2024 State of Industrial Networking Report **for Manufacturing**

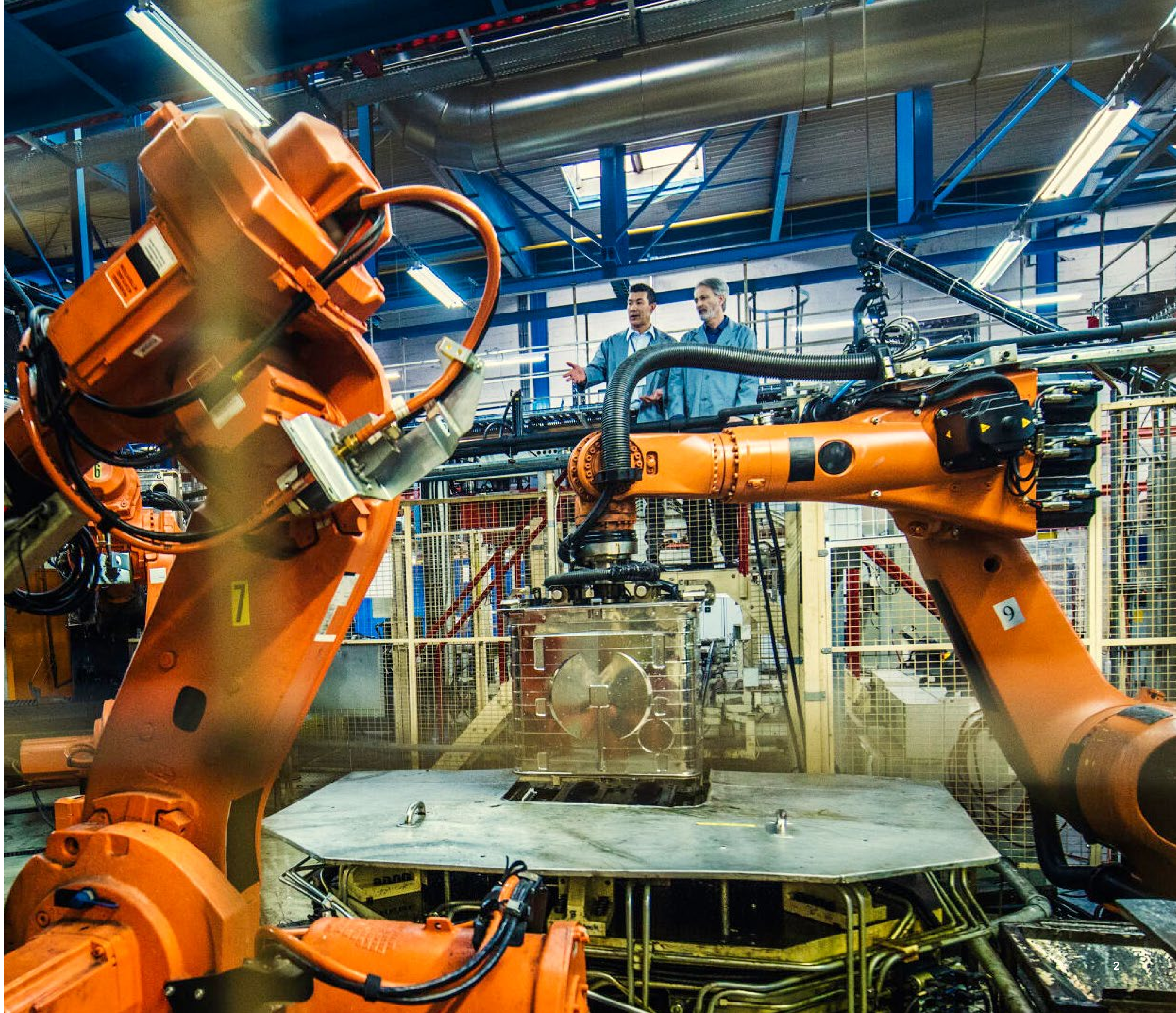
A global view of operational technology and its impact on security, growth, and innovation in the manufacturing industry.

Introduction

This report reveals how manufacturing firms worldwide are designing and deploying their operational technology estate to improve cybersecurity, quality, and efficiency.

