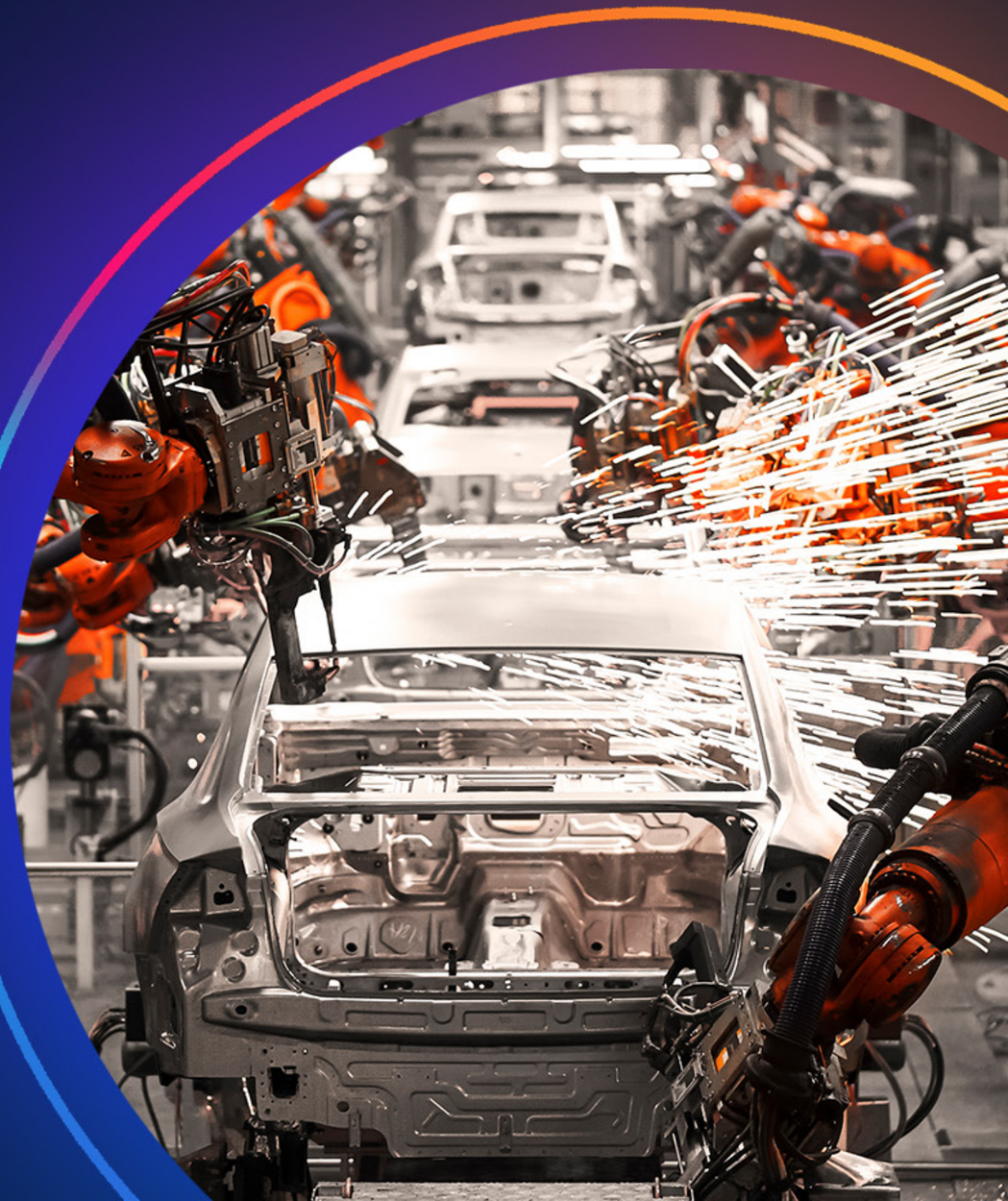
2026

State of Industrial AI

Report for Manufacturing

A global view of AI and its impact on security, growth, and innovation in operational technology across the manufacturing industry



cisco

Introduction

Over 350 manufacturing decision makers participated in the 2026 State of Industrial AI Report.

Following the success of the inaugural 2024 State of Industrial Networking Report, this edition looks at how manufacturing firms worldwide are adopting Artificial Intelligence; the challenges they face; and the opportunities for AI-powered transformation. We spoke to decision-makers at firms in 19 countries, operating with annual revenues over $100 million.

This sector report provides a manufacturing-specific view of the 2026 State of Industrial AI research, highlighting where the sector is seeing progress, where constraints remain, and what foundations are required to move from targeted deployments to secure, repeatable scale.

Cisco, in association with Sapio Research, undertook this study to establish levels of AI adoption in industrial networking; the operational outcomes organizations are achieving from AI investments; barriers to scale; and how to align for success.

Executive summary

Industrial AI demands network modernization

AI implementation is placing unprecedented demands on manufacturers' underlying infrastructure.

- 56% say unreliable wireless connectivity frequently disrupts manufacturing operations
- 96% say wireless connectivity is critical to AI success
- Reliable connectivity (49%), edge compute (44%), and bandwidth (39%) are top network requirements for AI at scale

Network readiness now determines AI success, with infrastructure limitations directly constraining the ability to scale deployments.

Cybersecurity is both the #1 barrier and the #1 asset

Expanding AI adoption elevates cybersecurity risk.

- 40% cite cybersecurity concern as the top barrier to AI adoption
- 46% say security is the biggest networking challenge for AI-enabled operations
- 81% expect AI to improve their cybersecurity posture

While security gaps are limiting AI scale today, manufacturers view AI as a tool to strengthen detection, monitoring, and resilience.

IT/OT collaboration is critical to AI at scale

Effective collaboration between IT and OT teams directly impacts AI outcomes.

- 43% of manufacturing organizations show little to no IT/OT collaboration
- 34% cite lack of collaboration between IT and OT teams as a major challenge limiting AI-enabled operations
- 28% say OT domain expertise is critical to scaling AI

While disparate teams slow AI deployment and increase operational risk, IT/OT alignment accelerates scalability, stability, and security.

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Introduction letter

I'm excited to introduce Cisco's 2026 State of Industrial AI Report – an evolution of our State of Industrial Networking Report. As industrial operations continue to transform, artificial intelligence is rapidly emerging as a gamechanger across manufacturing, utilities, transportation, and beyond. 2025 was the year for many to experiment with AI in industrial settings; 2026 promises to be the year when many organizations move from pilots to real, production-ready AI projects.

This year's report is informed by the perspectives of 1,000 operational leaders across 19 countries and 21 industries. It highlights not only the tremendous potential of AI to enhance productivity, resilience, and safety, but also explores the challenges organizations face as they integrate AI into their industrial networking strategies – from data management to cybersecurity to IT/OT collaboration.

At Cisco, we remain committed to supporting our customers' digital transformation journeys. Our deep expertise in both IT and OT has positioned us to help organizations harness AI, enabling smarter, more secure, and more agile industrial networks at scale. Listening to our customers continues to be our top priority, and this year's survey reveals powerful insights about how industrial leaders are approaching AI adoption – and what's on their minds for the year ahead.

We're seeing companies bring AI to life in impactful ways: from deploying machine vision to ensure product quality in manufacturing, to rolling out AI-powered automated guided vehicles (AGVs) and autonomous mobile robots (AMRs) that are reshaping material handling and logistics, to leveraging agentic operations that drive more autonomous, adaptive, and efficient workflows across industrial environments. Additionally, AI is playing an increasingly critical role in cybersecurity for OT, where the scale and complexity of machine data demand intelligent, automated approaches that go beyond human capabilities.

We hope this report serves as a valuable resource, offering context and benchmarks to guide your strategy, partnerships, and innovation initiatives. By working together, we've already seen the extraordinary business outcomes that industrial networking for AI use cases can deliver. As the critical infrastructure for the AI era, Cisco is dedicated to empowering organizations to realize the full potential of industrial AI. We look forward to helping you unlock even more possibilities in the coming year.

Vikas Butaney

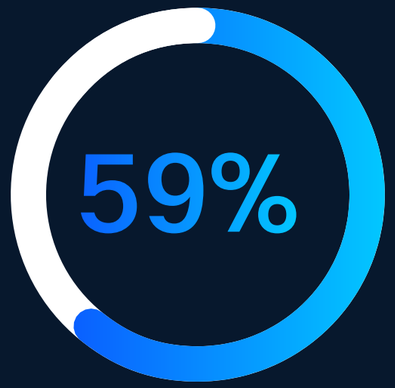
Senior Vice President and General Manager
Cisco Secure Routing and Industrial IoT

Section 1

The state of industrial AI adoption in manufacturing

AI adoption has reached active deployment

AI adoption in industrial operations is established and broad, rather than experimental.



of manufacturers actively deploying AI at scale.

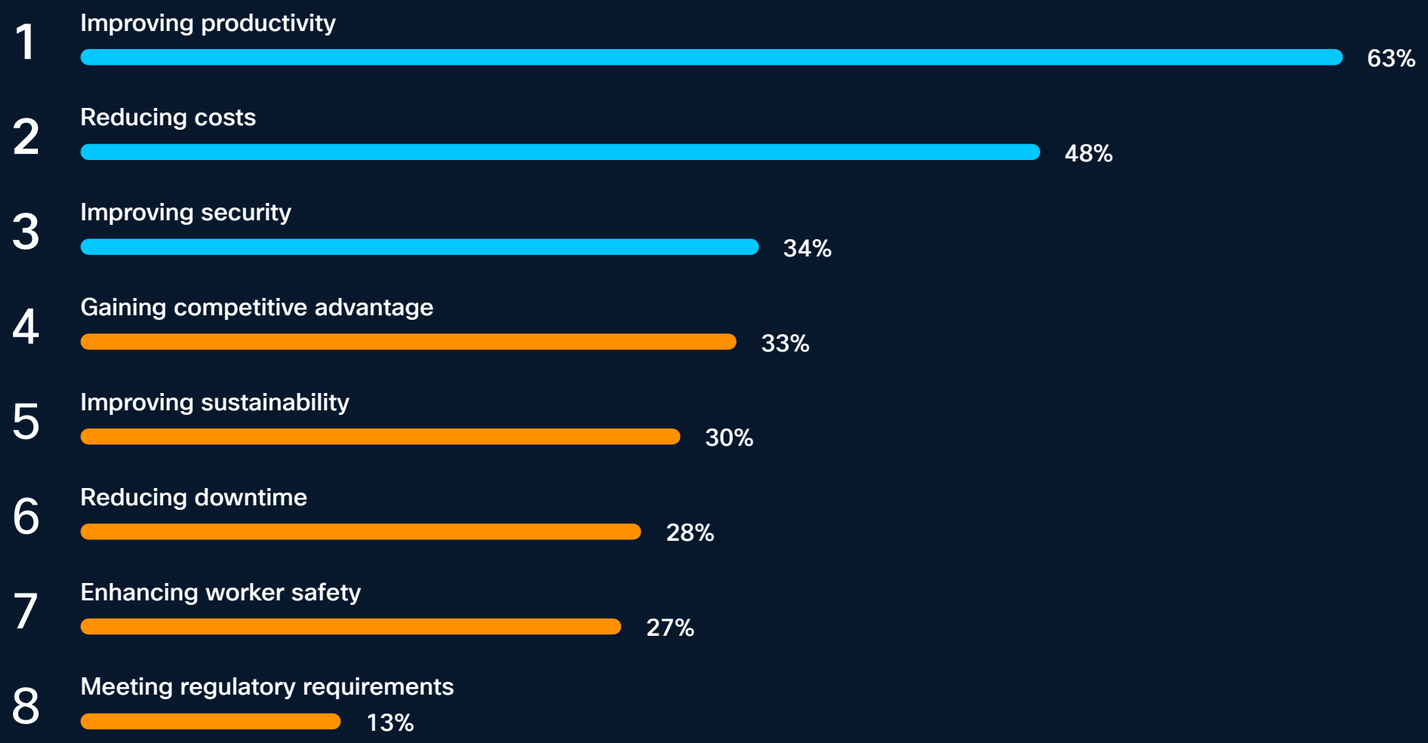
Q. Which of the following best describes your organization's current stage of AI adoption in industrial operations? Select one

"The global AI in manufacturing market is anticipated to rise from USD 34.18 billion in 2025 to USD 155.04 billion by 2030. This robust growth is being driven by the rapid adoption of AI technologies to streamline production workflows, enhance real-time decision making, and support predictive maintenance across diverse manufacturing operations."

