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Top Five Trends Shaping Manufacturing and AI in 2026



AI and automation are expected to become core drivers of productivity and quality

Manufacturers are currently being squeezed on several fronts. They're up against immense pressure to adopt automation technologies – largely driven by **market competition** and **labor shortages** – rising **cybersecurity and resilience demands**, and **regulation that's getting more complex**. Meanwhile, data volumes are growing rapidly and new technologies such as robotics are creating opportunities. However, complexities may risk outgrowing the environments built to store, move, and govern them. Disruption is seemingly coming from all angles, from cyber attacks and geopolitical conflict, to demands for faster delivery and net-zero commitments. As data gravity intensifies and cross-border compliance risks grow, transformation gets harder to execute at speed.

But while the challenges are stacking up, so too are the opportunities, and AI is emerging as a key lever. **Digital Realty** and **IGXGlobal, an ePlus Technology, Inc**. **Company** believe one of the true competitive advantages for manufacturers in 2026 is expected to come not just from AI adoption, but also from the ability to process and act on data at speed, securely and globally.

This demands smarter infrastructure, integrated cloud-to-edge environments, and a sharper focus on performance, latency, and agility. At the same time, manufacturers may need to contend with legacy infrastructure, cybersecurity concerns, data fragmentation and regulatory change, all while responding to a workforce and customer base with rising digital expectations.

This executive summary outlines the five key trends expected to define smart manufacturing in the year ahead.



1. Seizing the AI opportunity in manufacturing

AI is widely and rapidly evolving from being viewed as experimental to being considered an **essential operational strategy**. In 2026, we expect that manufacturers will view AI not as a siloed tool, but as **an asset** and a system-wide productivity multiplier. Tools like predictive maintenance, anomaly detection, quality control, and supply chain forecasting are enabling faster, more cost-efficient production cycles.

77% of manufacturers have now implemented some form of AI

Rootstock Manufacturing ERP

According to Rootstock Manufacturing ERP's **State of AI in Manufacturing** report, 77% of manufacturers have now implemented some form of AI and 82% plan to increase budgets in the next 12-18 months. These technologies are often deployed in early-stage product design and insight generation, while specialized models optimize production and predictive maintenance in real-time.

542,000 robots were installed in 2024 alone

International Federation of Robotics

Physical automation is also accelerating, with robotics and co-bots reshaping factory environments, particularly for repetitive or hazardous tasks. Many manufacturers are exploring "dark factory" models, autonomous facilities that operate with minimal human input, as part of their digital transformation strategies. In fact, Strategic Market Research expects the global dark factories market to **grow significantly before 2030** and the IFR's World Robot's 2025 report found **542,000 robots** were installed in 2024 alone, more than double the number 10 years ago.

As these technologies scale, leaders who fail to act could risk losing competitive edge to those who can improve operations with the latest tools – a challenge echoed in the World Economic Forum's latest **Global Risks Report**, which highlights the disruptive impact of rapid technological change. Yet while AI investment is rising many organizations still struggle to translate pilots into enterprise-level impact, with most companies yet to embed AI deeply enough into workflows to realize material business benefits, according to McKinsey's **latest global survey** on AI. This year, success is likely to belong to those who align AI with their infrastructure and data strategies from the outset, because without the right infrastructure to support AI tools, firms risk underperformance, security gaps and costly inefficiencies.



2. Data gravity forces a shift to distributed, edge-aligned infrastructure

Data Gravity – and the significant cost of migrating vast datasets across networks – is fast becoming a defining constraint in smart manufacturing. Recent **research** from Actian shows 53% of manufacturers cite data silos as their biggest obstacles to data-driven decision making, highlighting how fragmented data environments are slowing digital innovation across the sector. As industrial environments generate more data than ever, moving applications to the data, rather than the reverse, is becoming critical to maintaining real-time decision-making and unlocking AI potential in production environments.

In response, we are seeing manufacturers increasingly building decentralized architectures that prioritize edge processing, local compute near facilities, and hybrid colocation models. These designs are expected to reduce bandwidth strain, enable low-latency performance, and ensure real-time responsiveness for AI tools.

Industry **research by TCS** suggests data challenges persist, as many organizations still lack fully AI-ready data infrastructure. However, where data sovereignty and compliance regulations like GDPR have previously been regarded as a key driver of edge adoption, performance is now just as important. Firms are increasingly prioritizing infrastructure that brings compute power closer to the use case. In 2026, we expect edge-aligned environments to increasingly become the norm for high-value workloads.

