

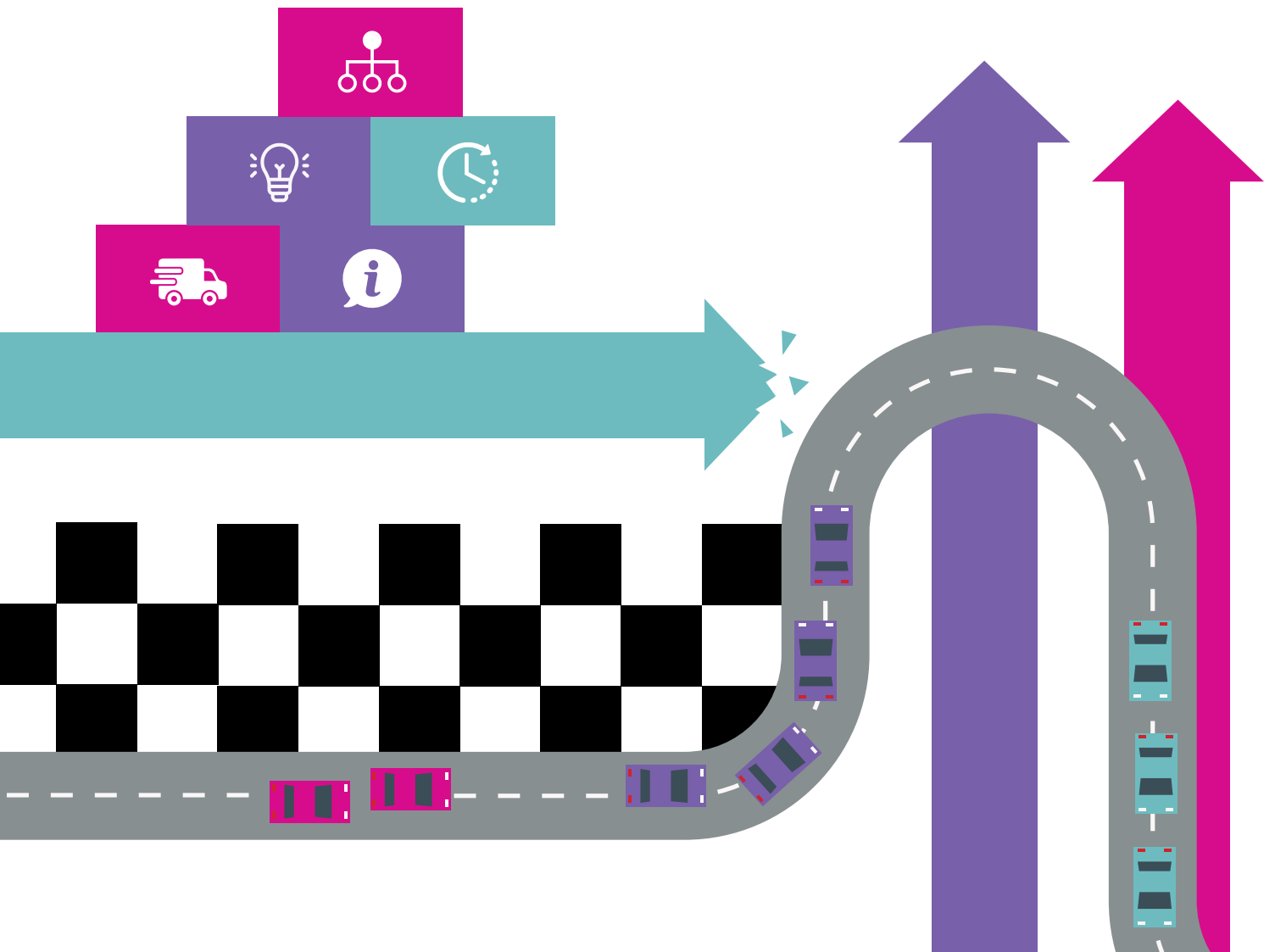


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PROCESS INNOVATION: BRINGING MANUFACTURERS TO THE FRONTIER

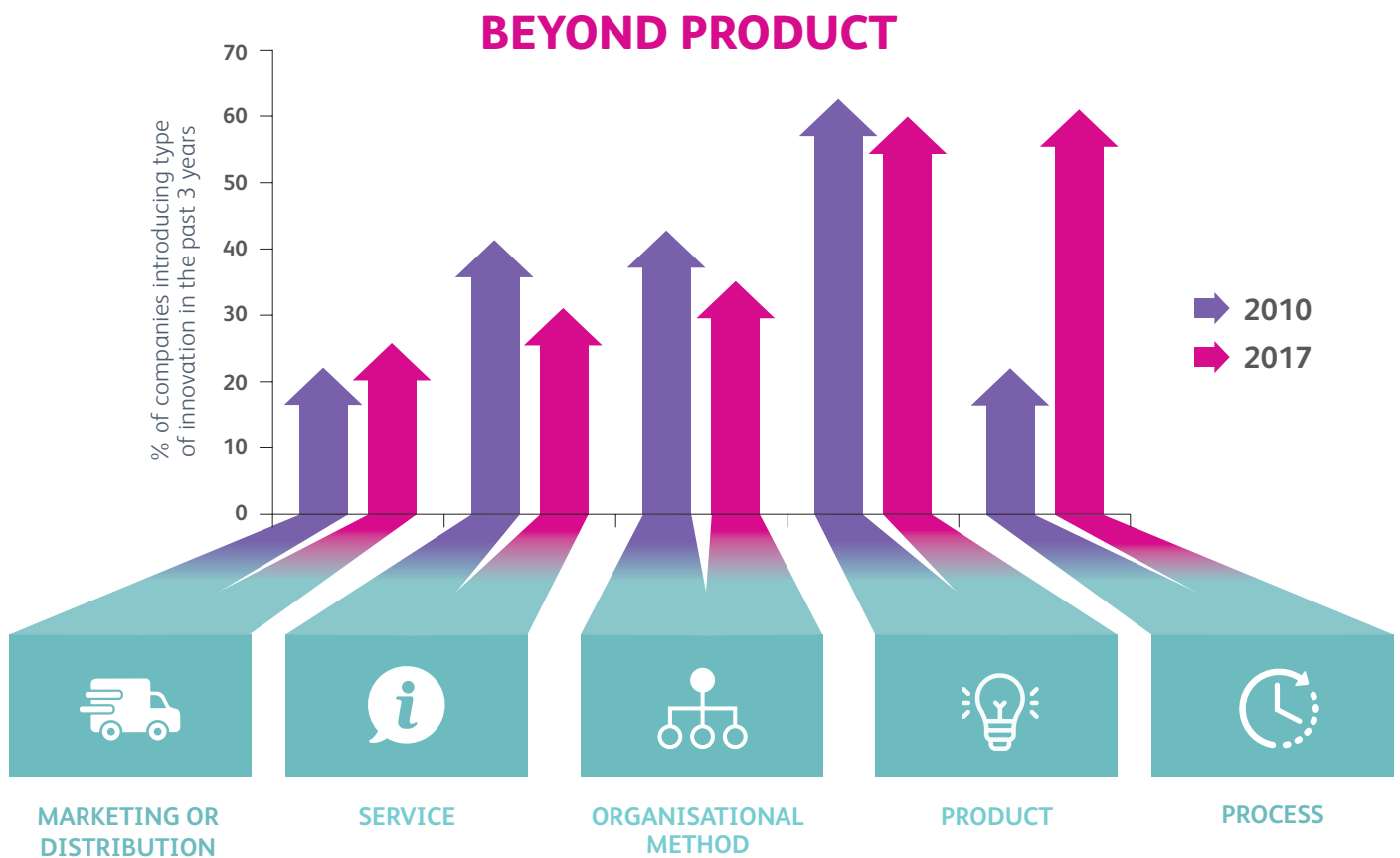


INNOVATION IS NOT JUST ABOUT NEW PRODUCTS

Manufacturing leads the way when it comes to innovation in the UK. The sector performs 70% of business R&D nationwide and manufacturers' spending on innovation is outpacing the trend for the economy as a whole. Our Innovation Monitor shows just how widespread innovative activity is: 95% of our survey respondents were engaged in some form of innovation in the last three years.

