



Made Smarter: Technology Adoption Pilot Report

How North West manufacturers are increasing resilience through digital technology

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Foreword

“At its core, Made Smarter is helping local manufacturing businesses to innovate, create new opportunities and technologies in the process. It’s a hugely exciting time and I believe this is truly a once-in-a-generation opportunity to boost productivity and create the high-value, highly paid jobs of the future.”

– Juergen Maier CBE, Chair of Made Smarter

Two years on from the launch of Made Smarter’s North West Pilot, this report explores the difference that the programme is making to manufacturing SMEs in this region, the impact of technology adoption on their businesses, and how the tools are supporting their resilience.

The report is informed by over 200 SME manufacturing decision-makers across the North West. They were asked about their awareness, attitudes and approach to digital technologies.

Glyn Jones, Service Delivery Director at BAE Systems and Chair of the **Made Smarter** Pilot Steering Group



At BAE Systems, we're at the forefront of digital manufacturing developments in support of Industry 4.0. We are creating smart factories of the future, exploiting AI and digital expertise and technologies to drive down costs and improve efficiencies across our manufacturing capabilities. These ambitions are shared by Made Smarter, which is why we have been firm supporters since its inception.

By adopting digital technologies such as automation and data analytics, manufacturers will become more productive, efficient and agile. These attributes are vital to the recovery from the COVID-19 pandemic, and I believe embracing them and upskilling our people will help the UK compete and be better placed to address the challenges we face now and in the future.

The restrictions that COVID-19 has placed on all businesses have challenged us to make the previously seemingly impossible now possible. So called 'traditional' industries have clearly demonstrated a forward-thinking mindset by embracing the benefits of digital technology.

However, overcoming challenges has been as much about how we think differently as it is about introducing new technologies. Bringing our people on the Industry 4.0 journey and articulating the benefits it can bring is vital if we are to be successful.

During the pandemic, Made Smarter has seen a renewed desire from manufacturers looking to adopt digital tools that can lead to business recovery and growth. It is energising to see that SMEs have a strong appetite for adopting new technology. We have seen that providing technical expertise and funding advice can overcome barriers to progress which previously existed.

Made Smarter offers crucial support to manufacturers looking to adopt digital tools and increase their productivity. The North West adoption pilot is demonstrating what we can achieve as a sector when industry and government work collaboratively towards one vision.

I am proud of what has been achieved by Made Smarter during this challenging period and its ambitions will be central to ensuring a thriving UK manufacturing sector.

Donna Edwards, North West Pilot Programme Director at Made Smarter



It's been almost two years since the launch of the Made Smarter North West adoption pilot. This £20 million government-backed programme has been supported by over 200 manufacturers including BAE Systems, Rolls-Royce, Jaguar Land Rover and Siemens.

It was created to drive digital technology usage among SME makers across the North West. Our goal is to engage with thousands of businesses in this region to boost growth, productivity and efficiency, and create high-value jobs. We're also playing a crucial role in helping the UK reach its ambitious aim of net-zero greenhouse gases by 2050.

Since January 2019, the Made Smarter team has spoken to hundreds of North West makers. Whilst SMEs have been extremely enthusiastic about the benefits of adopting technologies, this has been tempered by the uncertainty of how to implement them. We've found that SMEs need specialist advice to help them select the right approach, level of investment and tools for their business. So, our focus revolves around providing them with the right tools and guidance to help them start their digital journey.

The pandemic had a huge impact on manufacturing too, and we've also played a part in helping businesses react to it. Made Smarter-supported makers responded to the challenges with resilience, agility and innovation. Some used emerging technologies to navigate the impact, switching production to help the front line. Others harnessed new capabilities to ramp up production to tackle increased demand and maintain operations while staff self-isolated.

New technologies have enabled other manufacturers to run their businesses virtually, remotely or with minimal human intervention. These tools have not only helped to ensure business continuity during the current instability, but they've also given makers a degree of confidence that they can adapt to any future unexpected circumstances. It's shown just how important digitalisation is to a successful future for manufacturing, and its recovery from the pandemic. It's also demonstrated how leaders of organisations can adapt to ensure their workforce has the skills it will need for the future.



Building the UK's productivity

The Made Smarter Review explains how low levels of technology adoption and insufficient digital leadership and management skills are stifling productivity. If the manufacturing industry were to seize the opportunities presented by digitalisation, they could transform both processes and products.

The review identified that faster innovation and adoption of industrial digital technologies could lead to a gain of £455 billion over the next decade¹, boost sector growth by 1.5-3% per annum², create a conservatively estimated net gain of 175,000 jobs³, reduce CO₂ emissions by 4.5%,⁴ and improve productivity by at least 25%.

