coherence issues in relation to various EU policies. Some recent policy documents present potential or actual synergies with the OSH acquis. One of these documents, the renewed EU strategy 2011-14 for Corporate Social Responsibility¹³⁶ does not include clear reference to health and safety at work. Further coordination may be needed to ensure that health and safety at work is properly reflected in the EU policies on corporate social responsibility.

¹³⁵ Proposal for a Council Decision authorising Member States to sign and/or ratify, in the interest of the European Union, the International Convention on Standards of Training, Certification and Watch-keeping for Fishing Vessel Personnel, 1995, of the International Maritime Organisation /* COM/2013/0595 final - 2013/0285 (NLE) */

¹³⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and social Committee and the Committee of the Regions, A renewed EU strategy 2011-14 for Corporate Social Responsibility, COM(2011) 681 Final

Of particular interest, the Strategy for the sustainable competitiveness of the construction sector and its enterprises¹³⁷ aims to improve the human-capital basis of the construction sector, fostering at the same time the sustainable competitiveness of the construction sector. This strategy was accompanied by an action plan known as 'Construction 2020'. The High Level Strategic Forum (HLSF), which monitors the progress made on the implementation of the Construction 2020 Action Plan, recommended, amongst other measures, studying health and safety innovative practices in order to spread good practices in the construction sector, along with the monitoring of initiatives supporting health and safety innovation (both on legal and voluntary basis). Such initiatives should therefore impact in a positive manner the implementation of the minimum safety and health requirements under Directive 92/57/EEC. In order to enhance synergies between the Strategy and Directive 92/57/EEC health and safety education, training and capacity building programmes should be developed and promoted in the construction sector. As underlined by a study on the future challenges of the construction sector, these programmes should specifically target health and safety coordinators in construction sites.¹³⁸

8.2.3 Coherence between OSH Directives and other international instruments

This section provides an overview of interfaces (overlaps, inconsistencies, gaps, synergies) between OSH Directives and other international instruments. Amongst the international instruments, the most relevant to the OSH acquis are the ILO Conventions. Coherence issues have also been found between the IMO International Convention on Standards of Training, Certification and Watch keeping for Fishing Vessel Personnel (the STCW-F Convention) and the Fishing Directive. Finally, coherence with ISO standards should be considered in several instances.

ILO Conventions

To make sure that economic growth and development go along with the creation of decent work, the ILO has developed a system of international labour standards, including 188 conventions, which are legally binding international treaties that may be ratified by member countries. Many of those relate directly to OSH. In some cases, the ILO Conventions set additional or more stringent requirements than the corresponding OSH Directives. The following table provides an overview of such instances.

¹³⁷Communication from the Commission to the European Parliament and the Council, Strategy for the sustainable competitiveness of the construction sector and its Enterprises, Brussels, 31.7.2012 COM(2012) 433 final. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0433:FIN:EN:PDF>

¹³⁸ Danish Technological Institute, "[Future qualification and skills needed in the construction service](#)", Policy and Business Analysis, July 2009.

Table 8-4 ILO Conventions that set additional or more stringent requirements than the corresponding OSH Directives

ILO Convention	EU Directive	Main additional requirements	MS which have ratified
1995 Safety and Health in Mines Convention (No. 176)	<i>Directive 92/104/EEC (mineral extracting industries)</i>	<ul style="list-style-type: none"> • Compilation and publication of statistics; • Enforcement powers; • Provision of exits connected to separate means of egress to the surface; • Record of names and location of people underground; • Consultation rights of health and safety representatives with the competent authority; • Provision of inspection services; • Setting of penalties and corrective measures. 	AT, BE, CZ, FI, DE, IE, LU, PL, PT, SK, ES, SE
1965 Medical Examination of Young Persons (Underground Work) Convention (No. 124)	<i>Directive 92/104/EEC (mineral extracting industries)</i>	<ul style="list-style-type: none"> • Specific requirements on medical examination and re-examinations for fitness for employment for people until at least the age of 21 years 	AT, BE, BG, CY, CZ, FI, FR, EL, HU, IE, IT, MT, NL, PL, PT, SK, ES, UK
1981 ILO Occupational Safety and Health Convention (No. 155)	<i>Directive 89/391/EEC (Framework Directive)</i>	<ul style="list-style-type: none"> • Does not exclude specific cases as the Framework Directive does with certain specific public service activities (armed forces, police, civil protection) but State-parties to the Convention may however list, upon ratification, any branches and/or categories of workers that are excluded 	BE, CY, CZ, DK, FI, HU, IE, LU, NL, PT, SK, SI, ES, SE
2002 Protocol to the Occupational Safety and Health Convention (P.155),	<i>Directive 89/391/EEC (Framework Directive)</i>	<ul style="list-style-type: none"> • Does not exclude domestic workers • More stringent/detailed requirements on recording and notification of occupational accidents and information for workers requirements • Provisions on inspection and enforcement 	FI, LU, PT, SI, SE
1985 Occupational Health Services Convention (No. 161)	<i>Directive 89/391/EEC (Framework Directive)</i>	<ul style="list-style-type: none"> • Detailed obligations on occupational health services which are not covered by the Framework Directive 	BE, BG, HR, CZ, FI, DE, HU, LU, PL, SK, SI, SE
2006 Promotional Framework for Occupational Safety and Health Convention (No. 187)	<i>Directive 89/391/EEC (Framework Directive)</i>	<ul style="list-style-type: none"> • obligation to put in place a national system and national programmes on occupational safety and health 	AT, CY, CZ, DE, DK, FI, FR, SK, SI, SE, ES, UK
Convention concerning decent work for domestic workers, 2011 (No. 189)	<i>Directive 89/391/EEC (Framework Directive)</i>	<ul style="list-style-type: none"> • Inclusion of domestic workers 	FI (entry into force: 08/01/2016), IE (entry into force: 28/08/2015), DE, IT
1990 Chemicals Convention (No. 170)	<i>Directive 98/24/EC (Chemical Agents)</i>	<ul style="list-style-type: none"> • Right of workers to remove themselves from danger resulting from the use of chemicals when they have reasonable justification to believe there is an imminent and serious risk to their safety or health. • Overall protection against any consequences to workers in the exercise of their rights, including the right to remove themselves from danger. 	FI, DE, IT, LU, PL, SE

ILO Convention	EU Directive	Main additional requirements	MS which have ratified
1988 Safety and Health in Construction Convention (No. 167)	<i>Directive 92/57/EEC (Construction Sites)</i>	<ul style="list-style-type: none"> Requirement to report to the competent authority within a prescribed time of occupational accidents and diseases Obligation of State parties to provide appropriate inspection services and provide these services with the resources necessary for the accomplishment of their task, or satisfy itself that appropriate inspection is carried out 	CZ, DK, FI, DE, HU, IT, LU, SK, SE
2006 Maritime Labour Convention (MLC)	<i>Directive 92/29/EC (medical treatment on board vessels)</i>	<ul style="list-style-type: none"> <i>Implementation through Directive 2009/13/EU (see external coherence with other non-OSH EU legislation)</i> 	BE, BG, HR, CY, DK, FI, FR, DE, EL, HU, IE (entry into force: 21/07/2015), IT, LV, LT, LU, MT, NL, PL, ES, SE, UK
Work in Fishing Convention, 2007 (No.188)	<i>Directive 92/29/EC (medical treatment on board vessels)</i>	<ul style="list-style-type: none"> Medical equipment and supplies on-board must be accompanied by guide and information in a language and format understood by the fishermen 	None
Work in Fishing Convention, 2007 (No.188) <i>Note: also implemented through the 2012 Social Partner Agreement</i>	<i>Directive 93/103/EC (Fishing Directive)</i>	<ul style="list-style-type: none"> More detailed provisions on accommodation design and facilities Provisions on protection from vibrations, ventilation, lightning and sanitary facilities Additional requirements for basic safety training of fishermen 	None
1977 Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148)	<i>Directive 2002/44/EC (Vibration)</i> <i>Directive 2003/10/EC (Noise)</i>	<ul style="list-style-type: none"> Determination of exposure limits Obligation to take account of national conditions and resources in promoting research Penalties and inspection 	BE, HR, CZ, DK, FI, FR, DE, HR, IT, LV, LU, MT (air pollution only), PL, PT, SK, SI, ES, SE, UK
1986 Asbestos Convention (No. 162)	<i>Directive 2009/148/EC (Asbestos)</i>	<ul style="list-style-type: none"> Health surveillance to take place as far as possible during working hours 	BE, HR, CY, DK, FI, DE, LU, NL, PT, SI, ES, SE
1967 Maximum Weight Convention (No. 127)	<i>Directive 90/269/EC (Manual Handling)</i>	<ul style="list-style-type: none"> None 	BG, FR, HU, IT, LT, LU, MT, PL, PT, RO, ES
1974 Occupational Cancer Convention (No. 139)	<i>Directive 2004/37/EC (carcinogens or mutagens)</i>	<ul style="list-style-type: none"> None 	BE, HR, CZ, DK, FI, FR, DE, HU, IE, IT, LU, PT, SI, SK, SE
1997 Private Employment Agencies Convention (No. 181)	<i>Directive 91/383/EEC (temporary workers)</i>	<ul style="list-style-type: none"> None 	BE, BG, CZ, FI, HU, IT, LT, NL, PL, PT, SK, ES
2000 Maternity Protection Convention (No. 183)	<i>Directive 92/85/EEC (pregnant workers)</i>	<ul style="list-style-type: none"> Requirements concerning leave in case of illness or complications Periodic review by State parties of the period of leave and the amount/rate of the cash benefits Provision of nursing breaks or daily reduction of hours of work for breastfeeding mothers 	BG, CY, HU, IT, LV, LT, LU, NL, PT, RO, SK, SI

ILO Convention	EU Directive	Main additional requirements	MS which have ratified
Medical Examination of Young Persons (Industry) Convention, 1946 (No. 77)	Directive 94/33/EC (<i>young workers</i>)	<ul style="list-style-type: none"> • Medical examination as a pre-condition for employment and not linked to a preliminary risk assessment • Provisions concerning the frequency of medical examinations and health records for inspectors 	BE, BG, CZ, FR, EL, HU, IT, LU, MT, PL, PT, SK, ES

Source: European Commission – DG Employment, Social Affairs and Inclusion, Analysis – in the light of the European Union acquis- of the ILO Conventions that have been classified by the International Labour Organisation as up to date, Luxembourg, 2014 and ILO website (<http://www.ilo.org/global/lang--en/index.htm>)

The EU cannot ratify ILO conventions or protocols as, under the ILO rules, only States party to ILO can ratify these. In principle, as the OSH Directives only establish minimum requirements, Member States are free to set more detailed or more stringent requirements and therefore to ratify those conventions and apply the additional requirements set by the ILO Conventions.

However, some subject matters of the conventions fall under the exclusive competence of the EU and therefore Member States should be authorised before ratifying such ILO rules, whether or not the exclusive competence of the EU covers the whole convention or only elements of the convention. This is the case of the coordination of social security schemes. An example is the Work in Fishing Convention No 188 (2007) which included such rules. In this case, the Council has adopted a Decision to authorise the Member States to ratify the Convention. Exclusive competence can be implied when the commitment will 'affect [...] Community rules' when it engages an area which the Union has regulated 'to a large extent'; i.e. containing rules that are more than minimum requirements¹³⁹. This is the case for the Convention concerning Safety in the Use of Chemicals at Work, as expressed by Recital (2) of the Council Decision of 28 January 2014 authorising Member States to ratify the Convention, which states that 'The rules under part III of Convention No 170 [...] are covered to a large extent by Union acquis on the approximation of laws, regulations and administrative practices in the area of classification, packaging and labelling that has been developed since 1967 and further consolidated'. In case of shared competences, i.e. when the subject matter falls partly within an area of EU competence and partly within the Member States' competences, the EU institutions and Member States must cooperate in implementing the commitments resulting from such conventions¹⁴⁰.

The European Council has already adopted some decisions authorising the Member States to ratify various ILO Conventions, in particular:

- › the Maritime Labour Convention, 2006 (Council Decision of 7 June 2007);
- › the Work in Fishing Convention, 2007 (Council Decision of 7 June 2010);
- › the Convention concerning Safety in the Use of Chemicals at Work, 1990 (Council Decision of 28 January 2014);
- › the Convention concerning decent work for domestic workers, 2011 (Council Decision of 28 January 2014).

IMO Conventions

The IMO International Convention on Standards of Training, Certification and Watch keeping for Fishing Vessel Personnel (the STCW-F Convention) sets minimum training standards and establishes mutual acceptance of fishermen's certificates between the States Parties, which ratify the STCW-F Convention. It was adopted in 1995 by IMO and has entered into force in September 2012. So far, four EU Member States (Denmark, Spain, Latvia and Lithuania) along with Iceland and Norway have ratified the STCW-F Convention. The STCW-F Convention has not been

¹³⁹ Council Decision of 7 June 2010 authorising Member States to ratify, in the interests of the European Union, the Work in Fishing Convention, 2007, of the International Labour Organisation (Convention No 188) (2010/321/EU)

¹⁴⁰ Opinion of the Court of 19 March 1993. - Opinion delivered pursuant to the second subparagraph of Article 228 (1) of the EEC Treaty. - Convention N° 170 of the International Labour Organization concerning safety in the use of chemicals at work. Opinion 2/91 of the CJEU.

implemented through an EU legislative instrument. It is also subject to a proposal of a Council Decision to authorise its ratification¹⁴¹.

The STCW-F Convention applies to vessels of 24 meters in length or more and of 750kw propulsion power or more. It concerns skippers, officers, engineer officers and radio operators. In comparison, training requirements laid out in the Fishing Directive apply to all fishing vessels covered by the Directive (from 15 or 18 meters in length), but is compulsory for all fishing vessel staff employed on such vessels.

The Fishing Directive requires workers to receive training on safety and health on board vessels and on accident prevention in particular, including firefighting, the use of life-saving and survival equipment and, for the workers concerned, the use of fishing gear and hauling equipment and the use of various types of signs including hand signals. Firefighting and survival techniques are part of the basic training all fishing vessels staff is to receive under the STCW-F Convention. These elements are also included in the minimum requirements for the certification of skippers and officers in charge of navigational watch; a fire-fighting course is also part of the minimum training for certification of chief engineer officers and second engineer officers of fishing vessels. Fishing vessel manoeuvring and handling is part of the training of skippers and officers. Only the use of signs and hand signals is not mentioned directly in the STCW-F Convention. However, the STCW-F Convention stipulates that all skippers and officers are required to know the FAO/ILO/IMO Code of Safety for Fishermen and Fishing Vessels, which does include provisions on the use of signs and hand signals.

The Fishing Directive also requires that skippers receive training on the prevention of occupational illness and accidents on board and the steps to be taken in event of accident; stability and maintenance of the vessel under all foreseeable conditions of loading and during fishing operations; radio navigation and communication, including procedures'. In the STCW-F Convention, training of skippers should include emergency procedures (including actions to be taken in case of incidents), the knowledge of construction and stability, and the knowledge of warning systems and use of communication equipment. The prevention of occupational illness and accidents is not specifically mentioned in STCW-F but the Code of Safety for Fishermen and Fishing Vessels covers accident prevention.

Finally Annex III of the Fishing Directive states that "all workers must receive proper training and appropriate instructions in anticipation of an emergency". Knowledge of life-saving appliances and emergency procedures are also covered by the STCW-F Convention.

Conclusively, although there are a lot of similarities in the training requirements between the Fishing Directive and the STCW-F Convention, the latter generally goes well beyond the Fishing Directive in terms of provisional content, as it requires different training depending on different professions and includes more detailed requirements on emergency procedures and rescue. However, as mentioned, coverage of the STCW-F Convention is more limited than the training requirements of the Fishing Directive.

¹⁴¹ Proposal for a Council Decision authorising Member States to sign and/or ratify, in the interest of the European Union, the International Convention on Standards of Training, Certification and Watch-keeping for Fishing Vessel Personnel, 1995, of the International Maritime Organisation /* COM/2013/0595 final - 2013/0285 (NLE) */

Seeing as four EU MSs have ratified the STCW-F Convention, while the rest have not, entails that potential discrepancies in safety requirements among EU Member States currently exist. The fact that some MSs have decided to ratify the STCW-F Convention and other MSs are in the process of doing so (ref. NIRs), clearly shows that MSs generally consider the provisions of the STCW-F to be important. In order to avoid competitive disadvantage for MSs who show an effort to improve OSH on board fishing vessels, we recommend a rapid transposition of the STCW-F Convention into EU law.

ISO standards

International standards are voluntary instruments, which establish requirements, specifications, guidelines or characteristics that can be used consistently to ensure and demonstrate that materials, products, processes and services are fit for their purpose and/or comply with various key safety, health or environment obligations. Several stakeholders have raised concerns with regard to the coherence of some directives with international standards. However, as such standards are not freely available, their content was not systematically examined as part of the study. This is the case in particular in relation to Directive 90/269/EC (manual handling), Directive 90/270/EC (display screen equipment) and Directive 1992/58/EC (OSH signs).

8.2.4 Conclusion

Several interfaces have been identified between the OSH Directives and other EU measures and/or policies and international instruments. Among these interfaces very few coherence issues arose. The paragraphs below contain short conclusions and recommendations on how these issues could be avoided.

Directive 2013/30/EU (safety of offshore oil and gas operations) and Directive 92/91/EEC (drilling) - reporting interface

Operators/employers of an off-shore oil and gas operation will have to prepare a health and safety document under Directive 92/91/EEC (drilling) and reports on major hazards, internal emergency response plan and design notification under Directive 2013/30/EU (safety of offshore oil and gas operations), which may contain similar requirements.

Despite Directive 2013/30/EU mentions that it applies without prejudice to the requirements laid down in Directive 92/91/EEC we would recommend the adoption of guidelines to further clarify the interfaces between the reporting requirements under Directive 92/91/EEC (mineral-extracting industries through drilling) and Directive 2013/30/EU (safety of offshore oil and gas operations).

Directive 2003/88/EC (working time) and Directive 92/85/EEC (pregnant workers) and Directive 94/33/EC (young workers)

Both Directive 92/85/EEC (pregnant workers) and Directive 94/33/EC (young workers) contain employment rights (e.g. night work requirements, rest periods, prohibition of dismissal of pregnant workers). These employment rights are not always linked to occupational health and safety issues.