Source: Research and Markets "Artificial Intelligence in Manufacturing Research Report 2025-2030"

Operational improvements drive AI adoption

Operational improvement is the dominant driver of AI adoption in manufacturing, with a clear emphasis on improving efficiency, quality, and supply chain performance.



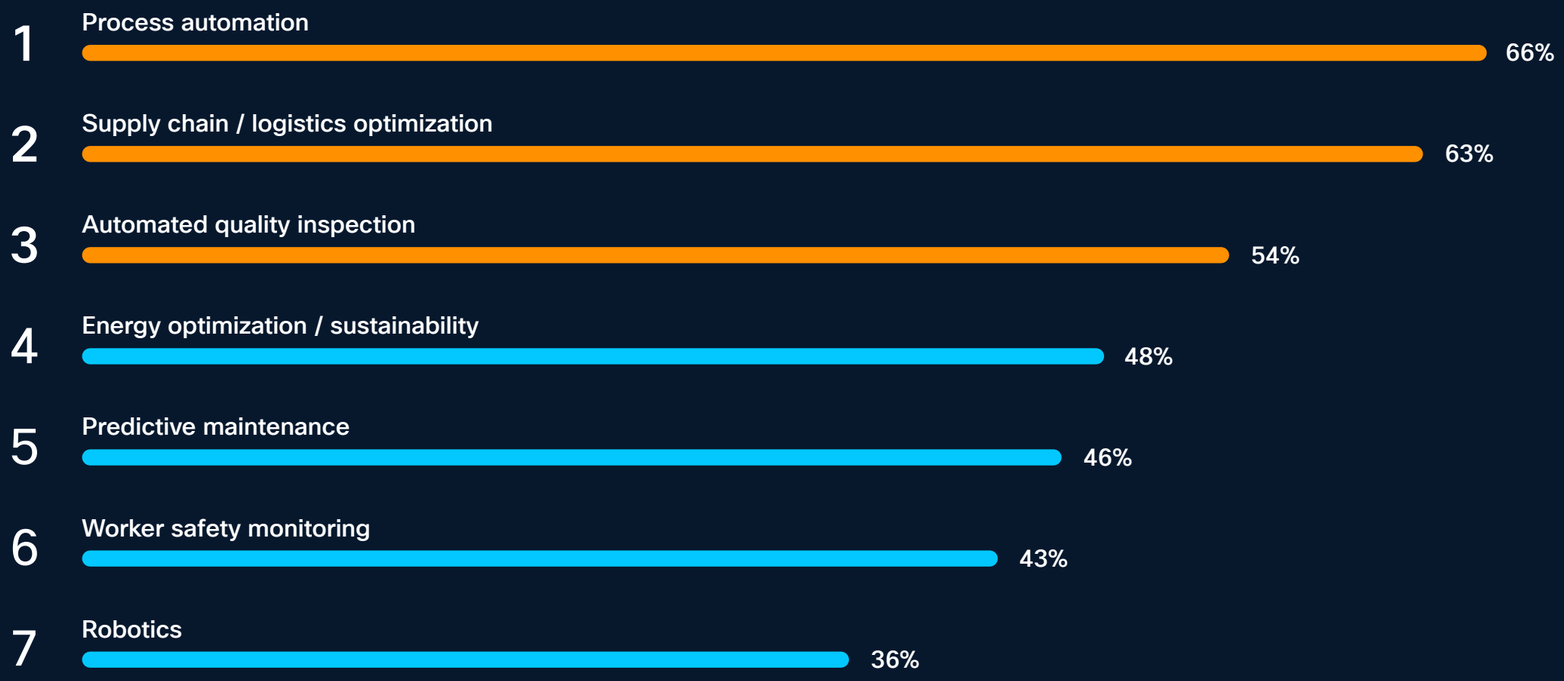
nearly half

of manufacturers expect to see AI outcomes within the first twelve months or have already seen results, reinforcing efficiency as the primary starting point.

Q. What are the primary drivers behind your organization's interest in AI? Select up to three

AI adoption evolves from efficiency to resilience

Early AI adoption in manufacturing is characterized by efficiency- and throughput-focused applications—use cases that align closely with near-term productivity and cost objectives.



As adoption matures, manufacturers place greater emphasis on safety, sustainability, and risk reduction applications, indicating broader alignment with long-term resilience and operational robustness.

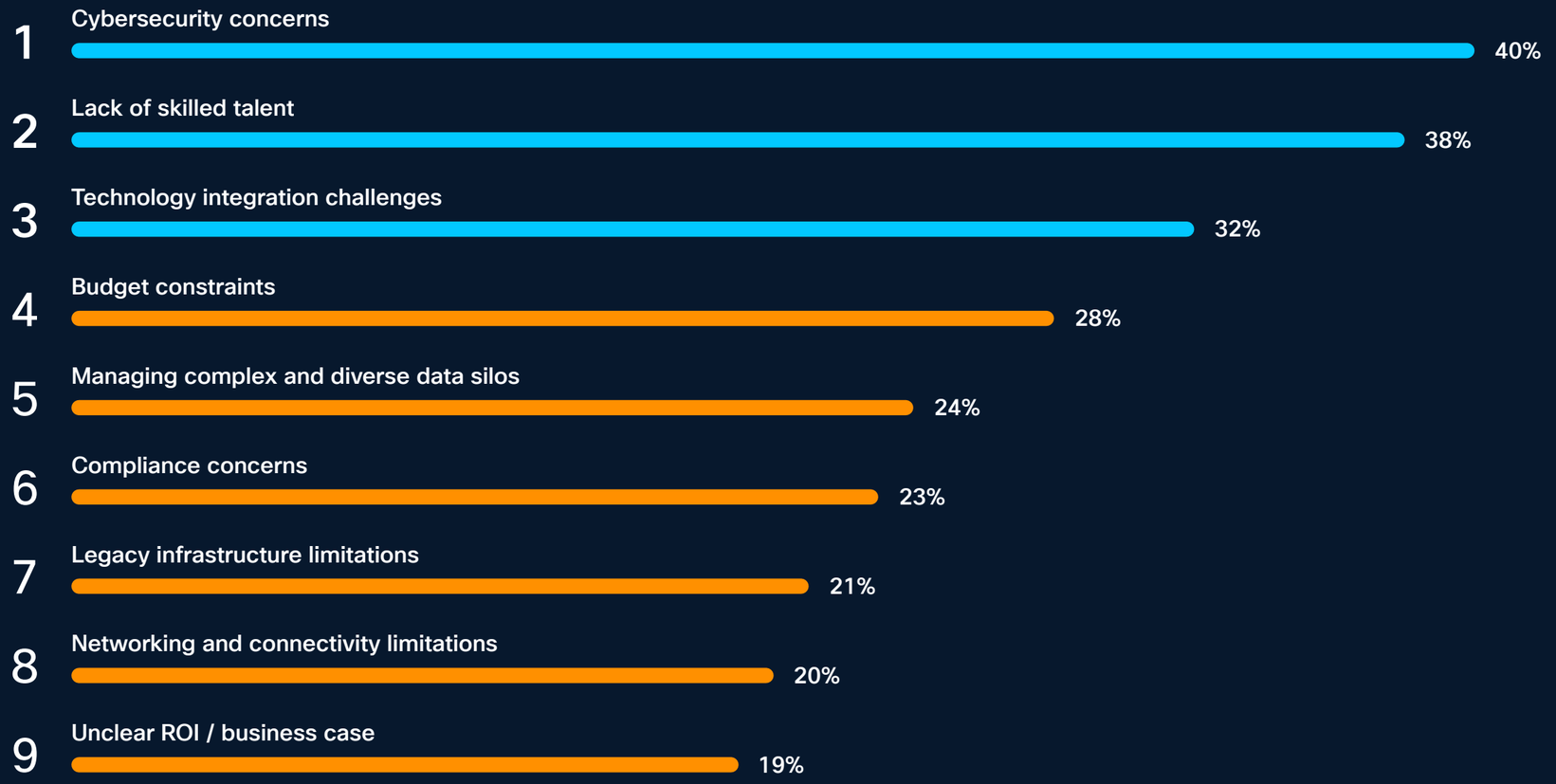
Q. Which AI use cases are you currently exploring or deploying in your industrial operations? Select all that apply

Cybersecurity concerns limit AI adoption

Despite steady progress, AI at scale in manufacturing is hindered by cybersecurity, skills and infrastructure-related challenges.

Cybersecurity concerns are significantly limiting AI adoption by creating a “trust deficit” and introducing new, complex risks that outpace traditional security measures. A recent Forrester report cited that, “among AI decision-makers, 29% identify trust as the single largest barrier to generative AI adoption in their organizations.”

