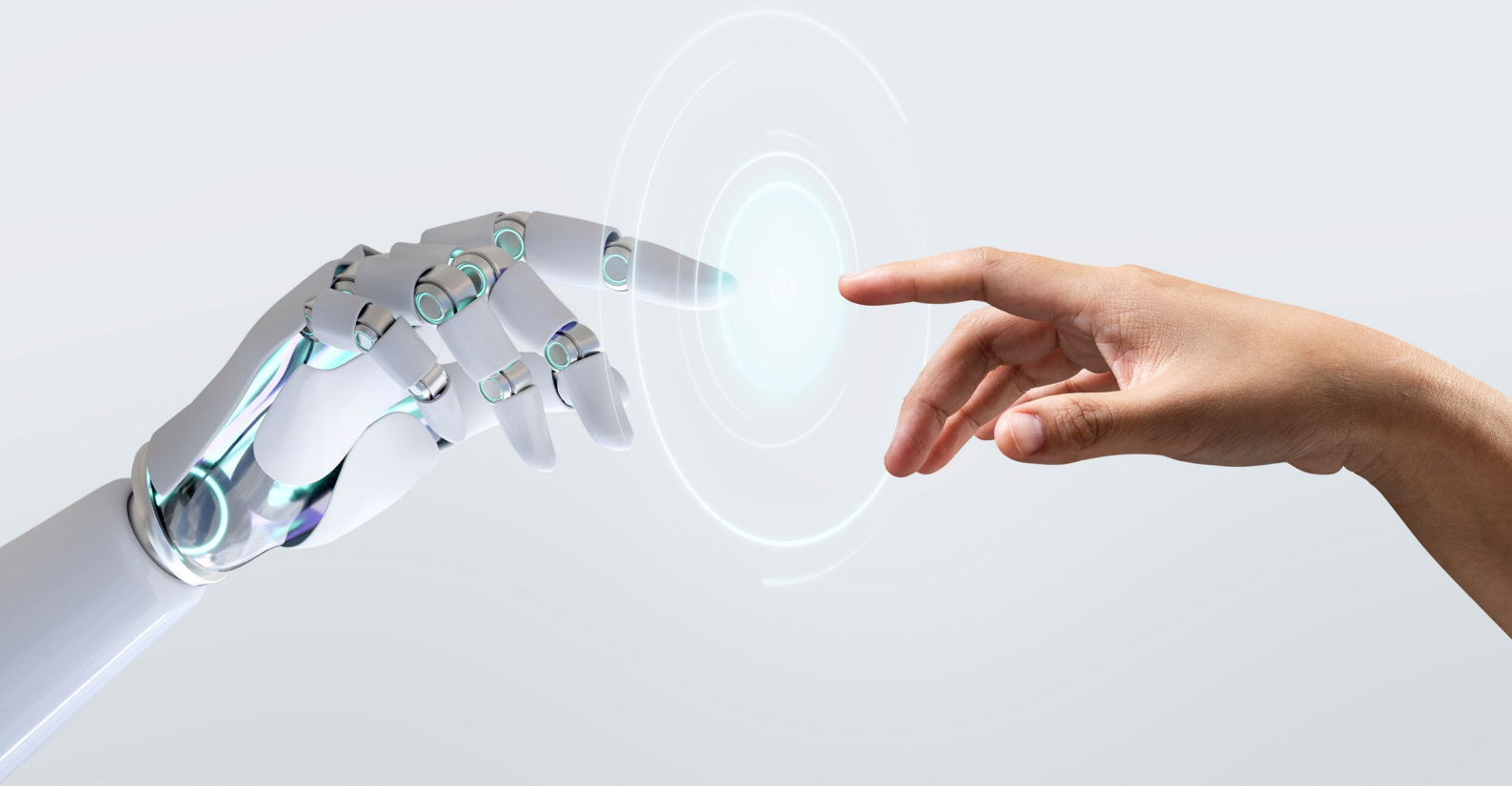


AI Reality Check

The True Impact of AI in
Manufacturing and Engineering

Presented By

**ADVANCED
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All contributors were consulted independently and views expressed do not necessarily reflect the views of all.