We would recommend the streamlining of provisions setting specific employment conditions and rights for pregnant and young workers under the current EU labour legislation (e.g. Working Time Directive) for better clarity. This streamlining should at least apply to the provisions setting employment rights that are not directly linked to the health and safety at work of young people and pregnant workers (e.g. working time provisions allowing young people to combine work with school attendance or time off for ante-natal examinations and prohibition of dismissal of pregnant workers)

Public procurement Directives

Under the public procurement Directives the relevant provision concerning the award criteria mentions 'social characteristics' as a possible criterion, without further details or specific reference to occupational health and safety obligations on behalf of the tenderers. We would recommend reintroducing the link between the award criteria or contract performance conditions and the fulfilment of OSH requirements by the (potential) contractor in the provisions of the Public procurement Directives.

REACH Regulation and chemical agent Directives

Annex II Section 8 of REACH requires that the SDS must specify currently applicable specific control parameters including the national occupational exposure limit values and biological limit values that correspond to EU occupational exposure limit values and biological values in accordance with Directive 98/24/EC (chemical agents) and Directive 2004/37/EC (carcinogens and mutagens). It also mentions that, where a Chemical Safety Report is required, DNELs must be given for the relevant exposure scenarios. This scenario creates confusion in particular for the downstream users which may receive on the same substance two different values reported in the SDS

In order to avoid overlaps between occupational exposure limits (OELs) and Derived No Effect Levels we would recommend the following measure to set in-built provisions either under REACH and/or Directive 98/24/EC (chemical agents) to coordinate the adoption of OELs and DNELs and /or to clarify which value must prevail.

Other options would be to:

- › To enhance the cooperation between SCOEL and ECHA (RAC) when establishing limit values as required under Article 95(1) REACH and Article 5(5) COM Decision 2014/113/EU
- › To re-evaluate the methods to define OELs and derive DNELs in order to obtain comparable results.
- › To ensure that REACH registrants take into account OELs recommended by SCOEL when deriving DNELs.
- › To reconsider the flexibility provided to Member State when transposing IOELs and BOELs to ensure that like DNELs, OELs are similar across the EU.

Safety data sheets (SDSs) under REACH provide important information to employers to perform their risk assessment at the workplace and to adopt the adequate risk management measures. However some employers expressed their concern on the difficulties they encounter to use information from the SDSs. They stress that it is a very complex and burden exercise to use information from SDSs. The risk management measures under the SDSs can also potentially contradict the OSH measures.

To enhance the synergy between REACH and Directive 98/24/EC (chemical agents) and Directive 2004/37/EC (carcinogens or mutagens) on the use of Safety Data Sheet we recommend the preparation of awareness raising campaigns (e.g. through the REACH helpdesks) to inform employers on how to use the SDSs for their risk assessment in order to ensure that they are able to extract relevant information from the SDSs to fulfil their obligations under Directive 98/24/EC (chemical agents) and Directive 2004/37/EC (carcinogens or mutagens).

Directive 1999/92/EC (ATEX) and Directive 94/9/EC (ATEX Equipment)

The main interaction between the two Directives concerns the selection of equipment and protective systems as defined under Directive 94/9/EC (ATEX Equipment) to be used in the different zones as defined under Directive 1999/92/EC (ATEX). In order to improve the interface between these two Directives we would recommend:

- › The review of the definition of zones to ensure similar interpretations in Member States to avoid barriers to the free movement of ATEX equipment. However, this would imply to set up prescriptive conditions without allowing Member States to set more stringent definitions of zones, which is contrary to the a minima approach of the EU OSH acquis.
- › The development of guidelines for the application of Directive 1999/92/EC (ATEX) to equipment and protective systems placed on the market before the entry into force of Directive 94/9/EC (ATEX equipment) and equipment not falling under the scope of this Directive.

Directive 2010/32/EC (sharp injuries) and Directive 2000/54/EC (biological agents)

Directive 2000/54/EC (biological agents), the scope of Directive 2010/32/EU does not cover all the categories of workers that might be exposed to infection through sharp injuries (e.g. workers dealing with special/ contaminated waste management treatments or researchers in laboratories)

In order to ensure better protection of workers against sharp injuries we would recommend the review of the scope of Directive 2010/32/EU to cover all workers exposed to sharp injuries leading to infections by biological agents.

Directive 2009/13/EC (Social partners Agreement on the Maritime Labour Convention) and Directive 2008/106/EC (minimum level of training of seafarers)

Directive 2009/13/EC and Directive 2008/106/EC contain some medical treatment requirements equivalent to the ones set under Directive 92/29/EC. Commercial seagoing ships falling under Directive 2009/13/EC will also have to comply with medical treatment requirements under Directive 92/29/EC.

While this does not lead to double-regulation, for the sake of legal clarity and to avoid confusion, the removal of requirements on medical treatment under Directive 2009/13/EC and Directive 2008/106/EC which are already covered by Directive 92/29/EC could be envisaged. This would avoid confusion in the application of medical treatment requirements on-board vessels. (See also conclusion under the section on ILO conventions).

IMO International Convention on Standards of Training, Certification and Watch keeping for Fishing Vessel Personnel (STCW-F) and Directive 93/103 (work on-board fishing vessels)

Although there are a lot of similarities in the training requirements between the Fishing Directive and the STCW-F Convention, the latter generally goes well beyond the Fishing Directive in terms of provisional content, as it requires different training depending on different professions and includes more detailed requirements on emergency procedures and rescue.

We recommend considering the incorporation of the additional requirements of the Convention into EU legislation. This could be done by including a requirement to take account of the programmes of instruction detailed in relevant recent international documents or incorporate these into the Fishing Directive. Such a solution would address the potential confusion linked to overlaps between

the STCW-F Convention and the Fishing Directive (even though they do not lead to double regulation in practice) and will align training requirements of the Fishing Directive with the training requirement of the STCW-F Convention for fishing vessels above 24 meters.

On the other hand, the Directive only establishes minimum requirements, and Member States are free to set more detailed or stringent requirements. Therefore, in any case, we recommend the adoption of the Commission proposal for authorising the ratification of the STCW-F by Member States and to further promote ratification.

ILO International Conventions

In some cases, the ILO Conventions set additional or more stringent requirements than the corresponding OSH Directives.

When the ILO Conventions set more detailed or more stringent requirements in comparison to the EU acquis, we recommend considering the incorporation of those additional requirements of the ILO Conventions in the relevant EU legislation. As underlined by stakeholders (employers), 'for Member States which have ratified the ILO Convention, any more stringent provisions compared to the EU OSH acquis lead to additional compliance obligations and at the same time constitute a competitive disadvantage towards Member States that have not ratified the same Convention and do not have to meet the international requirements'. The incorporation of the more stringent provisions in the EU acquis would ensure a level-playing field across the different Member States. As an alternative (or a first step), we would recommend when it is not yet the case the adoption of a Council Decision authorising the ratification of the relevant convention by Member States and to further promote ratification.

9 Conclusions and recommendations

This chapter presents the conclusions and recommendations arising from the evaluation. The chapter first provides an overall conclusion and then gives the conclusions for each of the four main themes of the evaluation (implementation in the Member States, relevance, effectiveness, and coherence). The recommendations following from the conclusions are presented under each of the three evaluation themes. The recommendations presented in this chapter are supplemented by Directive-specific recommendations, which can be found in the respective Directive evaluation reports.

9.1 Overall conclusion

The recommendations provided by the evaluation are based on evidence and, to every extent possible, we seek to emphasise transparency of this evidence. However, it is necessary to clarify that for some recommendations evidence is solid and easily presented and made available to the reader. For others, the evidence is more scattered and recommendations are based on MSs experience and aggregated conclusions extracted from pieces of relevant data sets. Such evidence is more challenging to present in a transparent manner, and while recommendations may hold equal merit as those with transparent evidence, as a consequence such recommendations will be provided with due caution,

This issue is linked to the fact that from the outset we acknowledge that many of the study findings will be based on both incomplete information and on a combination of input from different sources. Hence, it is an important task to put the message forward that some decisions are bound to be made without solid evidence and thus with some uncertainty, and so encourage stakeholders not to spend too much energy discussing whether the "number is 1 or 2" but accept the evidence that is presented.

The OSH acquis, comprising the Framework Directive and the 23 individual directives under evaluation, represents a comprehensive package of legislation aimed at securing the same minimum level of protection from work related health and safety risks for the workers of all EU Member States.

The Framework Directive was adopted in 1989, with most of the individual Directives being adopted in the subsequent five years, although some existed in previous versions before the Framework Directive – and others only were added to the acquis at a later stage. The legislation

has thus been in place for a considerable amount of time – and this leads to an expectation that it should be possible to observe a discernible impact.

The evaluation shows very clearly that the EU OSH acquis is the reference frame for national OSH regulatory regimes. While the Member States have chosen various models for their legal implementation of the Directives' requirements, there is no doubt that the Directives' requirements form the core of the national systems in one way or the other. The significance of the Directives in setting the scene for OSH regulation in the EU is therefore very high.

The Directives represent a mix of a goal-oriented approach – very strongly expressed in the Framework Directive, but also mirrored in the individual Directives – and a prescriptive approach – which is, for instance, seen in the very detailed and specific requirements included in the annexes of some Directives. On this basis, some Member States have put most weight on the goal-oriented approach in their implementation, whereas others have preferred a stronger reliance on the prescriptive approach. The evaluation indicates that the EU legislation – through the Framework Directive - has contributed to a development towards application of the goal-oriented approach and a stronger focus on the risk management cycle.

The Directives are also a result of a comprehensive tripartite policy dialogue, which means they have been subject to considerable discussion and debate when they were written. The Directives are thus based on available knowledge at the time of their conception and the possible political compromises, but not always backed by clear data and scientific research. Stakeholders are generally reluctant to reopen the debate about Directives for fear of losing out in the process of revising a Directive. On the basis of the evaluation, it is assessed that the (at times cumbersome) process of tripartite dialogue contributes to the relevance and effectiveness of the Directives because the Directives represent the viable compromise between three parties and their combined knowledge. At the same time, there is a level of conservatism and inertia in the system, because it is sometimes very difficult to reach agreement and because the parties are reluctant to reopen agreements already reached.

9.2 Conclusions on implementation in the Member States

Looking at the implementation of key requirements of the Directives, the evaluation has focused in particular on 'Common Processes and Mechanisms' (CPMs), which are required according to the Framework Directive, but are also mirrored in many of the 24 Directives. These include: Risk assessment; Preventive and protective services; Information of workers; Training of workers; and Consultation of workers.

9.2.1 Implementation of the legal framework

Most Member States have transposed the OSH Framework Directive by means of a national OSH framework act. This national OSH Act was not necessarily newly adopted after the entry into force of the Framework Directive; it is often the case that existing OSH legislation has been brought together into one main OSH Act or that an existing OSH Act has been amended to comply with the Framework Directive. There are, however, some exceptions.

The individual OSH directives are, as a rule, one-to-one transposed through secondary legislation. Some exceptions have been identified which are, seemingly, Directive-bound. The three OSH directives targeting vulnerable workers are often transposed through a specific act and secondary

legislation or directly through the main OSH act or the Labour Code. Member States also often transpose the two OSH directives on mineral extracting industries through several pieces of secondary legislation or through, e.g., the national Mining Act and secondary legislation. The transposition of the two OSH directives on vessels follows, although to a lesser degree, the same trend.

With regard to the transposition in national legislation of the CPMs, 16 MS have transposed one or more CPMs through distinct secondary legislation, principally in relation to preventive and protective services, and health surveillance. Only five Member States (AT, CZ, FR, LU and PT) have implemented separate OSH legislation for the public and the private sector.

Although a large number of infringement proceedings have been initiated regarding the national transposition of the Framework Directive and, to a lesser degree, of Directive 1999/92/EC (ATEX), Directive 2002/44/EC (vibration), Directive 2003/10/EC (noise), Directive 2006/25/EC (AOR) and Directive 98/24/EC (chemical agents), most of them were closed. Besides, only very few discrepancies have been observed in the transposition of the OSH acquis. For most of the OSH directives, Member States have implemented more detailed or stringent requirements than those specified by the directive concerned.

From this perspective, it can be concluded that the structure and general principles of the OSH acquis are well suited as a European framework to be transposed and implemented at national level. National approaches to transposition in particular in relation to interactions between CPMs vary across Member States. While the majority have followed an approach comparable to the Directives, a number of Member States have regulated separately some aspects, principally those that relate directly to the broader institutional and organisational context, namely preventive and protective services and health surveillance.

9.2.2 Derogations and transitional periods

About half the Member States have applied transitional periods in the implementation of most of the Directives for which such possibility was provided. In the vast majority of cases, Member States who opted for the application of transitional periods have also respected them.

The Country Summary Reports show a mixed picture as to the use of derogations by Member States across directives. The derogations most frequently used are those laid down in Directive 98/24/EC (chemical agents) from the prohibition of the use of certain chemical agents and two of the derogations provided by Directive 94/33/EC (young workers): the derogation from the prohibition of employment of young people in the case of adolescents where such derogations are indispensable for their vocational training and the derogation from the prohibition of night work for young people in the case of adolescents and in specific areas of activity.

9.2.3 Compliance

In the analysis of compliance, we found that the level of compliance with the requirement to perform risk assessments (i.e. the first CPM) generally seems relatively high in most MSs (76% in EU-28 according to ESENER-2 data). When a risk assessment is not conducted, the reasons most cited are that establishments believe that hazards and risks at the workplace are already known; or they simply believe themselves to have no major OSH problems.

The analysis of MQ3 (Chapter 4.3) showed that it was difficult to establish an actual compliance level with the second CPM, preventive and protective services, across Member States. However, evidence suggests that SMEs and micro enterprises have a higher degree of acknowledged non-compliance. The same applies to those economic sectors which have traditionally been acknowledged as having fewer occupational accidents and diseases, such as Education and Financial Intermediation.

Evidence also suggests that compliance across MSs with the CPM on general OSH information for workers seems high, and that the quality of information seems adequate, with a slight improvement from 2005 to 2010. We find that improved information of workers is one of the main workplace impacts achieved through the transposition of the OSH acquis, although significant variations in this may be witnessed between Directives.

Training on traditional OSH risks such as accident prevention and fire safety seem to be quite high, while training on prevention and measures related to psychosocial risks and risks associated with exposure to chemical and biological agents, radiation or dust hazards seem to be insufficient. On the topic of psychosocial risks, this correspondence between a lack of training of workers on mitigation of those risks and the lack of preventive and protective services with an explicit focus on psychosocial risks (16% of interviewed establishments in EU-28 make use of a psychologist) is potentially problematic. It suggests a possible need to incorporate psychosocial risks more effectively into the OSH acquis.

Overall, compliance with the CPM of health surveillance performance seems to be moderate, with some room for improvement. Compliance is visibly higher in establishments with assigned Employee Representatives (ERs). Data does not allow for an assessment across MSs and sizes of establishments of the depth and quality of the health surveillance performed, although some evidence suggests that the quality of health surveillance could be improved. Although health surveillance is a valuable tool, it should also be recognised that it is particularly useful in relation to types of risks and health outcomes where there are clear 'early warning' signs and where the information will hence provide a valuable input to the risk assessment and the design of preventive and protective actions. This is to some extent reflected in the acquis with specific Directives including specific requirements to health surveillance, however, the general requirement for health surveillance as stated in the Framework Directive does not incorporate such considerations.

Indications on compliance levels for worker consultation vary with the data chosen for assessment, which suggests that workplace impacts in this area have not been sufficiently achieved. These varying results on compliance with worker consultation may suggest that worker consultation is generally ensured through employee representation, or at line management level (as investigated by ESENER), meaning that workers may not feel personally included. This may explain lower compliance findings in other survey data, not aimed at ERs or management.

On the subject of SMEs and micro establishments, there appears to be a fairly widespread feeling that SMEs and microenterprises experience problems in implementing the OSH acquis. They perform risk assessments to a (slightly) lesser extent, and such assessments are more often performed by external experts, which may compromise the level of ownership and preventive effects in the establishments. SMEs make use of preventive and protective services less often and more rarely have OSH employee representatives assigned. Each of these elements results in the OSH acquis generally having less of an impact in the workplaces of micro- companies and SMEs. However, it should be noted that for some Directives, several MSs emphasised the opposite, namely that they have no evidence that SMEs experience greater difficulties than larger enterprises

(e.g. in implementation of the OSH Signs Directive). Likewise, the smallest enterprises, which are most likely to acquire external assistance for the performance of risk assessments, are the least inclined to report that the procedure is too burdensome or that a lack of necessary expertise is the main reason for not conducting a risk assessment.

During stakeholder interviews, other groups of establishments were identified as generally having had fewer workplace impacts caused by transposition of the OSH acquis. These were start-up companies compared to experienced companies, as well as companies within those economic sectors, which are generally characterised by low incidence rates of occupational injuries compared to those with higher incidence rates. No evidence has been found of any of differences in compliance levels between private sector and public sector establishments.

9.2.4 Accompanying actions

The number of accompanying actions varies greatly from directive to directive, both at the Member State and at the EU level. Stakeholders do not seem to be concerned about those directives where there are only a limited number of accompanying actions at EU-level, mainly because other institutional or global actors have already provided the necessary guidance and information documents. In addition, EU-level guidance is merely used as a basis for national-level guidance and rarely reached individual workers. At the Member State level, there are some directives for which the number of accompanying actions is limited and there is a general demand for more targeted actions, especially those directed to SMEs. Practical tools, forms and check-lists that enable employers to comply with OSH obligations are considered by stakeholders as the most useful accompanying actions. The practical approach that aims at providing sectoral templates for risk assessment (e.g. OIRA) is welcomed by all stakeholders that recognise the potential for simplification and gain of time when using such tools.

9.2.5 Enforcement

All Country Summary Reports developed during the present evaluation point to the existence of general enforcement authorities responsible for occupational safety and health matters, although other authorities may be involved or fully responsible for areas covered by certain individual directives, in particular the mineral extracting activities directives, the vessels-related directives and directives targeting vulnerable workers. The number of inspectors has decreased in many Member States and many stakeholders emphasised that there is room for improving enforcement in general, such as the use of more risk-based inspections as already done in several Member States. All Member States have criminal and/or administrative sanctions in place, providing not only for imprisonment and/or fines but also for other types of sanctions such as various emergency measures to stop non-compliance, which can also prove very efficient. Strategic priorities for inspection are generally set per sectors or sub-sectors, groups of workers, type of risks or the company size.