Innovation is key to manufacturers' success at home and overseas, and is seen as a critical part of their growth strategies. First and foremost, innovation helps

manufacturers do things better. A majority of our survey respondents innovate to satisfy existing customers (75%), to enhance margins on existing products and services (70%) or to develop existing markets domestically or overseas (60%). Around half of manufacturers innovate to enter new export markets, while seeking new domestic markets is a driver of innovation activity for two-fifths of companies in our survey. Innovation is thus much more than new products and new markets. And as a result, the breadth and focus of manufacturers' innovation activities has changed significantly in recent years.



Source: EEF Innovation Monitor 2017 and 2010

In its seventh edition, EEF's Innovation Monitor shows that companies are increasingly focussed on **process innovation** as a way to boost productivity and competitiveness. In 2017, 61% of companies introduced process innovation in the past

three years, up from around 20% in 2010. This share was also higher than that of companies introducing other forms of innovation in the past three years, reflecting manufacturers' growing focus on process innovation activities.

A BALANCE OF **37%** OF COMPANIES BELIEVE
“PROCESS INNOVATION IS BECOMING MORE IMPORTANT THAN OTHER FORMS OF INNOVATION”

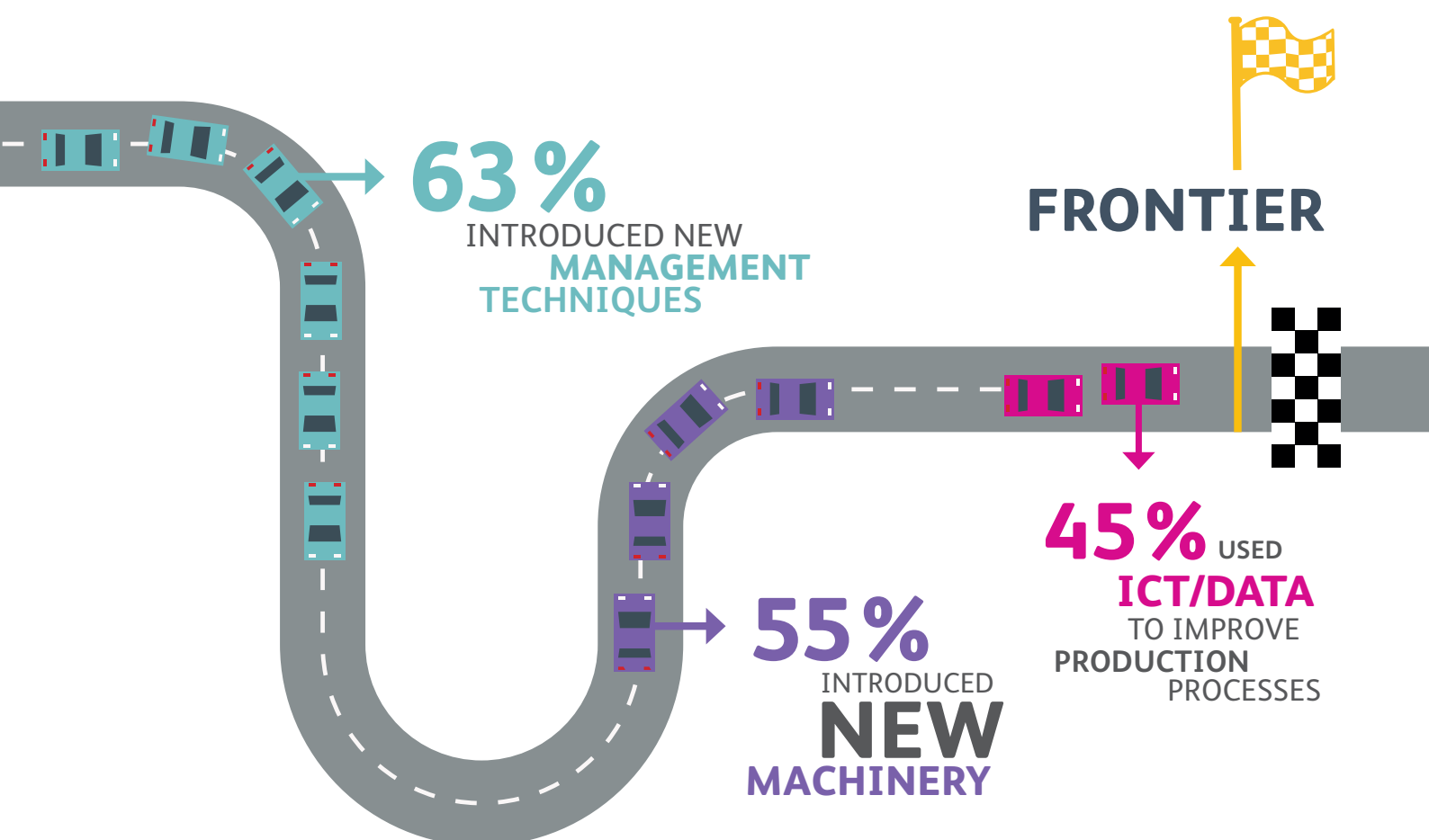
PROCESS INNOVATION CAN GET MANUFACTURERS TO THE PRODUCTIVITY FRONTIER

Manufacturing is undergoing a transformation to the fourth industrial revolution (4IR) where the adoption of digital technologies could substantially boost productivity. The benefits of 4IR technology adoption for manufacturing will be widespread, with smarter supply chains, smarter production and smarter products. Process innovation could gear up manufacturers to this transformation.

A common perception on process innovation is that it is about managing costs. Although reducing production costs comes on top of the outcomes that companies cited, process innovation achieves much more than that. For more than two-thirds of our survey respondents it improved labour productivity, the flexibility and the profitability of their business. Supply chain benefits are also significant, as more than half of companies cited better customer relationships and improved lead times as key outcomes of process innovation.

Looking at the current picture however, manufacturers' investment in process improvement is not necessarily directed at innovations associated with the highest productivity benefits and/or at the cutting-edge of production techniques. Although two-thirds of manufacturers said they introduced process innovations in the past three years, only 45% of companies introduced ICT to improve processes and less than one in ten introduced ICT to improve delivery and logistics.

Because new technologies are not being diffused quickly and widely enough across the manufacturing supply chains, productivity gains are highly concentrated among some firms that are close to the global technology frontier. This led to a growing productivity gap in recent years according to the OECD.