We spoke to **739 industry professionals** from management to the C-suite, at firms with annual revenues of over **$100 million, in 17 countries**.

Cisco, in association with Sapio Research, commissioned this study to establish the highest business and technical priorities for industrial networks today. It reveals how manufacturing companies are overcoming challenges, where the opportunities lie, and how to align resources for success.



Executive Summary

Security drives infrastructure investment

Manufacturing is the sector most targeted by cyber criminals[1]. In response, firms are investing in cybersecurity solutions to protect increasingly connected infrastructure and smart factories, with 86% maintaining or increasing OT expenditure.

- **Cybersecurity is the #1 challenge** faced when running industrial infrastructure
- **Twenty percent more respondents said cybersecurity compliance was extremely important** in their operational network this year compared to last year
- **Cybersecurity is the #1 investment priority** for the next one to two years

Growing urgency for IT/OT collaboration

More than a third (35%) are increasing collaboration between IT and OT to overcome obstacles to growth. Manufacturing firms recognize the growing urgency for IT and OT teams to take an integrated approach to networking infrastructure in order to generate efficiencies and better protect against cyber threats. However, current levels of cooperation show significant room for improvement, in order to reap the benefits of an integrated approach to industrial networking.

- The **#1 benefit of IT/OT collaboration is better cybersecurity**
- **Only 19% of firms have collaborative IT/OT teams** overseeing their industrial infrastructure decision-making
- **Only 38% of manufacturing firms' IT and OT teams work collaboratively on cybersecurity**

Firms invest in an AI-ready foundation

The manufacturing sector is embracing new technologies to bolster its infrastructure resilience and reliability. In the battle to improve quality, reduce costs, and increase competitiveness, industrial networking is being refreshed to benefit from AI-powered efficiencies.

- The **#1 investment priority for manufacturing firms today is AI-enabled devices**
- **Adoption of AI is the #2 strategy (after upskilling employees) for mitigating internal obstacles to growth**
- **Over half (51%) expect AI deployment to improve network management** across both IT and OT

1 https://www.statista.com/statistics/1315805/cyber-attacks-top-industries-worldwide/