Source: https://www.forrester.com/technology/generative-ai/



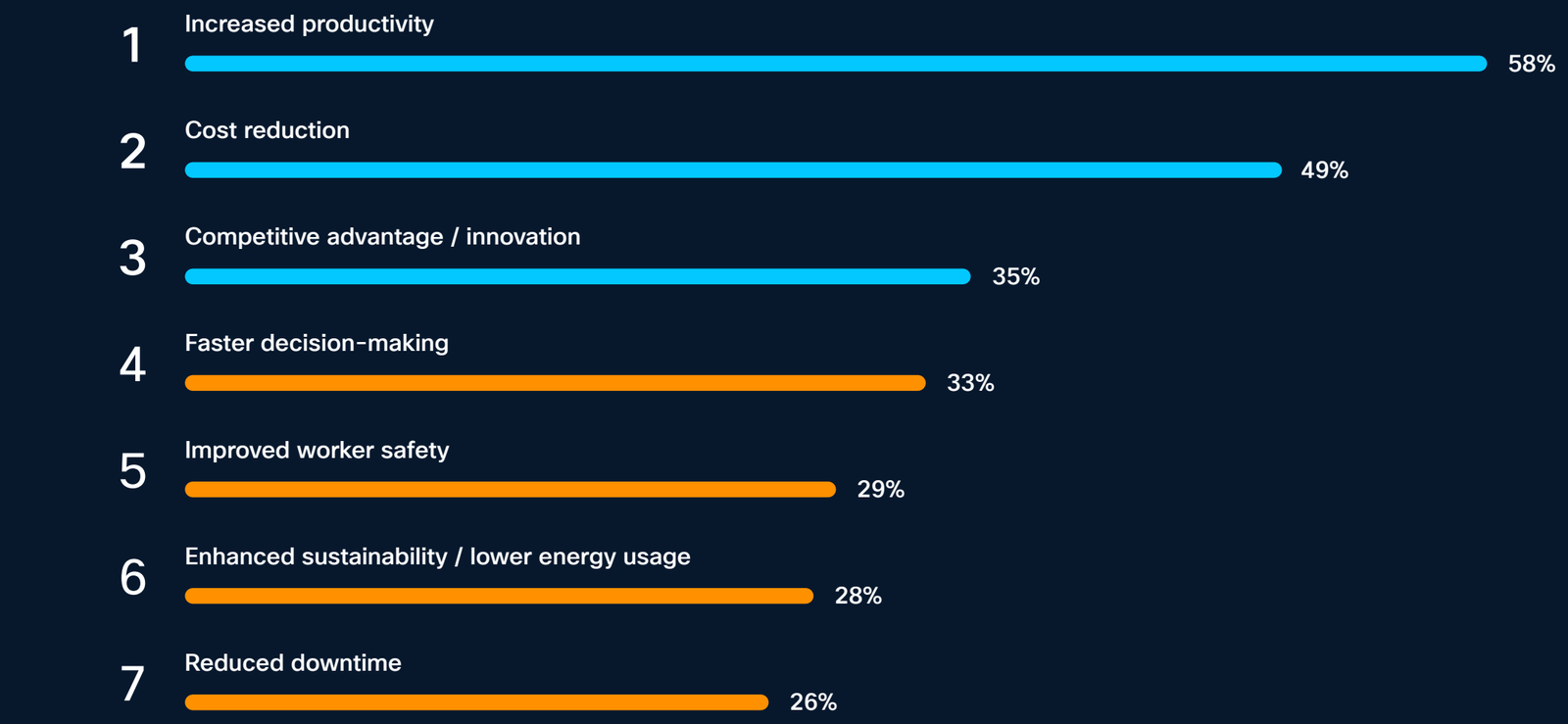
Q. What are the biggest obstacles your organization faces in adopting AI?

Section 2

AI outcomes, ROI & investment urgency

Manufacturers expect AI to deliver operational gains

Manufacturers' expected AI outcomes align with investment drivers—primarily associated with operational gains.



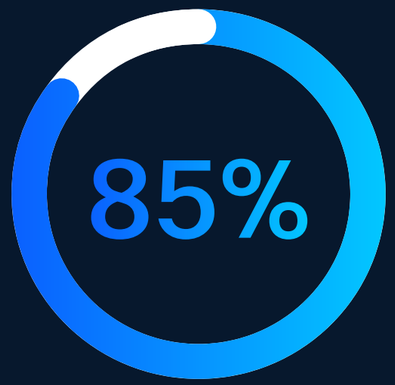
Q. What outcomes would you most like to achieve from AI investments?

While early outcomes focus on efficiency and operational responsiveness, advanced adopters are more likely to associate AI with resilience, safety, and long-term operational improvement, indicating a shift from tactical efficiency toward strategic value creation.

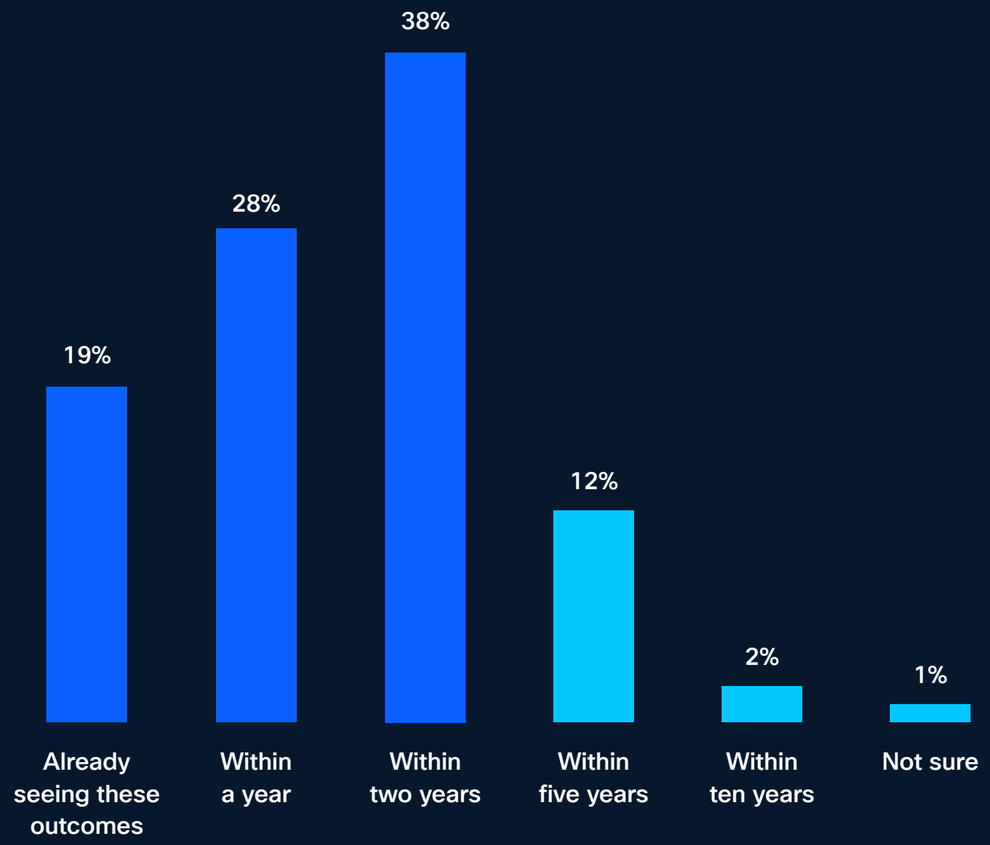
AI is viewed as a practical enabler of efficiency and profitability.

AI investments bring high expectations

The short timeframe in which decision-makers expect outcomes shows strong belief in AI's near-term payoff.



anticipate returns within two years.



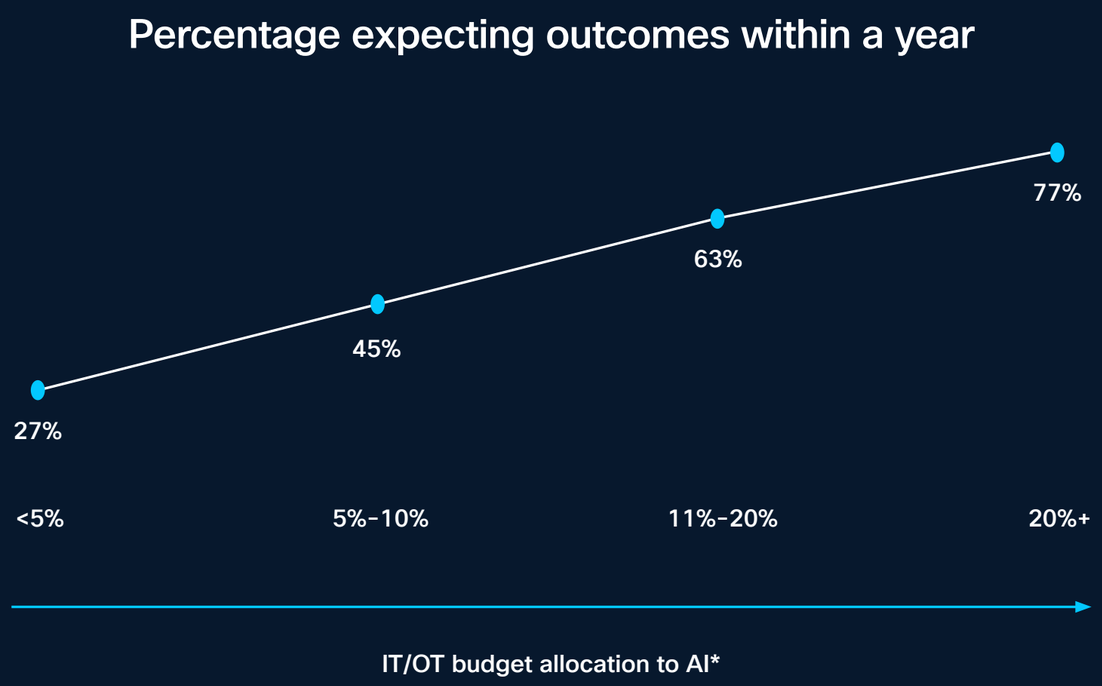
Q. When do you expect to see these outcomes?

AI is being treated as a near-term operational lever, with pressure to move quickly from deployment to measurable impact.

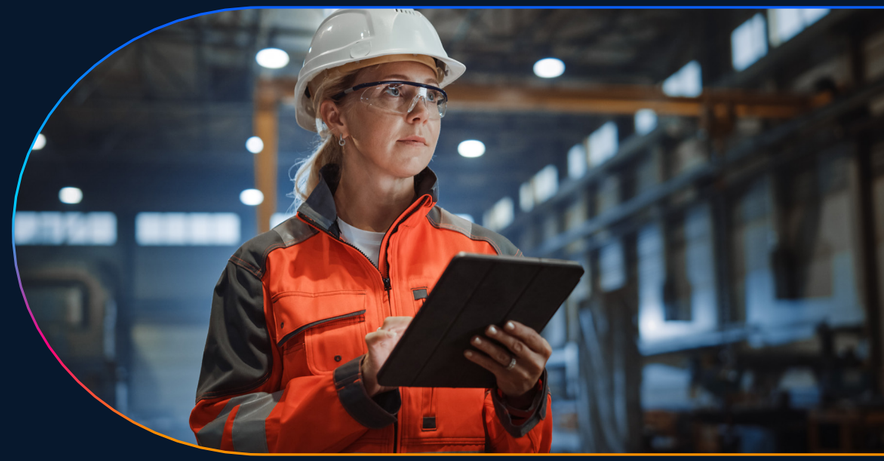
Investment priorities for enabling AI

Manufacturers are increasing their AI investment, signalling sustained commitment to adoption.

AI accounts for 12% of manufacturers' IT and OT budgets, and 83% of organizations plan to increase that investment—raising expectations for scalable, production-ready deployments.