Contributors



Simon Farnfield

Event Director,
Advanced Engineering



Professor Rab Scott

Former Director of
Industrial Digitalisation,
University of Sheffield
AMRC, part of the High
Value Manufacturing
Catapult



Alan Arthur

CEO,
GTMA



John White

Founder,
Prospecthire



Paul O'Donnell

Alliance Secretary,
EAMA



Nandini Chakravorti

Director of
Digital Engineering,
MTC, part of the High
Value Manufacturing
Catapult.



Claire Scott

Technology Adoption
Specialist,
Made Smarter



Gerald Law

CEO,
Innovate DB



James McAllister

General Manager,
Atlas Copco

Foreword

By Simon Farnfield, **Advanced Engineering**

Is AI still just a buzzword in manufacturing and engineering? That largely depends on how far along companies are in their digitalisation journey, but one thing for certain is that AI is already changing the way products are made.

Across factories, AI is predicting when machines will need maintenance, spotting quality issues in real time and even running entire production lines with minimal human input. The benefits are tangible too, less downtime, higher efficiency and more agility when demand shifts. For companies that adopt it, AI offers a real competitive edge, whereas for those that lag risk being left behind faster than ever.

Recognising this momentum, the UK Government has launched its AI Action Plan, a roadmap designed to position the UK as a leader in AI innovation. The plan focuses on accelerating research, encouraging responsible adoption and ensuring industries have the tools and skills to put AI into practice.

And that's where the biggest challenge lies — talent. Demand for AI expertise is soaring, yet the supply of skilled professionals isn't keeping up. Manufacturers and engineers now compete not just with each other, but also with finance, technology and other sectors for data scientists and machine learning specialists. Even the most ambitious AI strategies can fall short without enough people to make them a reality.

Therefore, this report examines how the AI Action Plan is tackling this skills gap. We explore where shortages exist, which initiatives are helping to close them and what it all means for workforce readiness in manufacturing and engineering. Ultimately, it's about moving from AI ambition to AI reality, ensuring that the industry is equipped to seize the opportunities ahead.

A worker in a blue uniform and safety glasses is working on a production line of metal cans. The worker is in the background, slightly out of focus, while the foreground is filled with rows of shiny, metallic cans. The overall scene is bathed in a blue light, creating a high-tech, industrial atmosphere.

How AI is transforming production efficiency, automation and quality control

Augmenting intelligence, not replacing it

By Prof. Rab Scott, **Former Director of University of Sheffield AMRC, part of the High Value Manufacturing Catapult**

“Your scientists were so preoccupied with whether or not they could, they didn’t stop to think if they should” is a line from Ian Malcolm in Jurassic Park that remains strikingly relevant in today’s conversation about artificial intelligence (AI).

AI is everywhere today, but not many seem to understand what it means or what it can actually do. AI is the simulation of human intelligence by machines, like natural language processing, speech recognition and machine vision — all things that humans can do. It’s just that AI can do it at speed and scale, and the same, however, can be applied to mistakes.

At its core, AI runs on data. Many remember the British mathematician Clive Humby’s famous quote, “data is the new oil” but tend to forget the following point he made — “Like oil, data is valuable, but if unrefined it cannot really be used.” Manufacturers might say they have loads of data, but when asked what they’re doing with it, the answer is often nothing, meaning it’s costing them to store it without providing value.

That’s why the first step on any AI journey should be a data audit. What data do you have? Is it clean? Is it structured? Is it useful? Without good data, AI becomes risky because it can find patterns that look significant yet are meaningless. That’s why

domain expertise matters, it takes a human who understands the context to recognise a coincidence in data.

The issue of bias in AI makes this even more urgent. There’s bias in the data, algorithms, how data is applied and the person interpreting the results. Much like a sat-nav, AI may suggest the fastest route, but humans often have the advantage of local knowledge. That’s biased and demonstrates why trust in AI must be earned.

It’s also why these human skills will always be essential, especially in the C-Suite. The biggest gap isn’t only technical, where data engineers are in great need, it’s strategic too. Leaders need to understand AI to make informed decisions about when and how to invest. They don’t need to become coders, but they do need to ask the right questions, understand risks and recognise opportunities.