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Section 1

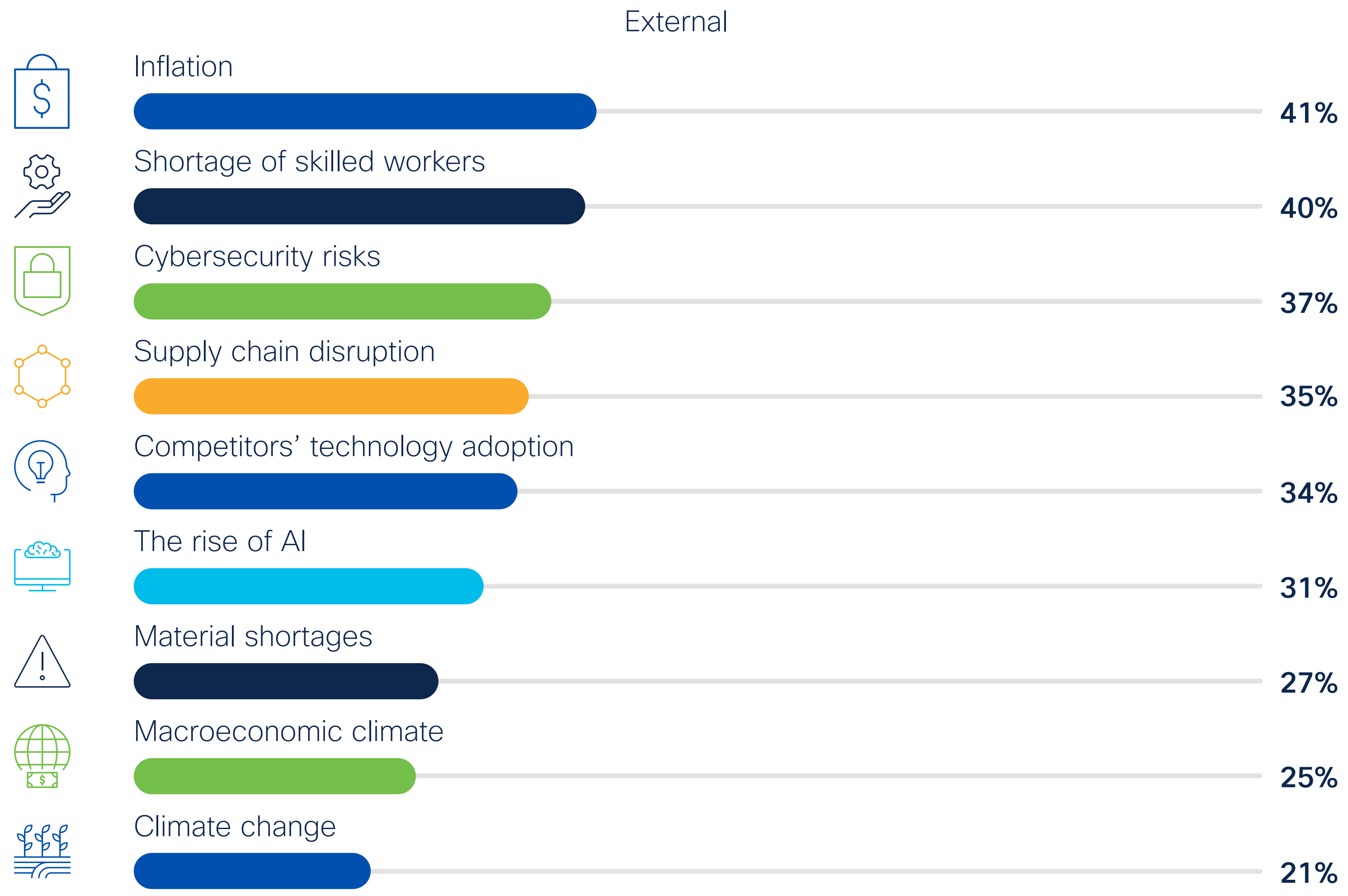
Industry overview

Obstacles to growth

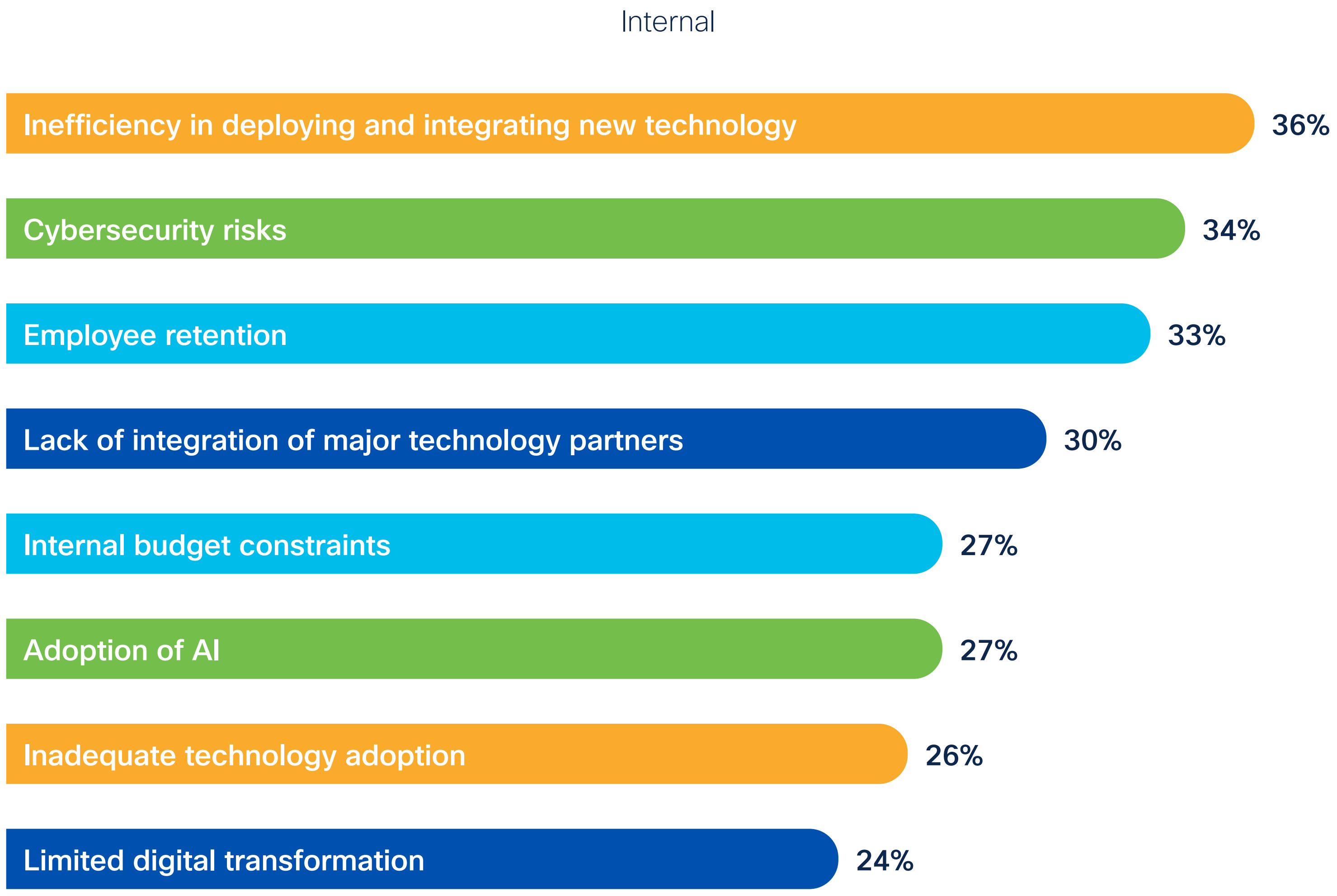
Inflation is the main external blocker to growth within the manufacturing sector.