*Correlation data taken from overall sample of 1,200 industrial decision-makers



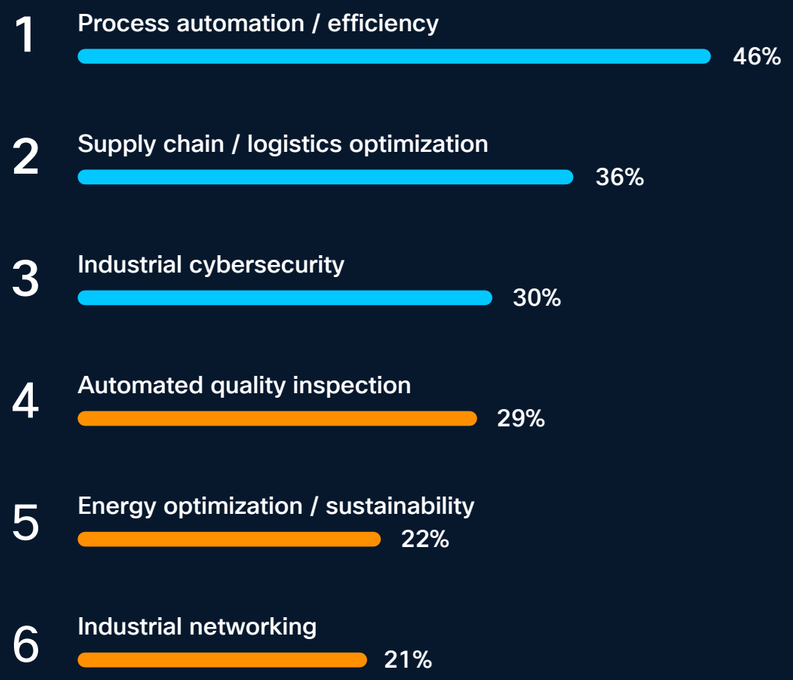
This investment momentum reflects growing confidence in AI's ability to support key operational objectives—but higher expectations increase demands for infrastructure, security, and operating models that support rapid, scaled deployment.

AI investment priorities shift with maturity

Manufacturers' AI investment starts with efficiency, but maturity reveals the real shift: machine-to-machine decisioning enabled by sensors, connectivity, and edge compute.

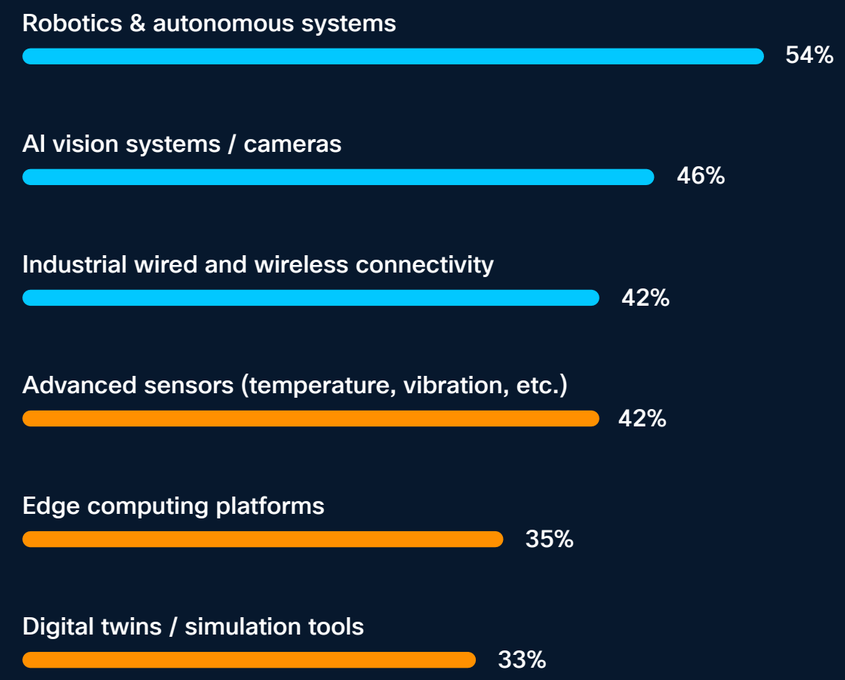
Scaling AI requires shifting from human-in-the-loop workflows to machine-to-machine decisioning—driving investment in connectivity, edge, and data infrastructure.

Investment priorities:



Q. What are your top priority areas for AI investment in industrial operations? Select up to three

New technologies:



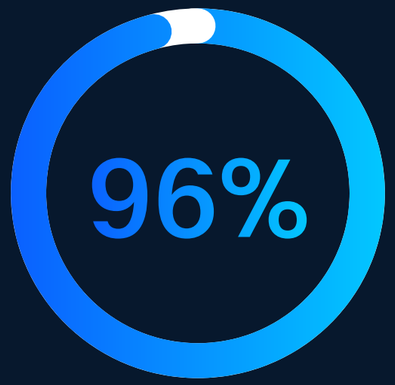
Q. What new technologies are most critical to enable AI in your industrial operations? Select up to three

Section 3

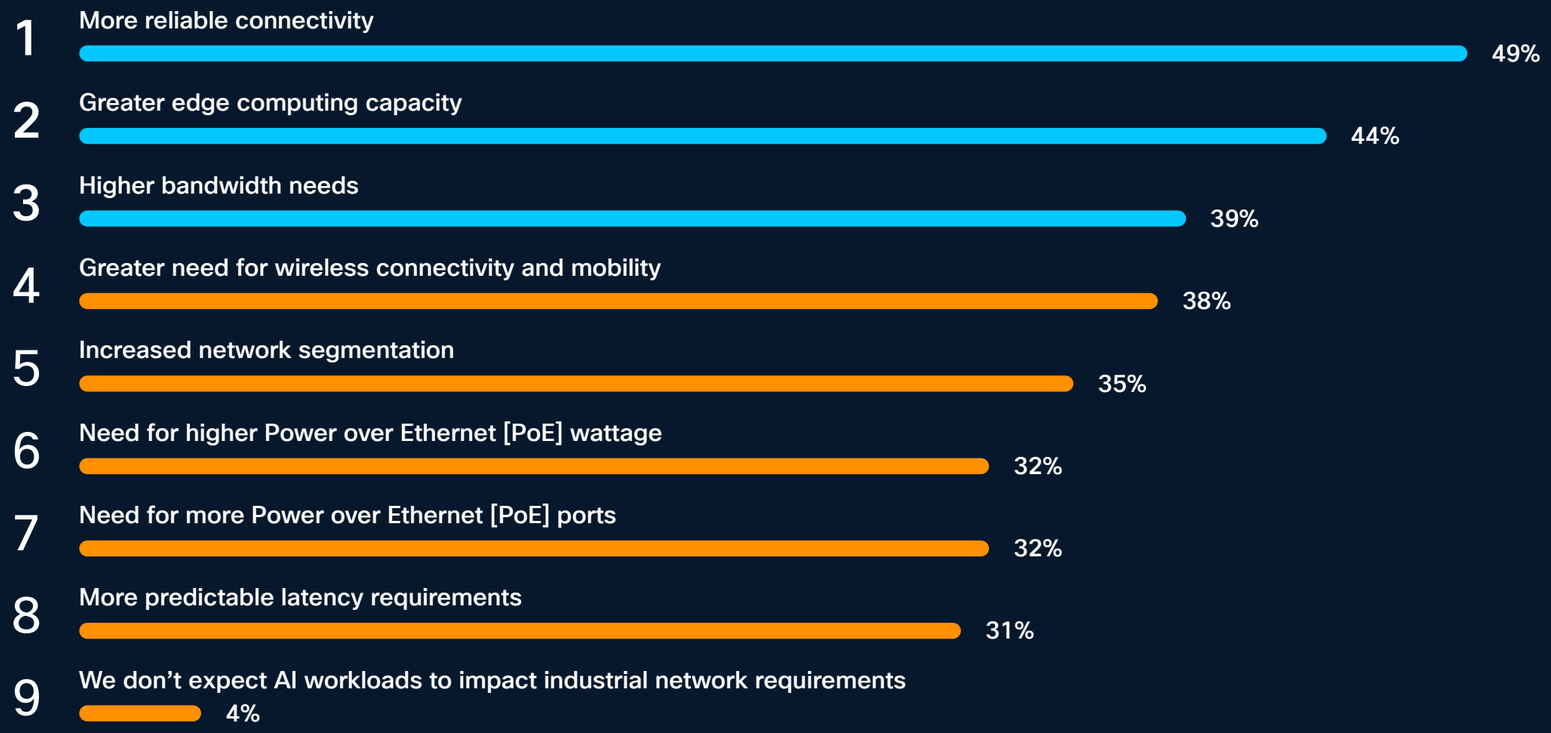
AI runs on the network: infrastructure as the foundation for scale

AI adoption rewrites industrial infrastructure requirements

As AI adoption expands across manufacturing environments, performance and scalability are shaped by the factory-floor infrastructure on which AI runs.



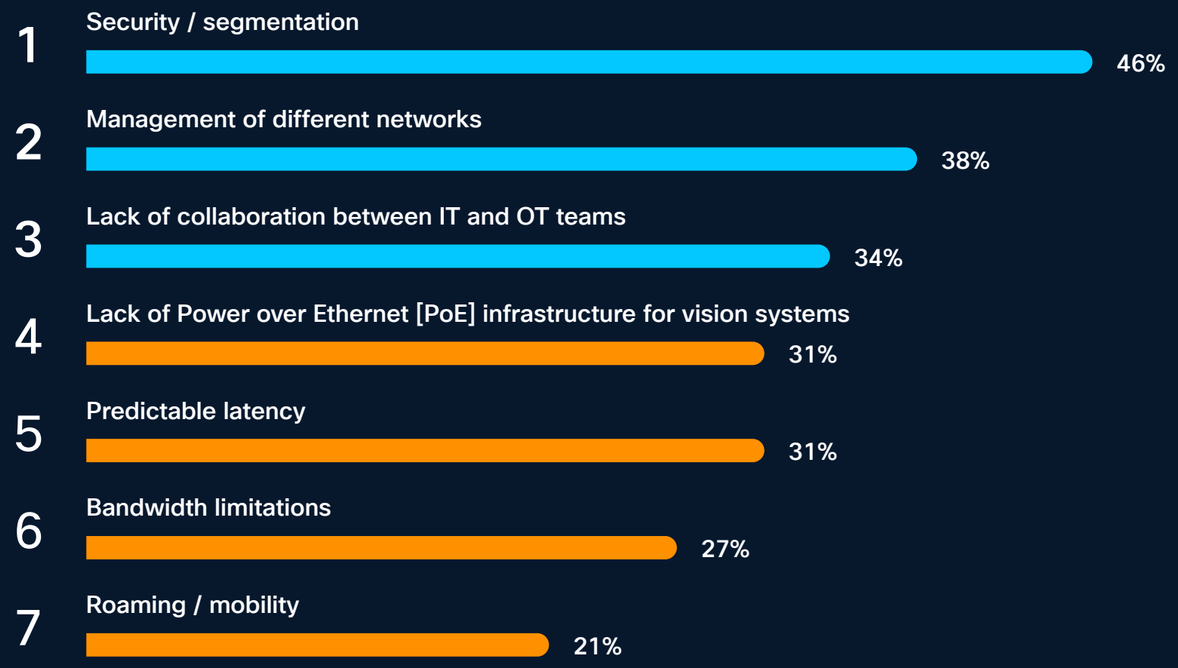
of manufacturers expectt AI workloads to have an impact on their industrial networks.



