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Mastering manufacturing: How to harness the strategic trends for 2025

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State of UK manufacturing

Resilience, challenges, and growth in a changing economic landscape



Henry Anson
Publisher

THE MANUFACTURER

UK manufacturing has weathered economic storms in recent years, adapting to a complex and uncertain landscape. While recent indicators, including a competitive Purchasing Managers' Index (PMI), reflect the industry's resilience, the sector faces both opportunities and challenges that extend far beyond the latest figures.

As global and domestic pressures evolve, UK manufacturers continue to showcase resilience, demonstrating the power of innovation, digital transformation, and skilled talent. But as we look to the future, how will the sector continue to adapt, and what role will government policy play in shaping the path ahead?

Recent performance and market resilience

UK manufacturing has shown a remarkable capacity to adapt, reflecting a sector that's both responsive and resilient. Despite pressures on global markets, the UK's manufacturing PMI has recently held its ground better than many of its Eurozone counterparts, thanks in large part to proactive measures across the sector. While PMI is just one indicator, it offers insight into how well manufacturers are meeting current demands and adjusting to shifts in both domestic and export markets.

However, the sector's resilience extends far beyond any single metric. UK manufacturers have been investing in areas that strengthen their adaptability, from digital transformation

to reshoring efforts that bring production closer to home. For example, supply chain diversification has allowed companies to better navigate disruptions, while a focus on eCommerce and hybrid sales models has positioned them to meet the preferences of Millennial and Gen-Z buyers.

These trends reflect a broader movement in UK manufacturing: a shift from short-term responses to a long-term strategic mindset.

This adaptability gives UK manufacturers a competitive edge and positions the sector to remain resilient even as economic indicators fluctuate in the months ahead. But resilience alone isn't enough; the right policies and support are critical to sustaining growth, which brings us to the implications of the 2024 Autumn Budget.

Implications of the 2024 Autumn Budget

The 2024 Autumn Budget arrived at a crucial time for UK manufacturing. With inflationary pressures and global competition intensifying, the Budget's focus on innovation, workforce upskilling, and green technology could be instrumental in reinforcing the sector's foundation.

One of the Budget's most promising elements for manufacturing is its allocation for research and development (R&D). Expanded R&D tax credits are aimed at helping manufacturers invest in next-generation technologies, from AI and automation to advanced

materials. By enabling more companies to innovate, the Budget supports a proactive approach to maintaining competitiveness. In an industry where efficiency and innovation go hand-in-hand, this financial boost could lead to significant advancements.

In addition, workforce development is another key priority in the Budget, with funding set aside for training and skills programs specifically targeting the manufacturing sector. As companies face ongoing skills shortages, these initiatives could provide the critical support needed to bridge gaps, particularly in areas like digital proficiency and advanced manufacturing techniques. A focus on upskilling aligns with industry demands for talent that can drive digital transformation, ensuring that the UK workforce remains agile and capable of supporting cutting-edge manufacturing processes.

The Budget also introduces incentives aimed at green transformation, providing grants and subsidies for energy efficiency projects and low-carbon technology. For manufacturers facing rising energy costs, these measures represent an opportunity to both reduce overheads and move toward sustainability goals, an area increasingly scrutinised by consumers, investors and global trade partners alike.



Andrea Wilson
Director - Hone-All Precision

“Many have seen the Budget NI announcements as the government “pulling the rug from under UK manufacturing” and are struggling to see where the promised growth will come from. However, there are others who believe the budget and Labour’s strategy will deliver the growth promised. As businesses, all we can do is respond accordingly to the cost increases and employment pressures we’re facing and prepare for the opportunities potentially to come”

Emerging challenges and opportunities

Despite this positive outlook, UK manufacturing faces a series of challenges that could impact growth if not effectively managed. Among the most pressing issues are energy costs, the ongoing skills gap, and the pressure to accelerate sustainability initiatives. These are challenges, but they also represent opportunities for manufacturers to further bolster their resilience and adaptability.

Energy costs remain a significant concern, particularly as global instability drives prices higher. For energy-intensive industries like manufacturing, these costs can eat into margins and limit the ability to reinvest in growth. In response, many UK manufacturers are exploring green technologies and renewable energy sources as a way to reduce dependency on traditional energy sources. The push toward sustainability aligns with both consumer expectations and international climate commitments, giving UK manufacturers a chance to lead on the global stage in sustainable production practices.

Skills shortages also present a critical challenge, with demand for talent in digital, technical, and engineering roles continuing to exceed supply. The Budget's provisions for workforce development may help, but manufacturers themselves are also investing heavily in upskilling and training initiatives to meet this gap. For instance, some companies are partnering with educational institutions to create apprenticeship and graduate programs tailored to the needs of modern manufacturing. This direct investment in talent is paying off, enabling UK manufacturers to build a workforce equipped for an increasingly digital and automated industry.

Finally, as the global marketplace becomes more competitive, UK manufacturers have an opportunity to differentiate through digital transformation. The adoption of hybrid sales models, eCommerce platforms, and data-driven decision-making are reshaping the sector, allowing companies to respond to customer demands with greater speed and precision. By embracing these shifts, UK manufacturers are not only meeting current market demands but are also positioning themselves for future growth in a digitally-driven economy.

Conclusion

UK manufacturing finds itself at a pivotal moment, with challenges and opportunities stretching out on both sides. The sector's resilience is evident in its recent performance, but maintaining that strength will require a continued focus on innovation, skills development, and sustainability. The 2024 Autumn Budget provides a timely boost in these areas, yet it will be the industry's own adaptability that ultimately defines its trajectory.

As UK manufacturers look to the future, their focus on long-term strategies over short-term gains will be key. From digital transformation to workforce upskilling, the sector is laying the groundwork for sustainable growth, ready to weather economic fluctuations and leverage emerging opportunities. The journey ahead is complex, but with the right tools and a commitment to innovation, UK manufacturing is well-positioned to lead the way in a changing world.



Attributes of a master manufacturer in 2025

What defines a world-class manufacturer?

Staying ahead of the competition in the manufacturing industry requires more than just cutting-edge technology and efficient processes. It demands a holistic approach that considers innovation, sustainability, and a strong focus on people. Insights from [The Manufacturer MX \(TMMX\) Awards 2024](#) provide valuable lessons for any manufacturing business looking to elevate its performance and achieve world-class status.

Here are the key characteristics of a world-class manufacturer we're seeing in 2025, drawing insights from the latest industry trends and manufacturing excellence demonstrated in the TMMX Awards.



Embracing innovation and digitalisation

Innovation is at the heart of any top manufacturing operation. Leading manufacturers are not simply adopting new technologies; they are integrating them into every aspect of their business.

This includes the use of advanced manufacturing techniques such as additive manufacturing, robotics and the Internet of Things (IoT). These technologies enable manufacturers to improve efficiency, reduce waste, and enhance product quality.

Smart factories, which leverage data analytics, artificial intelligence, and machine learning, are becoming the norm. **These technologies provide real-time insights into production processes, allowing for predictive maintenance, better resource management, and more informed decision-making.**

Excellence in operational efficiency

Operational excellence demonstrates a manufacturer that has considered improvements in many operational areas.

This can involve optimising production processes, reducing downtime, and ensuring high-quality standards. Lean manufacturing principles, six sigma methodologies, and continuous improvement practices are commonly employed to achieve these goals.

The Manufacturer MX Awards 2024 highlighted companies that have achieved remarkable operational efficiency. **These companies have streamlined their processes to achieve enhanced quality, productivity, physical waste reduction, customer service, and safety.** Their commitment to operational excellence sets them apart in a competitive market.

Commitment to sustainability

Sustainability efforts are being put in the spotlight, with consumers increasingly making conscious purchasing decisions based on a product's carbon footprint. For manufacturers supplying to the EU, being environmentally friendly is even more beneficial due to the introduction of Digital Product Passports.

World-class manufacturers are leading the way by minimising waste and energy consumption, as well as adopting circular economy principles. By designing products for longevity, reusability, and recyclability, manufacturers can significantly reduce their impact on the environment.

The TMMX Awards 2024 also highlighted several companies excelling in sustainable manufacturing. **These companies have implemented innovative solutions such as closed-loop systems, renewable energy sources, and sustainable supply chain practices.** Their efforts not only contribute to environmental conservation but also enhance their brand reputation and customer loyalty.



Focus on people and skills development

A world-class manufacturer recognises that its greatest asset is its people. Investing in workforce development is essential for maintaining a competitive edge. This includes providing ongoing training and development opportunities, fostering a culture of continuous improvement, and promoting diversity and inclusion.

Achieving customer value

Customer-centric strategies are crucial for growth and market share. World-class manufacturers demonstrate how their customer strategies contribute to increased growth, optimised innovation, and improved operational excellence. Measuring customer satisfaction and maintaining robust quality systems are key components of this approach.

Leadership and strategic vision

Effective leadership is a mark of any successful manufacturing operation. World-class manufacturers are led by visionary leaders who can navigate the complexities of this modern business environment. These leaders are not only focused on short-term gains but also on long-term sustainability and growth.

Becoming a master in manufacturing

While you can't expect to upgrade your business in all these areas overnight, in this guide we explore the key steps that should be taken to move towards a more innovative, sustainable, and efficient manufacturing business.



The Manufacturer MX Awards 2024 showcased companies that have excelled in people and skills development. These companies have implemented comprehensive training programs, mentorship initiatives, and employee engagement strategies. By prioritising their workforce, manufacturing businesses ensure that their employees are equipped with the skills needed to thrive in a rapidly changing industry where skills shortages are a common challenge.

The Manufacturer MX Awards 2024 recognised businesses that excel in achieving customer value by enhancing customer delivery and engagement. These companies have shown how a strong focus on customer needs can drive business success and foster long-term relationships.

Strategic vision involves setting clear goals, aligning resources, and fostering a culture of innovation and collaboration. It also means being agile and adaptable, ready to pivot in response to market changes and emerging opportunities. The Manufacturer MX Awards 2024 recognised leaders who have demonstrated exceptional strategic vision and leadership.



Strategic trends for manufacturers in 2025

Automation and AI technologies

The adoption of digital technologies such as IoT, AI, and robotics to enhance efficiency, productivity, and innovation.

75%

of manufacturers have already implemented AI in some form.