9.2.6 Initiatives targeting potentially vulnerable workers

The mapping of the initiatives in place targeting potentially vulnerable workers shows that their specificities are mainly taken into account in various guidance, tools and initiatives at various levels (government, industry or other stakeholders), rather than through legislation which typically does not go beyond the EU requirements. As a consequence, women, pregnant and breastfeeding workers, young people, temporary workers and disabled workers are the most frequently covered

groups as they are regulated under EU legislation. Other groups also covered include in particular older workers, migrants, part-time workers, parents. Approaches within establishments with regard to potentially vulnerable groups of workers are poorly documented.

9.2.7 Specific measures targeting SMEs and micro-enterprises

Most Member States (with the exception of AT and UK) have established (a combination of) specific measures to support SMEs and micro-enterprises in the implementation of their legislation transposing the Framework Directive. These specific measures include exemptions, a lighter regime and/or financial incentives. Only few of the individual directives have been transposed using additional incentives for SMEs to comply with their requirements. However, many Member States have developed numerous accompanying actions targeted at SMEs, which are typically of a more general nature.

9.3 Conclusions on relevance

9.3.1 Current risks

Relevance in relation to labour market

Almost all of the 24 Directives are relevant in all 27 MSs to the extent that all MSs have workers employed in relevant industrial sectors; who are exposed to relevant risks; or who fall within certain vulnerable groups.

The primary exceptions to this are the two Directives relating to marine sectors (including fishing) as a minority of MSs do not have any workers employed within one or both of the marine and fishing sectors.

A further exception relates to the Directive on the extraction of minerals through drilling (Drilling Directive) where, although the provisions of this Directive have been transposed into national legislation in all MSs, approximately 20% of MSs apparently have no drilling industry at present.

Across the EU, the proportion of workers potentially covered by each of the Directives varies. For some Directives, including the Framework and Work Equipment Directives, 100% of workers are potentially affected. In contrast, a number of Directives, including the two maritime Directives, those relating to Mines and Quarries and Drilling, and the Young Persons Directive, are potentially of relevance to less than 1% of the EU workforce.

Relevance in view of prevalence of work related risk

Quantitative data illustrating any ongoing need for each Directive is not always readily available. Even where a causal relationship can be clearly and unequivocally established between the risks addressed by a Directive and health or safety consequences (such as exposure to hand-arm vibration and the disorder known as Hand-Arm Vibration Syndrome) suitable data are not collected or collated at EU level. Even where accidental injuries are concerned, causal mechanisms or agents are not necessarily recorded in a manner which permits explanatory analyses.

Based on the data that is available, it appears that most of the provisions for most of the Directives remain relevant. There are however exceptions.

The **DSE Directive** includes (Article 9) provisions aimed at the “Protection of workers’ eyes and eyesight” even though there is widespread consensus in the scientific literature (and also referred to in some NIRs) that work with computers does not cause any damage to the eyes or eyesight, although use of computers can give rise to visual discomfort and other symptoms. In addition, epidemiological surveys suggest that the prevalence of eyesight problems amongst DSE users is no different from that amongst the general population.

The same **DSE Directive** (Article 3) includes reference to “problems of mental stress” even though epidemiological surveys suggest that the prevalence of such problems amongst DSE users is no different from that amongst the general population and the extensive literature on risk factors relevant to mental stress does not suggest a particular focus on users of DSE.

The minimum requirements for DSE workstations presented as an annex to the **DSE Directive**, which all such workstations must meet (Articles 4 & 5) are widely recognised to be outdated and to not adequately reflect modern computing technologies or ways of working.

The current version of the **EMF Directive** has yet to be fully transposed or implemented in most MSs. Several authoritative reviews have published doubts over the nature and extent of the risks it addresses. As a result of these reports, the extent to which the risks addressed by this Directive are a significant problem in workplaces, warranting legislative control in the form of an EU Directive, is unclear. Possibly reflecting this, there have been suggestions from within NIRs that the Directive places requirements on employers which are disproportionate to the risks (and therefore benefits) associated with this Directive.

Although widely regarded as a ‘vulnerable group’ limited quantitative evidence suggests that **Temporary Workers** are no more likely to sustain injury or develop work-related ill-health than those in permanent employment (and possibly less so).

Similarly limited quantitative evidence suggests that **Young Persons** (under the age of 18 years) are less likely to develop work-related ill-health than their older colleagues although they are more likely to sustain a non-fatal injury at work.

In these latter two cases it cannot be readily determined whether or not these factors are attributable to the provisions of the relevant Directive.

It is recommended that consideration is given to each of the provisions listed above with a view to their retention, revision or repeal as appropriate.

Importance of data for future policy development

The lack of data mentioned above, and the resulting limitations, have not only posed a methodological problem for the evaluation, it also reflects a fundamental problem for policy and regulatory development in relation to OSH broadly speaking. If we do not have the necessary knowledge, then we cannot design the appropriate legal framework for dealing with the risks.

There have been efforts to set up statistical systems to ensure cross-EU capturing of data on occupational diseases (e.g. the European Occupational Diseases Statistics initiative). However, this is associated with considerable challenges due to the large variance in Member States' recognition of occupation diseases. Nevertheless, it is assessed that in order to ensure future evidence-based legislation, it is necessary to put more emphasis in this area.

Some specific recommendations relating to this are presented in the Directive reports. For example, existing requirements for employers to collect data on asbestos workers and remit it to the authorities if required could provide the basis of a valuable centralised data collation which could provide an earlier insight into the effectiveness of the Asbestos Directive than waiting for cases of the long-latency asbestos diseases to become known. However, this need is one which spans all forms of accidents, injuries, and occupational diseases.

9.3.2 Future risks

Looking forward, although some changes in the relative importance of different work sectors can be anticipated it seems that, in general, no meaningful changes in risk exposure and therefore no changes to the need for any specific Directives are expected.

However, there are some new or emerging risks (or concerns regarding ongoing risks) where there are concerns over the adequacy of existing provisions.

Work related MSDs

Work-related MSDs remain at a high level within the EU workforce. Control of the hazards giving rise to the risks of such injuries is a complex field and it is recognised that there are many MSD-related hazards which are not addressed by the existing MH and DSE Directives. Any examination of the research literature on other MSD risk factors, especially those associated with combinations of force, posture and repetition, demonstrates that, although the basic principles are well-understood, it is a complex and complicated area in which to legislate. In particular, the often complex interactions between these three factors would not lend itself to the prescriptive approach endorsed by many MSs, running the risk that some work activities would be unnecessarily curtailed whilst others would (erroneously) not be identified as risky. The available options have been extensively described and explored within the Commission and elsewhere previously.

Evidence from comments and responses relating to the MH and DSE Regulations, as well as the experience of experts working in the field, suggests that employers appear often to adopt an overly simplistic approach to manual handling hazards. This suggests that adopting a similarly prescriptive approach for other MSD hazards in the form of a third (or combined) directive would not be very effective in controlling hazards and reducing any risk of injury. However, as this appears to be the favoured approach in some MSs, it is suggested that consideration be given to commissioning an ergonomics assessment of the feasibility of generating prescriptive material (suitable for legislation) relating to MSDs not related to manual handling or DSE work, to indicate whether or not such an approach could be viable.

Many MSs have prepared guidance material relating to these (including risk assessment aids) and it is suggested that consideration should be given to the alternative of detailed guidance, supporting enabling legislation possibly in the form of an amendment to the Framework Directive. Many MSs have prepared relevant guidance material (including risk assessment aids) and it is suggested that the wider preparation and distribution of such material, combined with some form of enabling legislation offers a potentially effective and efficient solution. Comments and responses collated during the course of this study, again supplemented by comments from OSH experts, suggest that there is less motivation for ameliorative action in the absence of legislation, implying that guidance alone is less likely to be effective.

Nanoparticles and nanomaterials

The possible health effects of nanoparticles and nanomaterials are of some concern amongst MSs. However, there is no current consensus over whether these concerns are best addressed through the existing Chemical Agents and Carcinogens and Mutagens Directives (possibly with amendment) or whether a new Directive is required. Despite this lack, it is clear that action is required to address this area, at least to clarify the situation.

Psychosocial risks

Ill-health associated with work-related psychosocial risks are a further concern and a major cause of sickness absence amongst the EU workforce. Given the considerable negative impact on health of psychosocial risks it is clear (and appears to be generally if not universally accepted) that some form of action is required. There is however no consensus over the best approach to their control within the evidence available to this review (NIRs, interviews and the validation seminar). Although there are nuances of opinion, employer stakeholders in particular appear to be reluctant to accept further legislative provisions whilst worker stakeholders seem to consider such provisions essential, with little support for guidance alone.

Apart from no action at all (which it seems to be agreed is not an option) three possible approaches can be outlined (although there are undoubtedly others). These are: a non-legislative approach based around the use of (agreed) guidance; goal-setting legislation; prescriptive legislation. At the validation seminar, the option of amending the Framework Directive to explicitly mention psychosocial risks (to make their inclusion as risks explicit), and then addressing the issue by information and guidance was not universally well-received, although some participants did endorse a fully non-legislative approach. Others however expressed a preference for a more detailed legislative solution.

The extensive research literature on psychosocial risks, including the interaction between occupational and non-occupational factors, makes this a complex field to legislate in. However, comments and responses collated during the course of this study, again supplemented by comments from OSH experts, suggest that there is less motivation for ameliorative action in the absence of legislation, implying that guidance alone is less likely to be effective.

The complexities and interactions of different risk factors suggest that a prescriptive approach would not provide an effective tool for controlling psychosocial risks. However, the OSH culture in some MSs does not readily lend itself to a more goal-setting legislative path. As the prescriptive approach appears to be that favoured in some MSs (possibly the majority), it is suggested that consideration be given to commissioning a scientific assessment of the feasibility of generating prescriptive material (suitable for legislation) relating to psychosocial risks, to indicate whether or not such an approach could be viable. This could be used to inform a decision on the form and content of legislative developments in this important area of worker health.

Current ongoing major health concerns such as occupational cancers, MSDs and stress, as well as accidents and injuries at work, are likely to remain significant issues for the foreseeable future. MSDs and stress are, and are likely to remain, the most common causes of sickness absence.

Aging worker population

Finally, an aging worker population is likely to present new or increased challenges and risks in the future, although care should be taken not to imply that the changes associated with an aging workforce are necessarily negative. Changes in abilities and susceptibilities within such a

workforce require careful consideration, with thought given to any need to amend or adjust OSH legislative provisions to reflect these.

The contribution of age-related degenerative change will cause problems related to MSDs to continue. Disorders such as back problems related to excessive manual handling at work and those attributable to age-related degenerative change are equally debilitating and provide a clear direction towards a need for the increased integration of occupational health with wider health promotion and management programmes.

9.4 Conclusions on effectiveness

In this section, we present the conclusion of the assessment of the effectiveness of the OSH *acquis*. The conclusions are presented in two main subsections. First, we present the conclusions on the directives' contribution to ensuring health and safety of workers and reaching their objectives, i.e. EQE1-4 and EQE7, which was assessed in Chapter 6 above. Secondly, we present the conclusions from the assessment of the benefits, costs and broader effects of the OSH *acquis*, i.e. EQE6-7, which was assessed in Chapter 7 above.

9.4.1 Directives' contribution to ensuring health and safety of workers and reaching their objectives

Understanding of objectives

The first step in assessing the extent to which objectives have been achieved is to establish the nature of the objectives and what defines the desired end-situation, which should be achieved. The evaluation approached this through establishing intervention logics for each of the 24 Directives (as well as a generic intervention logic for the *acquis* as a whole). These intervention logics are described in the individual Directive reports. This exercise showed that objectives in terms of the desired health and safety impacts are typically not very clearly stated in the Directives – if at all.

It is obvious that, in general terms, the Directives aim to improve the health and safety situation for workers across the EU. However, the more specific intended impacts, such as – for example – the kinds of occupational diseases to be prevented or reduced are often not identified. This means that, for many Directives, there is no clear measuring stick against which to measure the progress towards achievement of objectives.

It must be recognised that this is also a reflection of the complex interrelations between exposures to various risks at the workplace and specific health and safety impacts – and between different OSH measures targeting various groups of workers, types of risk or sectors and their effects on levels of exposure. It is no easy task to define precisely what a Directive aims to do. Nevertheless, it is still striking that the legal texts of the Directives rarely offer much insight into the rationales behind the Directives and their intended safety and health impacts.

The understanding of objectives is furthermore challenged by the situation that the OSH *acquis* contains a mixture of Directives representing a goal and process-oriented approach and Directives representing a prescriptive approach.

The evaluation has analysed objective achievement, looking at objectives at different key levels following the intervention logic structure:

- › Objectives concerning specific requirements to be followed by employers – focusing in particular on the 'common processes and mechanisms', i.e. process-management actions to be taken (risk assessment, information, training, health surveillance, consultation).
- › Objectives concerning impacts at the workplace occurring as a result of implementing the specific requirements.
- › Objectives concerning the health and safety impacts occurring as a result of changes/impacts at the work place (i.e. reduced number of accidents or occupational disease).

Effectiveness – compliance and workplace impacts

Transposition

It is clear that a precondition for achieving objectives regarding compliance with specific requirements as well as workplace impacts is that the Directives have been transposed into Member State legislation. The evaluation shows that, generally, the Directives have been correctly transposed – and there are only few issues in this regard which have not been resolved and which still influence the level of implementation within the period covered by the evaluation (2007-2012). Derogations and transitional periods are not considered to have had a major impact on the implementation and effectiveness of the Directives.

Compliance – implementation on the ground

The next step in the assessment of the impact of the Directives is to consider whether establishments actually implement the requirements 'on the ground' and whether this leads to changes at the workplaces, which can help to reduce the exposure of workers to various OSH risks. In this regard, the evaluation has looked in particular at the common processes and mechanisms (CPMs) and the extent to which they are implemented.

Overall, the evaluation suggests that compliance with the CPMs is quite high. That is, the level of objective achievement in this area is – overall – quite high. However, there are differences between the CPMs and between Member States and compliance is particularly high in relation to the risk assessment requirement. It should be noted that this is largely based on subjective views and that there appears to have been very little systematic objective evaluation of compliance within MSs. Thus, requests for information as part of NIRs, or searches for information by national experts, have resulted in little objective material.

Information from various sources indicates that the presence of legal requirements are an important factor (but certainly not the only one) influencing the compliance behaviour of establishments. This suggests that, by requiring the introduction of such requirements in all MSs, the Directives will have had an impact on compliance behaviour.

One important observation in relation to implementation of the CPMs is that some Member States already had similar legislation in place, prior to adoption of the Framework Directive. The goal-process oriented approach was thus already enshrined in the legislative framework of some Member States, whereas others had to make considerable changes. This also means that the high level of objective achievement as regards compliance with CPMs cannot be ascribed to the Directives alone.

EU-level data on compliance is limited mainly to the ESENER survey, which was conducted in 2009 and data from the most recent survey conducted in 2014 has only been available to the evaluation to a limited extent. This means that it is not possible to assess changes in compliance over time in the evaluation period and hence, it is impossible to assess whether or not a particular effect has occurred during the evaluation period. We can say with reasonable certainty that the Directives have had a positive impact on compliance with the CPMs, but whether this impact has been achieved during the implementation period or before is very uncertain. Precisely what happened after 2009 is also not clear from the existing data, although the available data from ESENER 2014 tends to confirm that levels of compliance have remained stable.

The evaluation shows that there are no clear differences between public and private establishments in relation to implementation of CPMs. However, when considering size of establishment, SMEs and micro-establishments generally display lower levels of compliance with the CPMs, compared to large establishments. Thus, achieving the goal of implementing the CPMs has been achieved to a much greater extent in larger establishments than in SMEs.

The evaluation has pointed to some factors which are considered to have affected the level of goal achievement in relation to CPM implementation. These include, in particular:

- › The Framework Directive in itself sets out the goal-process oriented approach and the CPMs thus provide a clear structure and approach to be applied. This has been common practise in some MSs for many years whereas others have had (and continue to have) a more traditional management system with prescriptive legislative approaches embedded in their regulatory regimes. Evidence from a variety of sources suggests that those MSs with regulatory systems with a longer tradition of goal-oriented and participatory OSH management tend to be associated with greater levels of OSH management practice implementation.
- › An analysis of the interlinkage of the CPMs across Directives, and thus their suitability to work in tandem and collectively increase the safety and health of workers, reveals that the collected OSH legislation is unnecessarily complex, in part, due to a seemingly unstructured and unsystematic inclusion (or lack thereof) of CPMs into the individual Directives. These problems are often transported into the national legal frameworks preventing a fully coherent and cohesive approach. This, in turn, has caused some confusion at enterprise level, and particularly amongst SMEs, leading to misinterpretations of the provisions of legislation or Directives.
- › The OSH acquis in itself represents a mix of the goal-process oriented approach and the prescriptive approach as mirrored in particular in some of the individual Directives. While not incoherent from a legal point of view, these two approaches are conceptually inconsistent and can work against each other in practise. On the one hand, the goal-process approach asks to identify the most suitable means to arrive at a certain end, whereas the prescriptive approach specifies the means to be applied.
- › Enforcement, and particularly the combined role of inspectors enforcing the legislation and providing guidance on implementation, is generally considered to have a significant influence on compliance with the OSH acquis. This is particularly true in SMEs, within which a lack of recognition of non-compliance is prevalent. Seen in this light, it is clearly problematic that the level of enforcement across MSs varies to a very high extent.

- › Strong evidence suggests that employee representation has noticeable influence on the proportion of establishments performing risk assessments and an even more pronounced impact on other key requirements. Data suggests that risk assessments performed by external service providers reduce the need to maintain in-house expertise and more often result in a lack of subsequent anchoring of OSH principles in the establishment in comparison to risk assessments performed by internal staff. This is likely to impact on the position of health and safety generally within an organisation's business and priorities.