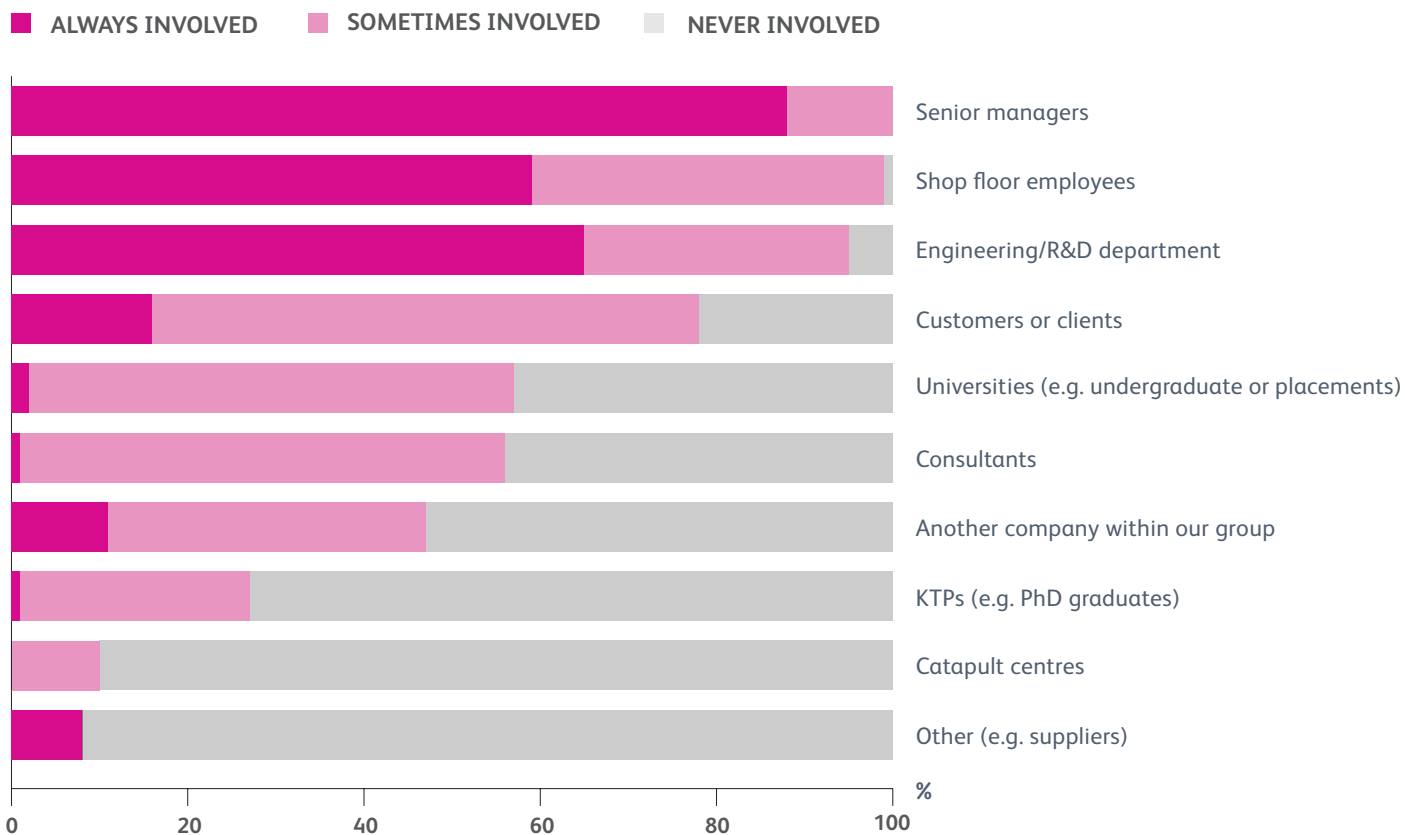


Moreover, our survey suggests that process innovation remains highly reliant on internal capabilities, while supply chain cooperation remains underweight. Access to external expertise is lacking with 44% of companies never involving consultants when introducing new production techniques.

Similarly, industry-academia interactions on process innovation are low. Most of our survey respondents said they never involve Catapult centres (90%), KTPs (73%) or universities (43%) when introducing new processes.

MANUFACTURERS OVER RELY ON INTERNAL EXPERTISE

% of companies involving one of the following stakeholders when introducing process innovation



Source: EEF Innovation Monitor 2017

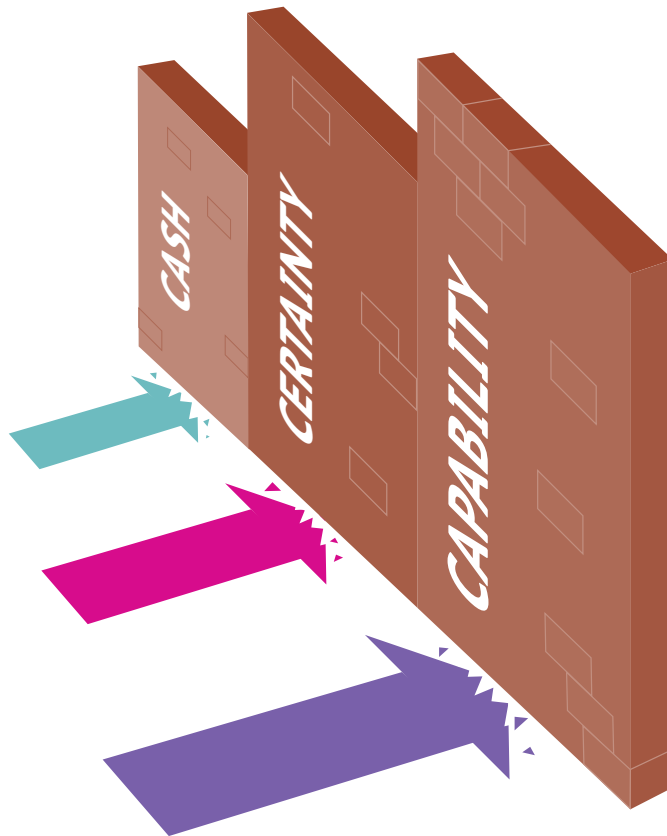
WHAT IS HOLDING BACK CUTTING-EDGE PROCESS INNOVATION?