Source: [Future Factories Powered by AI | Make UK](#)

Actions

- Implement machine learning tools for improved demand forecasting.
- Use IoT devices to monitor and optimise production in real-time.
- Develop digital twins to simulate and improve manufacturing processes.

Ready to get started on your AI strategy? [Read the feature](#) from Nicholas Lea-Trengrouse, Head of Business Intelligence at Columbus.

Data analytics

A continuing trend is the investment in integrated analytics tools that enable manufacturers to make accurate, data-driven decisions quickly. These tools are now often supported with big data, AI and machine learning technologies, allowing for advanced analytics and predictive capabilities.

Actions

- Use predictive maintenance technology (IT/OT) to limit disruptions from equipment failures.
- Consider integrated machine learning to enhance demand forecasting.
- Make timely adjustments to production using real-time monitoring.

37%

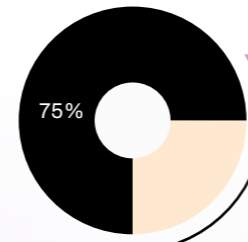
of manufacturers plan to make better use of real-time data for decision-making to drive positive business outcomes over the next five years.

Source: [State of Smart Manufacturing Report | Rockwell Automation | UK](#)

Interested in turning your data into actionable insights? [Read the feature](#) from Marie Banks, Chief Information Officer at Croda, and Jessica Gilmore, Head of Marketing UK at Columbus.

97%

According to [a recent report from The Manufacturer](#), 97% of manufacturers say that hiring and retaining skilled labour presents a challenge to the growth of their business, with 75% saying this is their largest barrier to growth.



Labour and skills shortages

The ongoing shortage of skilled labour remains a critical issue for many manufacturers, with upskilling and attracting new talent being a big focus for 2025.

Actions

- Consider training programs and collaborations with educational institutions.
- Leverage automation to help reduce dependency on manual labour.
- Partner with an external consultancy to bridge the digital skills gap.

Supply chain resilience

While supply chain disruptions may be less turbulent in 2025 compared to recent years, UK manufacturers are focusing on increasing resilience and bringing back more control of their supply chains.

44%

of UK SME manufacturing businesses are looking to enhance supply chain efficiency and automation.

Actions

- Develop multi-sourcing strategies to reduce dependency on single suppliers.
- Consider near-shoring strategies to shorten lead times and reduce environmental impact.
- Minimise downtime with predictive maintenance tools and remote sensors.

Want to gain more insights about supply chain strategy in UK manufacturing? [Read the feature](#) from John Patsavellas, Senior Lecturer in Manufacturing Management at Cranfield University.

Sustainability

The growing emphasis on green manufacturing to reduce environmental impact, improve brand reputation and meet regulatory requirements.

51%

of manufacturers expect their biggest challenge in 2025 to be the high cost of energy.

Source: [Make UK Executive Survey 2025](#)

48%

According to [a recent report from Make UK](#), the number of firms setting ESG targets for their business has increased by 48%.

Actions

- Invest in energy-efficient machinery and renewable energy sources.
- Adopt lean manufacturing processes to minimise waste.
- Increase supply chain visibility for accurate sustainability tracking.

Interested in improving your sustainability? [Read the opinion piece](#) from Professor Steve Evans, Director of Research in Industrial Sustainability at the Institute for Manufacturing, University of Cambridge.

Manufacturing strategy: the forgotten lever of success



John Patsavellas
Senior Lecturer in Manufacturing Management



John is an experienced industry leader and academic, recognised for his pioneering work in integrating AI with sustainable practices in manufacturing. His current research focuses on the Time-Optimised Data Utilisation Score (TODUS), which evaluates the value of data in manufacturing systems, aligning data efficiency with carbon footprint reduction and operational excellence.

With extensive experience across ceramics, pharmaceuticals, building products, and advanced automation, John has transformed operations through cutting-edge digital manufacturing strategies. He is a strong advocate for data sobriety and lean principles, developing frameworks that optimise resource utilisation while driving innovation and compliance with environmental standards.

As a senior academic at Cranfield University, John contributes to the manufacturing leadership programmes, fosters industry-academic collaborations, and leads initiatives to advance digital transformation and sustainability in manufacturing. He is also actively engaged in industrial policy as part of the Institution of Engineering and Technology's sustainability and net zero policy centre.

Manufacturing stands as one of the UK's greatest economic assets, underpinning innovation, job creation, and economic resilience. Yet, it has been progressively underestimated or perceived as an unexciting sector in steady decline whilst we have increasingly outsourced our manufacturing and imported products from other nations that have shown to be able to produce them more cheaply and better than us. For decades, this misalignment has constrained the potential of the UK industry, and recently the "green-is-expensive" agenda undermines ambition of a revival even further. Recent challenges and opportunities however, demand a fundamental shift in how manufacturing is perceived and managed.

The strategic role of manufacturing

In many industrial companies across the UK, strategic developments are predominantly based on corporate marketing decisions with manufacturing being forced to react to these at the "back-end" of the decision-making process. This approach, while practical in the short term, frequently results in production systems that are misaligned with broader business strategies. A notable example is the decline of the British steel industry, particularly highlighted by the challenges faced by Tata's Port Talbot steelworks. Despite substantial investment and

government support, the long term persistence with older blast furnace technology—misaligned with market needs and sustainability goals—has hindered competitiveness and adaptability. A £1.25 bn project of a new electric-arc furnace is finally going ahead with 3 years to completion whilst ramping steel importation instead of production. An earlier transition to this greener manufacturing technology could have positioned the industry better for evolving demands for a national asset offering resilient low CO2 steel production.

Manufacturing, when treated strategically, becomes a dynamic tool for competitive advantage, capable of shaping markets and driving long-term success. The UK's recently published Manufacturing Strategy emphasises the need for businesses to align their production capabilities with their overarching growth objectives. These objectives should no longer be focused on marginal savings in existing production processes, but rather on ambitious innovative new manufacturing methods and technologies for low-carbon flexible production. By shifting their focus, UK manufacturers of any size can position themselves to thrive in the fiercely competitive global landscape.

Reshoring: a path to resilience and sustainability

Over the last few decades, many UK manufacturers have offshored and outsourced operations in pursuit of lower costs. Others have abandoned manufacturing in the face of fierce cost competition from overseas competitors. However, recent global disruptions have exposed the vulnerabilities of this approach. Lengthy, complex supply chains have proven brittle, with delays, shortages, and escalating transportation costs undermining stability. Bringing manufacturing closer to home—reshoring or nearshoring—presents an opportunity to regain control. It enables companies to respond more quickly to market demands, ensure quality, and mitigate risks. Moreover, reshoring aligns with the UK's sustainability objectives by reducing carbon emissions associated with transporting goods over long distances. Localising production also provides an opportunity to integrate renewable energy and advanced technologies, further reducing the environmental footprint of manufacturing.

As digital connectivity and the proliferation of more affordable automation and robotics come to fruition, reshoring becomes even more achievable. By working with the right UK partners to design and implement collaborative automation systems, manufacturers can combine

human expertise with advanced robotics, digital cameras and AI algorithms to achieve cost parity with offshore suppliers. The size of the prize: strengthening local supply chains, enhancing technical careers, and significantly reducing Scope 3 emissions by eliminating the carbon-intensity of ocean and air-freight.

One standout example is Brompton Bicycles, which uses traditional steel brazing alongside advanced automation in its London factory. By combining the craft of skilled brazers with robotics and innovative jigging systems, Brompton has maintained its high-quality standards while achieving cost efficiencies that make UK production viable. This blend of heritage techniques with cutting-edge automation is a blueprint for modern reshoring strategies.



Manufacturing as a driver of sustainability

The demand for environmentally responsible practices has never been greater. Consumers expect it, investors reward it, and governments are legislating for it. For manufacturers, sustainability is no longer optional; it is integral to maintaining market relevance and societal trust.

Strategic manufacturing offers solutions to this challenge. By investing in the right manufacturing processes companies can optimise resource use and minimise waste whilst also lowering production costs. The triple bottom line of people, planet, profit is absolutely possible. Circular manufacturing models, where materials are reused and recycled, not only cut environmental impact but also create new opportunities for value creation. One exemplary case of innovation in the UK is Johnson Matthey's CANS™ technology, a novel reactor system that enhances manufacturing efficiency by reducing equipment sizes and catalyst volumes while achieving superior performance. This breakthrough demonstrates how novel methods can achieve remarkable reductions in energy use and emissions, while also driving profitability.



“We have done it before and we can do it again. Now is the time to channel this legacy of ingenuity into the development of manufacturing systems that can redefine global standards with UK manufacturers showing the world the art of the possible in the transition to a more sustainable, resilient, and prosperous industrial future.”

Put manufacturing strategy front and centre for sustainable growth advantage.

For the UK to reclaim its rightful place in the top of the league of manufacturing nations, businesses should reposition the manufacturing function as a core component of business strategy, rather than a “just-do-it-cheaply” chore. In manufacturing businesses, production operations usually account for 60%-70% of all assets, expenditure and people. Re-imagining, upgrading and innovating these assets and processes is the radical change needed for ambitious growth.

However, making the right choices is imperative as these manufacturing assets are normally expensive, take substantial time to buy/build/develop and they are not easy to correct if they don't have the right fit with other key activities and the overall vision of the company.

The way forward

Manufacturing strategy today cannot be merely about incremental improvements or marginal savings. It needs to be about disrupting conventional norms and traditional production methods, embracing bold experimentation, and reimagining what is possible with ambition and optimism. The future of UK manufacturing lies in innovating with new materials, methods, and novel combinations of processes that reduce costs, energy usage, and carbon emissions while simultaneously creating value and driving profitability.

This approach challenges engineers and manufacturing professionals to think creatively and push boundaries rather than simply optimising legacy systems for diminishing returns. The UK's rich history of innovation—from Isambard Kingdom Brunel's engineering marvels to the breakthroughs in jet engine design during the mid-20th century—illustrates the transformative power of bold experimentation and creative problem-solving of our manufacturing engineers.



Opinion

Sustainability insight: Rapid decarbonisation requires organisational efficiency

Professor Steve Evans, Director of Research in Industrial Sustainability at the Institute for Manufacturing, University of Cambridge, has been working with manufacturers and governments across the world to effect sustainable change at scale.

From his experience, one of the key areas organisations and governments need to focus on is implementing resource efficiency and energy efficiency (REEE) strategies.