The problem is marked in North America, where 55% of respondents cite it as a major obstacle, compared to 42% in EMEA, 39% in LATAM and 36% in APAC. Other external factors impacting growth worldwide include a shortage of skilled workers (40%) and cybersecurity risks (37%).

Organizations are struggling to efficiently deploy and integrate new technology (36%), defend against cyber risk (34%) and retain employees (33%): these are the top 3 internal barriers to growth. The largest firms in our survey, with revenues of $30 billion-plus, are most likely (41%) to be held back by problems integrating new technology.



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



Q. What do you believe are the biggest internal obstacles to your organization's growth? Select all that apply

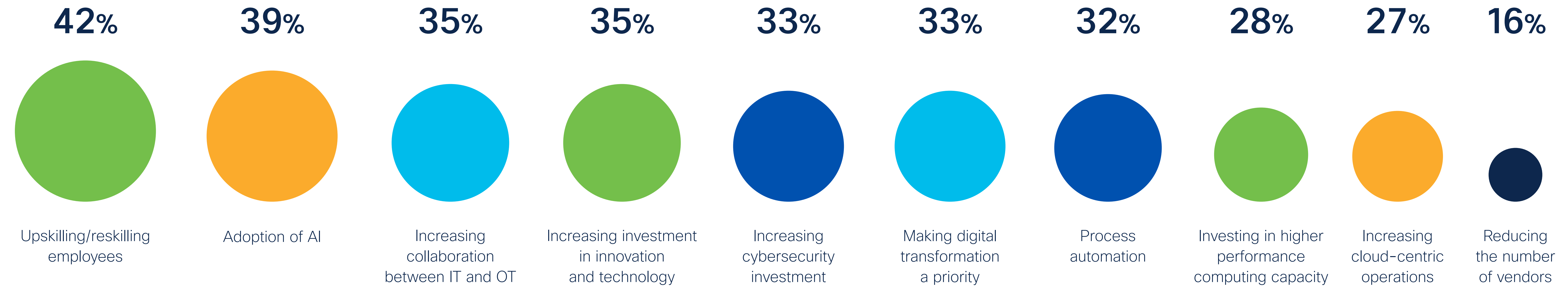
Skills, AI, and collaboration needed for growth

Manufacturers are banking on a combination of people and technology to create growth.

Forty-two percent are upskilling employees to mitigate against internal risks, while 39% are adopting AI. More than one third (35%) are increasing collaboration between IT and OT.