Improvements in working conditions

The next question in the impact chain is to consider whether compliance with Directive requirements has led to improvements in working conditions as could be expected. There is very limited information on this particular issue and the data is not consistent. Therefore, a way to approach this subject is to go one step ahead in the chain and consider whether exposure to various risk factors has decreased during the period. A decrease in exposure would be a good indicator that working conditions have improved as a result of compliance with the requirements. This is considered in the section below.

Effectiveness – health and safety impacts

Further in the impact chain, the question is whether the high level of compliance with the CPM requirements is translated into less exposure to risk factors and hence, fewer accidents at work and less work-related disease.

The data on work-related accidents and diseases shows in general that the incidence of accidents has decreased during the evaluation period, whereas the exposure to risks related to various occupational diseases has remained constant or increased, except for a few specific cases.

It is likely that the decrease in incidence of accidents at work can to some extent be ascribed to the implementation of the Directives, as this can be linked to the level of compliance with the CPMs. Increasing safety and reducing accidents is a key element in any risk assessment.

Subjective impressions, from surveys of the workforce, seem to suggest that, in general, there has been a reduction in the proportion of workers who consider that their health and safety is at risk from their work and who feel that work has affected their health.

Quantitative material is less readily obtained and that which is available is patchy, incomplete, and not readily related to the Osh Directive acquis. However, it is a key concern that exposure to risks related to various occupational diseases have typically either remained stable or increased during the implementation period. The two most prominent work-related diseases – stress and MSDs – have both seen substantial increases in exposure to related risk factors (although with stress it is perhaps understandable given that there are no specific OSH provisions which address psychosocial risks). MSDs however do have two specific Directives which address two major hazards contributing to MSDs.

A major problem in assessing the impact of the Directives on the health of workers is the inadequacy of the data systems available for making any such assessment. Even with the example of MSDs given above, it is not possible to establish the extent to which recorded MSDs were caused by risk factors encompassed by the Directives and therefore the extent to which adequate implementation of their provisions should have prevented them. Against this background, the

limited data sources available generally suggest that the Directives are not effective at targeting occupational diseases.

We have just concluded that compliance with CPMs is generally quite high. This clearly leads to a key question of why we are only seeing a limited effect in terms of combatting occupational illness? (why is a generally high reported level of compliance not leading to better results?). Based on the existing data, it is not possible to provide exhaustive answers to these questions, but some key factors emerge from the findings in this evaluation:

- › The compliance data might be misleading. There are some published studies which have suggested that the quality of compliance is often poor, so that even amongst those organisations who report compliance, the extent of effective compliance is likely to be less.
- › As part of this, risk assessment performance occasionally diverts attention away from managing identified risks, particularly in SMEs. This showcases the impact of non-recognition as SMEs tend to believe that, having followed legislative requirements and conducted a risk assessment, they are in compliance. Contrarily, risk assessments in SMEs are often of insufficient quality to ensure adequate risk management and, even in larger organisations, the risk management measures adopted may not be the most appropriate. Evidence from OSH practitioners, supported by material examined during this study (such as NIRs), suggests that the quickest, easiest, cheapest solution might be that adopted. As a specific example, a number of NIRs report that, in response to identified manual handling risks, organisations frequently resort to manual handling training regardless of whether or not it is the most appropriate.
- › There seems to be a general view that the Framework Directive, with its orientation towards a goal-process approach to OSH (rather than prescription) successfully lays out a suitable template for managing workplace risks – but not in itself enough to ensure that all risks are dealt with sufficiently. One criticism of the goal-setting approach is that the absence of prescriptive intermediate goals makes compliance harder to verify and, in the absence of that verification procedure, harder to enforce (especially in OSH cultures with a history of the prescriptive approach).
- › Even with a high level of good quality compliance with OSH requirements such a regime will be ineffective if the wrong provisions are adopted, either through initial misconceptions in formulating the provisions of a Directive or because the provisions originally formulated are no longer relevant to the hazards present in the workplace. It would be wrong to make sweeping generalisations here as the situation varies between Directives and the individual directive reports should be seen for more details on any particular subject. Thus, some directives do appear to still address the relevant risks correctly and do contain provisions which, if correctly and competently implemented, should result in suitable risk management. Directives such as those relating to noise and vibration fall into this category. Although those relating to MSDs appear to fall into the second category the reality is more complicated. The hazards addressed by the Manual Handling Directive for example still remain relevant – it is hazards not addressed by this Directive, which create further risks of MSDs which are omitted. Similarly, the hazards arising from working for prolonged periods with DSE still remain, it is just that the nature of the DSE encompassed by the prescriptive element which have lost relevance.
- › A further area where the inadequacies of the current OSH acquis can be identified relates to the somewhat piecemeal manner in which vulnerable groups are covered. Some such groups:

pregnant workers, young people, temporary workers, have specific directives. However, each of these can be paralleled by another group who do not have specific protection: the susceptibilities of the fertility of male workers, older workers, migrant workers have all been recognised but are, in effect, only addressed by the general provisions of the Framework Directive. Older workers perhaps warrant particular mention as concerns about the implications of an aging workforce pervaded many of the discussions and interviews carried out as part of the evaluation, as well as featuring in the research literature.

- › For some possibly vulnerable groups, the protection is even less as they are excluded from the provisions of the OSH acquis, either entirely or partly. Groups excluded in some way include the self-employed and home workers. The latter present particular challenges because, for example, developments in DSE and related technologies mean that DSE Users might perform their work at home, or at other remote locations. Then there are those whose work is within the home setting, such as domestic workers. In such cases, protection could almost be regarded as a 'Member State lottery' in that the extent to which you are offered protection, if at all, depends on which MS you work in as some MSs have already exercised their right to make more detailed provisions and extend OSH protection to such groups.

All of these factors present challenges in terms of evaluating the effectiveness of the existing provisions and of ensuring the ongoing relevance of the OSH acquis to the hazards and consequent risks faced by the EU workforce in the future.

Effectiveness of current data and systems enabling monitoring of the implementation of the Directives

As also described in the Commission's better regulation guidelines, part of effective regulation is monitoring to generate evidence on activities and impacts over time in a continuous and systematic way. The guidelines, among other things, state that the monitoring system should provide time series data, which is more reliable in explaining behaviour than one-off data collection exercises.

It is observed that the Directives, apart from most of them referring to the five-yearly reporting requirement, make little or no reference as to how they will be monitored. As shown in the analysis of EQE1-6, there are some important sources of data at the EU level, which do enable some monitoring of how the Directives have been implemented. ESENER, ESAW and EWCS do provide valuable input, but in terms of time-series based data suitable for monitoring of each individual Directive, these data sources certainly also have serious flaws. To mention the most important of these, the data from ESENER and EWCS are not annual (and hence not proper time series data) and all three data sources do not enable data drilling to the necessary detail required to monitor individual directives.

Most of the Directives are encompassed by the general requirement to report to the Commission about their implementation every five years¹⁴². This evaluation report should be seen in conjunction with this procedure as it builds on the National Implementation Reports (NIRs) submitted by the Member States by December 2013. Having a report every five years from the Member States on the implementation of all these Directives hence also marks a unique opportunity for collecting data and filling gaps where sources such as those mentioned above, do not give sufficient insight. Our experience from working with the data in the NIRs is that they do provide some valuable information, but unfortunately, the quality varies between Directives and between Member States.

¹⁴² Ref. Framework Directive (89/391/EEC), Article 17a

This is partly because the respondents in the Member States have taken different interests in answering the questions posed in the questionnaire devised by the Commission¹⁴³. However, it is our assessment, that it also has a lot to do with the fact that the questions are often phrased in an open and ambiguous manner, and can be (and have been) understood in many different ways. For this reason, the responses from the Member States are often not comparable and reflect different interpretations of the question posed. This reduces the value of the NIRs as a data source to an important extent.

On this basis, it is assessed that in order to make the Directives 'fit for purpose' there is a need to better define and execute the monitoring plan for the Directives. This includes considering the three key questions also posed in the better regulation guidelines: 1) What evidence needs to be collected?; 2) When and how should evidence be collected?; 3) Who will collect the evidence and from whom?

9.4.2 Costs and benefits

The aim of the evaluation on cost and benefit was to identify which benefits and costs society, workers and employers will incur as a result of the acquis. It was beyond the scope of this evaluation of conducting a full cost benefit evaluation. Instead, we triangulated the available data sources to, qualitatively, assess the costs and benefits respectively. The evaluation of costs focused, in particular, on administrative burdens and costs, as well as substantive compliance costs in conducting risk assessments, carrying out risk management measures, providing training and information for workers, protective and preventive services and health surveillance.

The analysis of benefits applied the perspective of 'avoided costs' i.e. in terms of reduction in sickness absence, accidents and ill health. Moreover, we also assessed broader benefits, including agenda setting, learning, influencing national agendas, motivation of workers, innovation and productivity and employment and economic growth). Finally, we also identified studies that investigated the profitability of different OSH interventions at the enterprises level.

Compliance costs

Overall, the analyses shows that administrative and substantive compliance costs primarily fall on the employer. Moreover, the analysis of reporting obligations stemming from the acquis shows that 15 of the 24 Directives contain reporting obligations, but none of the worker specific directives contain such obligations. These obligations will impose recurrent costs that depend on the enterprise's operations and working environment, and the available literature suggests that a high percentage of administrative costs are business-as-usual meaning that the enterprises would comply with the obligations irrespective of OSH legislation.

Whilst, we identified several more stringent/detailed requirements in a large number of MS, it is not possible to conclude whether more/stringent or detailed requirements will impose additional costs for enterprises. Many other factors might also influence the compliance cost – especially the availability of support and accompanying measures in MS. However, it should be noted that developing more accompanying measures also comes at a cost – primary for governments or social partners.

¹⁴³ Ref. Commission Decision C(2011) 9200 final of 20.12.2011

The data also shows that the third sector (e.g. insurers and OSH consultancy) have a considerable impact on how enterprises think and feel about OSH and affect also affect the compliance costs negatively or positively. While highly specialised consultant might be cheaper, the third sector increasingly demand health and safety assessment, compliance and/or forms of pre-qualification from clients that want to work with them. For many of the employers that face them, these requirements have become a significant source of health and safety bureaucracy. SMEs in particular struggle to act as informed consumers of third party advice: knowing when –and when not – it is in their interest to buy in health and safety support.

The National and EU stakeholder express the opinion that costs are likely to be higher for SMEs. This findings is corroborated in a study from the HSE in Britain that showed that SMEs spent considerably more per employee than larger enterprises. We identified a range of EU and national level initiatives to reduce costs for SME including specific exemptions to the key requirements laid down in the Framework Directive for SMEs, and micro-enterprises, a lighter regime for SMEs and micro-enterprises and guidance documents. It should be noted that EU social partners representing SMEs do not support the exemption of SMEs from legal OSH obligations. While, some evidence support the effectiveness of financial incentives, EU and national stakeholder expressed a need for more targeted guidance and information documents specifically directed towards certain sectors and, especially, SMEs.

The coherence evaluation finds that there are no major internal or external coherence issues. Furthermore, among the few internal overlaps identified, a large majority do not result in double regulation in practice (e.g. double reporting requirements) and therefore do not lead to additional cost when applied by employers. It is not possible based on the available data to assess if the use of derogations have reduced the implementation costs.

Benefits

Regarding benefits, our analysis indicates that all stakeholder groups (enterprises, workers and governments) are likely to benefit from positive health and safety effects. The benefits for workers, primarily, stem from avoided non-financial cost (quality of life), while most of the financial benefits, primarily avoided productivity losses, benefits both governments and enterprises. However, the available data are based on estimates from only one MS (Britain). Due to differences in the national social insurance and health schemes, we caution against generalising across the entire EU, as distributions might differ considerably from MS to MS.

Moreover, the available studies on benefits do not estimate the actual benefits stemming from the acquis. Rather, they estimate the monetary benefits of reductions in occupational accidents and ill health in general. As reported earlier, these reduction might not only be attributable to the acquis. While the effectiveness evaluation shows that the OSH acquis has primarily had an effect on accidents, data from several MS clearly shows that MSDs and mental health problems are among the most costly occupational diseases. Thus, it is unlikely that the OSH acquis has achieved its full potential in terms of ensuring economic benefits for the enterprises, governments and workers.

Our analysis also points to several broader societal benefits. While there are few empirical studies on the subject, data from the interviews and other surveys shows that stakeholders primarily highlight increased OSH awareness. Moreover, the analysis of the national transposition of the acquis clearly shows that the Directives have influenced national agenda and the influenced the OSH awareness in enterprises. The evidence for innovation and quality of products are weaker, but the available literature also points to a link between competitiveness and accidents.

Profitability from the enterprise perspective

While most of the available literature focus on either costs or benefits, we also identified case studies that assess the profitability of different OSH activities. The available reviews found that there is strongest evidence for the profitability of ergonomic interventions and disability management programmes (from the enterprise perspective). Ergonomic interventions were also the most common type of intervention in the literature. Possible explanations of the profitability of ergonomic interventions might be related to the low costs of the interventions (training, simple equipment etc.), and the high relevance of ergonomics, because MSD is a major cause of absenteeism and low productivity. Moreover, the available literature on case studies suggests that wide-ranging interventions appear to be more profitable than interventions targeting a particular issue related to a specific sector or type of enterprise. Moreover, interventions that mainly concern training and organizational change appear to be more profitable compared to interventions based on technical changes, such as personal protective equipment. Finally, the case studies shows that participatory interventions that include workers appear to be most profitable and that more research is needed on the business case for OSH in SMEs.

9.5 Conclusions on Coherence

9.5.1 Internal coherence

Few overlaps and limited double regulation

The analysis of the 24 OSH Directives has not resulted in the identification of major coherence issues. There are no contradictory provisions and very few overlaps between the OSH Directives. The legal articulation between OSH Directives through in-built mechanisms (e.g. specific scope, without prejudice clause, exemptions, *lex specialis* principle) has in most cases contributed to avoid overlaps and contradictions between provisions¹⁴⁴.

Furthermore, among the few overlaps identified, a large majority do not result in double regulation in practice (e.g. double reporting requirements) and therefore do not lead to additional cost when applied by employers. In the absence of problems of legal articulation between the OSH Directives, it can be concluded that from a 'coherence approach' the overall structure of the OSH acquis based on a Framework Directive and individual Directives covering specific occupational risks does not need to be changed and similarly no major changes in individual Directives (e.g. merging of Directives) are required.

Scope for broadening application of certain provisions

The analysis of CPMs and key requirements across Directives however revealed that some provisions which regulate specific risks (e.g. agents, workplaces, targeted workers, equipment) under the current OSH acquis could apply to broader categories of workers and risks, and that there is no obvious justification (e.g. hazard related, additional unnecessary cost) to restrict their application and related health and safety benefits to certain occupational risks, workplaces and workers.

¹⁴⁴ Please note that according to the mapping section the legal articulation between OSH Directives transposing measures is not always done in a systematic fashion and cross-references are not sufficient to ensure a coherent and cohesive approach across national legislation.

9.5.2 External coherence – EU non-OSH legislation

Several interfaces have been identified between the OSH Directives and other EU measures and/or policies. Among these interfaces very few coherence issues arose. The coherence issues identified can be classified under the following categories:

Inconsistencies

Despite close links with Directive 2000/54/EC (biological agents), the scope of Directive 2010/32/EU (sharp injuries) does not cover all the categories of workers that might be exposed to infection through sharp injuries (e.g. workers dealing with special/ contaminated waste management treatments or researchers in laboratories).

Overlaps leading to application of contradictory requirements

Overlaps have been identified between Regulation 1907/2006 (REACH) and Directive 98/24/EC (chemical agents) and the occupational exposure limits (OELs) in the Directive and the Derived No Effect Levels (DNELs) in the Regulation.

Lack of legal clarity in the interface

Directive 2013/30/EU on safety of offshore oil and gas operations refers to the complementarity of the reporting requirements under this Directive and the ones under Directive 92/91/EEC (drilling). However, it does not provide further details on the articulation between the two reporting requirements.

Directive 92/85/EEC (pregnant workers) and Directive 94/33/EC (young workers) set specific employment rights that are not always linked to occupational health and safety issues (e.g. working time provisions allowing young people to combine work with school attendance or time off for ante-natal examinations and prohibition of dismissal of pregnant workers).

Directive 2009/13/EC and Directive 2008/106/EC contain some medical treatment requirements equivalent to the ones set under Directive 92/29/EC. Commercial seagoing ships falling under Directive 2009/13/EC will have to comply with medical treatment requirements under these three directives.

Possibility to enhance synergies

The relevant provision concerning the award criteria under the Public Procurement Directives mentions 'social characteristics' as a possible criterion to be used by contracting authorities, without further details or specific reference to occupational health and safety obligations on behalf of the tenderers.

The main interaction between the two ATEX Directives concerns the selection of equipment and protective systems as defined under Directive 94/9/EC (ATEX Equipment) to be used in the different zones as defined under Directive 1999/92/EC (ATEX). Several Member States expressed some concerns about this interaction leading to potential barrier to the free movement of equipment across the EU.

Safety Data Sheets (SDSs) under REACH provide important information to employers to perform their risk assessment at the workplace and to adopt the adequate risk management measures. However some employers expressed their concern on the difficulties they encounter to use information from the SDSs

9.5.3 External coherence – International instruments

In several instances international conventions (i.e. 15 ILO Conventions and one IMO Convention) ratified by at least some Member States set additional or more stringent requirements than the EU acquis (see section 7.2.3).

9.6 Recommendations

Based on the conclusions presented above, a number of recommendations emerge from the evaluation. These are presented below and represent four main clusters/groups of recommendations:

- 1 Structure and coherence of the acquis
- 2 Addressing on-going and emerging risks
- 3 Compliance, enforcement and SMEs
- 4 Data and monitoring of effects

These recommendations provide a cross-cutting overview. In addition, most of the Directive reports make specific recommendations which are not duplicated here but should be examined and considered alongside the evidence presented in support of those recommendations.

9.6.1 Recommendation cluster 1: Structure and coherence of the acquis

Maintain structure of acquis with a Framework Directive and individual directives

The evaluation shows that goal-process orientated approach enshrined in the Framework Directive and in the CPMs is relevant, works effectively and provides a clear structure for implementing OSH management. Furthermore, the goal process approach is in line with better regulation principles, which emphasise that regulation should, as far as possible, be general in nature and cover the objectives, periods of validity and essential requirements, while technicalities and details should be left to the Member States to decide. The evaluation also shows that it is relevant to have individual directives to address specific risks and specific sectors. However, there are a number of recommendations to bring the individual directives up to date and to ensure coherence and consistency across the acquis. These are presented below.