“Improvements in this area can greatly contribute to near-term emissions reductions yet its potential is vastly underestimated by governments and businesses. In a recent Nature paper, we focus

on the importance of prioritising REEE to accelerate industrial decarbonisation, which accounts for 29% of global carbon emissions.

It makes sound business sense, as every company has some level of inefficiency. Resources and energy are often invisible - the electricity, compressed air, water and surplus materials that we cannot see in our cables, tanks, pipes and skips – and are consequently wasted. However, when these resources are made more visible, their perceived value increases, resulting in more careful management.

Through placing a strategic focus on REEE management, companies build knowledge and competence in hitting targets inside their own organisation. I've seen time and again how powerful this focus is through collaborating with industrial partners including global automotive, aerospace, FMCG, electronics and fashion brands –

it's extremely motivating for the workforce, and creates a snowball effect of knowledge transfer and capacity building. All while reducing costs!

In turn this knowledge and expertise provides robust foundations for more expensive CapEx technology.

In the Nature paper ([you can read it here](#)), I suggest businesses should be looking to implement annual energy reductions of at least 5% to drive the required change. We've seen organisations consistently exceed these targets. In Toyota's UK Burnaston plant, strategic energy management application enabled a >70% energy reduction over 14 years. Similarly, an automotive supplier's plant in Poland reported an increase in energy efficiency by 20% over 3 years.

“My advice is to start now – you don't need formal qualifications in energy efficiency, and implementing REEE will lower your organisations emissions and costs, contributing to industry's shared responsibility towards rapid decarbonisation.”



Turning data into action

A path to smarter operations and greater profitability

The ability to turn data into actionable insights is no longer just a luxury; it's a necessity. Manufacturers that leverage the vast amounts of data generated on the shop floor, from supply chains to production lines, can gain a significant edge over their competitors. However, making sense of this data and transforming it into decisions that drive value requires more than just collecting numbers – it requires strategy, the right tools, and most importantly, an emphasis on data quality.

Marie Banks, Chief Information Officer at Croda, emphasises that it requires a strategy that combines technology, digital and data, and engaging and often educating your wider workforce on the value of these things.

The growing importance of data in manufacturing

With the rise of the Internet of Things (IoT), sensors, automation, and advanced analytics, manufacturers are collecting more data than ever before. Every machine, production line, and supply chain interaction generates data, that can provide valuable insights into performance, quality, and efficiency.

When properly harnessed, data can lead to significant improvements across various aspects of manufacturing:

- **Predictive maintenance:** By analysing data from sensors on machines, manufacturers can predict when equipment is likely to fail, minimising downtime and reducing costly repairs.
- **Supply chain optimisation:** Data-driven insights can improve inventory management, streamline procurement, and optimise delivery schedules, ensuring that production is always running smoothly.



Marie Banks
Chief Information Officer
CRODA
SMART SCIENCE TO IMPROVE LIVES[™]



Jessica Gilmore
Head of Marketing, UK
Columbus

- **Quality control:** Real-time monitoring of product quality can help identify defects early in the production process, reducing waste and ensuring that only the best products reach customers.
- **Production efficiency:** Data analysis can pinpoint inefficiencies in production processes, enabling manufacturers to improve throughput and reduce cycle times.

• **Sustainability awareness:** According to Banks, data is a fundamental element of being able to understand the transparency in our supply chains, a key factor our customers actively seek from us. Furthermore, its critical for us to understand and constantly improve on our sustainability commitments and targets.

While the potential benefits are vast, the challenge lies in transforming raw data into actionable, insightful decisions. This is where data quality and a structured approach to data analytics come into play.



Banks adds “As a CIO I have seen how connecting your assets and driving intelligence from them can really harness a significant improvement in operational efficiency. From understanding best practises to predicting equipment failures before it occurs you can drive sustainable embedded change. I’ve also seen sensor-based technology build brilliant insights and actionable evidence around climate and environmental factors.”



The importance of data quality

Data is only valuable if it is accurate, consistent, and relevant. In manufacturing, poor data quality can lead to costly mistakes, inefficiencies, and missed opportunities. Poor data can result from incorrect sensor readings, outdated systems, or human error in data entry. When manufacturers rely on flawed data, it can lead to misguided decisions that ultimately hurt productivity, increase costs, and damage customer satisfaction.

According to Banks, by focusing on data quality we can actively engage our wider business teams, focusing on the accuracy and transparency of the information we capture. We ensure we get clear ownership of the data at source and get our teams understanding why data quality is so important to our business.

“As a CIO I have seen how connecting your assets and driving intelligence from them can really harness a significant improvement in operational efficiency”

Here are some key points on why data quality is paramount:

Accuracy drives trust
Accurate data is the foundation for effective decision-making. If the data is flawed, decisions based on it can lead to costly errors or missed opportunities. Ensuring that data is accurate – from sensors to manual data entry – builds trust in the system, making it easier for managers and staff to rely on the insights derived from that data.

Banks adds that this becomes even more important as we connect data and manufacturing data specifically into our wider data ecosystem.

Consistency across the organisation
In manufacturing, data comes from a variety of sources, including machines, human inputs, inventory systems, and more. For data to be actionable, it needs to be consistent across all these touchpoints. Inconsistent data – such as discrepancies between systems or departments – can result in conflicting reports and confusion, ultimately delaying critical decision-making.

According to Banks, its why we actively seek to ensure we have data domain champions, people accountable for the accuracy of our data at source.

Real-time insights
Many manufacturers are relying on real-time data to drive quick decisions that can improve

operational performance. If the data is unreliable or outdated, it can lead to missed opportunities or slow responses to issues as they arise. For real-time decision-making to be effective, data must be continuously updated and accurate. Moreover, in a way that is not time-consuming or creating unsustainable processes to keep it as such.

Cost reduction and efficiency
Quality data supports process optimisation and predictive maintenance, which can reduce costs in the long run. Poor-quality data can obscure inefficiencies or hidden problems that need addressing, while clean, high-quality data uncovers opportunities to cut waste and improve productivity.

Turning data into actionable insights

Once the importance of data quality is recognised, the next step is to ensure that the data is transformed into insights that can drive action. Here are several steps that manufacturers can follow to make this transition:

Establish clear goals and KPIs
The first step in turning data into action is to establish clear objectives. What are you trying to achieve with your data? Are you looking to reduce downtime, improve product quality, or increase supply chain efficiency? Establishing Key Performance Indicators (KPIs) aligned with business goals helps ensure that data collection efforts are focused and relevant. Without clear goals, data can become overwhelming, and it's easy to lose sight of what's important.



“It shouldn’t be forgotten that collecting and connecting your manufacturing data can also lead to significant insight into processes and issues that you didn’t even know you faced. The ability of analytics tools today to show insight by connecting dots is so powerful, it’s a great way for us to challenge our thinking at Croda and really understand what impacts our operations.”

Banks says that interestingly though, it shouldn’t be forgotten that collecting and connecting your manufacturing data can also lead to significant insight into processes and issues that you didn’t even know you faced. The ability of analytics tools today to show insight by connecting dots is so powerful, it’s a great way for us to challenge our thinking at Croda and really understand what impacts our operations.

Invest in the right tools

Data on its own is just numbers; it’s the right tools that help turn it into insights. Investing in advanced analytics platforms, machine learning, and artificial intelligence (AI) tools can help manufacturers make sense of the huge volumes of data they generate. These tools can detect patterns, trends, and anomalies in data that might otherwise go unnoticed. Predictive analytics, for example, can provide early warnings for equipment failures, while AI can help optimise production schedules.

Banks adds “Let’s also not forget it’s about inspiring people to have a curiosity for the information, to get data to better understand the world in which they operate. Driving an active appetite for data is a brilliant way to build continuous improvement.”

Ensure data integration across systems

Manufacturers often use a wide range of systems, from Enterprise Resource Planning (ERP) software to manufacturing execution systems (MES) to customer relationship management (CRM) tools. For data to be truly actionable, it needs to flow seamlessly between these systems. Data integration allows decision-makers to have a comprehensive, unified view of operations, which makes it easier to identify opportunities for improvement.

Leverage real-time data for rapid response

In manufacturing, timing is critical. Real-time data can help manufacturers identify issues as they occur, allowing for rapid response and minimising disruptions. Monitoring machine performance, production line output, and supply chain status in real-time enables manufacturers to act quickly to avoid downtime, quality issues, or delays.