This can start with small, manageable steps. A summer intern, a university partnership or a government-backed Knowledge Transfer Partnership can all kick-start the data journey with minimal risk. It all lies in the approach you take. After all, AI is not a product, it’s a tool — so start with the problem first.

Companies often think they need AI, but what they really require is



Professor Rab Scott

Former Director of Industrial Digitalisation, University of Sheffield AMRC, part of the High Value Manufacturing Catapult

Until recently, Rab Scott was the Director of Industrial Digitalisation at the University of Sheffield’s Advanced Manufacturing Research Centre (AMRC). He had been with the AMRC since it started in 2001, and, after having had several roles in the AMRC, was responsible for the strategic oversight and direction setting for future research and development within the AMRC in the field of digital manufacturing. He was also chair of the Digital Manufacturing Technical Group across the High Value Manufacturing Catapult. He is now a Visiting Professor at the AMRC and continues to work with the wider High Value Manufacturing Catapult.

better data science or just clearer visualisation of their processes.

We can’t ignore the environmental impact either. It’s estimated that ChatGPT generates 8.4 tonnes of CO² annually. Likewise, most data centres still rely on fossil fuels and their cooling systems consume vast amounts of water. Just running these facilities generates significant emissions, while training models like ChatGPT-4 can use enough water to manufacture 320 Teslas at Microsoft’s data centres. Ironically, AI could help reduce emissions but only if we build it sustainably.

Like in Jurassic Park, just because you can clone a Tyrannosaurus Rex, doesn’t mean you should. The same goes for AI, where ethical and moral concerns are catching up with rapid innovation. AI is a powerful tool, but not a silver bullet — it’s about how we use it and whether we stop to ask if we should.

Don't be afraid, get involved

By Alan Arthur, CEO at Gauge and Toolmakers Association (GTMA)

When I first started in engineering back in the 1980s, we were using decision trees — simple, rule-based logic to make choices. Then came expert systems, which offered recommendations based on data. Fast forward to the 1990s and machine learning arrived. Crucially, however, humans were still in control.

Today, things are on another level. Machines constantly optimise themselves in real time, tweaking their performance to get the best results. The scale and speed of AI's computing power are mind-blowing and it's only getting faster.

AI is no longer about process control. It's taking robotics and automation by storm, helping machines interpret and anticipate their surroundings. For instance, AI is helping with design, speeding up decisions and improving product quality, and the companies that adopt AI early on are going to be the ones ahead of the game.

However, this doesn't mean that AI can be trusted blindly. AI needs to be constantly tested and validated, ensuring AI's decisions match up with the real world. For instance, if an AI system is 90 per cent accurate, then we still need to double-check results until it's reliably 100 per cent correct after several production runs.

Another worry is that AI will replace jobs, but I see it

differently. Sure, AI will take over repetitive tasks, but that's a good thing because it frees up people to do the higher-level, more interesting work. The demand for skilled workers who can collaborate with AI is only going to grow, but as AI becomes more prevalent, it might lead to a loss of essential human skills, rather than replacing roles.

A key skill in any industry is communication and leadership, and I fear that AI it won't incentivise the next generation to keep honing those soft skills, which are as important as ever.

The UK Government is trying to address the AI skills gap with activity like the AI Action Plan, but honestly, they might be a bit behind. AI is evolving so fast that by the time regulations catch up, the technology will have already moved forward. Industries need to take the lead, ensuring that AI is used responsibly and effectively.

AI is here to stay and it's going to change the way we work. If we approach it thoughtfully — testing its outputs, keeping our focus on human skills and involving people in the process, it can be a game-changer for the better.

As mentioned, the best results come when employees are involved from the start. Manufacturers shouldn't just look for opportunities to adopt AI, they should also involve their workforce right away.