3. Global supply chains become AI-powered and compliance-centric

Supply chain volatility **remains a challenge** for manufacturers globally, as supported by World Economic Report findings earlier this year. From geopolitical tensions to shifting regulations, manufacturers may feel pressure to create more agile, intelligent and compliant operations. We expect AI will be central to that shift this year, enabling real-time visibility and more agile decision making.



40% of global firms were using AI agents in 2024

Economist Impact

Already, the findings of an **Economist Impact survey** highlighted that 40% of global firms were using AI agents, with another third experimenting with specific applications such as inventory or route optimization in 2024. Combined with global data center networks, these capabilities can help enable real-time coordination across borders.

Infrastructure must support more than speed, it must also support regulatory compliance, interoperability and global scalability. This means ensuring that data center environments and connectivity solutions can meet both regulatory requirements and the performance needs of AI-powered operations. Regulations around data protection, privacy, and AI governance, including the EU AI Act and data sovereignty rules, are increasingly important considerations. Manufacturers must balance compliance with the need to innovate, driving demand for globally interconnected environments that enable secure, policy-aligned AI deployment.

This trend is deeply linked to the rise of edge computing. While regulatory factors remain critical, performance, interoperability and global scalability are now equally strong motivators, driving organizations to build infrastructure closer to the point of AI use.

4. Unified cloud, edge and on-prem environments become the standard

Fragmented IT ecosystems can be a growing liability. In 2026, manufacturers are expected to focus on building unified infrastructure that can help bring together cloud, edge, and on-prem environments into a seamless, interoperable foundation.

70% of organizations now opt for a hybrid cloud strategy

Flexera

Nearly three-quarters (70%) of organizations now opt for a hybrid cloud strategy according to Flexera's 2025 **State of the Cloud report**, using at least one public and one private cloud. And for good reason, they help reduce vendor lock-in, support consistent performance, and can simplify compliance. This is particularly important as manufacturers deploy AI across diverse use cases, from discrete workloads to plant-wide optimization.

Cloud-native tools are increasingly able to integrate with on-prem assets and factory systems. Even stand-alone applications can be enhanced by cloud services, provided they are connected to infrastructure that supports flexibility and AI alignment.

Unified environments can help allow C-suite leaders to shift AI workloads across platforms as needed, ensuring optimal performance, regulatory fit, and cost-efficiency at every stage.

89% of manufacturers now operate under formal ESG strategies

Rockwell Automation



5. High-density compute and cooling become critical enablers at scale

As manufacturers scale AI adoption, the physical demands on infrastructure will likely grow. High-density compute environments and advanced cooling are becoming essential to support GPU-heavy workloads while meeting sustainability targets.

Rockwell Automation data suggests 89% of manufacturers now operate under formal ESG strategies and over half (56%) cite efficiency as the main driver, meaning that balancing power and water usage with performance is a top priority. We see many are investing in colocation environments that deliver both.

In 2026, we expect even greater emphasis on data center innovation, including liquid cooling and energy-efficient facility design. These systems are required to underpin the next generation of AI applications, from real-time digital twins to autonomous operations, while helping firms to decarbonize without compromising on speed or scale.

What manufacturing leaders should do next

To stay competitive in 2026, manufacturers should consider:

Modernizing infrastructure to overcome data gravity while integrating legacy systems

Investing in hybrid IT to support real-time AI

Building secure, globally interconnected supply chains

Developing ROI plans for AI investment to ensure value from the tools deployed

Engaging infrastructure and compliance experts to help navigate risk

Conducting operational audits to identify inefficiencies and AI-ready processes

We believe those who act now will be best placed to unlock long-term advantage. Digital Realty and IGXGlobal can provide the global footprint, colocation capacity and hybrid architectures needed to help realize this vision, supporting manufacturers turn data into operational advantage and scale AI with confidence.

Learn more
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About Digital Realty

Digital Realty brings companies and data together by delivering the full spectrum of data center, colocation, and interconnection solutions. PlatformDIGITAL®, the company's global data center platform, provides customers with a secure data meeting place and a proven Pervasive Datacenter Architecture (PDx®) solution methodology for powering innovation, from cloud and digital transformation to emerging technologies like artificial intelligence (AI), and efficiently managing Data Gravity challenges. Digital Realty gives its customers access to the connected data communities that matter to them with a global data center footprint of 300+ facilities in 55+ metros across 30+ countries on six continents.
To learn more about Digital Realty, please visit **digitalrealty.com** or follow us on **LinkedIn** and **X**.

About IGXGlobal

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IGXGlobal excels in quickly identifying the right solutions through its team of highly skilled consultants and strong partnerships with leading technology vendors. The IGXGlobal team tailors the best solution for your specific use case to deliver targeted point solutions, providing exceptional support at every stage, including pre-sales workshops and assessments to identify your unique goals and challenges.

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