Empower employees with data

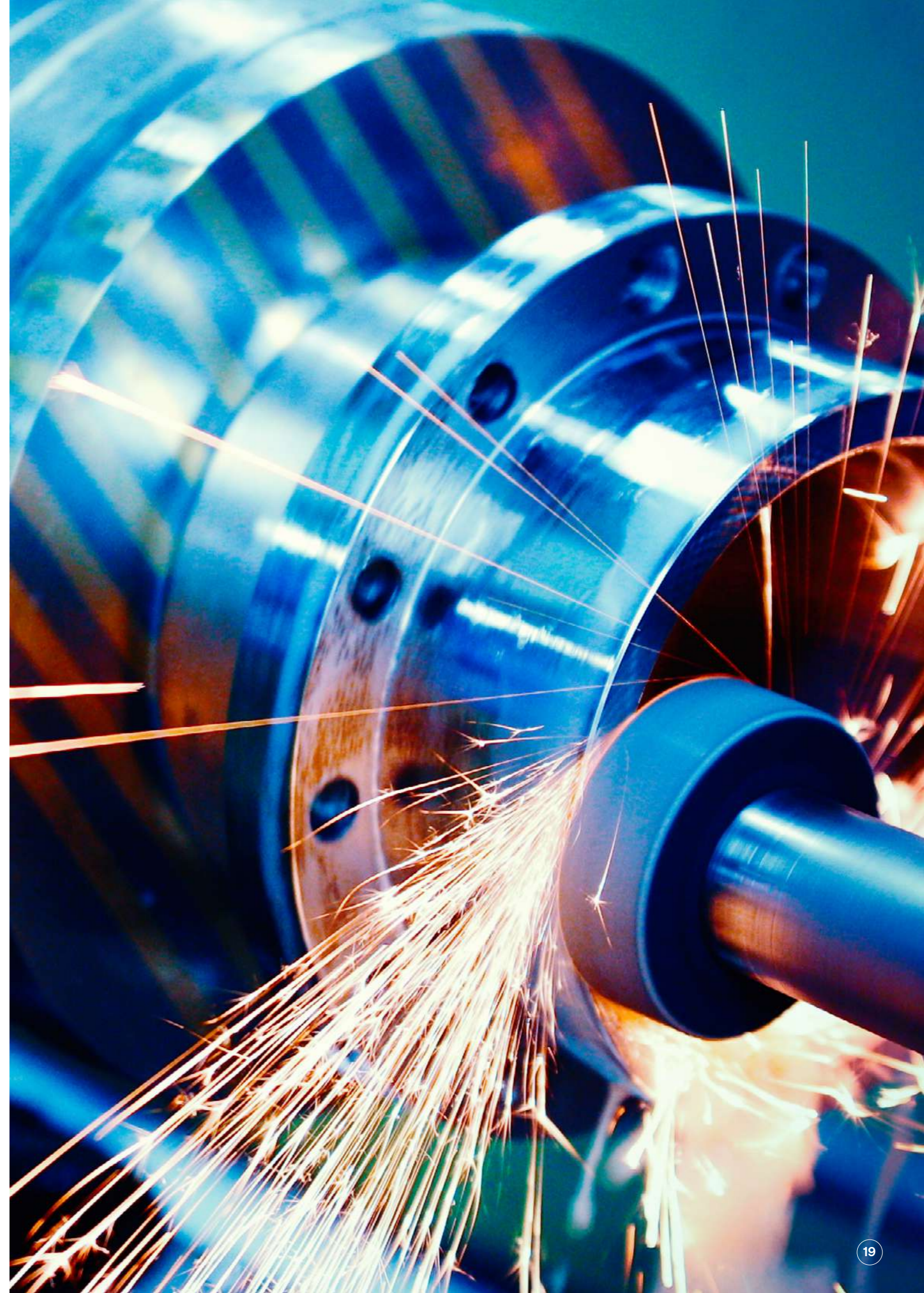
Data should not just be the domain of top executives or data scientists. Manufacturers should empower employees at all levels to use data to make decisions. With the right tools and training, workers on the production floor can access insights that help them identify and address issues quickly. This decentralised approach to decision-making can improve overall operational efficiency and reduce bottlenecks.

According to Banks, we all have our part to play and it’s brilliant for people to be able to see the impact of their actions in real time on processes critical to an organisation.

Data as a strategic asset

In manufacturing, data is one of the most powerful tools available to drive efficiency, reduce costs, and improve product quality. However, for data to be truly valuable, it must be of high quality, accurate, consistent, and timely. Only with quality data and the right tools can manufacturers unlock the full potential of their operations.

By establishing clear goals, investing in the right analytics tools, integrating data across systems, and empowering employees to take action, manufacturers can turn raw data into a strategic asset. Only those who can effectively turn data into action will be better positioned to thrive in a competitive global market.



Starting your AI implementation strategy

Artificial Intelligence (AI) is reshaping manufacturing, offering tools to boost efficiency, reduce costs, and improve product quality. If you're a manufacturing leader aiming to stay competitive, integrating AI into your operations is not optional - it's becoming standard. This article lays out practical steps, real-world examples, and actionable insights to help you start your AI implementation strategy.

Understanding AI in UK manufacturing

Before diving in, it's crucial to understand what AI can do for your manufacturing processes. AI technologies like machine learning, predictive analytics and robotics have the potential for significant improvements in productivity, efficiency, and product quality. According to [a recent survey by Make UK](#), 65% of manufacturers have already implemented AI in some form, with another 25% planning to do so within the next two years.

What AI can do for you in manufacturing

AI applications in manufacturing go beyond hype. They deliver measurable outcomes, such as:

- **Predictive maintenance:** Algorithms analyse sensor data to anticipate equipment failures, cutting downtime and saving costs. [Rolls-Royce](#) reduced unscheduled maintenance events by 25% using AI in engine monitoring.
- **Quality control:** Machine learning detects defects more accurately than humans. Siemens improved [defect detection rates by 20%](#) with AI-driven quality checks.

- **Supply chain optimisation:** AI helps manage inventory and logistics more effectively. [Unilever saved 10%](#) on logistics costs and improved on-time deliveries with AI systems.
- **Process optimisation:** Data-driven insights from AI identify production inefficiencies, enhancing throughput and consistency.

These examples illustrate that AI is not an abstract concept; it delivers tangible benefits when applied effectively.



Nicholas Lea-Trengrouse
Head of Business Intelligence (UK)



Example

A manufacturer targeting predictive maintenance might consolidate sensor data from multiple lines into a unified platform for analysis.

“AI implementation isn't quick or effortless, but with thoughtful planning, it's achievable.”

Identifying high-impact use cases

Start by pinpointing processes where AI will yield the highest value. Try evaluating:

1. Processes with repetitive tasks that can be automated.
2. Areas where variability affects quality or efficiency.
3. Challenges in predicting outcomes or maintenance needs.

Focus your initial efforts on manageable and impactful areas, such as applying AI for predictive maintenance in a specific facility.

Assessing your data readiness

AI thrives on quality data. Here's what to check:

- **Data availability:** Do you have the necessary data for your chosen use cases? Historical and real-time data are key.
- **Data quality:** Is your data accurate, complete, and consistent? Cleaning and standardising data is often needed.
- **Data infrastructure:** Can your current systems handle large datasets? Cloud platforms or data lakes might be necessary.
- **Data governance:** Are your data practices compliant with regulations like GDPR? Define clear policies for data use and privacy.

Build the right team

AI implementation requires a blend of skills:

- **Data scientists:** Build and refine AI models.
- **Data engineers:** Ensure data pipelines and systems are robust.
- **Domain experts:** Provide insights into manufacturing processes.
- **AI project managers:** Coordinate technical and operational efforts.
- **Change management specialists:** Support staff in adopting new technologies.

If in-house expertise is lacking, consider partnerships with universities, external consultants, or government programs like the UK's AI Sector Deal, which supports skill development. According to [a report by the Royal Academy of Engineering](#), UK manufacturers investing in employee training see a 6% increase in productivity on average.

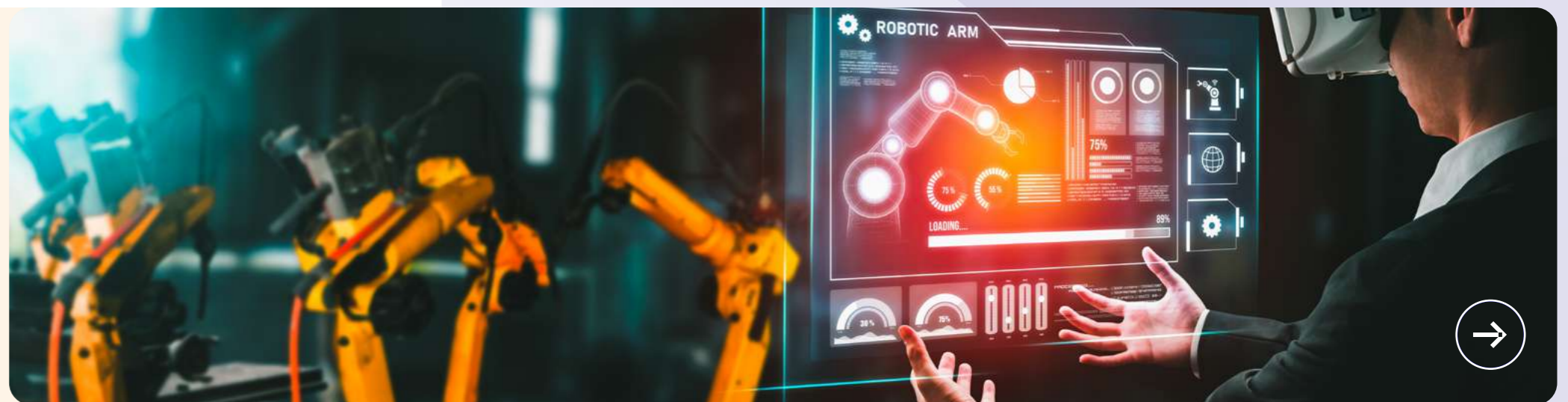
Measure results and improve continuously

AI projects succeed when treated as ongoing initiatives. Regularly monitor performance against defined objectives. Adjust models and processes based on feedback and results. Engaging your team is critical - collect their input to refine your approach.

65%

of manufacturers have already implemented AI in some form

Make UK



Develop a Clear Roadmap

Plan your AI implementation systematically:

1. **Define Objectives:** Align your AI goals with measurable business outcomes.
2. **Prioritise Use Cases:** Rank use cases by feasibility and potential impact.
3. **Run Pilots:** Test small-scale projects first. For instance, apply AI-based quality control to one production line and evaluate performance before scaling up.

4. **Select Technology:** Choose tools that integrate seamlessly with your existing systems and processes.
5. **Plan Change Management:** Communicate clearly with employees about AI's role and provide training.
6. **Address Ethics:** Create policies for fair, transparent, and secure AI use.

Example

After an AI-powered defect detection system improves accuracy, fine-tune it to handle new product lines or incorporate real-time reporting features.

Common Pitfalls to Avoid

- **Overlooking Data Quality:** Poor data leads to poor AI outcomes.
- **Skipping Pilots:** Testing on a small scale helps avoid costly mistakes.
- **Ignoring Change Management:** Without employee buy-in, AI adoption will face resistance.
- **Focusing Solely on Technology:** Success depends on aligning AI with business goals, not just deploying advanced tools.

By focusing on high-impact areas, building a capable team, and refining your approach through continuous feedback, you can harness AI to transform your manufacturing operations.



Barry Leahey MBE (Hon.Prof. / FloD)
President



Playdale is a leading manufacturer of children's playground equipment based in south Cumbria. When generative AI first gained popularity, the company embraced the new technology by thinking outside the box to implement quick wins within several key areas of the business:

Marketing materials:

Using AI-generated art, Playdale created imaginative playground scenes. These vibrant and engaging visuals were used in marketing campaigns, capturing the attention of parents and children alike. By minimising the reliance on external designers and agencies, Playdale achieved substantial cost savings which could then be allocated to other critical areas of the business.