Recommendation 1.1: Develop the acquis more in the direction of the goal-process-oriented approach

The evaluation finds that the acquis currently reflects a mix of the goal-process orientated approach and the prescriptive approach. While this does generally not give rise to legal incoherence, it is conceptually inconsistent. Furthermore, the prescriptive approach brings with it a requirement to continually update the legislation to bring it up to date. The evaluation finds that the Directives of a prescriptive nature generally suffer from a lack of follow-up in this respect. In areas where prescription is necessary, it can be advantageous to establish co-regulation measures linking up with existing widely recognised standardisation mechanisms to avoid incoherence and

have an efficient updating process. However, such instruments seem not to have been taken advantage of in the current set-up of the acquis. On this basis, it is suggested that:

- › Directives with a highly prescriptive content be reviewed and Annexes shortened or removed and relevant elements of the annexes be transferred to updated guidance documents (in particular relevant to the Workplace Directive, the Drilling Directive, Work on Board Fishing Vessels Directive, the Manual Handling Directive, Signs Directive)
- › Directives with a potential for co-regulation with standardisation mechanisms be considered for updating in this respect (in particular relevant to consider for the Signs Directive and the Drilling Directive)
- › When amending Directives, to perform an analysis of the intervention logic and clarify the goals against which the performance of the Directive should be measured (building on intervention logics of this evaluation when relevant)

Recommendation 1.2: Streamline the application of the CPMs

Analysing the interlinkages of the CPMs across Directives, and thus their suitability to work in tandem and collectively increase the safety and health of workers, the evaluation found that the collected OSH legislation is unnecessarily complex, in part, due to a seemingly unstructured and unsystematic inclusion (or lack thereof) of CPMs into the individual Directives. These problems are often transported into the national legal frameworks preventing a fully coherent and cohesive approach. This, in turn, has caused some confusion at enterprise level, and particularly amongst SMEs, leading to misinterpretations of the provisions of legislation or Directives. On this basis, it is suggested that:

- › 'Pure' references in individual Directives to the CPM provisions in the Framework Directive be removed.
- › Review of the Framework Directive to include requirements, which although set under individual Directives only, could apply to all risks, workers and workplaces. Such review would also be justified by the fact that the Framework Directive has not been significantly amended since its adoption in June 1989 whereas the individual Directives have been amended throughout the years and some of them were recently adopted (e.g. Directive 2013/35/EU). In fact, an important number of the provisions that could be streamlined in the Framework Directive come from the Directives recently adopted or amended. The criteria used to identify such provisions include the scope and rationale of the Framework Directive and the level of prescription of the provision considered so that the inclusion would not restrict the Member States and employers' flexibility in implementing these general principles.

Recommendation 1.3: Reconsider how to address vulnerable groups

The evaluation shows that vulnerable groups are not addressed in a consistent manner in the current acquis. Some groups (young workers, pregnant workers, temporary workers) are addressed by an individual Directive whereas others are not (e.g. older workers, migrant workers, new workers). New groups of vulnerable workers may be identified in the future and the current legal structure is not suitable for incorporating these in a flexible manner.

Furthermore, there are cross-references to vulnerable groups of workers between worker-specific Directives and risk-specific Directives. While these references are not incoherent from a legal

perspective, they do add to the complexity of the legal framework. In addition, the current vulnerable groups Directives contain provisions on workers' rights as well as OSH related provisions. While there are clear links between the two, it could still be argued that provisions on workers' rights belong to a separate *acquis*.

The evaluation leads to the recommendation to rationalise the way vulnerable workers are addressed to ensure consistency and coverage of relevant groups. More specifically, it is suggested that:

- › The requirements to address the specific needs of vulnerable workers and general prohibitions be more clearly reflected into the Framework Directive coupled with additional guidance on how to implement this in practise targeted at various vulnerable groups
- › The existing Directives on vulnerable groups be cancelled and relevant provisions be transferred to other Directives:
 - › Provisions relating to risk-specific prohibitions or other risk-specific provisions be transferred to the relevant risk-specific Directives
 - › Provisions on workers' rights to be transferred to Directives pertaining to workers' rights

9.6.2 Cluster 2: Address risks

Recommendation 2.1: Address risks related to MSDs

Evidence from a number of sources, including the scientific literature, some NIRs, the views of stakeholders interviewed and those participating in the validation seminar, would seem to suggest that there is a need to better address those work factors creating a risk of MSDs not addressed by the two current Directives (DSE and MH). However, there is a lack of consensus on what form any action should take.

The options, issues and evidence are debated more extensively in the Manual Handling Directive report. However, it is suggested from this discussion that the complexities of managing the risks of non-manual handling MSDs are unlikely to be compatible with a prescriptive Directive. There is clearly a lot of support for (and against) such an approach in principle. Although the scientific evidence points towards a more goal-setting approach the evidence available does not permit a conclusive outcome at this stage. It is suggested therefore that consideration be given to commissioning an ergonomics assessment of the feasibility of generating prescriptive material relating to MSDs not related to manual handling or DSE work.

At least as an interim measure, consideration should also be given to the option of detailed guidance (for which potential examples are already available nationally) supporting enabling legislation, possibly in the form of an amendment to the Framework Directive (or at least a clear direction that the goal set by the Framework Directive of assessing and managing workplace hazards and risk factors can be met through appropriate application of such guidance.

Recommendation 2.2: Address psychosocial risks

Given the considerable negative impact on health of psychosocial risks, it is clear (and appears to be generally if not universally accepted) that some form of action is required to address the growing

issue of ill-health arising from exposure to psychosocial risk factors in the workplace. What is not clear is the nature of such action. Many of the factors giving rise to such problems are well known. However, given their complexities and interactions they clearly do not readily lend themselves to the type of prescriptive directive (possibly incorporating 'exposure limits') favoured by some MSs. Equally, some stakeholders are strongly opposed to what they see as 'just' guidance. Clearly, some action in this area is desirable.

Apart from no action at all (on which there seems to be agreement is not an option), three possible approaches can be outlined (although there are undoubtedly more). These are a non-legislative approach based on the use of (agreed) guidance, goal-setting legislation, and prescriptive legislation. Although there are currently two tripartite agreements in place addressing aspects of psychosocial risks (covering 'stress' and 'violence and harassment'), there is a widespread message from MSs that these are not sufficient to address psychosocial risks.

It is also argued by some that Article 5(1) of the Framework Directive ("The employer shall have a duty to ensure the safety and health of workers in every aspect related to the work.") provides a sufficient legal basis. Again, the implicit message from the MSs would seem to suggest otherwise. At the validation seminar, the option of amending the Framework Directive to explicitly mention psychosocial risks (to make their inclusion as risks explicit), and addressing the issue by information and guidance was not universally well received, although some participants did endorse a fully non-legislative approach. Others however expressed a preference for a more detailed legislative solution.

The extensive research literature on psychosocial risks, including the interaction between occupational and non-occupational factors, makes this a complex field in which to enact legislation. However, comments and responses collected during the course of this study, again supplemented by comments from OSH experts, suggest that there is less motivation for ameliorative action in the absence of legislation, implying that guidance alone is less likely to be effective. This is supported by survey results which show legislative requirements as the primary driver for OSH action for many employers.

Based on an extensive appraisal of the scientific literature on psychosocial risk factors, their complexities and interactions suggest that a prescriptive approach would not provide an effective tool for controlling psychosocial risks. However, the OSH culture in some MSs does not readily lend itself to a more goal-setting legislative path. As the prescriptive approach appears to be that favoured in some MSs (possibly the majority), it is suggested that consideration be given to commissioning a scientific assessment of the feasibility of generating prescriptive material (suitable for legislation) relating to psychosocial risks, to indicate whether or not such an approach could be viable. This could be used to inform a decision on the form and content of legislative developments in this important area of worker health.

Recommendation 2.3: Give attention to updating of relevant Directives

A number of the Directive-specific reports contain direct indications of where their relevance has failed to keep abreast of developments in the workplace. One specific example would be that of the DSE Directive where advances in new technology and knowledge of relevant workplace hazards and risks appear to warrant considerable change. Attention is drawn to this and other Directive-specific reports to address the recommendations for updating they contain.

Recommendation 2.4: Streamline provisions dealing with chemical agents across Directives to ensure coherent coverage of risks related to various chemical agents

The analysis of the legal coherence of Directive 2004/307/EC (carcinogens and mutagens), Directive 2009/148/EC (asbestos) and Directive 98/24/EC (chemical agents) identified a number of different individual areas of legal inconsistency or a lack of coherence between the three Directives. It is widely recognised that the Asbestos Directive reflects a very different scenario and series of highly specific control measures (and there appears to be little support from any source for its merger with the CAD). However, one solution suggested with regard to the remaining two was that of merging them into a single Directive. There have been numerous comments and suggestions made, from a variety of different sources, both for and against any such suggestion.

This issue is discussed to some extent in the CAD report. The outcome of this was that, other than the argument for greater legal clarity through rationalisation, there is no evidence-base on which to argue for or against such a move. Given the absence of any coherent evidence-base therefore it is clear that, other than acknowledging the issue, no clear conclusions or recommendations can be drawn from this work. However, clarification of legal requirements might well serve to address some of the concerns about a lack of clarity and a certain level of confusion regarding the provisions under these two directives and it is recommended that amendments are considered to the CAD and CMD to ensure coherent coverage of risks related to various chemical agents

Recommendation 2.5: Streamline provisions dealing with physical agents to ensure coherent coverage

The evaluation has found that it is relevant to maintain the physical agents Directives as there are differences in the risk involved, the approaches to risk management and the setting of different limit values, which justify the existence of distinct directives. However, some provisions in certain physical agent Directives could apply to all physical agents would thus benefit to all workers exposed to such agents. However, more consistency in the way CPMs are drafted across the various physical agent Directives would facilitate their application at the workplace.

9.6.3 Cluster 3: Compliance, enforcement and SMEs

Recommendation 3.1: Increase compliance of SMEs

The evaluation provides evidence to suggest that SMEs are less compliant with the requirements of the OSH Directives than large establishments. Although SMEs display lower incidence rates of accidents at work and also show a decreasing trend in number of accidents at work similar to large establishments, it is still considered that increasing the compliance of SMEs is likely to lead to additional benefits in terms of avoiding work-related accidents and diseases.

The key challenge in this respect is how to reach the SMEs and encourage them to make the necessary changes. The data collected for the evaluation indicates that SMEs are often not consciously non-compliant, that they typically do not react well to written guidance (often finding it too complicated) and that they rely on external services to a greater extent than large establishments. SMEs are best targeted through a more personalised approach combining enforcement and guidance. Clearly, it would be burdensome for inspectorates to target SMEs using conventional approaches to inspection, so the challenge is to find new and innovative ways of reaching the SMEs in an efficient and effective way. Below, the main suggestions for key initiatives that would promote this are presented.

It is **not** recommended to establish exemptions for SMEs and micros as this would lead to a lowering of the levels of protection for some workers.

- › Continuing the further development and dissemination of already existing effective tools, in particular the OiRA tool. Ensuring that the experience already gathered is used in the most effective way, e.g. that Member States can learn from each other and avoid unnecessary cost in developing custom-made tools and approaches. The role of EU-OSHA is important in this respect. Future tool development could – for example – also include exploring possibilities for establishing certification schemes targeted at SMEs.

As part of this, consideration could be given to exploring the approaches adopted in some MSs to 'simplify' OSH and thereby make the essential requirements more accessible. One example would be to further explore the potential of the 'Control banding' approach to managing chemical hazards such as 'Stoffenmanager' developed in the Netherlands (see the CAD report).

- › Finding ways to target the SMEs with a personal approach without over-exerting the resources of the inspectorates. This could include moving from the traditional focus on inspections of individual establishments to a broader catalytic approach considering extended supply chains and targeting of upstream actors. Another approach could be to tap into existing business networks and facilitation of mutual learning processes among participants. At the European level, this could potentially be promoted by the Commission and the SLIC.

Again, the experience of some MSs in some industries could be of value here. For example, there is evidence from the UK of the benefits of the 'cascade approach' to OSH as applied on large-scale construction projects with construction SMEs learning from their involvement.

- › Investigating the promotion of economic incentives, especially in SMEs, such as favourable insurance conditions if certain OSH criteria are met, in order to encourage the development of risk prevention strategies and overall OSH compliance.
- › Introducing measures to reduce costs for SMEs could be of value, because compliance costs (measured per worker) tend to be higher for SMEs and because SMEs are less likely to perceive OSH as a financial investment. We do not, however, recommend, implementing exceptions or lighter regimes for SMEs, because this could reduce the protection of workers. Rather, increasing financial incentives through financial incentives schemes could be used to motivate SMEs. Likewise, accompanying measures, in terms of better and more targeted guidance, could reduce uncertainty about legal requirements and thereby reduce costs for enterprises. Moreover, SMEs also need better guidance on the availability of free advice and guidance to reduce costs for external consultancy.

Recommendation 3.2: Inspections

The evaluation finds that there is a large degree of variance in the number and frequency of inspections across the Member States. This means that the Directives are not enforced to the same extent in the Member States, which again leads to a concern over the extent to which there is a level playing field. It has to be noted that as the Directives only set minimum requirements, they do not in themselves aim to achieve a completely level playing field. It is also noted that the

requirement to enforce the legislation transposing the Directives is not very clearly articulated in the current provisions in the Directives. At the same time, it is clear that legal requirements and inspection are key determinants in explaining why establishments develop OSH policies and take OSH action, so there is a need for a strong effort in this area to ensure the implementation of the Directives and to aim for a greater harmonisation in the way the legislation is enforced. On this basis, it is suggested to:

- › Consider whether a clearer reference to the obligation to enforce the requirements should be included in the Framework Directive
- › To strengthen existing coordinating mechanisms for enforcement and inspection, potentially coupled with a stronger emphasis on competence building and guidance to inspectorates. The SLIC would be a key actor in this respect.

Recommendation 3.3: Strengthen focus on risk management

The evaluation shows that there is a high level of compliance with the requirement to perform a risk assessment, whereas compliance is lower (but still reportedly fairly high) in relation to the other CPMs. The evaluation also calls attention to evidence from some MSs at least that the issue that a sole focus on risk assessment may divert attention from risk management. However, it should also be noted that in several cases, evaluations of individual Directives resulted in conclusions regarding inadequate or insufficient risk assessment procedures for a given Directive, which did not adequately address Directive-specific hazards, risks, challenges and/or circumstances. There is thus a need for a dual focus on further enhancing the quality of risk assessments while at the same time ensuring that the measures identified in the risk assessment are, in fact, implemented and the risks sufficiently managed. In order to work towards these aims, it is suggested that:

- › Guidance on implementation of the CPMs / Framework Directive is updated and disseminated focusing not only on risk assessment, but on the entire plan-do-act cycle.
- › In light of these conclusions on the apparent differences in effectiveness of risk assessments carried out in-house or by external service providers combined with the considerable differences across MSs of the dissemination of the two approaches, it is necessary to consider which provisions of support match the different challenges. Clearly, different kinds of advice and guidance are required in relation to these two approaches (EU-OSHA, 2013c), and with evidence pointing to significant differences in risk assessment quality, this variance constitute room for improvement and increased effectiveness of the CPM.
- › We thus cautiously repeat the fundamental question raised in the European Risk Observatory of "how the use of external services to carry out risk assessments fits within the Framework Directive's principles of prevention and protection through a coherent overall policy" (EU-OSHA, 2013c). We recommend that the answer to this question is coherently incorporated in the legislative framework, possibly by seeking to promote the use of internally conducted risk assessments or establishing minimum requirements on management participation when using external services, which might ensure co-ownership and competence development in managements.
- › In order to improve the contribution of preventive and protective services to the effectiveness of the OSH acquis, it could be considered whether the requirements regarding the availability of such services should be further enhanced in the Framework Directive.

- › Our analysis shows a need to revisit the provisions related to the CPM of health surveillance, as the MSs have very different approaches to transposition of this requirement. It may therefore be recommended to consider streamlining these approaches if establishments are to have equal opportunities, and workers are to have the same OSH standards.
- › A total of 57 % of ERs report that they have received a sufficient amount of training. There is in other words a continued need for training on health and safety risks, and on emerging risks in particular. As these proportions refer to the training of safety and health representatives, it is reasonable to assume that the training of workers is more limited. This indicates that while all evidence suggest that training and information is a pivotal element in the process of improving the safety and health of workers, the effectiveness of the CPM on training may have been moderate.

9.6.4 Cluster 4: data and monitoring

Recommendation 4.1: Improve monitoring systems to obtain better information on effects of the Directives

The evaluation shows very clearly that there is very limited data at EU level to assist in assessing the effects of the Directives and the extent to which they are achieving their goals. There is a need for better monitoring systems to be able to follow up on whether the legislation is working as intended. In order to facilitate this, there is also a need to further clarify 'what is intended' as – otherwise – monitoring systems cannot be sufficiently targeted to the purpose.

It is therefore recommended that consideration should be given to developing better, more consistent data recording systems at national and EU level which better reflect causal factors and therefore assist in identifying risks and risk prevention strategies. One way forward could be a focus on a step-by-step approach whereby, for example, some of the most commonly recognised and commonly occurring occupational diseases were first dealt with.

Whilst many of the Directive reports contain general statements regarding the inadequacies of data sources others include specific recommendations. These include the Asbestos Directive report and the CAD where specific approaches are advocated.

As a general principle it is suggested that requirements in some directives for employers to collect data and remit that data to the authorities if required provide the basis for data collection systems. Perhaps initially on a voluntary basis as proof of concept, these data could be collected and remitted to the EU and could provide the feed data for an EU-wide collation. Non-legislative agreements could provide guidance on the data requirements to facilitate compatibility between data sets.

Finally, cost benefit analysis provides important information for policy makers, but we need better national data on both costs and benefits. Moreover, to conduct costs benefit analysis at the EU level, we need more in-depth examination of existing country specific literature and databases, analyses of structural difference between MS and a standardisation of national methodologies. To ensure a sufficient level of accuracy in the analysis, this exercise will require considerable resources and efforts. Moreover, the goal setting requirements in the Directive means that assessing the actual costs of compliance will be very difficult. Thus, alternatively costs benefit analyses, based on case studies from the enterprise perspective, might be a more realistic option.