Introducing new processes is not plain sailing. Our survey highlighted a number of barriers to process innovation that could be undermining the pace of adopting cutting-edge processes and introducing new technologies.

On top of these barriers are skills. Although firms have the appropriate set of skills within the business, there is no incentive for them to dedicate time to process innovation. This is likely linked to a distortion in the tax treatment of process innovation compared with product innovation. As the former is not necessarily in the scope of the R&D tax credit, that makes it a less profitable activity to invest.

Uncertainty is also seen as a major barrier to process innovation. Uncertainty is inherent to any type of innovation activity and process innovation is no exception. One in three companies said they underestimated what process innovation would involve, while more than a quarter said they were uncertain about the outcomes.

Process innovation is more likely to be funded internally, and a 28% of our survey respondents said they lacked the required resources within the business to implement new processes. By contrast, lack of external finance was less of an issue.



Given the breadth of process innovation activities, the spectrum of hurdles facing manufacturers can evolve depending on the form of process innovation that is introduced to the business, as well as the distance of the company to the technology frontier.

EEF previous work on 4IR showed that awareness and capabilities represent a greater challenge for companies embarking on the 4IR journey. Companies are still hesitant about what the adoption of ICT could bring, just 42% say they are familiar with the concept of 4IR and only 11% think



CASH

Process innovation is more likely to be funded internally and manufacturers lack the funds within the business



CERTAINTY

Manufacturers are uncertain about the outcomes of process innovation, they underestimate what it involves and they do not know where to get information



CAPABILITY

Manufacturers over rely on internal expertise and 66% say staff with the right skills are too busy

the UK manufacturing sector is geared up to take advantage. Four in five manufacturers say they need new staff and management skills before adopting 4IR technologies.

In comparison, EEF 2017/18 Investment Monitor placed cash on top of the pyramid of barriers when it comes to investing in automation. From the cost of capital equipment, tooling, testing, and any associated training, the shift to automated processes can be expensive. Uncertainty about the outcomes and the lack of skills are also prevalent, but they are less of a concern compared with funding gaps.