The pioneering digital technology pilot

The North West was selected to pilot a programme to increase technology adoption across SME manufacturers. The region produces 9% of the UK's total exports and has a 14,500-strong manufacturing SME base. However, productivity levels were around 10% below the UK average, and there was also a higher proportion of workers in low-paid employment. So, it was a prime location to trial the impact that technologies could have on the sector and productivity, and to inform a national roll-out.

A recent Make UK report revealed that the pilot has been 'impressive in digital adoption, with 20% of small businesses in the area already at the highest level of technology adoption. The research shows that the technology adoption model is working, making a strong case for national roll-out'⁵.

Technology adoption

75% of SME manufacturers in the North West say they've invested in and implemented new technologies within the last three years, which is extremely positive. However, this is often the larger SMEs, with 1 in 8 being smaller makers who've never invested in technology.

It's often the case that makers have employed technology without a plan for implementation – which leads to disparate, disconnected equipment. A good starting point is generally to focus on data and systems integration to ensure a holistic view of operations and performance before adopting other technologies.

Most manufacturers will start their digital journey with data and systems integration, with 46% interested in it. Mobile devices, wearable technology, and big data and analytics also have wide appeal.

The greatest investment (to date) has been in industrial machinery and automation (29%), additive manufacturing (21%) and industrial IT infrastructure (18%). Fewer businesses have opted for augmented, virtual or mixed reality simulation and testing, or AI and robotics.

Makers were more likely to upgrade existing technologies so that they can maintain continuity, rather than to improve productivity. However, there's a real opportunity to enhance this if they look at digitalisation holistically.

A common misconception is that technological developments make people less important. But the reverse is true: people, not technology, meet challenges. Whilst tools enable opportunities, it's how we choose to use these that determines their success.

Before implementing technology, makers need to consider whether they have a culture of innovation, the right skill sets, good digital leadership, and the buy-in and support of the team. If they don't, they'll need to address this first.

Barriers to adoption

The Made Smarter Review established the reasons behind the UK manufacturing sector's poor levels of technology adoption, particularly among SMEs:

- An ineffective and confused landscape of business support, with no clear route to access help and ambiguity around what is 'good'
- Perceived barriers to adoption – like cybersecurity risks, and a lack of common standards allowing different technologies to connect
- The UK's tax system – it's not targeted enough to incentivise the opportunity
- A skills shortage – especially in digital engineering capabilities, further hindered by a fragmented skills system and a lack of systematic engagement between education and industry

The Made Smarter pilot was designed to work with SME manufacturers to test these barriers and help them overcome them.

We discovered the biggest ones were insufficient capital (50%) and a need for guidance (44%). 8 out of 10 makers we interviewed also pointed out gaps in their skills and knowledge.



Many businesses cited a lack of time as a reason why they hadn't obtained business support or funding. Made Smarter was designed to limit this time investment – initial registration only takes five minutes. There's also a three-hour digital transformation workshop that will:

- Identify core challenges
- Provide a bespoke digital manufacturing roadmap
- Pinpoint other ways that Made Smarter can support a maker's digitalisation

“When we approached Made Smarter for help with upgrading our production process, I never imagined that we'd achieve so much so fast.”

– Patrick Mroczak, CEO of Nutree Life

“From that very first call to Made Smarter, it has been fantastic. The digital strategy workshop process and the impact of adopting new technology has given us a real spring in our step and confidence in the future.”

– Ian Hazlehurst, Managing Director of Machfab Engineering



Benefits of adoption

Demonstrating resilience in adversity: COVID-19

COVID-19 has highlighted the importance of manufacturing. From supply chain disruption to fluctuations in demand, makers have risen to the challenge. Adaptations have included switching production to make pandemic-related items, increasing production to meet demand surges, and maintaining remote operations without staff present.

Made Smarter has helped makers implement these technologies. They include:

Storth Limited, a manufacturer of agricultural machinery for slurry management:

“Our adoption of a robot welder, through support from Made Smarter, has been a success from day one. We were experiencing bottlenecks within our welding process, which was causing delays in schedules. The robot has helped us overcome the delays and has also helped us to continue operations at a time when some of our welders have been self-isolating, which has caused staff shortages.

“In order to keep up with supply, we are now keen to upgrade our cutting equipment to enable us to operate unsupervised automatic cutting and feeding during the night.”

– Julian Lopez, Export Manager at Storth Limited



Lancashire Farm Dairies, a leading natural yogurt producer:

“We received advice and support from Made Smarter to implement an end-of-line robotic palletiser. It was needed to help us overcome the bottlenecks we were experiencing and speed up the production process. It has proven even more invaluable recently in managing increased and fluctuating demand for our yogurts as a result of the COVID-19 pandemic.”