Q. How do you expect AI workloads to impact your industrial network requirements? Select all that apply

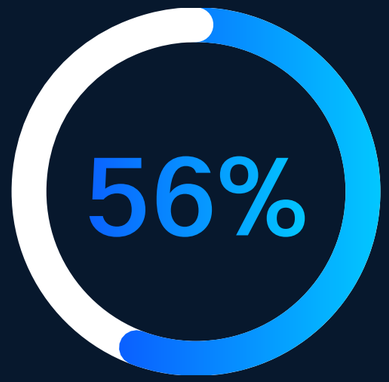
Network readiness is the primary constraint to AI scale

As AI moves into production, network performance and reliability determine whether deployments can scale across industrial environments.

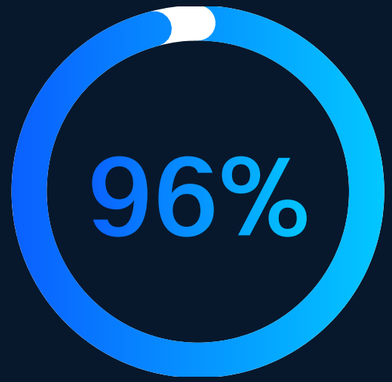


Q. What are your biggest networking challenges in supporting AI-enabled operations?

Wireless reliability is an operational constraint for manufacturers:



say lack of reliability frequently affects operations for AI-enabled mobility-related operations



say wireless networks are critical to enabling industrial AI – making reliability foundational to network readiness at scale.

Powering AI at the edge: PoE as a scaling constraint in manufacturing

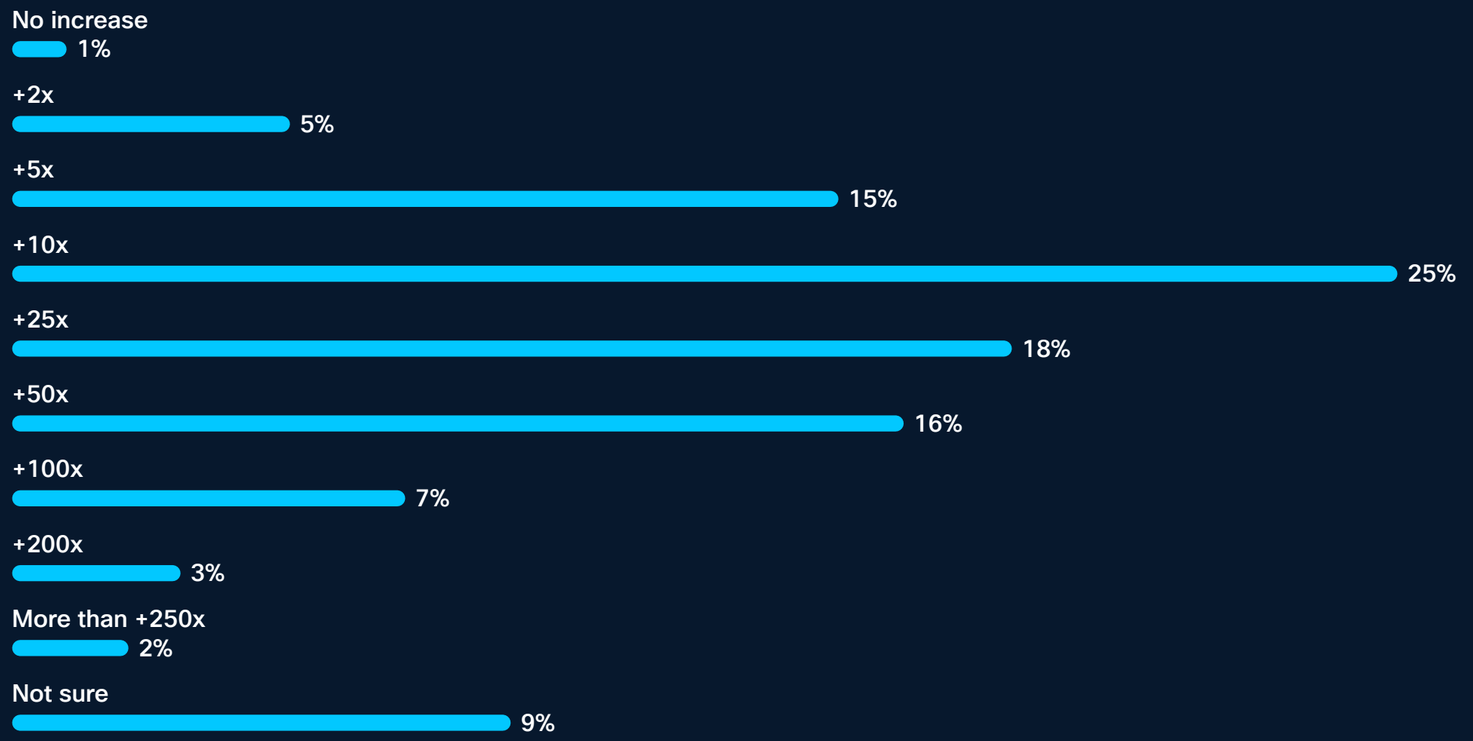
While connectivity and compute capacity are essential, power availability at the edge is emerging as a key constraint on AI scale in manufacturing.

41x increase

in Power over Ethernet (PoE) demand is expected as manufacturers deploy AI vision systems, signaling a significant rise over current infrastructure requirements.

Expectations increase further with AI maturity.

- Manufacturers exploring AI adoption expect PoE requirements to increase by 29x
- Manufacturers with scaled AI deployments



Q. By how much do you expect your Power over Ethernet (PoE) deployment would increase due to AI vision systems?

Scaled AI adoption requires a network evolution

Manufacturers are moving toward AI-capable industrial network infrastructure. Sustained AI impact is determined by the readiness of the network on which it runs.

Network evolution:

1

Connect

Reliable wired and wireless connectivity with sufficient power, bandwidth, and coverage to bring assets and data online.

2

Enable

Predictable latency, network segmentation, and edge compute capabilities that support real-time AI workloads.

3

Scale

A unified, secure IT/OT network architecture that delivers consistent policy, visibility, and cybersecurity across environments

Section 4

Cybersecurity & industrial AI interconnectedness

Cybersecurity is now the #1 obstacle to AI adoption

Security is a non-negotiable that directly determines whether AI is able to move from pilots into live, safety-critical operations.

2024

1# 41%
Inflation

2# 40%
Shortage of skilled workers

3# 37%
Cybersecurity risks

Q. What are the biggest external obstacles to your organization's growth? Select all that apply

2026

1# 40%
Cybersecurity concerns

2# 38%
Lack of skilled talent

3# 32%
Technology integration challenges

Q. What are the biggest obstacles your organization faces in adopting AI? Select all that apply

In 2024, cybersecurity emerged as a growing priority for industrial networking teams; today, it has become the leading concern, with 46% of manufacturers citing security as their top networking challenge.

Cybersecurity as a foundational requirement

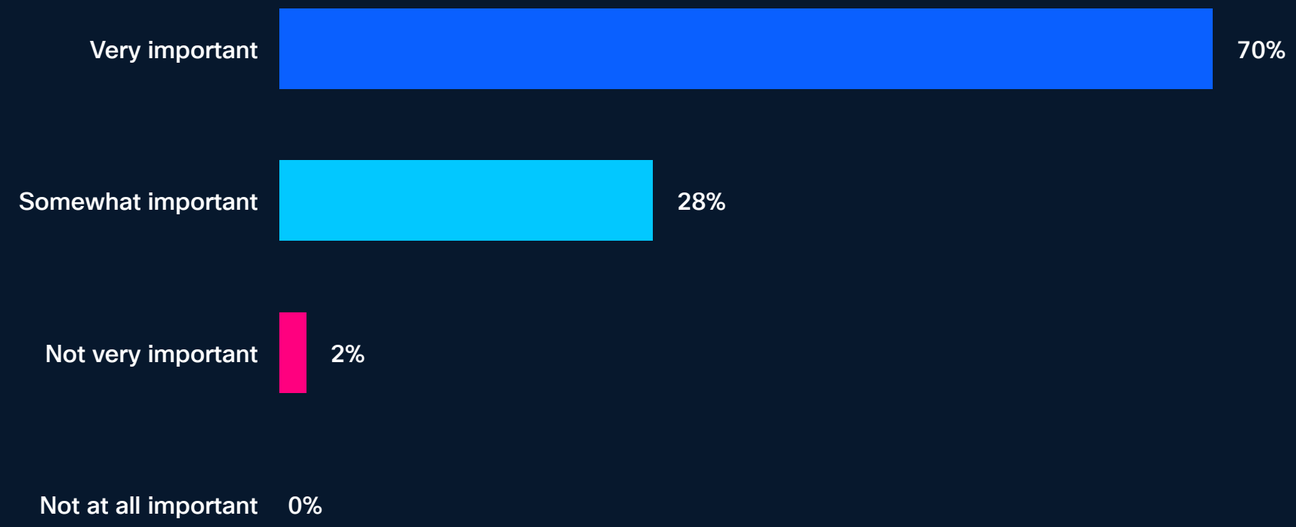
While cybersecurity is a significant barrier to AI at scale, its importance as a foundational requirement for AI-ready infrastructure is more pronounced than ever.

of manufacturers say cybersecurity is ‘somewhat’ or ‘very important’ in AI-ready infrastructure deployment.

This emphasis strengthens with AI maturity, as organizations further along in adoption increasingly view cybersecurity as a core enabler of AI-ready infrastructure: 86% of mature / scaled adopters state cybersecurity is ‘very important’.