Alan Arthur

CEO, Gauge and Toolmakers Association (GTMA)

Alan is a Chartered Engineer, embracing a range of technical disciplines across manufacturing, mechanical, and civil engineering. He has a PhD in Mechanical Engineering. Over 40 years Alan has worked on a wide range of products and services, with international experience in project delivery and supply chain management. He is an experienced tutor and mentor and has previously worked with other manufacturing trade associations. Alan has been CEO of the GTMA since July 2022. GTMA is a UK-based trade association representing leading companies in precision engineering, rapid product development, toolmaking, tooling technologies, metrology and other critical manufacturing related products and services.

Of course, the key to getting AI right is not just adopting it for the sake of it. AI isn't a product you buy and plug in, it's a tool that needs to be integrated into your operations. There's no avoiding it — start the conversation with your workforce now and don't be afraid, get involved.

AI Workforce development, skills and ethical regulatory principles



Start small to build tomorrow's talent

Written by John White,
Founder at Prospecthire

The manufacturing and engineering sectors have always faced a skills gap and while many companies are adding elements of AI to attract younger talent, the real need will be internal capabilities that drive operational change.

The biggest challenge over the next few years will be agentic AI. Here, we're talking about machines or "agents" that can take data from sensors in manufacturing processes and act on it autonomously. For example, they could generate their own preventative maintenance plans, responding to issues in real time without needing human intervention.

As businesses move from basic AI systems to these more advanced agentic systems, prompt engineering will become increasingly important. In turn, there will be a push around natural language processing (NLP), as more machines will need to process, understand and act on language-based inputs. In manufacturing, this "language" could include anything from machine diagnostics and operating commands to maintenance reports and system alerts.

However, this requires a new depth of skills in data science, machine learning and programming. The challenge is that there's always a gap between what businesses need and what's being taught in schools and universities. We need to

be teaching data science, programming, and coding from a much younger age, even though coding as we know it may become less manual due to low-code/no-code tools or natural language interfaces.

Thankfully, apprenticeships are starting to pick up the pace, but companies need to engage with organisations, like Made Smarter. Not only are they rolling out national training programmes that businesses should be tapping into for upskilling their workforce, but they also guide manufacturers, especially SMEs, on how to adopt digital technologies.

On a national level, there are concerns that the UK Government's AI Action Plan lacks clarity and industry-specific focus. Funding opportunities exist, but without clear, actionable pathways for manufacturing and engineering companies, many businesses feel disconnected from national strategies. I believe we need true representation in Parliament — ideally someone who understands engineering at a ground level to ensure the sector's real challenges are heard and addressed.

Nevertheless, the best way to integrate AI is to start small but act quickly. Pilot projects on production lines are a perfect way to test and experiment with new technologies and systems, particularly agentic AI and AI-driven processes, on a smaller



John White

Founder,
Prospecthire

John White is the Founder of Prospecthire, a careers platform transforming how engineering and manufacturing talent connects with employers. Having spent 17 years prior recruiting within the engineering and manufacturing sectors, John's aim is to make hiring smarter, more inclusive, and better aligned with the needs of modern industry.

scale to identify areas where AI can be effectively applied.

Companies can then focus on building a future workforce by pinpointing the specific skills required to support these technologies. Even if there are no immediate vacancies, it's crucial to form early relationships with schools, universities and apprenticeship providers to ensure a steady pipeline of talent when it's needed.

This must also complement continuing efforts to change perceptions about the sector among young people. Engineering is no longer just about manual labour, it's the technology that's driving the future, all starting with small pilot projects and initiatives that nurture the talent AI and your business needs to thrive.

AI beyond the hype

Written by Paul O'Donnell, **Alliance Secretary at Engineering and Machinery Alliance (EAMA)**

Artificial intelligence isn't new to manufacturing. Generative design — one of the clearest examples of AI in the sector — has been around for over a decade. Even so, the recent buzz around tools like ChatGPT has reignited conversations around AI, often blurring the line between genuine intelligence and advanced data analysis.

Many technologies currently sold as AI are better described as data science or big data analytics. These tools are essential for modern manufacturing, but aren't AI in the strictest sense. That distinction matters, particularly when businesses are making investment decisions. Manufacturers should begin by asking fundamental questions, like 'What data do we have?' and 'What insights are we looking for?'