84%

have no plans to reduce the number of vendors they work with, indicating a preference to optimize existing technology rather than attempt to shed and consolidate platforms.



Q. How is your organization mitigating these internal obstacles? Select all that apply

Efficiency and production drive OT investment

The vast majority of manufacturing firms (86%) are maintaining or increasing OT investment.

More than one-third (35%) hope to improve efficiency, while increasing production (32%), improving cybersecurity (25%), and cost savings (25%) were also cited as priorities. Improving efficiency is of particular concern for those working in oil and gas (45%), while increasing production is the top driver for OT investment in metals and mining (42%) and automotive firms (40%).

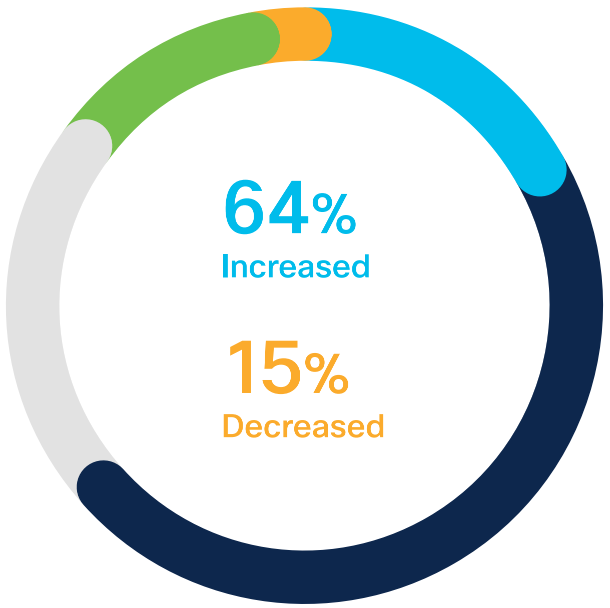
17% Increased significantly

47% Increased slightly