Design Concepts for New Products:

AI art was also used to generate innovative design concepts for new playground equipment and park layouts, quickly producing inspiration pieces. This provided the design team with a wealth of ideas to explore, significantly speeding up the product development process. The introduction of AI here drastically reduced the time spent on brainstorming and drafting ideas, meaning the design team could quickly iterate on AI-generated concepts, accelerating the overall project timeline.

Optimised recruitment:

AI analysed geographical data to identify the best areas for recruitment based on distance and accessibility. This allowed Playdale to target recruitment efforts more effectively, ensuring they attracted top talent from regions that were most convenient for both the company and potential employees.

Scheduling assistants:

The business also introduced AI scheduling tools to handle meeting admin, giving the team at Playdale more time to focus on complex tasks. This approach streamlined teamwork and ensured that projects got off the ground quickly and efficiently.

By embracing AI technology and implementing it in quick and simple ways, Playdale was able to optimise multiple processes. The company not only saved time and costs but also enhanced its creative output, solidifying its position as a leader in the playground manufacturing industry. This success story demonstrates how AI adoption can begin in small and simple ways, highlighting its potential to drive innovation and efficiency in any manufacturing business.



The agile manufacturer in 2025 and beyond



Kevin Bull
Product Strategy Director
Columbus

Even now, with the disruption of recent years firmly in the rear-view mirror we are still bearing witness to unpredictability in demand, significant fluctuations in the availability of critical materials and components and a workforce that is depleted and drawn to industries other than manufacturing.

Businesses have had to adapt. They have had to become agile, and the lessons learned from that experience will still be needed going forward. And yet, with digital technology that is developing at a staggering pace, there are many more opportunities to further refine and strengthen the ability of a business to react to change, at speed.

But let's just take a step back for a moment and consider what being an agile manufacturer actually means. Sometimes being agile will mean being able to react and take advantages of new opportunities that present themselves in the marketplace. Can the manufacturing business quickly bring new products to market to fill an identified gap? Opportunities also present themselves in the form of creating diverse revenue streams through the provision of services – maintenance and repair, for example. Other times it will mean reacting quickly to failures in the supply chain, seeking alternative supply routes or partners, with the objective of ensuring that customer fulfilment is

not compromised. Ultimately, there are many functions and departments within a business that need to be agile for the business to be considered agile.

Let's start with the key purpose of the manufacturing business – the manufacture and delivery of products to meet customer needs. Is the business able to bring a product to market faster than its competitors? Delivering value to the customer in less time can often be a key differentiator.

Now, you'd have to be living in an alternative timeline to have missed the explosion in the real-world availability of Artificial Intelligence (AI) and its cousin, Machine Learning (ML).

And the use of generative artificial intelligence, "Gen AI", in the design and development of new products has the potential to transform the time-to-market process. As Gen AI technologies begin to get incorporated into product design applications we will begin to see automated design processes, "learning" from prior designs and natural language briefings. Research and development departments will be able to put this to good use, rapidly creating alternative designs and testing them in virtual test beds. Of course, there will still be a need and desire to get "hands on" with the physical article and this is where integrated 3D printing and additive manufacturing techniques can be deployed to great effect.

Furthermore, it should not be forgotten that a transition from Engineer-to-Order practices to Configure-to-Order practices provides the opportunity to transform the agility of the business in meeting the most common variations of personalised product. The effort involved in initially defining a configured product model, complete with multi-level bills of materials, production process definitions, quality specifications and product costing will often yield a return in the cost of sales through automated design, pricing and customer communications.

Of course, being able to design new products faster creates pressures on the shop floor to deliver the required production capabilities in short order. Where possible, a large degree of agility can be achieved by ensuring that the layout of the factory itself supports flexibility. Is it a straightforward task to reorganise machinery and equipment? Is there space for new work cells? Can machines be easily reconfigured? Can they carry out multiple tasks?

Today, it is possible to answer these questions, and many more, in a virtual environment. By creating a digital twin of the operational environment, the plant manager is able to model and simulate physical changes to the shop floor and extensively analyse the impact on material movements, production processes, workforce activities, power consumption and, ultimately, cost. Furthermore, when connected

to shop floor equipment and sensors these digital models can be used to gain real-world insights that drive better products, optimised operations, reduced costs, and workforce experiences.

One exciting area of development of recent times is that of cobots and the so-called concept of Industry 5.0.

Cobots are robots that are designed to operate safely alongside human workers. Commonly, these can be easily re-programmed to perform new or revised tasks, made even more rapid with built-in machine-learning technologies. Cobots are also, usually, of a size that makes them easy to relocate to new locations, or even new sites.

As mentioned, cobots are designed to operate in side-by-side collaboration with human workers. However, the difficulties in maintaining and retaining the human workforce are greater than ever. Scaling up production to meet new opportunities is likely to generate some urgency in the on-boarding of new workers and getting them trained up to a point where they are delivering productivity. Digital learning platforms can help here, especially when used in collaboration with augmented-reality (AR) technology and task-simulation facilities. During recent factory tours for the judging process of the Manufacturing Excellence awards I have been impressed with the training programmes and facilities that have been established as part of Smart Factory advances. Pragmatically, training can be complemented with innovative poke-yoke methods to ensure that quality of output is maintained.

The supply of materials and components also needs to keep up with the pace of change for an agile manufacturer. The accuracy of demand forecasts, given the important role that they play in the supply chain planning, should be critically reviewed. How accurate are the forecasts? What are the external factors that are influencing demand? This is another area where artificial intelligence and machine

learning can reap dividends, especially when the AI models consider data from multiple sources (e.g. weather, exchange rates, etc.).

Also worthy of consideration is the use of demand-driven planning tools. These replace traditional MRP practices with the use of flexible buffer store levels along the supply chain. This method reduces the impact of the bullwhip effect, where forecasting inaccuracies are amplified through all levels of the supply chain.

A certain level of de-risking in supply can be achieved through multi-sourcing practices, thereby eliminating a single point of failure. Planning tools that automatically suggest which supplier to use to maintain balance and risk can reduce the workload of planners and facilitate automated procurement processes.

Even with the best supply chain planning in place it is, of course, possible for delays and quantity shortfalls to happen. When these situations become apparent it is important to be able to assess the impact of the shortage and to react quickly. AI, again, can have a role to play in categorising the impact of the event and providing suggestions of alternative courses of action – which might be alternative suppliers, alternative (but suitable) components, alternative delivery methods, etc.

Of course, sometimes it may be necessary to quickly bring new suppliers on board. The speed of this process can be improved by deploying collaborative portals, capturing and validating the necessary information from prospective suppliers, expediting the approval process.

Being agile, ultimately, means that the business can meet the variable demands of the customer.

So, it is important that the business is easy to do business with. Being able to on-board new customers as seamlessly as possible will mean ensuring that digital transactions

and collaboration processes are available, and reliable, from day one. EDI, customer portals and e-Commerce capabilities ultimately oil the cogs of trade.

The trend in manufacturing to wrap services around their products is only set to continue.

Proactively seeking opportunities to provide service offerings (be they installation services, training services, maintenance contracts, emergency repairs or the supply of parts and consumables) only enhances the reliability of the revenue stream and create customer "stickiness" – which ultimately reduces the risk from fluctuations in demand.

Ultimately, humans are supremely adaptable and will always find ways to react to change and find an advantage in a new set of circumstances. We are already incredible agile! We are agile because we know how to use tools, and as modern manufacturers we now have an unprecedented range of digital technologies in our toolbox.

- **Bring new products to market faster using Gen AI, prototyping using additive manufacturing and reducing sales cycles through product configuration models.**
- **Use digital twins to model our operational environment and test proposed changes.**
- **Deploy cobots to remove repetitive manual tasks and quickly reprogram them for new actions and processes.**
- **Improve supply chain performance with increased forecast accuracy and modern planning tools.**
- **Rapidly identified risk through supply chain performance analytics and manage with automated procurement processes.**
- **Automate customer demand processes and provide additional value through extended service offerings.**

Key insights manufacturers can take from B2B2C business models



Rob Watson
Senior Advisor of Digital Commerce
Columbus®



What is B2B2C, and how can it apply to manufacturers?

B2B2C (Business-to-Business-to-Consumer) is a business model where manufacturers reach end consumers by working through intermediaries like retailers or distributors, while often also using digital tools to engage directly with them. Going beyond traditional B2B models, B2B2C allows manufacturers to collect valuable consumer data by enabling their partners with digital platforms, apps, or loyalty programs that consumers interact with. For example, a manufacturer might provide a branded e-commerce portal that distributors use to sell to customers or offer a mobile app that helps end-users track product usage while feeding insights back to the manufacturer. This approach helps manufacturers build direct customer relationships, understand demand trends, and refine their products based on real consumer needs, all while supporting their existing B2B channels.

E-commerce and Direct-to-Consumer channels

A key aspect of B2B2C digital success is enabling distributors and retailers with digital tools that support sales and customer engagement. Manufacturers can implement digital ordering systems, online product catalogues, or customer support platforms that help their partners provide a better purchasing experience for consumers. These tools not only improve accessibility to products but also give manufacturers valuable insights into consumer demand and preferences. By integrating digital solutions, manufacturers can strengthen their relationships with both their business customers and end consumers while providing a more connected and efficient supply chain.

Building on digital ordering and e-commerce capabilities, manufacturers can further enhance

the customer experience by adopting omnichannel strategies. These strategies integrate multiple digital and physical touchpoints, ensuring a cohesive experience for distributors, retailers, and end customers. Manufacturers can offer omnichannel experiences by integrating digital support, product information, and availability status across platforms. A digital self-service portal, product configurators, and virtual product demos can help distributors and end customers understand the value and details of products.

Manufacturers operating a B2B2C business model invest in digital content to educate consumers on product benefits, applications, and features, benefitting all channels. They can leverage content marketing to support both distributors and end users, providing resources that demonstrate product usage and maintenance. Video tutorials, webinars, product demos, and interactive guides can improve customer understanding and strengthen brand loyalty.

webinars, product demos, and interactive guides can improve customer understanding and strengthen brand loyalty.

Enhanced customer insights

Understanding customer behaviour is a valuable outcome in a B2B2C model. Manufacturers can gain important insights by analysing data from intermediaries and end consumers, helping them track demand trends, purchasing behaviour, and product preferences. By implementing data analytics tools, manufacturers can better predict demand, optimise inventory levels, and tailor their offerings to meet real-time market needs.