The issue here is clarity. Many manufacturers are sitting on vast reserves of untapped data from process monitoring, performance tracking and continuous improvement initiatives. If properly structured and analysed, this data could drive meaningful efficiencies, but that requires understanding the tools, recognising their limitations and avoiding the temptation to view AI as a quick fix.

There's also a need for caution when using AI-generated outputs. While systems can summarise or interpret complex datasets, they lack critical thinking and contextual judgement. Outputs may sound plausible, but can be based

on outdated or misleading sources. Without human oversight, the risks — legal, financial and reputational — increase significantly.

Ethical and regulatory considerations are only just beginning to surface in manufacturing. While the creative industries are already grappling with concerns around copyright issues, for example, similar cases may likely emerge in manufacturing, especially with design IP. Here, strong digital hygiene and cybersecurity practices will be vital to protecting both data and competitive advantage.

Today, there's no established "AI for manufacturing" ecosystem in the UK — no central authority or recognised expert community guiding industrial AI adoption. That may change in the coming year, but, for now, manufacturers must take initiative by staying informed and seeking out independent commentary.

Government, too, has a role to play. Departments focused on digital policy are beginning to engage with AI's broader implications, but practical guidance tailored to manufacturers is still lacking. Policy development must consider the specific needs of industrial businesses, particularly SMEs without access to in-house data science expertise.

Ultimately, the message is one of cautious opportunity. AI can offer significant value, but only if applied with understanding,



Paul O'Donnell

Alliance Secretary,
EAMA

Paul is the Alliance Secretary of the Engineering and Machinery Alliance (EAMA) an umbrella group of eleven trade associations in the component and machinery supply chain sectors. He has been representing the interests of advanced manufacturer to government for over 15 years and has engaged with a wide range of stakeholders within the sector and outside it.

ethics and a clear grasp of what it's meant to achieve. Manufacturers should focus first on their data, ask the right questions and avoid being swept up by marketing hype. While this happens, both industry and government must work together to ensure AI's integration is secure and genuinely beneficial.

A close-up photograph of a hand holding a black telephone receiver, poised to dial a silver office phone. The phone has a numeric keypad and several function buttons. The background is blurred, showing what appears to be an office setting with a computer monitor.

**AI adoption incentives and
support for businesses**

Beyond the buzzwords: data adoption and AI deployment

Written by Nandini Chakravorti,
Director of Digital Engineering at the
Manufacturing Technology Centre (MTC),
part of the High Value Manufacturing
Catapult

Digital technologies are synonymous with modern manufacturing – from enterprise-level modelling and simulation to microstructural analysis and inspection systems. But while data is more available than ever, its value lies in its interpretation. That means understanding its accuracy, usefulness and how it can impact real-world decision-making.

In the UK, SMEs are open to adopting new technologies, but the journey towards digital transformation — and specifically the integration of AI — is daunting. The marketplace is crowded, making it even harder for manufacturers to select the appropriate technology to embark on their digital transformation journey.

Therefore, it is easy for SMEs to get overwhelmed, especially when combined with limited internal resources or uncertainty around funding routes. Larger manufacturers, in sectors like aerospace and automotive, are at an advantage, but not all businesses enjoy the benefit of dedicated R&D teams, experience with the UK collaborative R&D funding mechanisms like the Aerospace Technology Initiative (ATI) or Advanced Propulsion Centre (APC), and the capacity to work with policymakers.

Initial funding support does exist, for example through Innovate UK, which often backs two-to-three-year innovation projects. Yet, a recurring challenge is what happens next. Many manufacturers experience “death by proof-of-concept,” where a successful trial fails to scale because of a lack of funding or wider operational constraints.

SMEs, while typically more agile and unburdened by legacy systems, often lack strategic support to scale proof of concept solutions to industrial deployment. As a result, many stall at the start of their digital journey. Industry terms like AI and Industry 4.0 are widely used, but in reality many manufacturers are still operating between Industry 3.0 and 4.0.

Without foundational systems, such as adequate data and sensor infrastructure, even the most advanced AI tools can fall flat. The truth is, AI is just the tip of the iceberg. Without high-quality data, integrated systems and clear objectives, it is impossible to extract meaningful insights.