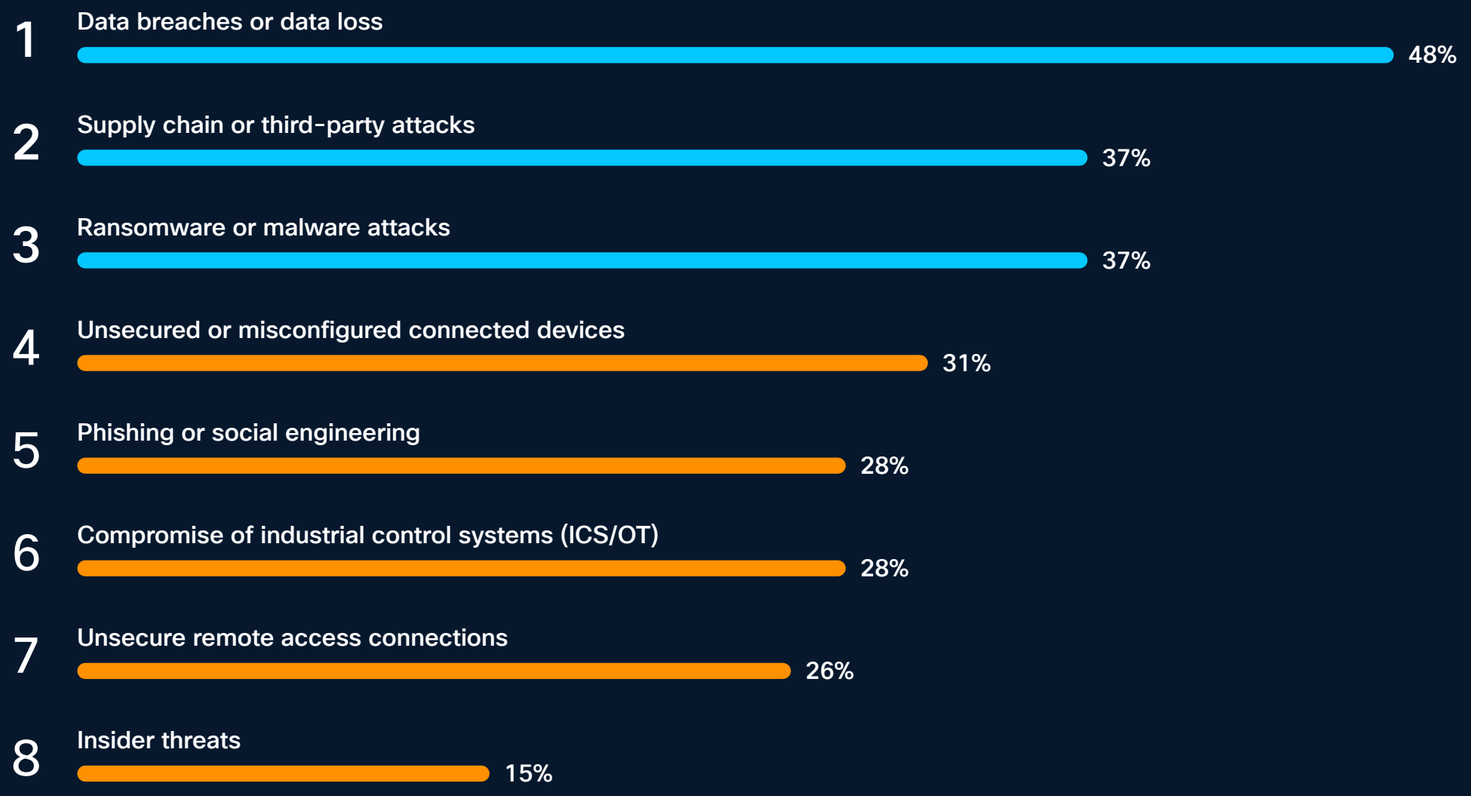
AI adoption in manufacturing is not gated by technical feasibility, but by confidence that deployments meet stringent security expectations.

Q. How important is cybersecurity in your AI-ready infrastructure deployment? Select one



Cybersecurity threats of greatest concern

Manufacturers' cybersecurity concerns reflect the complexity and interconnectedness of modern production environments.



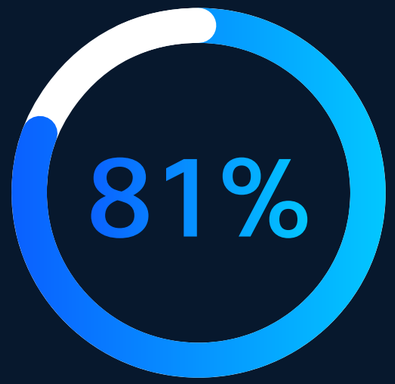
The prominence of third-party and device-level risks highlights the extended nature of manufacturing ecosystems, where AI deployments often span machinery, sensors, suppliers, systems integrators, and cloud or edge platforms.

As AI expands across manufacturing environments, managing cyber risk becomes increasingly challenging—and increasingly critical.

Q. Which types of cybersecurity threats are you most concerned about when increasing connectivity to enable AI in your industrial operations?

AI strengthens cyber defense

Despite concerns, manufacturers increasingly view AI less as a source of additional risk—rather part of the solution.



say they expect AI to improve their cybersecurity posture.

With security acknowledged as essential, manufacturers rank industrial cybersecurity third in importance for AI investment (30%), after only process automation (46%) and logistics optimization (36%).

Manufacturers see the greatest benefit where AI and cybersecurity are designed together, rather than treated as separate initiatives.

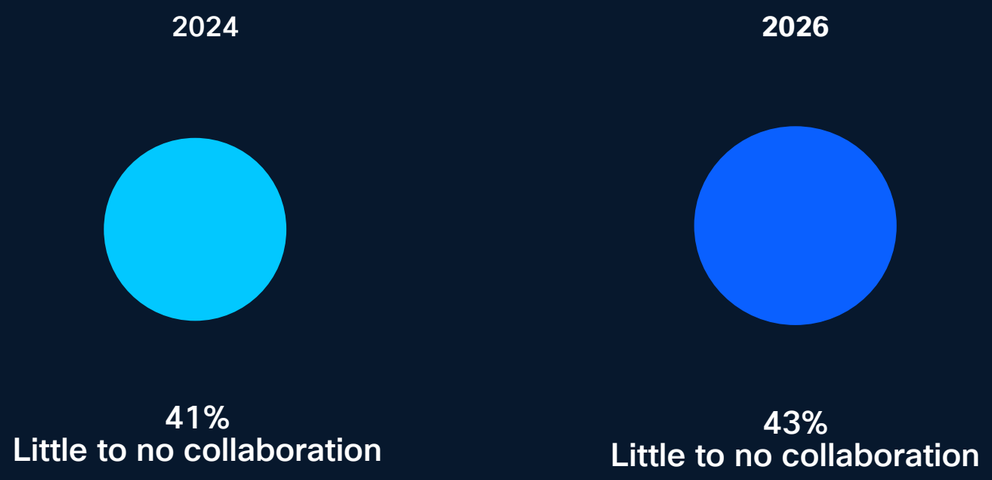
Section 5

IT/OT collaboration – the operating model for scaling AI

IT/OT collaboration in manufacturing remains uneven

Manufacturers report generally positive levels of collaboration between IT and OT teams, though alignment is far from universal.

Comparison of IT/OT inter-working in relation to cybersecurity



A meaningful percent of manufacturers still operate with loosely or minimally coordinated teams. Organizational collaboration has not yet become aligned with the demands of scaled industrial AI, a potential constraint as AI deployments scale beyond individual sites or functions.

Independent teams limit AI confidence & outcomes

There is a clear relationship between stronger IT/OT collaboration and higher confidence in scaling AI across manufacturing operations.

Manufacturers with more aligned digital and operational teams are significantly more likely to show confidence in scaling AI and in integrating AI while retaining regulatory compliance.

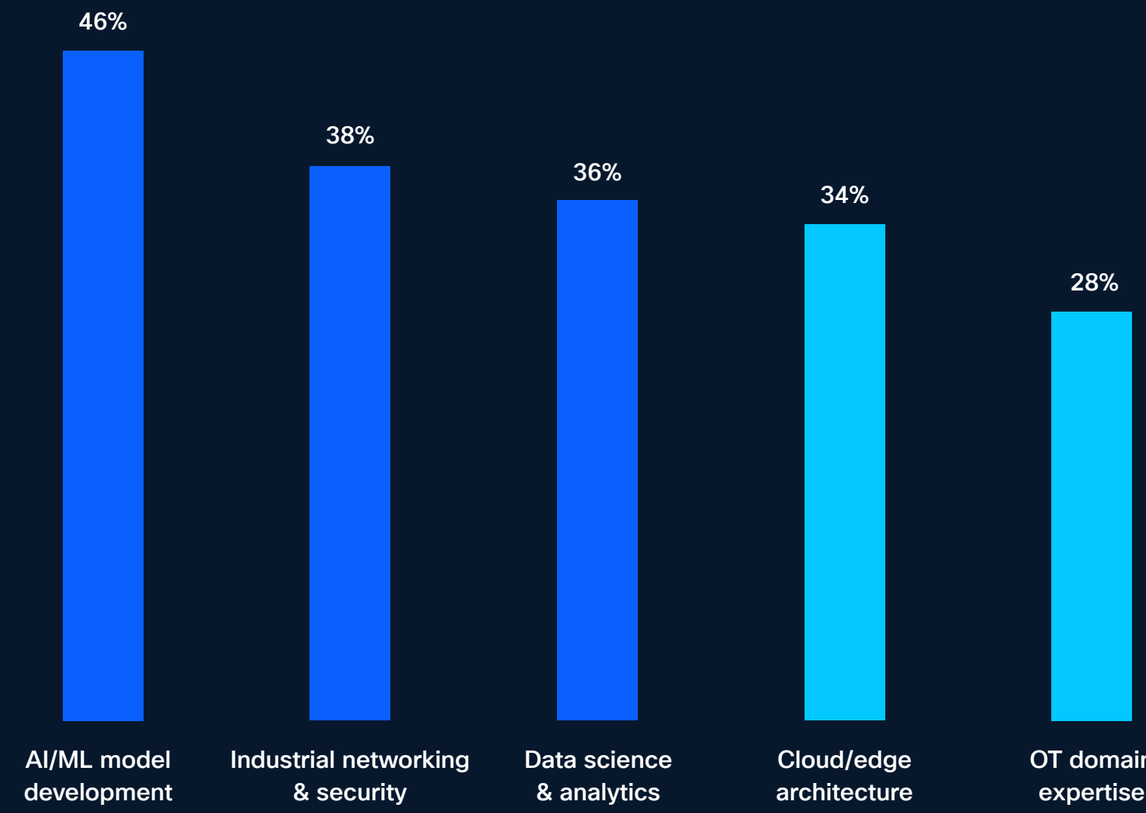
Collaboration is not just structural—but directly linked to how confidently AI can be operationalized in manufacturing environments.

Those lacking collaboration between IT and OT teams report:

- Lower importance to cybersecurity in AI-ready infrastructure
- Greater wireless instability and lower network reliability
- Slower deployment timelines driven by fragmented ownership

Skills required to scale industrial AI

Manufacturers identify a broad mix of skills as essential to scaling AI successfully, reflecting the need to bridge digital innovation with operational execution.



As industrial AI becomes more deeply embedded in factory floor operations, the ability to scale adoption increasingly depends on how effectively IT and OT teams operate together. In manufacturing firms, where digital platforms, operational technology, and competitive advantage are tightly interdependent, organizational alignment is as critical as technical capability.

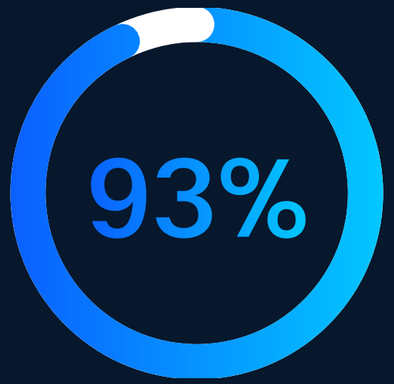
Q. Which skill sets are most critical for scaling AI in industrial operations?

