

Irish Medtech
Association
Ibec



Position Paper on the implementation of Ireland's Industry 4.0 Strategy

2020 – 2025

September 2021

Introduction

Ireland is already a world leader in manufacturing and boasts more than 4,000 businesses which employ more than 260,000 and accounts for a quarter of Ireland's economic output. Manufacturing in Ireland contributes 35.5% of the total economic output (value-added) which is significantly above the EU average of 14.1%. In fact, Ireland was the only country in Europe where manufactured exports grew in 2020, despite the Covid crisis. However, the business survey of the manufacturing industries which we published in 2019 worryingly revealed that, only 55% of companies have a partial digitalisation of manufacturing strategy, with only 17%, having a full digitalisation strategy.

Globally the manufacturing industry is experiencing a major shift to Industry 4.0 – with the digitisation and advancement of manufacturing processes and the ecosystem around them to create more adaptable, effective, and sustainable production lines. 5G IoT is a crucial enabler for this shift, offering manufacturing companies and their supply chain partners improved visibility over their whole ecosystem and setting the foundation for technologies such as AI and machine learning to develop improved business results. It is critical that we improve connectivity and set in place the relevant physical infrastructure to support advanced manufacturing by investment in digital infrastructure. While the Industry 4.0 Strategy 2020 – 2025 strategy does not cover broadband, it is a critical enabler of same. **We recommend that the Government enable the relevant physical infrastructure to support advanced manufacturing by enabling further investment in high-speed broadband, 5G and fibre.**

This position paper outlines our key recommendations pertaining to the implementation of Ireland's Industry 4.0 Strategy 2020-2025. The Irish Medtech Association is part of Ibec's Medtech and Engineering sector group, comprising of the Irish Medtech Association (IMA), Polymer Technology Ireland, the Federation of Aerospace Enterprises in Ireland, and the Ibec Engineering Network. Together these sectors employ over 100,000 people in Ireland across 2000 businesses. The recommendations were developed via Irish Medtech Association-led End-to-end Advanced Manufacturing Working group, by senior representatives from across these four sectors, with responsibility for manufacturing and digital transformation strategies within their respective organisations.

Dr Sinéad Keogh, Director, Irish Medtech Association
Adrienne McDonnell, Senior Executive with responsibility for Manufacturing





Theme 1

Future Manufacturing Ireland

The first theme of the Government's National Industry 4.0 Strategy is that the resourcing of this important initiative needs to be supported with a well-coordinated governance structure that includes industry representation.

Traditionally, under the Research, Development and Innovation (RDI) Ecosystem, the funding of technology readiness levels (TRLs) has been skewed towards the lower TRLs, with limited commercialisation value for industry. While funding for this level of research is important, more investment is required towards the higher near-to-commercialisation TRLs, where return on investment (ROI) will give more immediate and greater impact in terms of jobs and potential investment. There is a need to prioritise investment in near to commercialisation research, development, and training to support the transformation of manufacturing and its associated sub-supply to enhance innovation and employability across the sector.

Recommendations

- + **Immediate commencement of the implementation of the National Industry 4.0 Strategy.**
- + **Include representation from the Ibec's Medtech and Engineering Sector representative body on Government's Industry 4.0 Stakeholder Forum to oversee implementation of the strategy and report on an annual basis to the Minister for Enterprise, Trade and Employment.**