Most of the available literature either focus on costs or benefits. We caution against initiating cost-reducing measures without assessing the impacts, because a more costly activity could also bring about larger benefits making it more profitable than a less costly measure (as shown in the literature on the profitability).

Appendix A Literature

list

Association of Workers' Compensation Boards of Canada (2014), National Work Injury/Disease Statistics Program (NWISP), http://awcbc.org/?page_id=14

Australian Government (2008), National review into model occupational health and safety laws, <http://www.worksafe.nt.gov.au/Publications/Reports/NationalReviewintoModelOHS LawsFirstreport.pdf>

Bechmann S, R Jäckle, P Lück and R Herdegen (2010), Motive und Hemmnisse für Betriebliches Gesundheitsmanagement (BGM), IGA-Report 20, AOK-Bundesverband, BKK Bundesverband, Deutsche Gesetzliche Unfallversicherung (DGUV) and Verband der Ersatzkassen e.v. (VDEK), <http://www.iga-info.de/veroeffentlichungen/iga-reporte/iga-report-20.html>

Bureau of Labor Statistics (2013), Nonfatal Occupational Injuries and Illnesses Requiring Days Away From Work, 2012, <http://www.bls.gov/news.release/osh2.nr0.htm>

CEPS (2013), Assessing the costs and benefits of regulation, http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/131210_cba_study_sg_final.pdf

Dawson et al (2007), Interventions to prevent back pain and back injury in nurses: a systematic review. Occup Environ Med;64:642-650

De Guzman, M-L (2012), Evolution of health and safety in the last 50 years, Canada, <http://www.cos-mag.com/Safety/Safety-Stories/evolution-of-health-and-safety-in-the-last-50-years.html>

The Department for Business, Enterprises and Regulatory Reform (2008), Improving outcomes for health and safety, <http://webarchive.nationalarchives.gov.uk/20090609003228/http://www.berr.gov.uk/files/file47324.pdf>

The Department for Business, Enterprises and Regulatory Reform (2009), The good guidance guide: taking uncertainty out of regulation, <http://webarchive.nationalarchives.gov.uk/20090609003228/http://www.berr.gov.uk/files/file49881.pdf>

Directive 78/610/EEC, Council Directive of 29 June 1978 on the approximation of Laws, Regulations, and Administrative Provisions of the Member States on the protection of the health of workers exposed to vinyl chloride monomer, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31978L0610>

Directive 78/610/EEC, Council Directive of 29 June 1978 on the approximation of Laws, Regulations, and Administrative Provisions of the Member States on the protection of the health of workers exposed to vinyl chloride monomer, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31978L0610>

Directive 80/1107/EEC, Council Directive of 27 November 1980 on the protection of workers from risks related to exposure to chemical, physical and biological agents at work, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31980L1107>

Directive 82/501/EEC, Council Directive of 24 June 1982 on the major-accident hazards of certain industrial activities, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31982L0501>

Directive 82/605/EEC, Council Directive of 28 July 1982 on the protection of workers from the risks related to exposure to metallic lead and its ionic compounds at work, https://europadatenbank.iaaeu.de/user/view_legalact.php?id=251

Directive 83/477/EEC, Council Directive of 19 September 1983 on the protection of workers from the risks related to exposure to asbestos at work, https://europadatenbank.iaaeu.de/user/view_legalact.php?id=250

Directive 86/188/EEC, Council Directive of 12 May 1986 in the protection of Workers from the risks related to exposure to noise at work, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31986L0188>

Directive 88/364/EEC, Council Directive of 9 June 1988 on the protection of workers by the banning of certain specified agents and/or certain work activities, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31988L0364>

Directive 89/391/EEC, Council Directive of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31989L0391>

Directive 89/391/EEC, Council Directive of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31989L0391>

Directive 91/383/EEC supplementing the measures to encourage improvements in the safety and health at work of workers with a fixed-duration employment relationship or a temporary employment relationship, <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31991L0383>

Drummond et al (2007), Methods for the economic evaluation of health care programmes, Oxford University Press.

COWI, IOM, and Milieu (2013), Evaluation of the European strategy on safety and health at work 2007-2012, prepared for DG Employment, Social Affairs and Inclusion, <http://ec.europa.eu/social/BlobServlet?docId=10016&langId=en>

Evaluation of the European Strategy on safety and health at work 2007-2012. European Commission.

EU-OSHA (2002), Inventory of socioeconomic costs of work accidents, <https://osha.europa.eu/en/publications/reports/207>

EU-OSHA (2000), The changing world of work, Magazine of the European Agency for Safety and Health at Work 2, <https://osha.europa.eu/en/publications/magazine/2>

EU-OSHA (2010), Economic incentives to improve occupational safety and health: a review from the European perspective, https://osha.europa.eu/en/publications/reports/economic_incentives_TE3109255ENC

EU-OSHA (2013), New risks and trends in the safety and health of women at work, European Risk Observatory, Literature review, <https://osha.europa.eu/en/publications/reports/new-risks-and-trends-in-the-safety-and-health-of-women-at-work>

EU-OSHA (2013b), ESENER Surveying Europe's enterprises, Safety Reps Conference, Budapest, 22-23 May 2013, http://www.epsu.org/IMG/pdf/1_ETUC_ESENER_BB.pdf

EU-OSHA (2013c), European Risk Observatory, Analysis of the determinants of workplace occupational safety and health practice in a selection of EU Member States, <https://osha.europa.eu/en/publications/reports/analysis-determinants-workplace-OSH-in-EU>

EU-OSHA (2014a), Mainstreaming gender into occupational safety and health practice, <https://osha.europa.eu/en/publications/reports/mainstreaming-gender-into-occupational-safety-and-health-practice/view>

EU-OSHA (2014b), Seminar on psychosocial risks in Europe, <https://osha.europa.eu/en/seminars/eu-osha-seminar-on-psychosocial-risks-in-europe>

EU-OSHA (2014c), Current and emerging issues in the healthcare sector, including home and community care, European Risk Observatory report, <https://osha.europa.eu/en/publications/reports/current-and-emerging-occupational-safety-and-health-osh-issues-in-the-healthcare-sector-including-home-and-community-care/view>

EU-OSHA (2014d), Green jobs, new risks? New and emerging risks to occupational safety and health in the electricity sectors, Workshop for European Sectoral Social Dialogue Committee 'Electricity', <https://osha.europa.eu/en/publications/reports/green-jobs-new-risks-new-and-emerging-risks-to-occupational-safety-and-health-in-the-electricity-sector/view>

EU-OSHA (2014e), Estimating the costs of accidents and ill-health at work: a review of methodologies, <https://osha.europa.eu/en/publications/reports/estimating-the-costs-of-accidents-and-ill-health-at-work>

EU-OSHA (2014f), The business case for safety and health: cost-benefit analyses for interventions in small and medium sized enterprises, <https://osha.europa.eu/en/publications/reports/the-business-case-for-safety-and-health-cost-benefit-analyses-of-interventions-in-small-and-medium-sized-enterprises/view>

EU-OSHA (2014g), Calculation of the cost of work-related stress and psychosocial risks, https://osha.europa.eu/en/publications/literature_reviews/calculating-the-cost-of-work-related-stress-and-psychosocial-risks

EU-OSHA (2015), Second European Survey of Enterprises on New and Emerging Risks (ESENER-2) – First findings, <http://adapt.it/englishbulletin/wp/wp-content/uploads/2015/02/ESENER-2.pdf>

Eurofound (2012), Sustainable work and the ageing workforce, <http://eurofound.europa.eu/publications/report/2012/other/sustainable-work-and-the-ageing-workforce>

European Commission (1986), Single European Act, http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_singleact_en.htm

European Commission (2004), Communication from the Commission on the practical implementation of the provisions of the Health and Safety at Work Directives, COM/2004/0062 final, <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004DC0062>

European Commission (2009), Causes and circumstances of accidents at work in the EU, <http://ec.europa.eu/social/BlobServlet?docId=2785&langId=en>

European Commission (2011), Socioeconomic costs of accidents at work and work-related ill-health, <https://osha.europa.eu/en/seminars/economic-incentives-workshop-brussels-presidency-event/speech-venues/morning-session/benosh-a-project-on-the-benefits-of-occupational-safety-and-health>

European Commission (2012), The social impact of the economic crisis and ongoing fiscal consolidation, Third report of the Social Protection Committee, DG EMPL, <http://bookshop.europa.eu/en/the-social-impact-of-the-economic-crisis-and-ongoing-fiscal-consolidation-pbKE3112594/>

European Commission (2013a), A recovery on the horizon? Annual report on European SMEs 2012/2013, http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/supporting-documents/2013/annual-report-smes-2013_en.pdf

European Commission (2013b), Evaluation of the European Strategy 2007-2012 on health and safety at work, Commission Staff Working Document, SWD(2013) 202 final, <http://ec.europa.eu/social/BlobServlet?docId=10410...en>

European Commission (2014), Flash Eurobarometer 398, Working conditions, http://ec.europa.eu/public_opinion/flash/fl_398_pres_en.pdf

European Council (1974), Council Resolution of 21 January concerning a Social Action Programme, 17 O.J. European Commission (No, C 13) 1, [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31974Y0212\(01\)](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31974Y0212(01))

European Council (1978), Council Resolution of 29 June on an Action Programme of the European Communities on Safety and Health at Work, 21 O.J. European Commission (No, C 165) 1, [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31978Y0711\(01\)](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31978Y0711(01))

European Federation of Public Service Unions (2012), A mapping report on Labour Inspection Services in 15 European countries, http://www.epsu.org/IMG/pdf/EPSU_Final_report_on_Labour_Inspection_Services.pdf

European Parliament (2010), Implementation of the health and safety directives as a cost factors, <http://www.europarl.europa.eu/document/activities/cont/201107/20110718ATT24264/20110718ATT24264EN.pdf>

Eurostat (2004), Statistical analysis of socio-economic costs of accidents at work in the EU-Union, <http://www.uni-mannheim.de/edz/pdf/eurostat/04/KS-CC-04-006-EN.pdf>

Fairman, Robyn and Charlotte Yapp (2005), Making an impact on SME compliance behaviour: An evaluation of the effect of interventions upon compliance with health and safety legislation in small and medium sized enterprises, www.hse.gov.uk/research/rrpdf/rr366.pdf

Haslam et al (2010), Perceptions of occupational injury and illness costs by size of organization. Occupational medicine, 60:484-490, <http://occmed.oxfordjournals.org/content/60/6/484.full.pdf>

Hasle P & Limborg HJ (2006), A review of the literature on preventive occupational health and safety activities in small enterprises, Industrial Relations, 44:6-12, https://www.jniosh.go.jp/oldsite/old/niih/en/indu_hel/2006/pdf/indhealth_44_1_6.pdf

HSE. Cost to Britain of workplace fatalities and self-reported injuries and ill-health in 2012/2013, <http://www.hse.gov.uk/statistics/pdf/cost-to-britain.pdf>

HSE (2003), Costs of compliance with health and safety in SMEs, <http://www.hse.gov.uk/research/rrpdf/rr174.pdf>

HSE (2005), Annex 2: The administrative burden Measurement Exercise (ABME), <http://www.hse.gov.uk/SIMPLIFICATION/annex2.htm>

ILO (2003), Country Profile – Japan 2003, ILO occupational safety and health standards, <http://www.ilo.org/dyn/natlex/docs/CTRYPROFILE/INTEGRATEDAPPROACH/JPN/F2083359158/Japan%20CPE.pdf>

ILO (2013a), Protecting workplace safety and health in difficult economic times – The effect of the financial crisis and economic recession on occupational safety and health, http://www.ilo.org/safework/info/publications/WCMS_214163/lang--en/index.htm

ILO (2013b), LEGOSH, Occupational Safety and Health (OSH), <http://www.ilo.org/dyn/legosh/en/f?p=14100:1000:0::NO>

ILO (2014), Maternity protection: Good for workers, good for SMEs, <https://osha.europa.eu/en/news/int-maternity-protection-good-for-workers-good-for-small-businesses>

Indecon (2006), Economic Impact of the safety, health and welfare at work legislation, <http://www.djei.ie/employment/osh/finalindeconreport.pdf>

ISSA (2013), Calculating the international return on prevention for companies: Costs and benefits of investments in occupational safety and health. ISSA, <http://www.issa.int/details?uuid=f070f204-5fbd-4017-8afb-e07d98ba53ba>

JICA (2014), Chapter 7 - Occupational Health, Japan, http://jica-ri.jica.go.jp/IFIC_and_JBICI-Studies/english/publications/reports/study/topical/health/pdf/health_09.pdf

Keith, N and G Walsh (2008), International Corporate Criminal Liability, World Focus, Volume 8 – Number 3, A technical publication of ASSE's International Practice Speciality, <http://www.asse.org/assets/1/7/NormKeith-GrahamWalsh-Article.pdf>

Kineke, J.E. (1991), The EEC Framework Directive for health and safety at work, Boston College International and Comparative Law Review, Volume 14, Issue 1, Article 10, <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1343&context=iclr>

Koningsveld et al (2003), National costs of working conditions for workers in the Netherlands in 2001, http://www.google.dk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=2&cad=rja&uact=8&ved=0CCgQFjAB&url=http%3A%2F%2Fpublications.tno.nl%2Fpublication%2F34610592%2FkKclDG%2Fkoningsveld-2004-poor.pdf&ei=KKt1VYr8CcvMyAOCjYGwDg&usg=AFQjCNEAft9Gc_eZVJ0j0_OA-f0sz_-mDw&sig2=eRdt_YkYmgfWMYuBLjy5Pg

Kooperationsstelle Hamburg, Cardiff University, CIOP and TNO (2010), Contract to analyse and evaluate the impact of the practical implementation in the workplace of national measures implementing Directive 98/24/EC on Chemical Agents, prepared for the European Commission, <http://ec.europa.eu/social/BlobServlet?docId=10152&langId=en>

Lewis C & Mathiasen S.E. (2013), State of knowledge. Physical work, gender and health in working life. Swedish Work Environment Authority, http://www.av.se/dokument/inenglish/reports/2013_9.pdf

Márquez, Ana M. Moreno (2013), Economic crisis and preventive services, http://www.upf.edu/greditiss/_pdf/2013-LLRNConf_Moreno.pdf

Martimo et al (2008). Effect of training and lifting equipment for preventing back pain in lifting and handling: systematic review. *BMJ*, 336-429

Newell (2014), Workplace health and safety: Establishing the administrative burden of regulation, and assessing the use of information as a means of addressing the burden and improving perceptions, University of Limerick.

van der Molen HF, Lehtola MM, Lappalainen J, Hoonakker PLT, Hsiao H, Haslam R, Hale & AR, Verbeek JH (2012), Interventions for preventing injuries in the construction sector (review), <http://www.udea.edu.co/portal/page/portal/bibliotecaSedesDependencias/unidadesAcademicas/FacultadNacionalSaludPublica/Diseno/archivos/General/Interventions%20for%20preventing%20injuries%20in%20the%20construction.pdf>

OECD (2010), Sickness, disability and work. Breaking the barriers, http://ec.europa.eu/health/mental_health/eu_compass/reports_studies/disability_synthesis_2010_en.pdf

OECD (2014), Measurement and reduction of administrative burdens in 13 sectors in Greece, <http://www.oecd.org/regreform/regulatory-policy/Greece-Measurement-and-reduction-of-administrative-burdens.pdf>

Rissanen et al (2014). Cost of lost labor input. Draft Translation. Ministry of Social Affairs and Health, Department for Occupational Safety and Health, Finland

Robson et al (2007), The effectiveness of occupational health and safety management system interventions: a systematic review, Safety Science, <http://www.udea.edu.co/portal/page/portal/bibliotecaSedesDependencias/unidadesAcademicas/FacultadNacionalSaludPublica/Diseno/archivos/General/The%20e%EF%AC%80effectiveness%20of%20occupational%20health%20and%20safety%20management%20system%20interventions.pdf>

Pinder ADJ, Frost GA (2014) Validation of the HSE Manual handling Assessment Charts as predictors of work-related low back pain. HSE Research Report RR1026. <http://www.hse.gov.uk/research/rrpdf/rr1026.pdf>

Safe Work Australia (2006), Work-related mental disorders in Australia, http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/416/Workrelated_Mental_Disorders_Australia.pdf

Safe Work Australia (2012), The cost of work-related injury and illness for Australian employers, workers and the community; 2008-09, <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/660/Cost%20of%20Work-related%20injury%20and%20disease.pdf>

Safe Work Australia (2013), Key Work Health and Safety Statistics, Australia, <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/758/Key-WHS-Statistics-2013.pdf>

Safe Work Australia (2014), Key work health and safety statistics, Australia 2014, <http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/841/Key-WHS-Statistics-2014.pdf>

Sakurai, H (2012), Occupational Safety and Health in Japan: Current Situations and the Future, Industrial Health 2012, 50, 253–260, https://www.jniosh.go.jp/en/indu_hel/pdf/IH_50_4_253.pdf

SCM Network. The international Standard Cost Model Manual, OECD, <http://www.oecd.org/gov/regulatory-policy/34227698.pdf>

Scoreboard 2009. Community strategy on health and safety at work, European Commission.

SLIC (2011), 60th meeting of Senior Labour Inspectors Committee (SLIC), 3 May 2011, Labour Inspectorate Resource Reductions in the European Union

SLIC (2013), 65th meeting of Senior Labour Inspectors Committee (SLIC), Thursday 14 November 2013, Vilnius, Lithuania, Thematic Day, Investment in Health and Safety: Economic Slowdown vs. Decent Work, <http://ec.europa.eu/social/main.jsp?catId=148&intPageId=685>

Tompa et al (2009), A systematic review of workplace ergonomic interventions with economic analyses, J Occ Rehabilitation, 51(9):1004-1023

Tullar et al (2010), Occupational safety and health interventions to reduce musculoskeletal problems in the health care sector.