– Sarfaraz Akram, Chief Operating Officer of Lancashire Farm Dairies

SMEs are realising how technologies can boost their resilience. Over 50% indicated that they had planned to invest before COVID-19, with 75% believing that they can still proceed with these plans. The pandemic also gave them the opportunity to review their operations and future needs. 62% have already invested in tools but recognise the need to do so further, and 81% are happy to take a calculated risk if they can see the benefits from technology investment.

Sustainable development

Technology adoption boosts business sustainability, that can in turn reduce energy costs, as well as make fuel and mileage savings. Examples of technologies that can increase sustainability include:

- Augmented and virtual reality – eliminating the requirement for transportation from one location to another and remote expert applications
- Digital Twin – optimising process improvement and speeding up operational decision-making virtually before applying them physically
- Additive manufacturing (3D printing) – reducing the need for tooling and the amount of material to produce components, resulting in less waste
- Artificial intelligence – enabling better understanding of demand, identification of inconsistencies and production optimisation

The importance of a digital roadmap

Digital technology can give businesses a competitive advantage, cut costs and enhance the customer experience. Whilst makers have a unique opportunity to mobilise their workforce and digitise processes, 55% don't include technology as part of their future vision and growth plan.

In response to this, the pilot is working with SME leaders to explore the development of a digital roadmap. An IDT Adviser will be able to offer bespoke recommendations for solutions to their particular challenges.

The impact of the **Made Smarter North West Pilot**



To date, Made Smarter has engaged with over 1,100 North West SMEs. We've funded 155 technology projects worth a combined value of over £12.5m, as well as supported over 500 businesses with our specialist advice.

These businesses have been at varying stages of their digital journey, but they all have one thing in common: a desire for support and guidance to ensure they adopt the right technologies.

"We fully embraced the idea that technology is the future of manufacturing and are thrilled to have the support of Made Smarter. The success of our project will open doors to further innovation and the diversification of our business and unlock our potential for growth."

– Ian Hazlehurst, Managing Director of Machfab Engineering

Throughout the pilot, we've found that the appetite for digital tools and the recognition of their importance is incredibly high. Over a third of makers indicated that they required support to adopt technologies. However, many makers haven't yet fully seized these opportunities;

The SMEs we've worked with are already experiencing the benefits, from solving their day-to-day challenges to upskilling staff. Combined, they're forecasting the creation of over 750 new jobs. Many of the interns on our digital technology internship programme have also secured full-time positions with their organisations.



“By engaging with Made Smarter, we are able to accelerate our research and development capacity for Fusion Implants, whilst also giving a graduate the opportunity to develop skills in additive manufacturing and implant design and development.”

– Dr Dan Jones, Managing Director of Fusion Implants

So far, Made Smarter has invested over £3m funding into technology projects. On the back of this investment, businesses are forecasting a £118m increase in gross GVA for the region within three years. Over 80% of SMEs working with Made Smarter have seen a boost in productivity, and more than 25% reduced their carbon emissions⁶.

“This project will have a transformational impact on our business, not just in terms of being more productive and generating revenue growth, but by reducing our energy consumption and our CO2 footprint, a responsibility we take very seriously.”

– Rod Wah, Managing Director of Beverston Engineering

“In the tumultuous times we face, it can be tempting to simply cut costs rather than invest. Yet, in the long term, this approach runs the risk of businesses getting left behind. For the UK manufacturing sector to thrive and become a world leader, we need to find ways to encourage innovation and the adoption of digital technologies. I am delighted to see the positive impact that Made Smarter’s adoption pilot is having on individuals, businesses, the environment and the UK economy.”

– Juergen Maier CBE, Chair of Made Smarter

About Made Smarter



Made Smarter is a national movement to drive growth amongst UK makers and advance our economy. Backed by world-renowned businesses and the government, it will boost the development and adoption of technologies.

The programme was formed following a nationwide review into UK manufacturing that recommended three key changes: more ambitious leadership, further innovation in developing new technologies, and faster implementation and adoption. We’ll be enhancing the digital skills of leaders, bringing businesses and R&D together to develop new technology, and helping makers embrace digital tools. It is our aim to inspire the next industrial revolution and transform the UK into a leader in digital technologies.

The Made Smarter technology adoption pilot is connecting manufacturers to the tools that will make an everyday difference to their business. The £20 million partnership between government industry is and providing match-funding, specialist advice, technology digital internships, and workforce and leadership development to makers.



Start your journey

For more information, visit madesmarter.uk today.

To find out more about this report, please contact Jude Holmes, Head of External Relations and Marketing at Made Smarter, at jude.holmes@growthco.uk. The data used in this survey have been provided by over 200 North West-based SME manufacturers.

With thanks to Mustard Research, Accenture, BCG, Make UK, and the Made Smarter Review for the insights provided.

References

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