Once manufacturers gather these insights, CRM (Customer Relationship Management) systems play a key role in managing and leveraging this data. CRM systems enable manufacturers to establish direct visibility into end-customer interactions, store and analyse customer data, and use it to drive personalised experiences, targeted upselling and cross-selling opportunities, and stronger relationships with both distributors and retailers. These systems can also integrate with customer-facing sales and marketing functions, automate communications, and provide insights that enhance engagement and brand loyalty.

End-to-end visibility through digital supply chains

Many manufacturers operating a B2B2C business model integrate their supply chain data, providing visibility to end customers across sourcing, production, and distribution. Digital supply chains give manufacturers real-time access to inventory, logistics, and production status. They can identify bottlenecks quickly, reduce downtime, and manage resources more effectively, ultimately benefiting both B2B and B2C partners.

Improved after-sales support and service models

Many manufacturers operating a B2B2C business model extend after-sales service options, such as online support and maintenance scheduling, often through self-service digital tools. These solutions enable end customers to troubleshoot issues independently, reducing reliance on direct support. Additionally, manufacturers leverage real-time communication platforms to keep customers informed throughout the buying journey. Digital tools like customer portals, automated email updates, and dashboards provide transparency on order status, delivery times, and product performance, strengthening relationships

with both distributors and end customers. Manufacturers can offer predictive maintenance, remote diagnostics, and troubleshooting through IoT and machine learning, especially in machinery and industrial products, to keep customers' operations smooth.

This reliance on real-time communication platforms complements their after-sales support strategy, ensuring customers remain informed throughout their journey. By integrating tools like customer portals, automated updates, and dashboards, manufacturers can enhance transparency, improve responsiveness, and strengthen engagement with both distributors and end customers. They can adopt digital communication tools like customer portals, automated email updates, and digital dashboards for sharing order status, delivery times, and quality checks. Providing clear and consistent information strengthens relationships with both distributors and end customers, ensuring smoother collaboration and a more reliable customer experience.



“Digital supply chains give manufacturers real-time access to inventory, logistics, and production status.”





Agility in product development

B2B2C models use customer feedback from digital platforms to make agile improvements to products, often relying on rapid prototyping and feedback loops. Manufacturers can incorporate digital feedback channels to inform product R&D, using insights from distributors and end-users to adapt products faster. Additionally, they can use digital twins and simulation technology to test designs and adapt production lines to customise products based on specific client needs.

Ecosystem development with partners

Successful B2B2C models are often built on close, collaborative relationships with ecosystem partners who co-create value. Manufacturers can partner with distributors, technology providers, and even clients to co-create services or products, using digital platforms to support collaborative innovation and create shared data platforms for a win-win approach.

By embracing digital tools and strategies proven in both the B2C and B2B2C space and blending them to best suit their business model and customer demographic, manufacturers can foster innovation, improve customer relationships, and streamline their operations. Ultimately, this will strengthen their position within the ecosystem and drive better results across the whole business.

Conclusion

Manufacturers that adopt a B2B2C business model can unlock significant value by leveraging digital tools to enhance customer engagement, optimise operations, and strengthen partnerships. By implementing data-driven strategies, improving supply chain visibility, and developing omnichannel experiences, manufacturers can create a more seamless and valuable journey for both their business customers and end consumers. As digital transformation continues to evolve, those who effectively integrate B2B2C principles will be better positioned to stay competitive, build brand loyalty, and drive long-term growth.

Case Study: Toolstream



Enhancing the B2B customer experience

Toolstream, a leading supplier of hand and power tools based in Yeovil, South Somerset, successfully completed a project with support from Columbus to update its e-commerce offering to suit the modern B2B customer. By adopting digital solutions to improve customer engagement and streamline operations, Toolstream now offers an e-commerce experience similar to that of a B2C organisation.

To better serve retailers and end customers, Toolstream introduced a new online ordering platform, providing its customers with a fully responsive website with enhanced features including new ordering methods, targeted personalisation, and an improved search functionality.

Toolstream also integrated a customer support portal to enhance how the business handles return and contact enquiries, ensuring a seamless post-purchase experience for end users.

These tools helped to support Toolstream's ambitions of making its customers' experience with the business as slick as possible. By embracing B2C experiences within a B2B framework, Toolstream's website now offers several features over and above the standard shopping journey a customer would expect.

Benefits:

- Enhanced browsing and searching functionality with extended filters and search options.
- A consumer-like shopping experience through features like the new detailed display page for every product.
- A fully responsive website, meaning customers can browse and place orders at any time, from anywhere, with ease on a desktop, tablet or smartphone.
- Targeted and personalised offers to specific customer segments
- A variety of streamlined ordering methods for customers.
- Improvements to product information with simplified and improved data API offerings, sharing data in near real-time and cutting download times by 50%.
- Full integration of loyalty schemes, which has been well received by Toolstream's customers, ranking in the top five most visited pages on the website.

[Read the full case study about Toolstream's e-commerce upgrade.](#)

Building a customer-centric digital strategy

The manufacturing industry has undergone significant transformation in recent years, with supply chain disruptions, workforce challenges, and the push to embrace digitalisation, among other hurdles. Yet, one thing remains unchanged: the customer.

Whether you're managing a large-scale industrial operation or a smaller, specialised manufacturing business, understanding why the customer should be at the heart of your digital strategy is crucial. As manufacturing companies become more digitally integrated, embracing a customer-centric approach can help you stay competitive, improve efficiencies, and build long-lasting partnerships.

But why exactly should the customer be central to your digital strategy in manufacturing? Let's dive into it and explore how focusing on the customer can drive success in the manufacturing world.

The evolution of digital strategy in manufacturing

In the past, manufacturers often focused their digital strategies on internal processes: improving supply chain efficiency, enhancing production timelines, finding incremental improvements to generate savings, or simply keeping up with industry trends. But with the rise of digital technologies, and many manufacturers adopting a B2B2C model, it's become clear that customer engagement is just as important as operational efficiency.

For beginners, think of your digital strategy to better connect with both your customers and your suppliers online. It's about making your brand visible and valuable to your market, whether you're selling to other businesses (B2B) or directly to consumers (B2C).

For early adopters, the digital shift in manufacturing goes far beyond marketing—it involves leveraging technologies like the Industrial Internet of Things (IIoT), data analytics, AI, and automation to gather customer insights and fine-tune your strategy. Whether you're optimising your website, e-commerce platform, or product development cycle, putting the customer at the core means aligning all aspects of your business around customer needs.



Simon Noakes
CXE Director at Columbus
Featuring stories from
Charterhouse Holdings



Why the customer should be at the core of your digital strategy

For manufacturers, putting the customer first isn't just about driving sales—it's about building lasting relationships that will sustain your business in the long term. Here's why:

- 1. Customer loyalty:** Manufacturers who truly understand their customers' pain points, goals, and preferences are better positioned to deliver products and solutions that add value. When your customers feel understood, they're more likely to stick with you, even in competitive industries.
- 2. New business opportunities:** A customer-centric digital strategy allows you to identify new opportunities and market niches that you might have otherwise missed. For example, by gathering feedback through digital channels, you can spot trends and adapt your products to meet shifting demands.
- 3. Increased efficiency and innovation:** Listening to your customers helps you streamline processes, improve products, and reduce waste. By integrating customer feedback into your design and production processes, you create more efficient, tailored solutions that increase your competitive edge.
- 4. Better supply chain collaboration:** When your digital strategy focuses on the end-customer, you're better able to align your supply chain partners with customer demands. This creates more efficient production cycles, faster delivery times, and improved communication all around.
- 5. Increased differentiation with competitors:** Aligning digital strategy by better meeting customer needs across a variety of touchpoints provides the opportunity to provide a level of service that goes beyond the product itself, and can make you stand out in a competitive marketplace.



What your customer-centric strategy should include

As a manufacturer, shifting to a customer-centric digital strategy means rethinking how you engage with your audience—from product design to sales to post-purchase support. Here are the key elements to consider:

1. Personalisation and product experience:

- Even in manufacturing, personalisation matters. If you're selling industrial equipment, for example, your customers want to feel that your solutions are tailored to their specific business needs. This could mean offering customisable features, personalised consultations, or specialised product recommendations.
- Advanced personalisation in manufacturing involves leveraging data from IoT sensors, predictive analytics, and CRM systems to offer customers real-time updates on their orders, product performance, and maintenance schedules.

2. Data-driven decision making:

- The more you know about your customers' needs, the better you can serve them. Whether you're tracking inquiries on your website or looking at order histories, data helps you make informed decisions about what to produce and how to market your products.
- Data-driven strategies can be used to optimise everything from inventory management to production schedules. By using real-time data to understand customer demand, you can adjust your operations accordingly, reducing waste and increasing profitability.

3. Multi-channel engagement:

- In the past, manufacturers relied heavily on face-to-face interactions and trade shows to connect with customers. Today, digital channels—such as websites, social media, and e-commerce platforms—are just as important. Make sure your strategy includes these touchpoints to engage customers wherever they are, and does not rely on a 'one size fits all' that doesn't meet the needs of individual customers
- A truly customer-centric digital strategy involves seamless integration across multiple platforms. From automated customer service chatbots to online ordering systems, you need to create an interconnected experience that delivers consistent messaging and value across every channel.

4. Flexibility and agility:

- The world of manufacturing moves fast, and customer needs are constantly changing. If a customer asks for a product modification or a quicker turnaround time, being able to respond quickly is a huge advantage.
- Manufacturing businesses that are truly agile use technologies like supply chain management software and AI-powered demand forecasting to stay one step ahead. This means you can anticipate customer needs and adjust your operations and product offerings accordingly.





Customer centricity in practice: Charterhouse

A great example of a manufacturer successfully implementing a customer-centric digital strategy is Charterhouse, a UK-based manufacturer of garments and personalisation solutions.