In many cases, what businesses need first is not AI at all, but better automation, system integration or a gap analysis to understand where digital investment will have the most impact. A clear data strategy



Nandini Chakravorti

Director of Digital Engineering,
MTC, part of the High Value
Manufacturing Catapult.

With over 25 years of experience, Nandini Chakravorti is dedicated to accelerating the adoption of innovative digital technologies across UK industry and supply chains. Her expertise spans a broad spectrum of advanced technologies, including artificial intelligence, systems engineering, industrial connectivity, and data science. Through her work, Nandini Chakravorti enables organisations to harness emerging technologies to enhance impact, drive efficiency, and improve productivity. She has previously worked with leading global companies such as Samsung, Motorola, and Tata.

— one that defines what to measure and why — is essential to move into value-driven digital adoption.

Security and trust are also critical areas. Just as other sectors are dealing with concerns around AI misuse and intellectual property, manufacturing must ensure it adopts AI responsibly. This is where AI for security and security for AI becomes vital, using AI to enhance protection across systems, while also safeguarding the AI models themselves from manipulation or misuse.

This comes as the regulatory landscape is complex. There are many emerging frameworks for AI governance, but little practical guidance for manufacturers on how to work within them. From strategy development and testbed validation to skills training and AI assurance, manufacturers of all sizes need support to ensure that AI is not just adopted but also deployed responsibly and effectively too.

Cutting through the hype

Written by Claire Scott, **Technology Adoption Specialist at Made Smarter**

A key barrier to AI adoption among SMEs is access to quality data. Many companies are not as digitally mature as initially expected and when the Made Smarter Adoption Pilot launched in the North West around seven years ago, it was assumed that businesses were ready for Industry 4.0.

However, many are still working through earlier stages of digital transformation, with some not yet collecting shop floor data at all or relying on manual, non-digitised methods. Without digitised data, moving into AI can be very difficult.

Cost is another hurdle. While AI tools like ChatGPT are widely available, implementing AI models often involves significant expenses, including training large language models (LLMs). Security concerns also make companies cautious about how AI interacts with their sensitive data.

AI is often seen as a buzzword, with reality falling short of expectations. This echoes the hype around additive manufacturing back in 2013–2014, where the initial excitement gave way to practical challenges, just like those that companies now face when moving beyond AI's hype to real adoption and integration.

Let's factor in AI's environmental impact. Training large AI models consumes substantial energy and water for cooling data servers, so

as manufacturers adopt AI, they should balance innovation with environmental responsibility by factoring lifecycle impacts and carbon emissions into their technology analyses.

Despite these challenges, AI holds broad potential for SMEs. Support often begins by identifying a business's everyday problems and applying technology solutions that address these specific needs, an approach that builds a foundation to support AI integration when it fits the company's strategy.

Independent advisory support is also crucial to cut through the hype. Much of what is labelled "AI" isn't truly AI, which can confuse SMEs that aren't ready for full adoption. The focus for SMEs continues to be improving data management and analytics.

Most projects aim to build a comprehensive picture of a company's data and integrate systems to make that data actionable. Practical guidance typically emphasises practical factors, like how AI will be used, whether sufficient data exists to train models and if the company has the computing capacity to support AI in-house, because most SMEs lack the necessary computing power for advanced AI applications.

Some SMEs act as lighthouses for innovation, but AI adoption — particularly in grant-funded projects — remains in its infancy,



Claire Scott

Technology Adoption Specialist,
Made Smarter

Claire is a Technology Adoption Specialist with Made Smarter Adoption – North West. She supports manufacturing SMEs through the adoption of industrial digital technologies to elevate their business practices. With an early career in the aerospace sector at GKN Aerospace and a keen focus on additive manufacturing, she shares her expertise and experience with SMEs. Beyond her day-to-day role, Claire serves on the advisory board for Made Smarter Innovation for Interact and People-Led Digitalisation projects and brings her knowledge and experience with manufacturing and Additive Manufacturing as a TCT Advisor. She is also an advocate for diversity and inclusion as a member of the Women in Manufacturing policy and research working group, a Women in 3D Printing Ambassador.

accounting for only a small share of overall activity. More than half of the projects we support focus on digitising shop floor data and integrating systems — the essential groundwork before AI can be applied effectively.