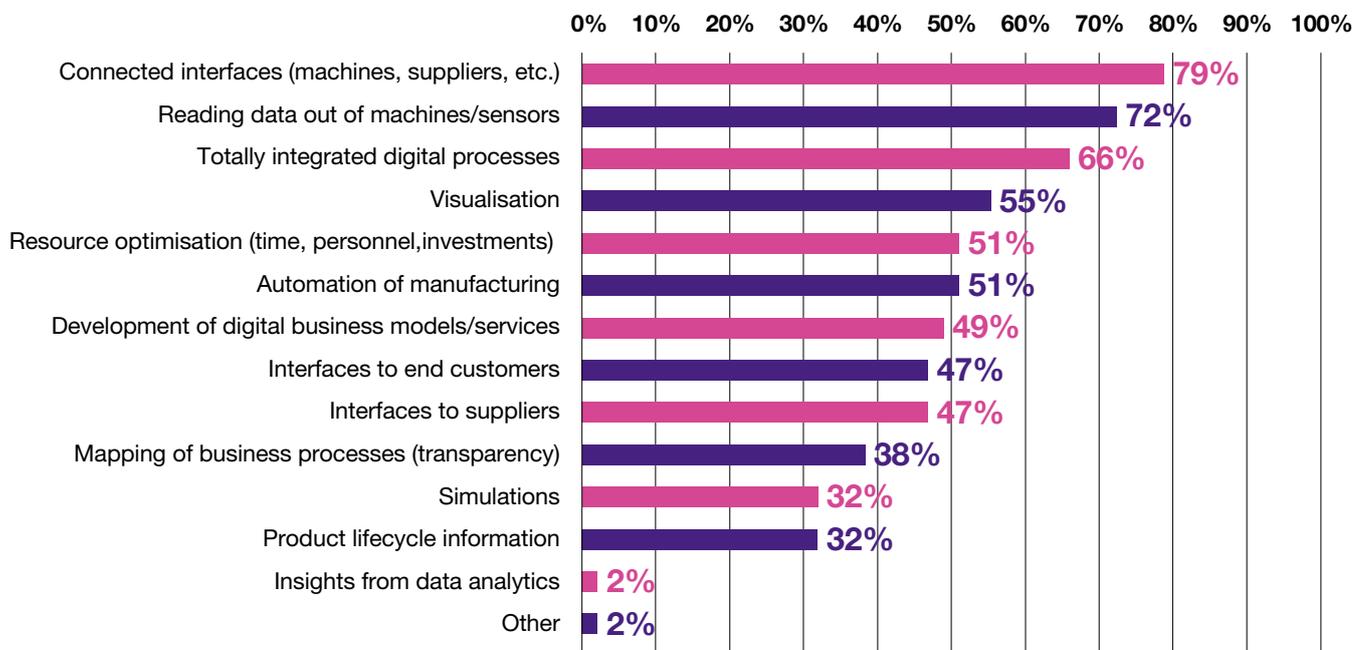
Theme 2

Awareness and Understanding of Industry 4.0 Concepts

To compete internationally, Irish manufacturers need to understand the benefits that digital transformation can bring to their business. Therefore, awareness and understanding of concepts around Industry 4.0 is paramount.

Figure 1, from the IMA's Digital Manufacturing Survey, depicts industry's understanding of digitalisation. The results suggest that digitalisation means different things to different business leaders. As many as 72% of companies revealed that they believe that digitalisation means 'reading data out of machines/sensors', with 79% indicating that digitalisation means 'connected interfaces', and 66% said that digitalisation means 'totally integrated digital processes'.

Figure 1: What does Digitisation mean to you? Responses from a survey conducted by Ibec Medtech and Engineering Sector Group in 2019



Theme 2: Awareness and Understanding of Industry 4.0 Concepts / continued

The introduction of a National Digital Manufacturing Portal (e.g. the Lean Business Ireland portal <http://www.leanbusinessireland.ie>, managed by Enterprise Ireland), could provide a one-stop-shop for Irish-based companies, FDIs, technology centres of excellence and academic institutions. This would help them to understand key digital transformation terminology and concepts as well as promote the benefits that digital technology can bring to an organisation. The portal will also enable industry to find providers of Industry 4.0 supports, such as consultancy, information on grants/funding, and collaboration opportunities. In fact, many companies use partnering and outsourcing to help with their digital strategies, in a de-risked environment such as a Research Technology Organisation or Centre. This is highlighted in our 2019 survey, where 66% of companies rely on partnering and 51% of companies rely on outsourcing to implement their advanced factory strategy.