Charterhouse wanted to shift from their more traditional, fragmented processes to a unified digital platform, which would allow them to integrate customer data across departments and become more efficient to meeting their customers needs. Their approach included:

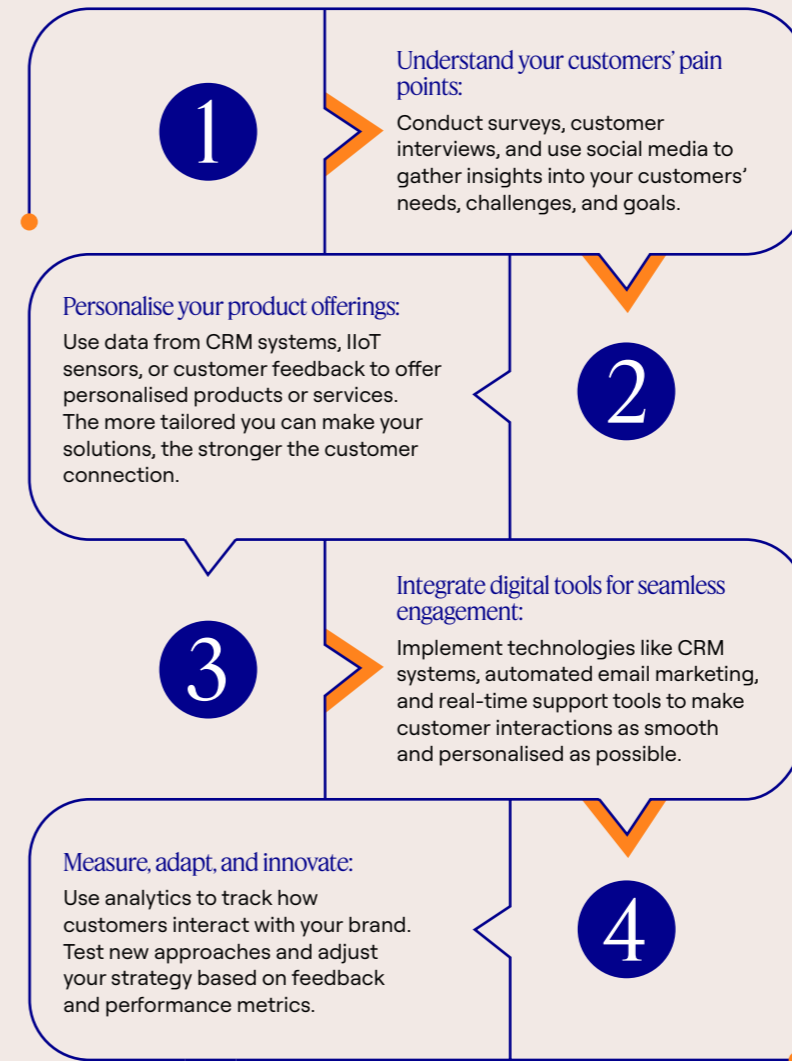
- Personalised customer engagement:** Charterhouse used real-time data to deliver tailored offerings to their customers. For example, by integrating customer data from their ERP and CRM systems, they were able to personalise interactions and provide proactive support—whether it was helping clients track deliveries or offering customised product solutions.
- Enhanced decision-making:** Charterhouse’s customer-centric strategy is data-driven. With detailed insights into customer behaviours and preferences, they were able to forecast demand more accurately, making their supply chain more agile and responsive. This led to fewer stockouts and excess inventory, both of which contributed to improved customer satisfaction.
- Improved operational efficiency:** By centralising customer data, Charterhouse were able to streamline their production and inventory management. This allowed them to respond to customer demand faster and ensure that they could meet the specific needs of clients without delays.

Charterhouse’s experience shows that by embracing digital technologies and focusing on the customer, manufacturers can enhance not just their customer service but also their entire business operations, from sales to production.



4 steps to building your customer-centric strategy

Whether you’re a manufacturer just getting started or you’re looking to enhance your existing digital strategy, here are some steps to help you put the customer at the centre:



In manufacturing, putting the customer at the core of your digital strategy isn't just a trend—it's a necessity for long-term success. By focusing on the needs and preferences of your customers, you can create stronger relationships, improve efficiency, and identify new business opportunities.

Start building your customer-centric strategy today and watch your manufacturing business thrive in the digital age—just like Charterhouse is.



Q & A



Antony Biondi
Sales Director UK & Ireland - Censhare

For the last 16 years, Antony has been working with a wide range of organisations to enable operational efficiencies. Prominently focusing on a business's content and assets, Antony supports businesses with using software solutions to improve and automate processes, increase revenues, and deliver a single source of truth.



Henry Anson
Publisher - The Manufacturer

Henry Anson has been running The Manufacturer (www.themanufacturer.com) for 20 years and is passionate about the role manufacturing plays in the UK economy. A vibrant, successful and innovative manufacturing is essential for the future security and prosperity of the UK.



Andrea Wilson
Director - Hone-All Precision

Andrea Wilson is a Director of Hone-All Precision, an SME specialising in deep hole boring, drilling, honing and CNC turning. Hone-All is recognised throughout the industry and regularly cited as an exemplar business for continuous improvement and regular investment in both their teams and technology. Andrea has been active in influencing the Government's focus towards long term manufacturing success for over 25 years, through the EEDA Manufacturing Panel, the Automotive Academy, NSAM / SEMTA skills Council and now, Enginuity. She was Chair of the Make UK Eastern Regional Advisory Board for over 10 years and has continued as a regional board member.

Andrea is a passionate campaigner for better quality training provision; for improved Government support to suit a wider variety of business sizes and specialities; and also improving the recognition and image of engineering and manufacturing within the UK and has spoken at a large number of manufacturing launch and promotional events to champion this. Her most recent LinkedIn campaign, calling for a dedicated Minister for Manufacturing within Government, has gained national recognition and many Trade Associations and Membership bodies have joined the campaign as a result.



Barry Leahey MBE (Hon.Prof. / FIoD)
President - Playdale

Barry is President of Playdale who are the UK's leading manufacturer of children's playground equipment, and has distributors in over 50 countries. Playdale have won national Manufacturing and export awards, Barry personally receiving an MBE for services to International Trade in 2017. In 2018 Barry was named IoD 'Global Director of the Year' and 'Cumbria Business Person of the Year', featuring in the 'Telegraph's Top 50 Most Ambitious Business Leaders' and 'The Manufacturer Top 100 people in Manufacturing', he is currently Vice Chair of Make UK North West regional Advisory Board, a Honorary Professor at Lancaster and Cumbria Universities and Non Exec Director for the Chamber of Commerce.



Steven Weaver
D365 Enterprise Architect - Columbus

Steve Weaver is a seasoned ERP professional with over 25 years' experience in implementing digital ERP solutions and delivering successful business digital transformation projects within global organisations. Providing expertise and quality throughout the project lifecycle, Steve helps businesses leverage process re-engineering and mapping to align to software capabilities, ensuring value-add to all elements of the project and a true return on investment for the end customer.

As the head of the lead solution architect team at Columbus in the UK, Steve provides strategic guidance internally and externally to ensure colleagues and customers benefit from his wealth of knowledge. Steve has helped define and refine the implementation methodology at Columbus to ensure a framework can be applied to projects to deliver the best possible outcomes.



Q To grow their business, which technologies should manufacturers prioritise investing in and why?



Andrea Wilson

As much as everyone is jumping on the automation, robotics and AI bandwagon, this is great advice for larger businesses. However, we need to be supporting and encouraging the growth of our SME supply chain and for that, I would

recommend the first investment is focussed on an excellent production control system, with traceability and reportability of all key business performance measures.

Antony Biondi

First and foremost, you need to take a step back and think about what your organisation is trying to achieve. Have you understood your existing applications, processes and people? If not, throwing in more technologies is not necessarily the answer. It's about better understanding the existing applications that you've got and creating a business case for change, which can be done with a business analysis. It may be that you already have the technology stack in place to achieve your goals. If you don't, the business analysis piece will clearly identify where your gaps are, enabling you to make an informed decision to go to market with the right approach. Once you have understood what the requirements are, then there are three key pillars of systems which you should look at implementing, bringing together the entire customer journey.

First you need a CRM, which is going to form the heartbeat of your entire system, application process, and customer data process. Most manufacturing organisations will already have a CRM in place with some understanding of how it works. Then you should think about including a DAM (digital asset management), PIM (product information management) and CMS (content management system). These systems in particular provide a lot more control and visibility of all of your product and data information, which are all intricately linked to your customer data.

The third technology to consider and optimise is your website and e-commerce. This enables you to utilise all of that information and engage with your customers at the relative different levels, whether that be informing them of ingredients, material sources, generating marketing campaigns, or maintaining regular contact with your customers.

Steven Weaver

Artificial Intelligence (AI) is already in the marketplace driving change and redefining the manufacturing sector. The AI predictive analysis will assess upstream and downstream impact on the supply chain. AI will proactively advise on demand forecasting and make or advise dynamically on purchasing and manufacturing decisions, which in turn will

help businesses react to the fluctuations in the supply chain and better serve customers' needs whilst improving efficiency and reducing waste. The adoption of AI solutions should focus on adoption cycles and profitability with clear criteria for a return on investment.

Henry Anson

Based on the research insights from the 2025 Manufacturing Momentum Report, manufacturers are likely to prioritise investments in technologies that enhance productivity, streamline operations, and provide a measurable return on investment.

The following technologies are emerging as key drivers of business growth:

AI for decision-making & process optimisation

AI is no longer an experimental tool but a strategic enabler for manufacturing growth.

Investment in AI-driven predictive maintenance, generative design and quality control improves asset efficiency, reduces downtime and enhances product consistency.

Automation for scalability & workforce augmentation

In the year ahead, manufacturers will generate most of their growth through productivity gains, so should focus on expanding automation, moving beyond justifying investment into full-scale deployment.

Intelligent automation in assembly lines, material handling, and inspection processes will help offset skills shortages while increasing output.

Digital twin & predictive analytics

Digital twins are gaining traction beyond just a conceptual priority. They now play a critical role in predictive maintenance, supply chain resilience, and product lifecycle management in growing manufacturers.

Companies who haven't already done so should invest in integrating digital twin technology with real-time IoT data to simulate, predict, and optimise operations with accuracy.

Supply chain traceability & visibility platforms

One in three manufacturers still seek supply chain knowledge, indicating that visibility, risk management and supplier coordination remain major pain points.

Investing in real-time supply chain monitoring, AI-powered risk analytics, and IoT-based inventory tracking will increase supply chain agility and mitigate disruptions.

The rising focus on Scope 3 emissions tracking means sustainability-driven supply chain investments will also protect businesses from future regulatory constraints.

Workforce upskilling & digital adoption tools

Manufacturers in growth are prioritising upskilling, investing in training platforms, AR/VR-based learning modules and AI-driven skills assessments to bridge workforce gaps.