Section 6

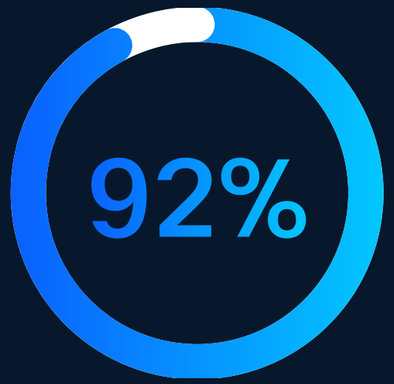
Future outlook – scaling AI across industrial operations

Confidence in scaling industrial AI

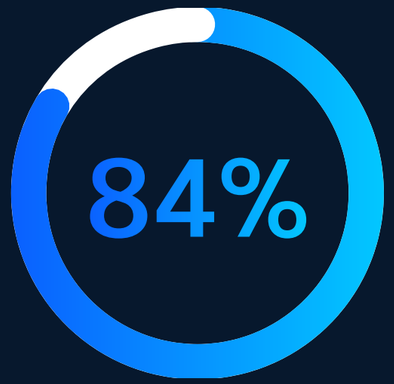
Manufacturers report high confidence in their ability to expand AI adoption over time, particularly where deployments are aligned with core operational priorities.



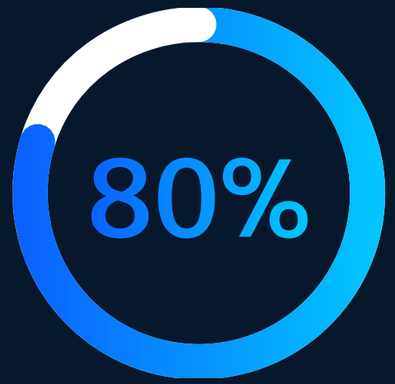
are confident in their ability to scale AI across operations



are confident in their ability to meet compliance requirements for AI



say AI has already had a significant impact on the industry



say that those who do not invest in AI now will fall behind their competitors

Confidence increases materially with:

- Higher AI budget allocation
- Higher AI maturity, and
- Higher levels of IT/OT collaboration.

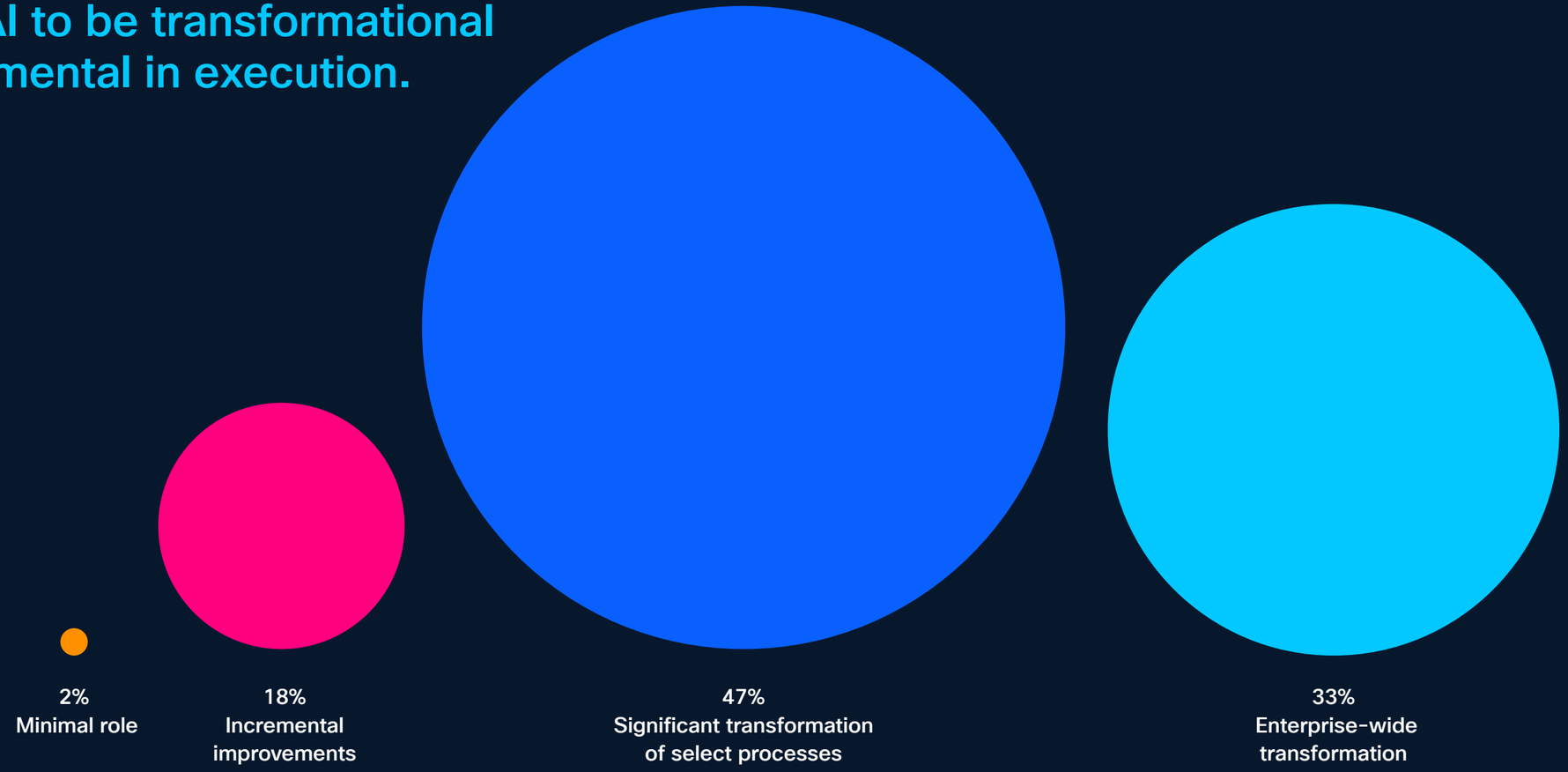
Manufacturers broadly believe they can scale AI—and that AI scaling is key to competitive success. However, success depends on continued progress in network modernization, cybersecurity, and infrastructure readiness.

How transformational will AI be for manufacturing?

Manufacturers expect AI to be transformational in impact, but still incremental in execution.

The manufacturing outlook emphasizes selective, operational transformation.

Manufacturers expect AI to reshape how work is done, particularly in production, quality, and supply chain—but most anticipate this happening process by process, not as a single enterprise-wide leap.



Q. Over the next 5 years, what role do you expect AI to play in transforming your industrial operations?

Section 7

Key takeaways for manufacturing leaders

Priorities for manufacturing leaders

1

Treat AI as an operational capability, not an innovation program

AI initiatives should be governed and funded as part of core operational strategy, with success measured in resilience, efficiency, and system performance.

2

Build cyber-resilience and data governance into AI scale from the outset

Scaling AI safely depends on investing in cyber-resilience and data governance in parallel with AI capability.

3

Align IT and OT around infrastructure

IT/OT collaboration should be anchored around shared responsibility for secure, resilient infrastructure, rather than isolated AI use cases.

Section 8

Industrial AI partner considerations for manufacturing

Industrial AI partner considerations

As industrial organizations look to scale AI across increasingly complex environments, partner choice becomes a strategic decision.

#1 Partners should be able to support:

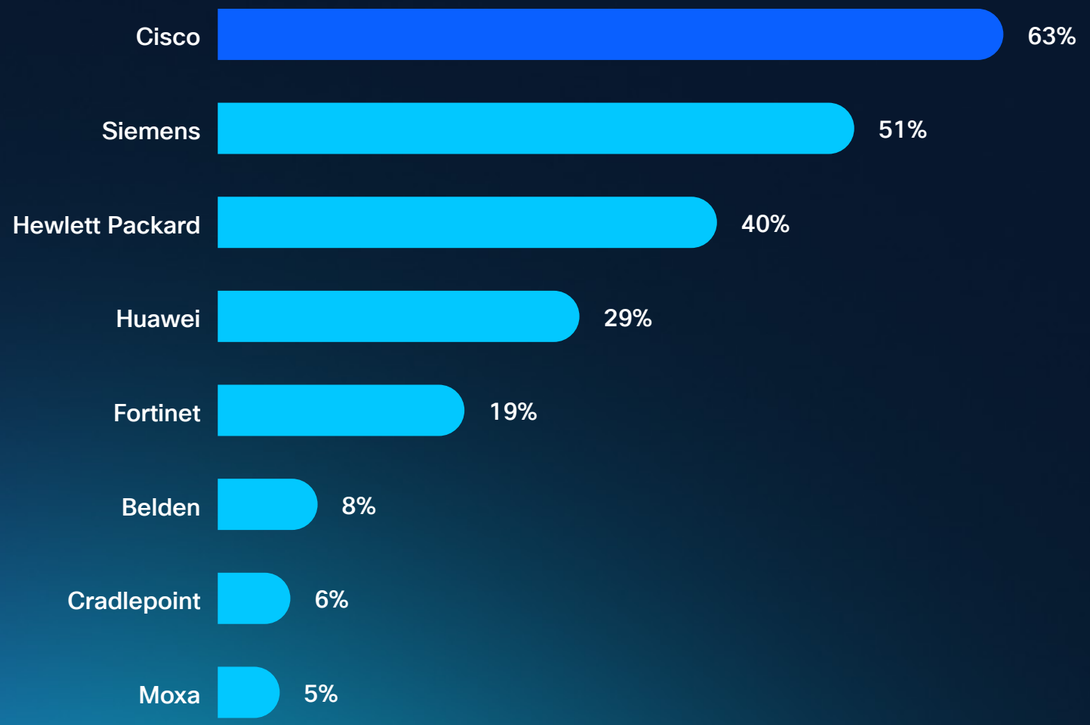
- Reliable, high-performance connectivity
- Secure, segmented architectures
- Predictable operations in production environments

#2 Prioritize partners with deep expertise in:

- Industrial networking
- Cybersecurity and segmentation
- Edge compute and mobility
- Visibility across IT and OT environments

#3 Select a partner with recognized high trust:

- Respondents to our survey ranked Cisco as the most-trusted to



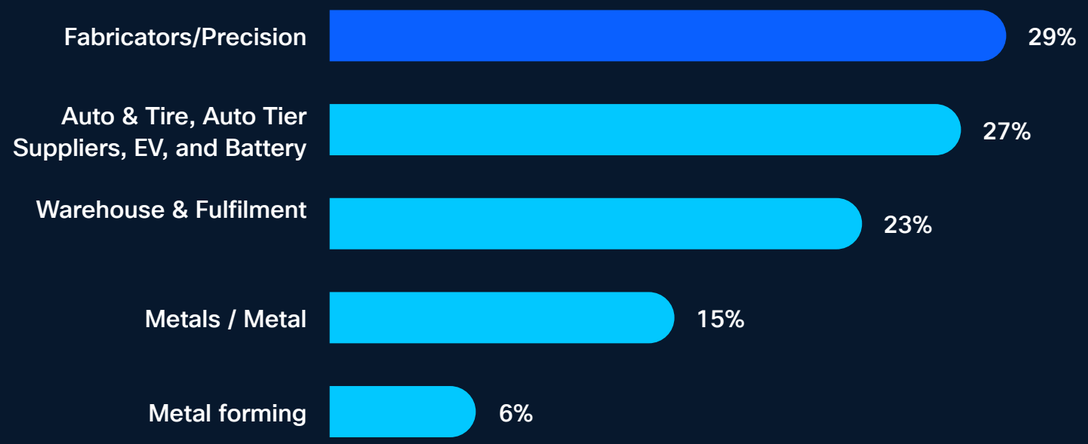
Q. Which of the following vendors do you most trust to provide AI-ready networking infrastructure to enable your industrial AI use cases? Select up to three