Recommendation

- + **Create or adapt existing National Digital Manufacturing Portal for companies to help build awareness and understanding of digital manufacturing concepts. The portal should also provide information on Industry 4.0 supports and partnership opportunities.**

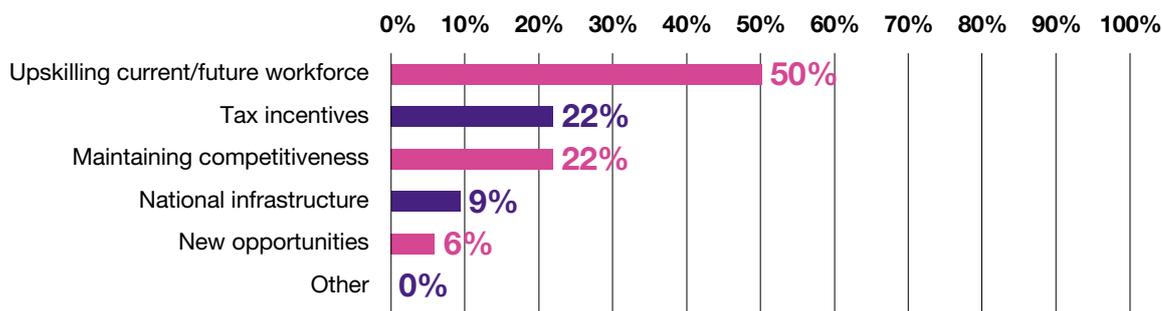
Theme 3

Exploring and Planning

Rapid digitalisation means jobs and careers are being transformed. At present, Ireland’s lifelong learning rate is less than half the benchmark set by the EU and it is significantly below what is required by a knowledge-based economy. Underinvestment in higher education is threatening the quality of Ireland’s education system. Moreover, it is widening the gap between Irish universities and their international counterparts.

This is damaging Ireland’s international reputation, which is affecting Ireland’s ability to attract research projects and business investment. *Figure 2*, from our 2019 survey, shows that 50% of companies think that upskilling the current and future workforce should be the Government’s number one priority in supporting the manufacturing sector, with tax incentives and maintaining competitiveness are also considered priorities, both at 22%.

Figure 2: 50% of companies think that upskilling the current and future workforce should be the Government’s number one priority in supporting the manufacturing sector, with tax incentives and maintaining competitiveness are also considered priorities, both at 22%.



In tandem with third level education providers, enterprise-led training initiatives such as Skillnet Ireland Networks and apprenticeships programmes can play a vital role in supporting the upskilling of people within industry. It is vital that these programmes continue to get the investment needed to ensure continued workforce readiness. Currently the Irish Medtech Skillnet, the Engineering Skillnet, and the First Polymer Training Skillnet offer a wide range of world-class programmes to support upskilling across manufacturing disciplines, bridging the current programme gaps across the broader education system.

Theme 3: Exploring and Planning / continued

The Manufacturing Technician (level 6), Manufacturing Engineer (level 7), and Polymer Processing Technologist (level 7) were launched in 2017 to meet the skills needs of the manufacturing industry and create world class talent. Now, the Government must ensure the sustainability of these programmes by having a fit-for-purpose financial model. The introduction of the €3,000 grant to encourage companies to hire an apprentice was welcome progress but €7,000 per annum is needed to bring the treatment of the modern apprenticeship programmes in line to the funding supports awarded to the craft Apprenticeships. The Government funded research centres, AMC, IMR, CONFIRM, I-Form, could offer an additional off-the-job training option for apprentices, in addition to traditional third level institutions, to allow them to upskill on the very latest technologies, preparing them for the factory of the future.

Recommendations

- + **Leverage the National Training Fund to support enterprise-led skills development programmes and support closer engagement with academic institutions.**
- + **Increase the company grant to hire an apprentice from €3,000 to €7,000 to bring the grant for the modern apprenticeships in line with the craft apprenticeships (Pre-2016 Apprenticeships).**
- + **Maximise the use of Government funded research centres (for the off-the-job training for the Manufacturing Engineering and Polymer Technology Apprenticeships).**
- + **Continue to invest in research, development, and training to support the transformation of manufacturing and its associated sub supply to enhance innovation and employability across the sector.**