For instance, in the Northwest region, our data shows the average SME's digital readiness is around 3.5 out of 9, while a level of 5 or 6 is typically required to support AI adoption. This reveals a significant growth opportunity, especially considering SMEs represent 99% of UK manufacturers.

Successful adoption depends on sustained support from initiatives that offer tailored, practical guidance. This not only helps SMEs cut through the AI hype but also ensures they're not left behind too.

A person wearing a light blue long-sleeved shirt is holding a blue pen in their right hand, pointing it towards a tablet. The tablet displays a line graph with a yellow line and a grid. The background is blurred, showing what appears to be an office setting with other people and equipment. The overall color scheme is dominated by blue tones.

Investment in AI research and development

Consistent funding for lasting impact

Written by Gerald Law,
CEO at Innovate DB

The appeal of AI is that it's relatively inexpensive to start, with small teams able to test ideas with lower financial risk compared to large-scale projects, like vehicle design. However, much like the dot-com era, not all AI projects will be breakthroughs, many will fail. The key technologies have improved, enabling small teams to create transformative work, especially in areas like language models and image processing.

However, groundbreaking AI applications, such as military swarm techniques or optimising manufacturing processes, remain elusive. The industry faces an unpredictable environment, specifically as a result of geopolitical tensions and economic uncertainty, causing hesitancy in investment.

Another factor is the way initiatives are structured and managed. The UK Government is focusing on flashy AI initiatives like new AI centres, which may be politically appealing but do very little for innovation. Companies working in AI need stable, consistent funding, not constantly changing government projects that don't address the core needs.

Government budget cuts, despite public announcements of increased funding, have led to funds being frozen or redirected, leaving existing AI projects without the necessary support.

Many of these projects had already demonstrated promise, but with funding being pulled in favour of new initiatives, they're left stranded. The focus should be on supporting projects already in motion, not starting new ones without the resources to make them successful.

In manufacturing and engineering, the impact is felt across the board, especially in sectors reliant on government funding. While large companies continue to build their AI programmes internally, smaller businesses, particularly SMEs, face more hurdles. For instance, the complexity of claiming R&D tax credits has increased, making it harder for them to access much-needed support.

In a climate where innovation is driven by trial and error, the absence of consistent, long-term funding stifles progress. It's important to remember that most initiatives aren't expected to show tangible results until a decade down the line, meaning that they rely heavily on a stable environment to succeed. The government's frequent interference and shifting priorities undermine industries that depend on such long-term consistency to plan, invest and deliver lasting progress.

As discussed with leaders in the industry, regulatory stability is essential. Businesses need a consistent environment to



Gerald Law

CEO,
Innovate DB

Gerald has a background in Management Consultancy and academia. A London Business School alumnus with a Doctorate from Oxford University, he has experience of several start-ups and their exits, with considerable experience in building company executive boards, which has led him now to sit on VC investment committees, among other roles.

In 2010, he founded Innovation DB, which links those with novel technologies to those who may wish to commercialise them. Using proprietary AI code to identify, extract and classify data from around 20,000 academic institutions, IDB offers the world's largest dataset of novel technologies from the world's academic base. More recently, in partnership with the UK MOD's Army Futures Command, IDB also provides data and information to all commands across the MOD.

thrive, especially in sectors like AI where the UK wants to be a global powerhouse. To achieve this, the UK government should prioritise providing sustained funding to companies already making progress, because without it, projects will falter and the workforce will struggle to keep up.

Insights from Atlas Copco: A strategic perspective to AI in advanced manufacturing

Written by James McAllister,
General Manager at Atlas Copco

AI isn't a future ambition anymore — it's happening right now across factory floors. As opposed to relating AI to robots or big data buzzwords, think of it as a tool that guides operators, improves quality, cuts energy use and moves us closer to the holy grail of zero-defect production.

Because what we're seeing is a shift in how decisions get made. It's no longer just the job of supervisors or managers to catch faults or optimise performance. AI-powered systems are helping flag issues in real time and suggest actions to prevent downtime or defects, all of which being supported by human verification. The goal? Less firefighting, more foresight.