U.S. Department of Labor (2010), Occupational Safety & Health Administration, Timeline of OSHA's 40 Year History, <https://www.osha.gov/osh40/timeline.html>

Uegaki et al (2010), Economic evaluations of occupational health interventions from a corporate perspective – a systematic review of the methodological quality, Scand J Work Environ Health, http://www.sjweh.fi/show_abstract.php?abstract_id=3017

Uegaki et al (2011), Economic Evaluations of Occupational Health Interventions from a Company's Perspective: A Systematic Review of Methods to Estimate the Cost of Health-Related Productivity Loss, Journal of Occupational Rehabilitation, Mar; 21(1): 90–99, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3041898/>

Van Dongen et al (2014), Trial-based economic evaluations in occupational health...J Occup Environ Med, 56(6):563-572, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4047300/pdf/joem-56-563.pdf>

Vogel et al (2010), Better Regulation: a critical assessment, ETUI, <https://www.google.dk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CCQQFjAA&url=https%3A%2F%2Fwww.etui.org%2Fcontent%2Fdownload%2F2177%2F24098%2Ffile%2Freport-113-EN.pdf&ei=qKV1VfKjMIKfsgHX8oCwCw&usg=AFQjCNErR5JuDrbFkApnVKmAp77LgrUNtg&sig2=kPMa2A-ge-BznQ5SJrQZHA&bvm=bv.95039771.d.bGg>

Vogel Laurent (2014), The point of view of the European trade unions: It is urgent to revitalise the EU occupational health and safety policy, http://www.osha.mddsz.gov.si/.../Laurent_VOGEL_EN.pdf

WorkSafeBC (1997) Comparison of occupational health and safety statutes, http://www.worksafebc.com/regulation_and_policy/archived_information/royal_commission_briefing_papers/assets/pdf/statute6.pdf

Appendix B Labour market coverage

The following table indicates which parts of the EU labour market – represented by the NACE Rev.2 economic sector codes – that are covered by the 24 OSH Directives being evaluated:

- › **General Directives** cover most economic sectors. In particular, the Framework Directive 89/391/EEC and the Signs Directive 92/58/EEC cover all sectors and all workers within these sectors. This is also in principle the case for the Work Equipment Directive 2009/104/EC, although there are a few sectors where the use of work equipment is negligible and there are sectors where not all workers are exposed to safety and health risks connected with the use of work equipment. Similarly, the Use of PPE Directive 89/656/EEC covers in practice only the economic sectors where personal protective equipment is needed. Finally, the Workplace Directive 89/654/EEC excludes as part of its scope: agriculture, forestry and fishing; mining and quarrying; construction; and the transport sector.
- › **Type-of-worker Directives** cover also all the economic sectors. However, the Temporary workers Directive 91/383/EEC focuses on the safety and health of the workers with a fixed-duration employment relationship or a temporary employment relationship. Similarly, the Pregnancy Directive 92/85/EEC focuses only on pregnant workers and workers who have recently given birth or are breastfeeding. Finally, the Young people Directive 94/33/EC has those under 18 years as its scope.
- › **Sector-specific Directives** cover obviously specific sectors – i.e. the Construction Directive 92/57/EEC covers workers on temporary or mobile construction sites, the Mining Directive 92/104/EEC covers surface and underground mineral extracting industries, while the Drilling Directive 92/91/EEC covers the drilling activities within the mineral extracting industries. The Vessel Directive 92/29/EEC covers a part of the water transport sector, while the Fishing Directive 93/103/EC covers a part of the fishing sector.
- › **Hazard-specific Directives** cover in the nature of things specific hazards that workers may be exposed to in certain sectors. However, it will in most cases be the case that not all workers in a given sector are at risk. For example, the Vibration Directive 2002/44/EC focuses on the work processes that involves hard-arm arm or whole-body vibrations. Similar exposure delimitations are in place for the Noise Directive 2003/10/EC, the Electromagnetic Directive 2004/40/EC, the Radiation Directive 2006/25/EC, the ATEX Directive 1999/92/EC, the CMD Directive 2004/2004/37/EC, the Chemical Directive 98/24/EC, the Asbestos Directive 2009/148/EC, and the Biological Directive 2000/54/EC. Finally, the Manual handling Directive 90/269/EEC covers the sectors and workers who handle loads manually, and the DSE Directive 90/270/ECC covers the work processes where display screen equipment is used.

Table 9-1 Labour market (NACE Rev.2 codes) covered by the 24 OSH Directives

	89/391/EEC	89/654/EEC	2009/104/EC	89/656/EEC	92/58/EEC	91/383/EEC	92/85/EEC	94/33/EC	92/57/EEC	92/104/EEC	92/91/EEC	92/29/EEC	93/103/EC	2002/44/EC	2003/10/EC	2004/40/EC	2006/25/EC	1999/92/EC	2004/37/EC	98/24/EC	2009/148/EC	2000/54/EC	90/269/EEC	90/270/EEC
A - Agriculture, forestry and fishing																								
A1 - Crop and animal production, hunting and related service activities	X		X	X	X	X	X	X						X								X	X	
A2 - Forestry and logging	X		X	X	X	X	X	X						X	X		X						X	
A3 - Fishing and aquaculture	X		X	X	X	X	X	X					X	X									X	
B - Mining and quarrying																								
B5 - Mining of coal and lignite	X		X	X	X	X	X	X		X				X	X				X	X			X	
B6 - Extraction of crude petroleum and natural gas	X		X	X	X	X	X	X			X			X	X	X			X				X	X
B7 - Mining of metal ores	X		X	X	X	X	X	X		X				X	X				X				X	
B8 - Other mining and quarrying	X		X	X	X	X	X	X		X				X	X				X	X			X	
B9 - Mining support service activities	X		X	X	X	X	X	X		X	X			X	X				X				X	X
C - Manufacturing																								
C10 - Manufacture of food products	X	X	X	X	X	X	X	X							X					X		X	X	
C11 - Manufacture of beverages	X	X	X	X	X	X	X	X							X					X		X	X	
C12 - Manufacture of tobacco products	X	X	X	X	X	X	X	X							X					X		X	X	
C13 - Manufacture of textiles	X	X	X	X	X	X	X	X							X					X			X	
C14 - Manufacture of wearing apparel	X	X	X	X	X	X	X	X							X					X		X	X	
C15 - Manufacture of leather and related products	X	X	X	X	X	X	X	X							X					X		X	X	
C16 - Manufacture of wood and of products of wood and cork, except furniture; etc.	X	X	X	X	X	X	X	X						X	X				X	X			X	
C17 - Manufacture of paper and paper products	X	X	X	X	X	X	X	X							X		X			X			X	
C18 - Printing and reproduction of recorded media	X	X	X	X	X	X	X	X							X		X			X			X	X
C19 - Manufacture of coke and refined petroleum products	X	X	X	X	X	X	X	X			X				X		X	X	X	X			X	
C20 - Manufacture of chemicals and chemical products	X	X	X	X	X	X	X	X							X			X	X	X			X	X
C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations	X	X	X	X	X	X	X	X							X		X			X		X	X	
C22 - Manufacture of rubber and plastic products	X	X	X	X	X	X	X	X							X		X			X			X	
C23 - Manufacture of other non-metallic mineral products	X	X	X	X	X	X	X	X							X				X	X			X	
C24 - Manufacture of basic metals	X	X	X	X	X	X	X	X							X		X			X			X	

	89/391/EEC	89/654/EEC	2009/104/EC	89/656/EEC	92/58/EEC	91/383/EEC	92/85/EEC	94/33/EC	92/57/EEC	92/104/EEC	92/91/EEC	92/29/EEC	93/103/EC	2002/44/EC	2003/10/EC	2004/40/EC	2006/25/EC	1999/92/EC	2004/37/EC	98/24/EC	2009/148/EC	2000/54/EC	90/269/EEC	90/270/EEC
C25 - Manufacture of fabricated metal products, except machinery and equipment	X	X	X	X	X	X	X	X						X	X	X	X			X			X	
C26 - Manufacture of computer, electronic and optical products	X	X	X	X	X	X	X	X						X	X	X	X			X			X	
C27 - Manufacture of electrical equipment	X	X	X	X	X	X	X	X						X	X	X	X			X			X	
C28 - Manufacture of machinery and equipment n.e.c.	X	X	X	X	X	X	X	X						X	X		X			X			X	
C29 - Manufacture of motor vehicles, trailers and semi-trailers	X	X	X	X	X	X	X	X						X	X	X	X			X			X	
C30 - Manufacture of other transport equipment	X	X	X	X	X	X	X	X						X	X	X	X			X			X	
C31 - Manufacture of furniture	X	X	X	X	X	X	X	X						X	X					X			X	
C32 - Other manufacturing	X	X	X	X	X	X	X	X							X					X			X	
C33 - Repair and installation of machinery and equipment	X	X	X	X	X	X	X	X							X	X	X			X	X		X	
D - Electricity, gas, steam and air conditioning supply																								
D35 - Electricity, gas, steam and air conditioning supply	X	X	X	X	X	X	X	X						X	X	X		X		X	X		X	
E - Water supply; sewerage; waste management and remediation activities																								
E36 - Water collection, treatment and supply	X	X	X	X	X	X	X	X							X		X			X			X	
E37 - Sewerage	X	X	X	X	X	X	X	X							X			X		X		X	X	
E38 - Waste collection, treatment and disposal activities; materials recovery	X	X	X	X	X	X	X	X							X			X		X		X	X	
E39 - Remediation activities and other waste management services	X	X	X	X	X	X	X	X						X	X					X	X	X	X	
F - Construction																								
F41 - Construction of buildings	X		X	X	X	X	X	X	X	X				X	X		X			X	X		X	
F42 - Civil engineering	X		X	X	X	X	X	X	X	X				X	X	X	X			X			X	
F43 - Specialised construction activities	X		X	X	X	X	X	X	X	X				X	X		X			X	X		X	
G - Wholesale and retail trade; repair of motor vehicles and motorcycles																								
G45 - Wholesale and retail trade and repair of motor vehicles and motorcycles	X	X	X	X	X	X	X	X									X						X	X
G46 - Wholesale trade, except of motor vehicles and motorcycles	X	X	X		X	X	X	X															X	X
G47 - Retail trade, except of motor vehicles and motorcycles	X	X	X		X	X	X	X															X	X
H - Transporting and storage																								
H49 - Land transport and transport via pipelines	X		X		X	X	X	X						X		X							X	
H50 - Water transport	X		X		X	X	X	X				X											X	
H51 - Air transport	X				X	X	X	X							X								X	X

	89/391/EEC	89/654/EEC	2009/104/EC	89/656/EEC	92/58/EEC	91/383/EEC	92/85/EEC	94/33/EC	92/57/EEC	92/104/EEC	92/91/EEC	92/29/EEC	93/103/EC	2002/44/EC	2003/10/EC	2004/40/EC	2006/25/EC	1999/92/EC	2004/37/EC	98/24/EC	2009/148/EC	2000/54/EC	90/269/EEC	90/270/EEC
H52 - Warehousing and support activities for transportation	X	X	X	X	X	X	X	X															X	X
H53 - Postal and courier activities	X		X		X	X	X	X															X	X
I - Accommodation and food service activities																								
I55 - Accommodation	X	X	X		X	X	X	X															X	
I56 - Food and beverage service activities	X	X	X	X	X	X	X	X															X	
J - Information and communication																								
J58 - Publishing activities	X	X	X		X	X	X	X																X
J59 - Motion picture, video and television programme production, sound recording etc.	X	X	X		X	X	X	X																X
J60 - Programming and broadcasting activities	X	X	X		X	X	X	X								X								X
J61 - Telecommunications	X	X	X		X	X	X	X								X	X							X
J62 - Computer programming, consultancy and related activities	X	X	X		X	X	X	X																X
J63 - Information service activities	X	X	X		X	X	X	X																X
K - Financial and insurance activities																								
K64 - Financial service activities, except insurance and pension funding	X	X	X		X	X	X	X																X
K65 - Insurance, reinsurance and pension funding, except compulsory social security	X	X	X		X	X	X	X																X
K66 - Activities auxiliary to financial services and insurance activities	X	X	X		X	X	X	X																X
L - Real estate activities																								
L68 - Real estate activities	X	X	X		X	X	X	X																X
M - Professional, scientific and technical activities																								
M69 - Legal and accounting activities	X	X	X		X	X	X	X																X
M70 - Activities of head offices; management consultancy activities	X	X	X		X	X	X	X																X
M71 - Architectural and engineering activities; technical testing and analysis	X	X	X		X	X	X	X							X	X								X
M72 - Scientific research and development	X	X	X	X	X	X	X	X								X	X	X		X				X
M73 - Advertising and market research	X	X	X		X	X	X	X																X
M74 - Other professional, scientific and technical activities	X	X	X	X	X	X	X	X																X
M75 - Veterinary activities	X	X	X	X	X	X	X	X								X							X	X

	89/391/EEC	89/654/EEC	2009/104/EC	89/656/EEC	92/58/EEC	91/383/EEC	92/85/EEC	94/33/EC	92/57/EEC	92/104/EEC	92/91/EEC	92/29/EEC	93/103/EC	2002/44/EC	2003/10/EC	2004/40/EC	2006/25/EC	1999/92/EC	2004/37/EC	98/24/EC	2009/148/EC	2000/54/EC	90/269/EEC	90/270/EEC
N - Administrative and support service activities																								
N77 - Rental and leasing activities	X	X	X		X	X	X	X																X
N78 - Employment activities	X	X			X	X	X	X																X
N79 - Travel agency, tour operator and other reservation service and related activities	X	X			X	X	X	X																X
N80 - Security and investigation activities	X	X			X	X	X	X																X
N81 - Services to buildings and landscape activities	X	X	X	X	X	X	X	X						X									X	
N82 - Office administrative, office support and other business support activities	X	X	X		X	X	X	X																X
O - Public administration and defence; compulsory social security																								
O84 - Public administration and defence; compulsory social security	X	X	X		X	X	X	X																X
P - Education																								
P85 - Education	X	X			X	X	X	X																X
Q - Human health and social work activities																								
Q86 - Human health activities	X	X	X	X	X	X	X	X								X	X						X	X
Q87 - Residential care activities	X	X	X	X	X	X	X	X															X	
Q88 - Social work activities without accommodation	X	X	X		X	X	X	X															X	X
R - Arts, entertainment and recreation																								
R90 - Creative, arts and entertainment activities	X	X	X		X	X	X	X							X									X
R91 - Libraries, archives, museums and other cultural activities	X	X	X	X	X	X	X	X															X	X
R92 - Gambling and betting activities	X	X	X		X	X	X	X																X
R93 - Sports activities and amusement and recreation activities	X	X	X		X	X	X	X																
S - Other services activities																								
S94 - Activities of membership organisations	X	X			X	X	X	X																
S95 - Repair of computers and personal and household goods	X	X	X		X	X	X	X								X							X	
S96 - Other personal service activities	X	X			X	X	X	X																
T - Activities of households as employers; undifferentiated goods etc.																								
T97 - Activities of households as employers of domestic personnel	X	X	X	X	X	X	X	X															X	
T98 - Unf. goods- and services-producing activities of private households for own	X	X	X		X	X	X	X																

[illegible]

Appendix C Evaluation questions

Task 1 Mapping

No	Evaluation question
MQ1	Across the Member States, how are the different 'common processes' and 'mechanisms' foreseen by the Directives put in place and how do they operate and interact with each other? The question should address: - risk assessment and the resulting protection measures and preventive actions - internal/external protective and preventive services - information, consultation and training of workers - health surveillance
MQ2	What derogations and transitional periods are applied or have been used under national law under several of the Directives concerned?
MQ3	What are the differences in approach to and degree of fulfilment of the requirements of the EU OSH Directives in private undertakings and public-sector bodies, across different sectors of economic activity and across different sizes of companies, especially for SMEs, microenterprises and self-employed?
MQ3a	How do workers / workers' representatives / experts / public authorities view the degree of fulfilment of legal obligations by employers?
MQ4	What accompanying actions to OSH legislation have been undertaken by different actors to improve the level of protection of health and safety at work and to what extent are they actually used by companies and establishments to pursue the objective of protecting health and safety of workers? Are there any information needs that are not met?
MQ5	What are the enforcement (including sanctions) and other related activities of the competent authorities at national level and how are the priorities set among the subjects covered by the Directives?
MQ6	What are the differences of approach across Member States and across establishments with regard to potentially vulnerable groups of workers depending on gender, age, disability, employment status, migration status, etc., and to what extent are their specificities, resulting in particular from their greater unfamiliarity, lack of experience, absence of awareness of existing or potential dangers or their immaturity, addressed by the arrangements under question?
MQ7	What measures have been undertaken by the Member States to support SMEs and microenterprises?

Task 2 Evaluation of relevance, effectiveness and coherence

No	Evaluation question
Relevance	
EQR1	To what extent do the Directives adequately address current occupational risk factors and protect the safety and health of workers?
EQR2	Based on known trends (e.g. new and emerging risks and changes in the labour force and sectoral composition), how might the relevance of the Directives evolve in the future, and stay adapted to the workplaces of the future in light of the horizon of 2020? Does the need for EU level action persist?
Effectiveness	
EQE1	To what extent have the Directives influenced workers' health and safety (harmonisation of levels of protection; exposure to occupational risk factors; the rate of accidents at work and work-related health problems), the activities of workers' representatives, and the behaviour of establishments? For workers, to the extent possible, these effects should be broken down by sex, age, occupation, employment status and by different groups of workers, e.g. migrant, disabled, pregnant workers, etc. For establishments, to the extent possible, these effects should be broken down by sector (public/private), economic sectors of activity, and size of enterprise, especially for SME and microenterprises.
	What are the effects on the protection of workers' health and safety of the various derogations and transitional periods foreseen in several of the Directives concerned? (Derogations e.g. in Directives 94/33/EC, 2002/44/EC and 2003/10/EC; and transitional periods e.g. in Directive 2002/44/EC, and in Directive 2003/10/EC in relation to national codes of conduct)
	How and to what extent do the different mechanisms and processes that were

No	Evaluation question
	<p>mapped under task 1 contribute to the effectiveness of the Directives? The answer must consider the following fields:</p> <ul style="list-style-type: none"> > risk assessment processes; > training, consultation, participation and information of workers; > internal / external preventive and protective services; > health surveillance.
	To what extent do sanctions and other related enforcement activities contribute to the effectiveness of the Directives?
	<p>What benefits (e.g. reduction in working days lost due to work related accidents or health problems; reductions in number or severity of work related accidents or health problems) and costs arise for society and employers (including compliance costs and administrative burden) as a result of fulfilling the requirements of the Directives, such as carrying out risk assessment, risk management measures, providing training and information, consultation of workers, protective and preventive services, health surveillance?</p> <p>These aspects should be analysed by size of enterprise, especially for SMEs and microenterprises. Identify, if possible, good practices in terms of cost-effective implementation of the Directives in the Member States.</p>
	<p>To what extent do the Directives generate broader effects (including side effects) in society and the economy?</p> <p>The answer should cover as a minimum 'agenda setting', 'learning', influencing national priorities, motivation of workers, innovation (e.g. new production methods), higher productivity, quality of production / services, employment (access of different groups to the labour market), competitiveness and economic growth.</p>
EQE7	To what extent are the Directives achieving their aims and, if they are not, what causes could play a role? What factors have particularly contributed to the achievement of the objectives?
Coherence	
EQC1	What, if any, inconsistencies, overlaps, or synergies can be identified across and between the Directives (for example, any positive interactions improving health and safety outcomes, or negative impact on the burdens of regulation)?
EQC2	How is the interrelation of the Directives with other measures and/or policies at European level also covering aspects related to health and safety at work, such as EU legislation in other policy areas (e.g. legislation: REACH, Cosmetics Directive, Machinery Directive, policy: Road Transport Safety, Public Health, Environment Protection), European Social Partners Agreements or ILO Conventions?