The shift from recruitment to workforce optimisation means that investment in employee enablement tech will drive long-term business resilience.

Q How can manufacturers change their organisation's culture to better adapt to modern technologies, new skills, and a different mindset?

A

Andrea Wilson

More manufacturers need to listen to their teams and ask what will motivate and inspire them. Professionals and experts will often tell you what is needed, but the first people to get

on board are your team. If you ensure your team is happy and heard, and customers are given the highest levels of service as a result, the mindset starts to change organically.

Barry Leahey

To reduce the barriers of adoption it is all about culture – more specifically being curious about change and embracing it. Leaders need to understand change is difficult for most and to be curious needs to be reinforced and mistakes encouraged.

The more you try the easier it gets, and it also builds the knowledge and experience which in turn reduces the mistakes. Once people see the returns it can drive for curiosity and change and once that happens you have a change in culture.

Antony Biondi

While throwing a new system at the problem might plug a gap from a technology or data perspective, from a control and compliance perspective it's pointless if nobody uses it. A manufacturer may find a technology that is a perfect fit for their business needs, yet user adoption is a common challenge that many struggle with. So again, manufacturers should consider the business analysis piece. It doesn't just give the business clear understanding as to where the gaps are; it provides an understanding of how to engage the end users of a new technology, their perspective with consideration of their day-to-day operations, and the culture within the business.

You've got to show them that the new technology isn't a threat but a tool to better enable them to do their jobs more effectively, more efficiently and ultimately get them doing the things that they were brought on board and paid to do, rather than all the admin that goes with it.

The second element is ensuring the end users feel empowered. If these people are given the opportunity to be involved, provide their opinion and are relied on to answer important questions, they will feel included and quickly realise how the new system will add value. This also means they won't feel threatened by the change. This includes people right from the top of the business down to the bottom and everything in between. While modern technologies and presenting new ways of working are absolutely at the heartbeat of this conversation, all of that will fall on deaf ears if you don't win the hearts and minds at the front end.

A lot of the feedback we get from customers at Censhare is "I do it that way because that's how we've always done it". This isn't a logical reason for doing anything - it's just ingrained in the business culture. To change that, it's important to win the hearts and minds of those people at the front end.

Henry Anson

Changing an organisation's culture requires intentional leadership, structured change management, and a clear alignment between business goals and workforce engagement. The Manufacturer's latest research highlights that cultural resistance is now a significant challenge, meaning manufacturers must:

Develop a clear digital strategy & communicate the 'Why'
40% of manufacturers attending The Manufacturer Summits come to find out what everyone else is doing. They are looking to benchmark their technology journey, signalling that uncertainty persists.

Leaders must frame digital investments as enablers of efficiency, job security, and career growth, rather than as cost-cutting automation.

Create a workforce-centric upskilling plan
Upskilling has overtaken recruitment as the top workforce priority in 2025, meaning manufacturers must prioritise internal talent development over external hiring. Companies should invest in microlearning, hands-on training, and mentorship programs to help workers adapt to new technologies.

Bridge the gap between digital & human workflows
Many employees fear AI and digital transformation because of job displacement concerns, so companies need to integrate human expertise with technology adoption. AI, automation, and digital twins should be positioned as workforce enablers, not job replacements.

Encourage cross-functional collaboration
Cultural resistance often stems from siloed departments, where engineers, IT teams, and production staff operate independently.

Manufacturers should implement cross-functional digital transformation teams to facilitate collaboration and shared accountability.

Q With so many disparate and stand-alone applications, all offering dashboards and information, how can manufacturers tie them together to benefit the business?

A

Andrea Wilson

An excellent, but simple, production control system can deliver everything needed in one small, and very cost-effective package. There are many out there on the market which will cover every business practice and reporting requirement

necessary for the proper performance of the business. The key is ensuring that your business intelligence tells its story and using that data to drive small, but consistent, improvements.

Antony Biondi

Many manufacturers end up with a load of data pulled from multiple different sources, none of which is particularly coherent and most of the time is outdated. This creates a tremendous amount of bottlenecks and time-consuming tasks. However there's no need to throw all your existing applications and investments out the window and start again. You can unify everything by implementing a content management solution (CMS) - like Censhare - with its associated PIMs and DAMs which help join your existing systems together, including your CRM, social media activity, MarTech solutions, and finance solutions. By linking your data together in this way, you can enable automatic workflows and processes.

All of this information together will also help provide access to in-depth business analytics and reporting capabilities, enabling you to make the right decision at the right time.

The key idea here is one single source of truth. This means that you have access to up-to-date live information, with increased control and visibility, so you know what you're looking at is compliant. This ensures that the right people have the right access to the right information at the right time, which is essential for effective decision-making.

Steven Weaver

The best of breed approach to technology ensures the user experience is enhanced but can lead to silos of data that need bringing together. Having a solid foundation like the Microsoft suite will enable smoother collaboration and with

elements including Fabric data and dashboards can become one. Technology allows easier connection of systems and the movement of data which in turn will help bring a consistent data layer to allow reporting and dashboard production.

Henry Anson

A key challenge highlighted in The Manufacturer's 2025 leadership research is system fragmentation, with manufacturers struggling to integrate data from multiple platforms, sensors, and applications.

To achieve a unified, data-driven approach, many manufacturers are:

Investing in unified data architecture & interoperability solutions

Many manufacturers operate legacy MES, ERP, and IoT systems that do not communicate effectively.

Adopting middleware platforms, data lakes, or Manufacturing Operations Management (MOM) solutions can bridge gaps between siloed applications.

Embracing API-driven & cloud-based integrations

Instead of relying on disconnected legacy systems, manufacturers are starting to standardise APIs and cloud-based platforms to enable seamless data exchange.

Manufacturers investing in IT/OT convergence will benefit from faster decision-making and predictive analytics.

Leveraging AI for Smart Data Synthesis

AI can help manufacturers extract meaningful insights from multiple data sources, reducing dashboard fatigue and ensuring data is actually used.

AI-powered decision engines can aggregate, clean, and analyse data in real time, providing a 'single source of truth'.

Implementing Digital Twin technology for end-to-end visibility

Digital twins allow manufacturers to simulate entire supply chains, production lines, and maintenance schedules in a single integrated environment.

This reduces reliance on multiple dashboards while offering a holistic view of operations.

The future of UK manufacturing

As we reflect on the state of UK manufacturing and the evolving landscape of the industry, it's clear that the sector is undergoing a profound transformation. While challenges remain, significant opportunities are emerging for companies that can adapt and innovate. The themes explored in this report—sustainability, data, AI, agility, customer-centricity, and the shift toward direct-to-consumer business models—are not just buzzwords, but essential pillars upon which the future of manufacturing will be built.



Sustainability: a cornerstone of progress

Sustainability is no longer a peripheral concern but a central driver of business strategy. With consumers, regulators, and investors alike pushing for greener practices, businesses that prioritise sustainability will find themselves better positioned for long-term success. Moreover, employees' expectations are higher than ever before. [A survey from Deloitte](#) found that 55% of respondents research a brand's environmental impact and policies before accepting a job, and more than 40% report that they already have, or plan to, change jobs due to climate concerns. Those are big numbers. If job candidates are taking environmental policies into account before accepting a role, companies ought to take the matter seriously.

Therefore, the UK manufacturing sector is increasingly focusing on reducing its environmental impact and embracing circular economy principles. The move toward sustainable manufacturing isn't just about meeting regulatory requirements—it's also an opportunity to innovate, reduce costs, and build stronger, more resilient supply chains.

Data and AI: enabling smarter decision-making

Data-driven insights and the use of AI are rapidly transforming how manufacturers operate. The ability to collect, analyse, and act on real-time data is enhancing operational efficiency, improving quality control, and enabling predictive maintenance.



Chris Mean,
CEO (UK)

Columbus[®]

There has been an increased shift from not just enabling a company's management with predictive insights but creating an augmented workforce - any organisation where humans and machines work together in partnership. Through this collaboration, AI systems and human workers produce far greater results than either one working in isolation.

AI applications are also revolutionising design, production, and supply chain management, offering manufacturers a competitive edge in an increasingly digital world. Companies that harness the power of data and AI are not only improving their bottom lines but also gaining the agility needed to respond quickly to changing market demands.

Agility: a key to navigating uncertainty

The events of recent years have underscored the importance of agility in manufacturing. Disruptions to global supply chains, fluctuations in consumer demand, and unforeseen crises have highlighted the need for manufacturers to be flexible and adaptable. Agility is no longer a luxury—it's a necessity. Whether it's through the adoption of lean manufacturing practices, diversifying supply chains, near shoring of supply chains to de-risk global uncertainty or investing in flexible production systems, manufacturers must embrace agility to stay competitive and resilient in the face of uncertainty.



Customer-centricity: meeting evolving expectations

In an era where consumer expectations are evolving rapidly, manufacturers must adopt a more customer-centric approach. The shift toward direct-to-consumer business models—where businesses not only sell to other businesses but also directly engage with consumers—signals a profound shift in how manufacturers view and serve their customers. This approach allows manufacturers to understand their customers at every touch point and fosters closer relationships with end-users, enabling manufacturers to develop products that more closely align with consumer preferences and drive greater loyalty. Understanding and responding to customer needs is no longer optional—it's integral to future success.

The rise of B2B2C Models: a new path to growth

The shift towards direct-to-consumer models is helping manufacturers diversify their revenue streams and create new touchpoints with customers. By engaging directly with end consumers, manufacturers can gain invaluable insights into market trends, preferences, and behaviours, allowing them to make more informed decisions. This model fosters innovation and helps businesses tap into new markets, offering a pathway to growth in an increasingly interconnected world.

Looking ahead

The future of UK manufacturing is bright, but it will require companies to embrace change and continuously adapt to the evolving landscape. By building a highly engaged workforce with the augmentation of data and AI plus a leading sustainability strategy, manufacturers can fuel the agility needed to thrive in the industry. Together with a customer-centric strategy and the exploration of direct-to-consumer opportunities, manufacturers can position themselves for success in the coming decades. The road ahead may be challenging, but for those willing to innovate and evolve, the opportunities are vast.



In conclusion, the UK manufacturing sector stands at a crossroads. With the right combination of foresight, investment, and adaptability, it can thrive in a rapidly changing global marketplace, making a positive impact on the economy, society, and the environment. The time for action is now.

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