Section 9

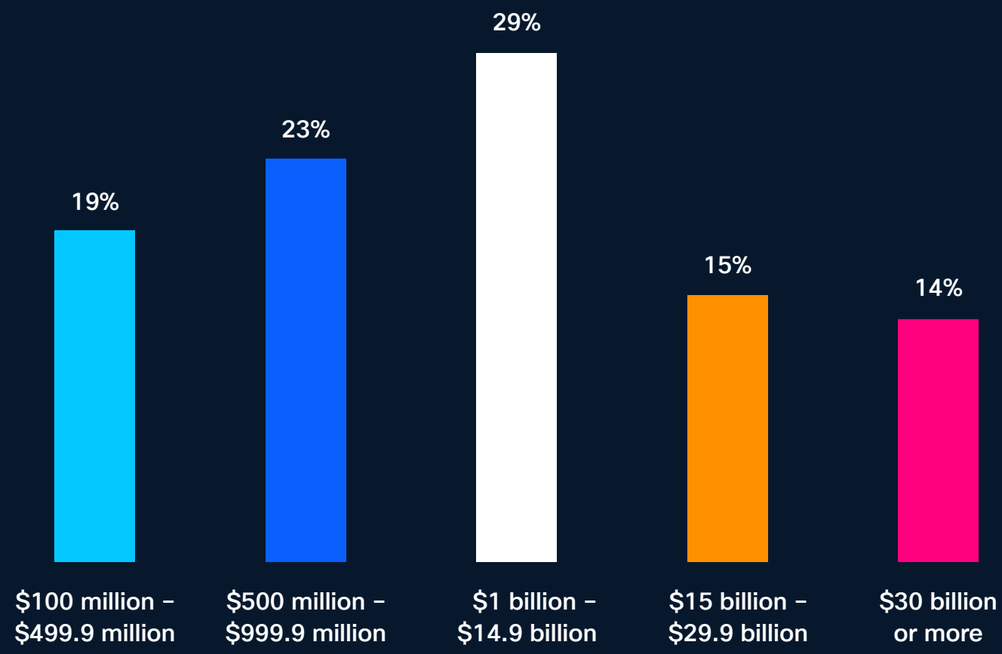
Demographics & firmographics

Demographics & firmographics

Industry



Annual business revenue



Demographics & firmographics

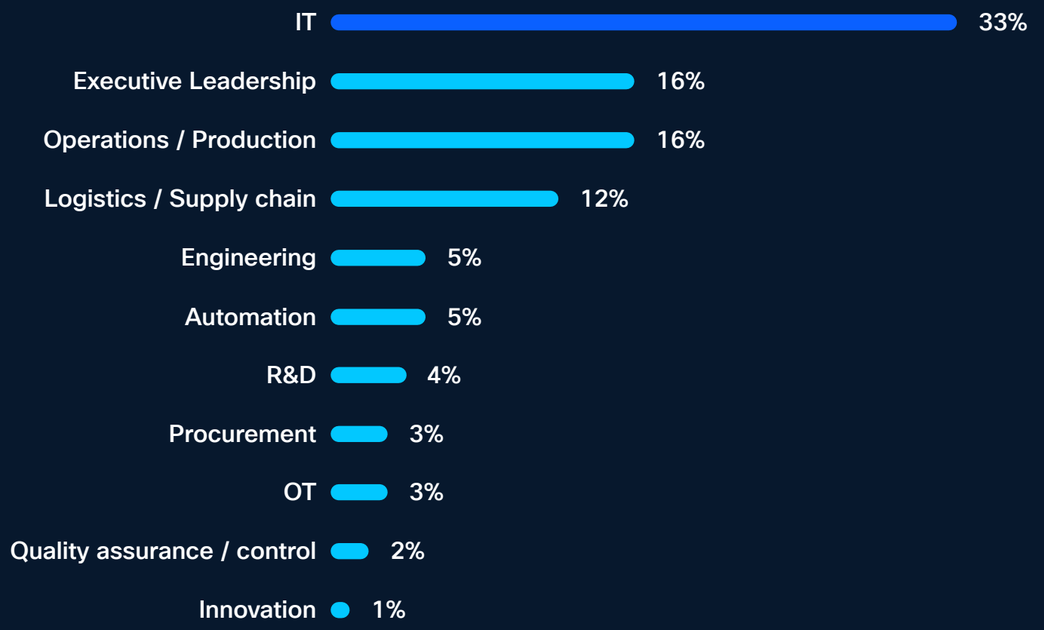
Job role

Manager	44%
Director	20%
Head of department	18%
Vice President / Senior Vice President	7%
C-Suite	12%

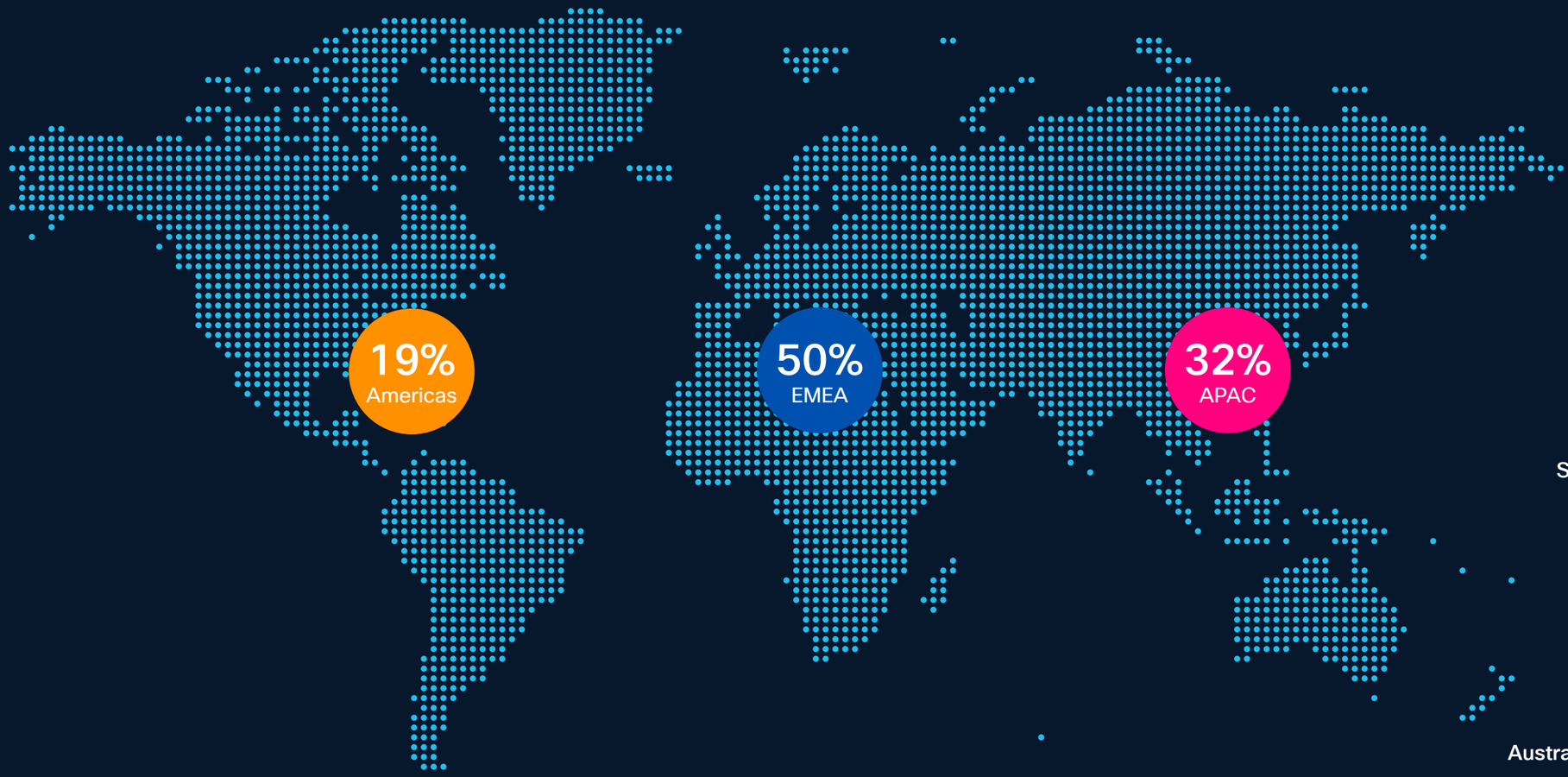
Employment

Employed full-time	98%
Employed part-time	2%

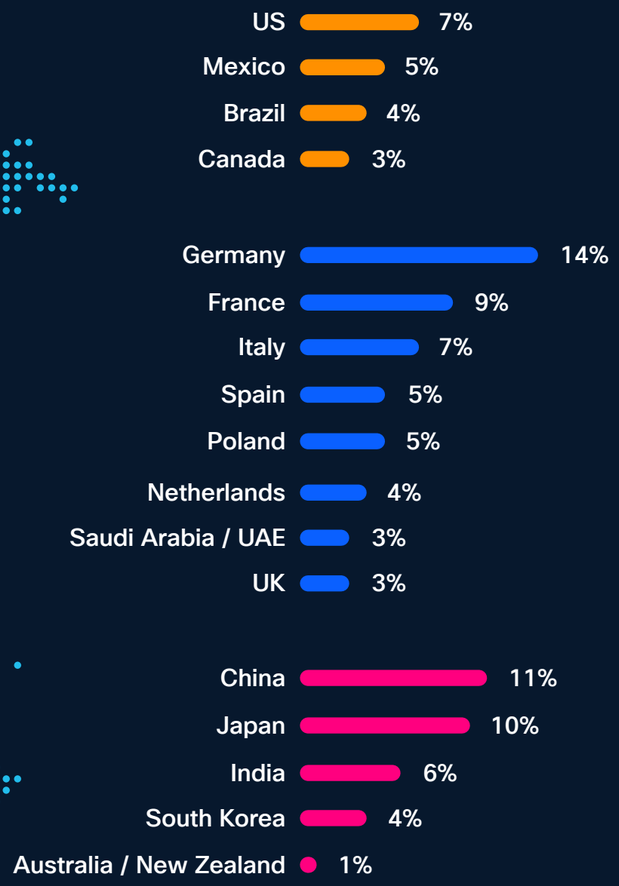
Department



Demographics & firmographics



Country



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We deliver valuable insights to support our clients understand their audience, build powerful brands, cut through the noise with great content and thought leadership. We're based in the UK and have access to over 149 million people across 130 countries, working with clients that range from top tech companies to global consultancies, Marketing/PR agencies and household name brands.

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