Appendix D Overview of Member State interviews with key OSH stakeholders

		... in total		... with national authorities		... with labour inspectorates		... with workers' representatives		... with employers' representatives		... with research institutes, academia, OSH professional bodies, etc.	
Country name	How many interviews...	Contacted	Completed	Contacted	Completed	Contacted	Completed	Contacted	Completed	Contacted	Completed	Contacted	Completed
Austria	AT	20	12	2	2	8	3	3	2	4	3	3	2
Belgium	BE	31	24	8	7	1	1	8	7	5	2	9	7
Bulgaria	BG	29	21	6	4	6	5	5	3	7	5	5	4
Cyprus	CY	32	27	4	3	5	5	5	4	8	5	10	10
Czech Republic	CZ	21	21	5	5	3	3	2	2	3	3	8	8
Germany	DE	56	31	8	3	16	9	13	6	7	6	12	7
Denmark	DK	20	20	6	6	3	3	4	4	5	5	2	2
Estonia	EE	22	11	4	4	3	3	7	1	7	2	1	1
Greece	EL	37	29	10	9	5	5	8	4	9	7	5	4
Spain	ES	40	23	10	8	4	0	8	2	9	6	9	7
Finland	FI	27	23	8	8	2	2	11	7	4	4	2	2
France	FR	25	18	9	6	2	1	4	1	7	6	4	4
Hungary	HU	20	20	1	1	3	3	7	7	5	5	4	4

Ireland	IE	23	14	2	1	1	1	2	0	6	4	12	8
Italy	IT	24	20	6	4	5	3	4	4	5	5	4	4
Lithuania	LT	23	20	2	1	4	4	7	6	6	5	4	4
Luxembourg	LU	23	20	2	1	4	4	7	6	6	5	4	4
Latvia	LV	21	19	1	1	3	3	6	6	6	5	5	4
Malta	MT	10	8	1	1	1	1	2	0	3	3	2	2
Netherlands	NL	22	20	2	2	4	4	4	4	4	4	8	6
Poland	PL	36	15	8	4	10	4	5	1	4	2	9	4
Portugal	PT	30	20	7	5	3	3	8	5	8	6	4	1
Romania	RO	37	25	9	6	8	8	8	7	10	3	2	1
Sweden	SE	14	13	1	2	2	2	5	5	5	5	1	1
Slovenia	SI	14	12	3	3	1	1	3	2	3	3	4	3
Slovak Republic	SK	20	20	3	3	4	4	3	3	4	4	6	6
United Kingdom	UK	40	35	13	13	1	1	3	0	6	4	17	17

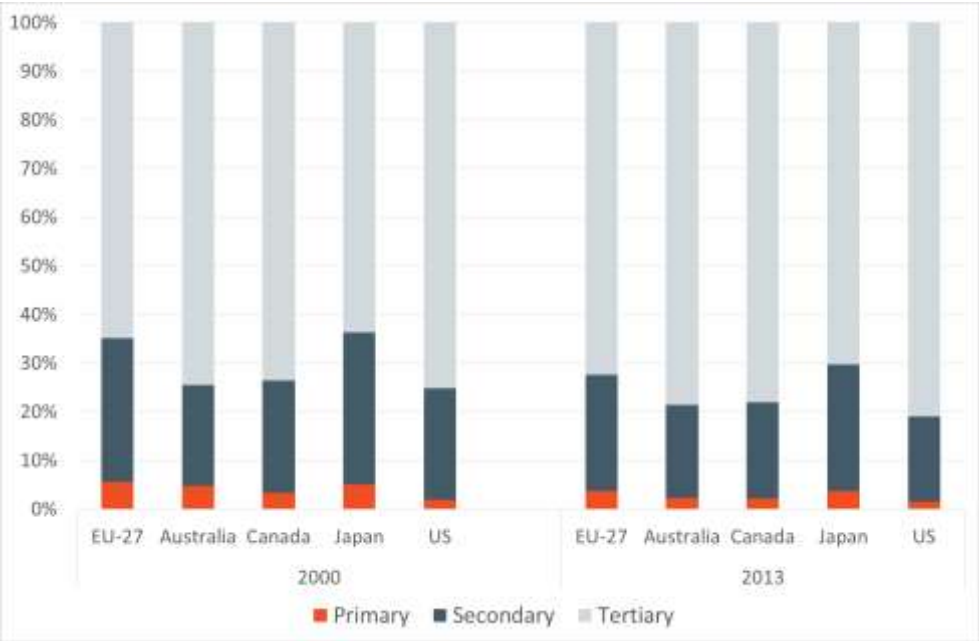
Appendix E 24 evaluation reports by directive

Appendix F EU OSH in an international perspective

The purpose of this appendix is to facilitate a comparison of the levels of protection of workers in the EU with that of selected third countries: Japan, USA, Canada and Australia.

Similar labour market structures and structural changes ... When comparing developments in the EU occupational safety and health situation with that of Australia, Canada, Japan and the US, it must be acknowledged that the labour market structures in these four countries are almost similar to those in the EU. Figure F1Error! Reference source not found. shows this based on labour market data provided by the OECD. Although it is not feasible to compare labour market developments at the level used in our detailed analysis, it indicates that the average EU-27 employment shares of around 4%-24%-72% in 2013 for the primary, secondary, and tertiary sectors, respectively, resemble those of the other four countries. This is foremost the case regarding Japan, while the other three countries have slightly higher tertiary sector shares and slightly lower primary and secondary sector shares. Furthermore, the sector shares for all four countries and that of the EU-27 average have developed likewise between 2000 and 2013, i.e. with increasing tertiary sector shares mainly at the loss of secondary sector shares.

Figure F1 Employment shares by economic sectors, 2000 and 2013



Source: OECD.stat.

... and occupational safety and health regulations similarAlthough it is not straightforward to compare the comprehensive EU OSH acquis with that of the OSH regulations in the other four countries, we have not come across significant differences that may challenge the notion of a level playing field. This conclusion is based on the following observations from looking into a number of different information sources.

Firstly, the OSH regulations were introduced during similar periods. The EU pursued from the beginning of the 1970s common actions to improve safety and health at work. One of these actions was in 1974¹⁴⁵ a Social Action Programme resolution (European Council, 1974) which called for

¹⁴⁵ See e.g. Kineke (1991) for a concise presentation of the history of occupational safety and health in the EU.

improved working conditions, and which was a response to social unrest in the beginning of the 1970s and to increasing concerns regarding diverse social systems in the EU. In June 1978, the European Council (1978) passed a resolution on an Action Programme on safety and health at work, and almost at the same time passed the first Directive 78/610/EEC aimed at reducing risks associated with exposure to vinyl chloride. This was following by a few other specific Directives until the approach was revised by the introduction of the Framework Directive 89/391/EEC in 1989 as a result of the fact that the Single European Act in 1986 (European Commission, 1986) extended the EU's authority to legislate in the field of occupational safety and health.

As shown in Table F1, Australia, Japan and the US – while Canada a few years earlier – also responded in the 1970s to calls for improved working conditions and for a need for formalised regulatory frameworks. Hence, from the perspective of establishing or maintaining a level playing field the similar timing of the regulations must be considered to have been beneficial regarding resemblances of safety and health requirements and regarding all facing costs of complying with these requirements.

Table F1 Year of introduction of OSH regulations

Year of introduction	Country	OSH regulation	Source
Mid-1970s ⁽¹⁾	Australia	Occupational/Workplace Health and Safety Acts (six state Acts, two territory Acts, and two Commonwealth Acts)	Australian Government (2008)
1964/ 1968	Canada	Industrial Safety Act/ Canada Labour (Safety) Code	De Guzman (2012)
1972	Japan	Industrial Health and Safety Law	JICA (2014)
1970	US	Occupational Safety and Health Act	U.S. Department of Labor (2010)

Note: ⁽¹⁾ The adoption of occupational safety and health regulations in Australia varied in between the independent jurisdictions.

Secondly, the OSH regulations have undergone similar developments. The EU OSH acquis as well as the OSH regulations in the four countries have from their starting point indicated in Table F1 broadened their scope regarding the coverage of economic activities, e.g. from covering the construction and mining industries to also covering the service sector. This has been done while seeking to develop more unified and integrated regulatory systems, which also have involved improvements regarding the coordination of the regulations among different jurisdictions, e.g. at the federal and state levels, in order to develop consistent standards. The OSH regulations in the analysed countries have also increasingly required the involvement of the workers and their organisations in order to increase cooperation and to share responsibilities.

Furthermore, the four countries have like the EU put emphasis on being able to deal with new and emerging challenges. For example, an increasing need to focus on psychosocial risks has been acknowledged in Australia, where work-related mental disorders were included in the 2002-2012 national prevention strategy, and where mental disorders are considered the most costly occupational disease – both in average absence from work and average cost per claim (Safe Work Australia, 2006). Similarly, workplace violence and harassment were included in the 2009 amendment of the Occupational Health and Safety Act in Canada.

Japan has also experienced an increasing prevalence of stress-related diseases due to demanding work environments, particularly in the service sector (JICA, 2014). This development has, for example, led the regulatory agencies to introduce *Karoshi* ("death from overwork") as a worker's compensation in 2001. Finally, in the US, psychological disorders, particularly stress, and workplace violence are increasingly considered as occupational hazards, that in addition have higher incidence among the female workers (Bureau of Labor Statistics, 2013).

Thirdly, occupational safety and health requirements are to a large extent embedded in legislative frameworks that outline principles and subsidiary legislations that contain specific requirements. Hence, it can be argued that the four countries have similar structures to that of the EU – i.e. having a "Framework Directive" that is accompanied by "individual Directives". In Australia, for example, such consistency between general principles and specific needs has been pursued with the implementation of the Model Work Health and Safety Bill ("the Model Act"), which unified the implementation of safety and health issues across the Commonwealth, and the states and territories. In Canada, an Intergovernmental Working Group (IWG) was formed to increase the harmonization of OSH standards across jurisdictions to ensure consistency, hereunder regarding general and specific needs.

Furthermore, the similar legislative frameworks do as displayed in Table F2 cover similar types of provisions.

Table F2 Comparison of core legislative OSH provisions for the EU, Australia, Canada, Japan and the US

	EU	Australia	Canada	Japan	US
<i>Inspection</i>					
Power to enter workplaces	X	X	X	X	X
Power to obtain information	X	X	X	X	X
<i>Enforcement</i>					
Closure orders or notices	X	X	X	X	X
Administrative or financial penalties	X	X	X	X	X
Criminal liability	X	X	X		X
<i>Workers' rights and duties</i>					
Right to participate	X	X	X	X	X
Access to information	X	X	X	X	X
Right to refuse unsafe work	X	X	X		X
Protective reassignment	X	X			X
Protection from discrimination and reprisals	X	X	X	X	X
<i>Employers' rights and duties</i>					
Duty to ensure safety and health	X	X	X	X	X
Duty to provide training and personal protective equipment	X	X	X	X	X
Implementation of OSH management systems	X			X	

Sources: COWI based on WorkSafeBC (1997), ILO (2003), and ILO (2013b).

Both the EU and the four countries have provisions for requirements to inspections, and they have all national systems of inspections in place where OSH inspectors have the power to gather evidence and provide advice on safety and health issues.

Furthermore, they have all experienced cases of non-compliance with occupational safety and health provisions that have incurred administrative or financial penalties. Labour courts are involved for certain criminal liability case, e.g. when an individual kills somebody else while performing working duties covered by the safety and health regulations (US), for reckless contravention of a general duty (Australia), and at the courts' discretion (Canada). Japan is the only of the four analysed countries where corporations are not commonly prosecuted for criminal liability as a consequence of violations of safety and health regulations (Keith and Walsh, 2008).

Workers' rights and duties are also generally covered. Workers have the right to select their representatives for safety and health matters. Their representatives have in turn the right to request information and participate in the development of OSH management systems. Workers have also generally the right to remove themselves from dangerous situations and to be reassigned to non-hazardous work. In Canada, however, there is no specific duty in the OSH regulation to reassign workers, although the Canadian Human Rights Act comprises such provisions. Furthermore and maybe somewhat as a curiosity, the Japanese workers' rights and duties do not explicitly contain provisions for the removal of workers from the workplace in case of imminent health risks (ILO, 2003).

An employer is generally prohibited from discriminating against a worker that exercises his rights under the OSH legislation, and the employer must ensure the safety and health of workers in the course of their activities. To fulfil this duty, employers must, for example, provide protective personal equipment and training suitable for the nature of the work carried. The countries diverge, however, regarding actual provisions for shaping OSH management systems. In the US, the regulations do not specify elements of OSH management systems, except for the construction industry. Furthermore, although Canada and Australia provide guidelines, e.g. for written risk assessment and risk procedures, in order to stimulate a systematic approach to safety and health management, we have found no information about the employers' obligation to implement such guidelines, nor about that they actually have been implemented.

In Japan, employers are according to the Industrial Health and Safety Law, article 78 (JICA, 2014) obliged to set up an occupational safety and health management system for the workplace. The official guidelines for such management systems were released by the Japanese Ministry of Labour, Health and Welfare in 1991. Shortly after, Japan Industrial Safety & Health Association (JISHA) started to promote the certification of businesses in OSH management systems.

Fourthly, there is a tendency to centrally-planned OSH regulations. This is clearly the case for the EU OSH, but also in the four other countries, although to a varying degree. While the OSH legislation is primarily contained in a two-tier system in the USA and Canada, Australia has a three-tier model in which the national and state levels, together with two internal territories, plan the reach of safety and health legislation. In Japan, the implementation of OSH initiatives is controlled by the central government.

Similar incidences of occupational injuries in between the EU-27, Australia, Canada, Japan and the US may indicate similar levels of occupational safety and health protection, and so from this perspective a level playing field. It is as indicated in Table F3, however, not that straightforward to fully compare incidence rates for occupational injuries by economic sectors. Furthermore, there are certainly differences in the way the different countries have counted the number of occupational injuries. In particular, the few available data from Japan seem to divert from those of the others.

With this in mind, Table F3 does point towards similarities in the incidence rates. The total incidence rates range from 9.1 to 14.8 non-fatal incidences per 1000 employed per year, and the picture is mostly that there are above-average incidence rates in the traditional sectors such as agriculture, forestry and fishing, and manufacturing, construction and transportation.

The availability and comparability are somewhat lower for the service sectors, although the incidence rates in general are relatively low for sectors such as financial and insurance activities, and information and communication, while they are relatively high for e.g. human health and social work, and administrative and support service. However, many of the differences are expected to be due to statistical differences, hereunder in the definitions of the economic sectors. This said, the high incidence rates in the US for human health and social work and public administration must give rise to some concern, but not in the context of a level playing field as they are domestic or non-trading sectors.

Table F3 Incidence rates of non-fatal occupational injuries by economic sector (number of injuries per 1000 employed per year)

Economic sector	EU-27 (2012)	Australia ⁽³⁾ (2010-11)	Canada (2013)	Japan (2012)	US (2012)
Total	14.8	12.2	9.1		11.2
Agriculture, forestry and fishing	14.9	21.2	10.4	⁽²⁾ 28.6/14.0	19.5
Mining and quarrying	16.0	13.0	11.0	13.9	8.7
Manufacturing	20.4	21.1	20.9	2.6	10.6
Electricity, gas etc.	4.9	6.2			7.9
Water supply, sewerage etc.	28.3				
Construction	27.8	18.7	20.7	4.9	14.3
Wholesale and retail trade	13.0	⁽¹⁾ 14.2/8.1	14.2		⁽¹⁾ 10.8/11.4
Transportation and storage	25.0	21.9	19.5	7.0	22.3
Accommodation and food service	16.1	10.2			9.9
Information and communication	3.1	6.2			6.3
Financial and insurance activities	2.6	2.9			3.8
Real estate activities	7.2	8.5	1.7		10.3
Professional, scientific etc.	3.5				5.2
Administrative and support service	20.5				17.8
Public administration, defence etc.	10.4	9.6			28.6
Education	5.4	7.9	5.2		12.2
Human health and social work	13.8	13.8			36.7
Arts, entertainment and recreation	14.8	9.0			12.7
Other service activities	7.1	17.5	9.4		9.2
Activities of households	1.5		9.1		
Extraterritorial organisations etc.	2.9				

Sources: EU-27: Eurostat, ESAW (hsw_n2_01)
Australia: Safe Work Australia (2013)
Canada: Statistics Canada and Association of Workers' Compensation Boards of Canada (2014)
Japan: Sakurai (2012)
US: Bureau of Labor Statistics (2013)
Note: ⁽¹⁾ Wholesale trade / retail trade
⁽²⁾ Forestry / fishery
⁽³⁾ The Australian data do also include fatal injuries.

Appendix G 27 Country Summary Reports (CSRs) on implementation of the Directives in the Member States

Appendix H Interview guide for national stakeholders

Appendix I Interview guide for EU stakeholders