Over the next few years, we will see AI playing a much bigger role in predictive maintenance, energy efficiency, supply chain resilience and quality control. But more than that, it will act as a bridge by connecting machines, people and data to create a more responsive, resilient manufacturing environment.

Of course, real-world adoption comes with hurdles. The idea of "plug and play" AI often collides with legacy infrastructure and complex integration needs. That's why small, high-impact pilot projects can be so useful — they show value quickly, build internal confidence and create a path to scale.

Crucially, it's not about replacing people. There's a growing recognition that AI is most effective when it supports human expertise, not overrides it. Think of it as an intelligent assistant, one that helps operators stay on track, guides them through complex tasks and flags early signs of trouble before they snowball into major issues.

An example is our involvement in the Battery Manufacturing Skills Pathway (B-MSP), launched by University College Birmingham with City & Guilds and Innovate UK. The programme is the UK's first accredited, industry-backed training initiative for advanced battery manufacturing, designed to tackle a national skills gap and build a pipeline of workforce-ready talent.

By combining immersive AR/VR learning with real-world gigafactory equipment, the B-MSP gives students hands-on experience in the technologies driving electrification. Atlas Copco has helped co-design the programme, providing cutting-edge equipment and expertise to ensure learners gain the practical confidence needed on the shop floor.

We're seeing increased demand for people who can blend industrial know-how with data fluency. That includes not just engineers and operators, but people who understand change management and can bring



James McAllister

General Manager,
Atlas Copco

James McAllister is the General Manager of Atlas Copco Tools & Industrial Assembly Solutions in the UK and Ireland. James holds a Bachelor of Engineering (Honours) degree in Mechanical Engineering from the University of Newcastle and has worked with the Atlas Copco Group since 1995. During this time he has held many Senior Management positions across the globe including Vice President Marketing and President of the General Industry division within the Industrial Technique business area.

others with them. AI adoption is as much a cultural shift as it is a technical one.

Education and training also has a big role to play here. Partnerships between industry and educational institutions are helping develop the next generation of talent, not just with theoretical knowledge, but with hands-on experience in real production environments.

At the end of the day, AI isn't a magic fix. It is a very powerful enabler, a tool in which manufacturers that embrace it early, take a phased approach and focus on strategic integration, will be best placed to lead the way. Instead of chasing the hype, start by building smarter, more sustainable factories that are ready for what's next.

Conclusion

By Simon Farnfield, **Advanced Engineering**

AI is already changing the way manufacturing and engineering work, and the UK has a real chance to lead the way. Throughout this report, we've explored what it will really take for AI to be realised across the UK. That's from the incentives driving adoption, to how they're helping companies experiment, scale their ideas and boost productivity.

However, there's a clear challenge, the skills gap. Without enough people trained to deploy and manage AI, even the most advanced systems can only go so far. That's why building AI skills, alongside embedding ethical principles, is so important. As adoption grows, ensuring that AI is transparent, safe, and responsible isn't just good practice, it's how you build trust and make innovation stick.

On the factory floor, we're already seeing AI in action, from predicting when machines need maintenance to spotting quality issues in real time, streamlining supply chains and running more flexible production lines. All of this is being helped by investment in AI research, which is laying the groundwork for the breakthroughs still to come.

Yet it's worth remembering that AI is a tool, not a product. Its real value comes when it's woven into day-to-day operations by supporting people, processes and machines to work smarter and adapt faster. It cannot be adopted blindly, the human element is still as important as ever.

However, pulling it all together means connecting the dots between incentives, skills, ethics, real-world application and research. The companies that get this right will build faster, smarter, more resilient operations, alongside a workforce ready to thrive in a changing industry.

Let's turn ambition into action, so that AI not only promises change but delivers lasting, measurable impact as part of everyday working life.

AI Reality Check

The True Impact of AI in
Manufacturing and Engineering

Presented By

**ADVANCED
ENGINEERING**

Contact us

Advanced Engineering

e: sonia.diaz@easyfairs.com

For press enquiries contact:

e: jess@stonejunction.co.uk