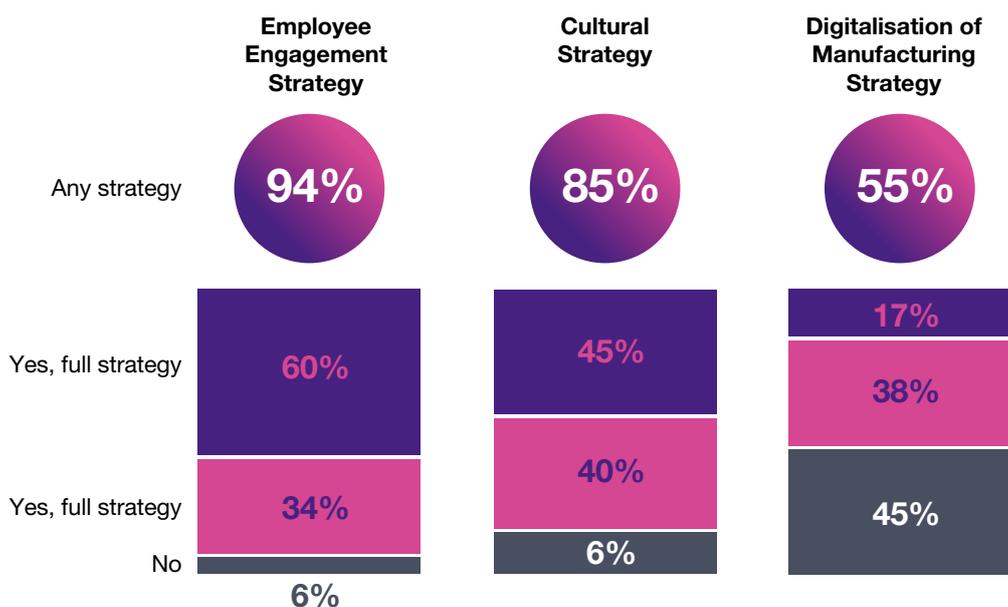
Theme 4

Implementation of Firm-level Industry 4.0 Strategies

Operational Excellence is the bedrock of manufacturing. Ireland is recognised as a leader in manufacturing with the greatest number of Shingo Prizes for Operational Excellence, per capita in the world. As we look to the future, we need to embrace innovative technologies to remain globally competitive.

For example, Ireland has the second lowest density of industrial robots in the EU15, despite the recorded benefits of robots being strongly linked with increased productivity. Figure 3, from our 2019 survey, shows that just over 9 in 10 (94%) member companies claim they have some level of employee engagement strategy, although a third claim this is just a partial strategy. Just over half (55%) of member companies claim to have a digitalisation of manufacturing strategy, although less than 1 in 5 (17%) claim to have a full strategy.

Figure 3: Does your company have a 'Employee Engagement Strategy', a 'Cultural Strategy', a 'Digitalisation Strategy'? Responses from a survey conducted by Ibec Medtech & Engineering Sector Group in 2019



Theme 4: Implementation of Firm-level Industry 4.0 Strategies / continued

Government supports to help industry identify gaps in their digitalisation maturity should be collaboratively developed. Accelerated capital allowances for several areas of advanced manufacturing including computerised/computer aided machinery and robotic machines is also needed. The Government should incorporate a 'step change initiative' to help companies make progress in their digital transformation journey. This can be achieved by working together with industry to identify trigger points for companies to receive an injection of supports, such as funding, grants, consultancy, and/or training. A benchmarking system coupled with a digital accelerator fund, which applies at certain stages of the digital maturity journey is recommended. This could be a hybrid model of Enterprise Ireland's company supports by 'stages of development' and their 'Lean Start, Lean Plus and Lean Transform' initiative.

The Skillnet Networks are also very well placed to provide direct benchmarking and self-assessment diagnostic supports to firms. For example, The Irish Medtech Skillnet has funded the development several framework models including the Medtech and Engineering Competency Framework and Operational Excellence Benchmark Model (<https://youtu.be/s4YT1yiR1Fg>) – which is currently being upgraded to the MÓR™ Transformation Model. This incorporates Enterprise Excellence and a Digital Maturity diagnostic, along with a skills competency framework.