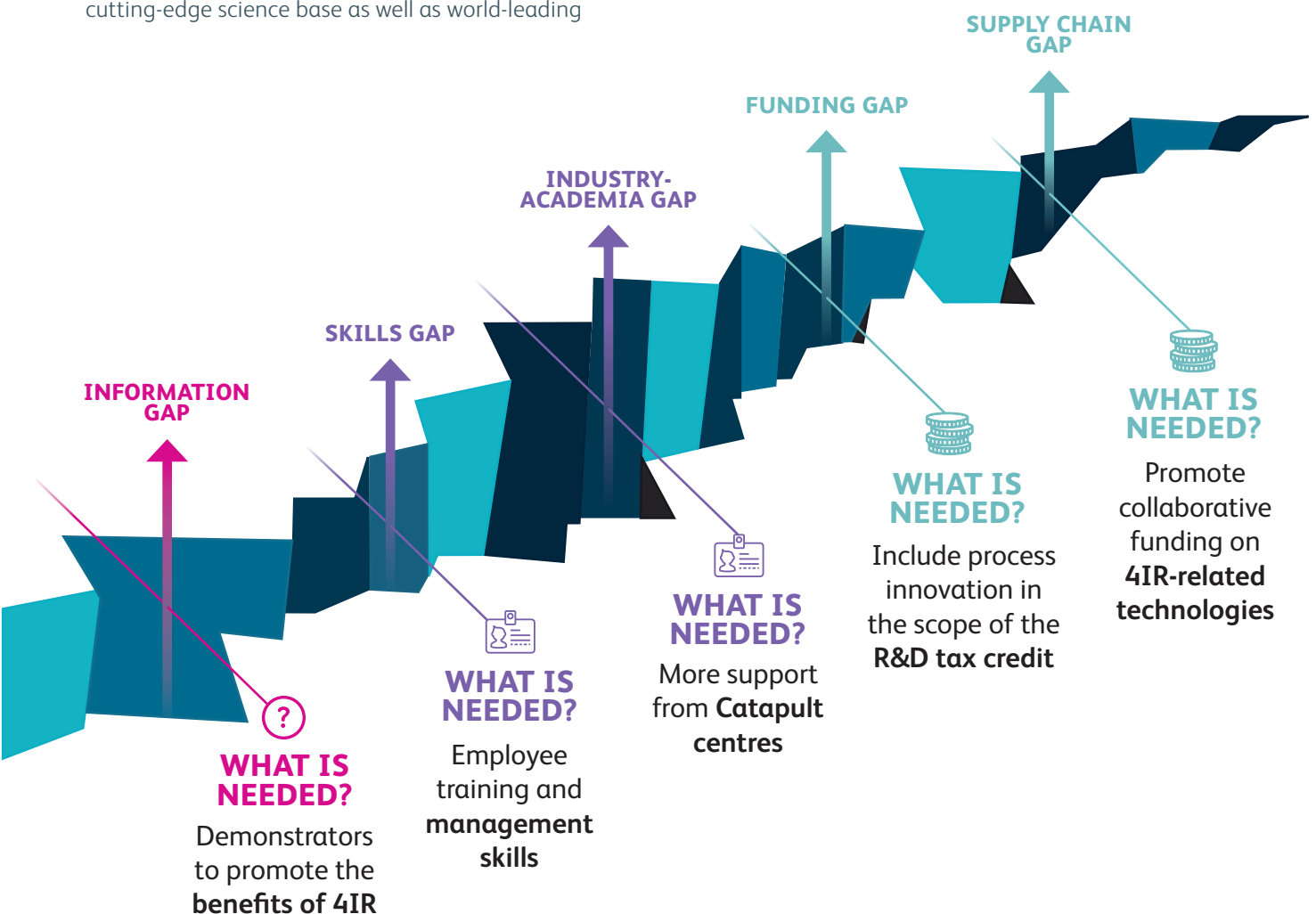
BRIDGING THE GAPS

There is no downside to investment in process innovation. More than two-thirds of our survey respondents introducing process innovation in the past three years have seen an improvement in labour productivity, greater flexibility in production processes and a reduction in production costs and lead times. Companies also mentioned better customer relationships among the top outcomes of process innovation.

The UK's long tail of not-very-productive companies requires more resources to be allocated to process innovation in order to enhance the adoption of new technologies and modern manufacturing techniques. The UK has a competitive, cutting-edge science base as well as world-leading

infrastructure through the Catapult network to support commercialisation efforts. This landscape needs to be complemented by support for the diffusion of technologies that could significantly boost productivity at the firm level.

Given the benefits in terms of firm productivity and supply chain efficiency that the adoption of modern manufacturing techniques could bring, policy support is an imperative to correct the market failures associated with process innovation and to help spur the benefits of the 4th industrial revolution.



ABOUT



EEF is the voice of UK manufacturing and engineering.

Everything we do is designed to help our industry thrive, innovate and compete.

Our membership and business services packages deliver expert support to thousands of companies in the UK, helping them to improve processes and productivity, maintain safe workplaces and attract, develop and retain skilled, productive and flexible workforces.

And, because we understand manufacturers so well, policy makers trust our advice and welcome our involvement in their deliberations. We work with them to create policies that are in the best interests of manufacturing, that encourage a high growth industry and boost its ability to make a positive contribution to the UK's real economy.

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