Recommendation

- + **Firm-level Government supports to help industry identify gaps in their digitalisation maturity should be collaboratively developed. Make incentives available to manufacturing enterprises, through step change programmes that positively impact on return on investment (ROI).**
- + **Provide incentivised upskilling programmes to help employees learn new methods for analysing and adapting processes to drive a digital implementation strategy. Skillnet Ireland Networks are an excellent framework to provide upskilling of existing employees.**

Theme 5

Framework Conditions for Industry 4.0

Boosting the uptake of digital technologies along value chains and promoting business growth is deemed key to Europe's competitiveness. To advance this, the EU has established a 'Digitalisation of European Industry' (DEI) initiative. The aim is to reinforce the EU's competitiveness in digital technologies and ensure that industry can fully benefit from digital innovations.

The EU is now proposing to direct funds towards delivery of these digital ambitions as part of the next long-term EU budget (Multiannual Financial Framework 2021-2027) through several initiatives:

- + €15 billion for the cluster of policy challenges associated with 'digital and industrial' within the Horizon Europe Programme 1;
- + The Digital Europe Programme 2, which would be a new €9.1 billion funding programme with the main objective being to boost Europe's digital transformation to the benefit of citizens and businesses; and
- + A European Social Fund which will include support for upskilling and reskilling of the workforce to be ready for new digital and automation challenges.

The Government should explore the opportunities to participate in innovative, pan-European mechanisms such as Important Projects of Common European Interest (IPCEI). An IPCEI is a structured model for boosting implementation of major projects that make a significant contribution to economic growth, jobs and the competitiveness of the European industry and economy. These projects benefit from accessing EU investment in higher risk or innovative sectors. They are not subject to traditional State-Aid limitations and will support key enterprise sectors through the deployment of innovative technology or solutions.

We also recommend Government exploit the opportunity and apply for European Funding for Industry 4.0 Next Generation Recovery Plan (which includes 20% assigned to digital). Strengthening the resilience and sustainability of the EU economy, and its supply chains is a pillar of the European Union's drive towards open strategic autonomy. Digital manufacturing also has a significant role to play in achieving sustainability targets. The European Commission has proposed to change the current emissions reduction pathway to reach climate neutrality by 2050 and reflect this in the proposal for European Climate law.

Recommendations

- + **Government should explore the opportunities to participate in innovative, pan-European mechanisms such as Important Projects of Common European Interest (IPCEI).**
- + **Government should apply for European Funding for Industry 4.0 Next Generation Recovery Plan (20% has been assigned towards digital).**
- + **Introduce staged incentivisation scheme for manufacturers to achieve sustainability targets, aligned to overall National and EU climate change targets.**

Theme 6

Implementation of Ireland's Industry 4.0 Strategy

Globally the Manufacturing industry is experiencing a major shift to Industry 4.0 and Industry 5.0, with the digitisation and advancement of manufacturing processes and the ecosystem around them to create more adaptable, effective, and sustainable production lines. 5G IoT is a crucial enabler for this shift.

It offers manufacturing companies and their supply chain partners improved visibility over their whole ecosystem and sets the foundation for technologies such as AI and machine learning to improve results. Therefore, it is critical that we improve connectivity and set in place the relevant physical infrastructure to support advanced manufacturing by investment in digital infrastructure (high speed broadband, 5G, fibre). The modernising of Ireland's industrial infrastructure will bring the benefits of ongoing digital, clean energy, low carbon and circular transformations to citizens as well as ensure the global competitiveness of Ireland's manufacturing industry.

Recommendation

- + Improve connectivity and set in place the relevant physical infrastructure to support advanced manufacturing by enabling further investment in digital infrastructure (high speed broadband, 5G, fibre).**

About the Irish Medtech Association

The Irish Medtech Association is the business association within Ibec representing the medical technology sector. The Irish Medtech Association has more than 250 members, located throughout the island of Ireland. The group's broad focus is to promote and support an environment that encourages the sustainable development and profitable growth of our FDI multinational and SME member companies.

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