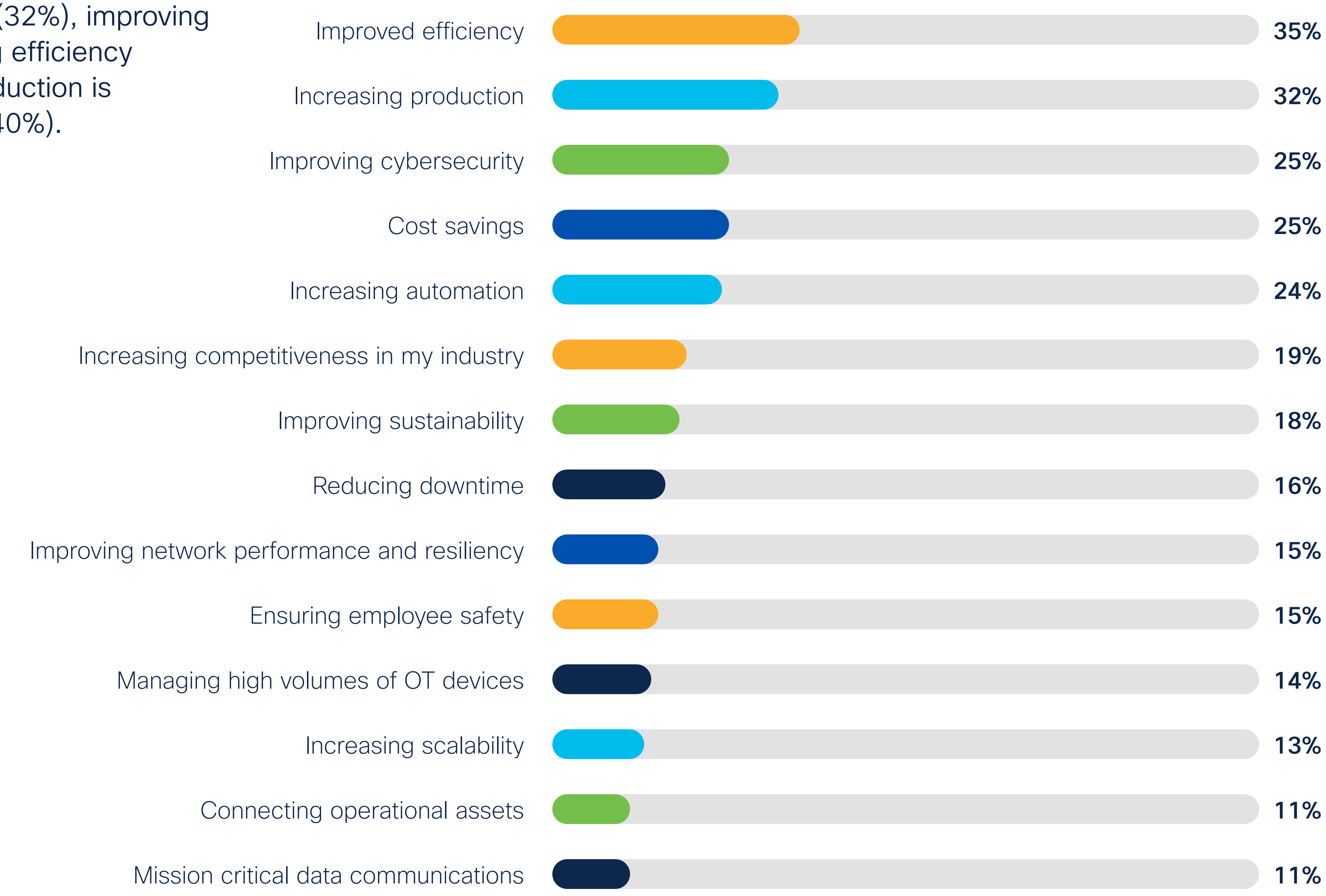
22% Remained the same

12% Decreased slightly

3% Decreased significantly



Q. How did your industrial/OT infrastructure spend change in the past year? Select one

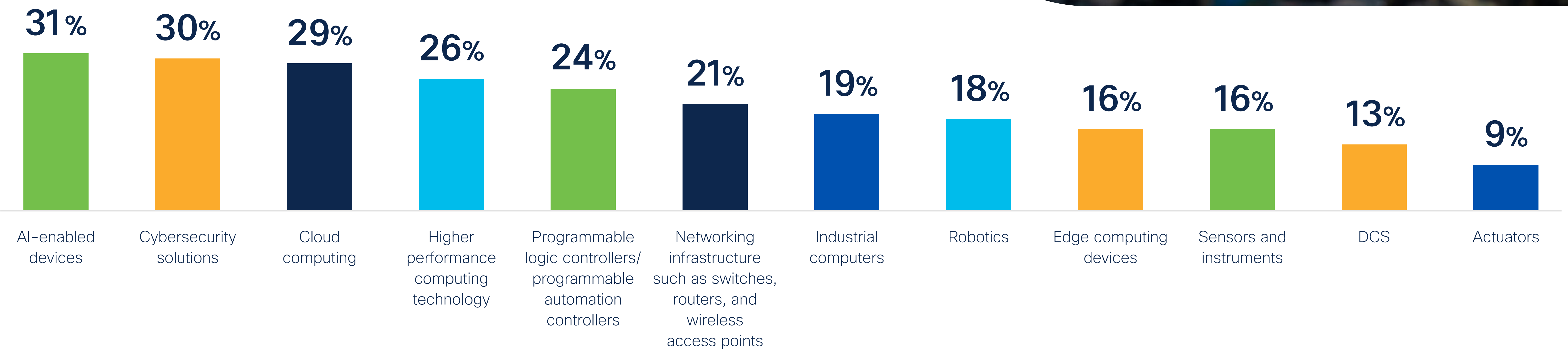


Q. Which of the following are the key drivers for investment in industrial infrastructure within your organization? Select up to three

Firms bolster AI and cybersecurity capabilties

The top investment priorities for manufacturing firms today are AI-enabled devices (31%) and cybersecurity solutions (30%).

The largest firms in our survey ($30bn+ revenue) are ten percentage points more likely to be investing in AI-enabled devices than the smallest ($100m-$499.9m revenue) – at 39% versus 29%.



Q. Which types of industrial/OT infrastructure are receiving the most investment in your organization currently? Select up to three

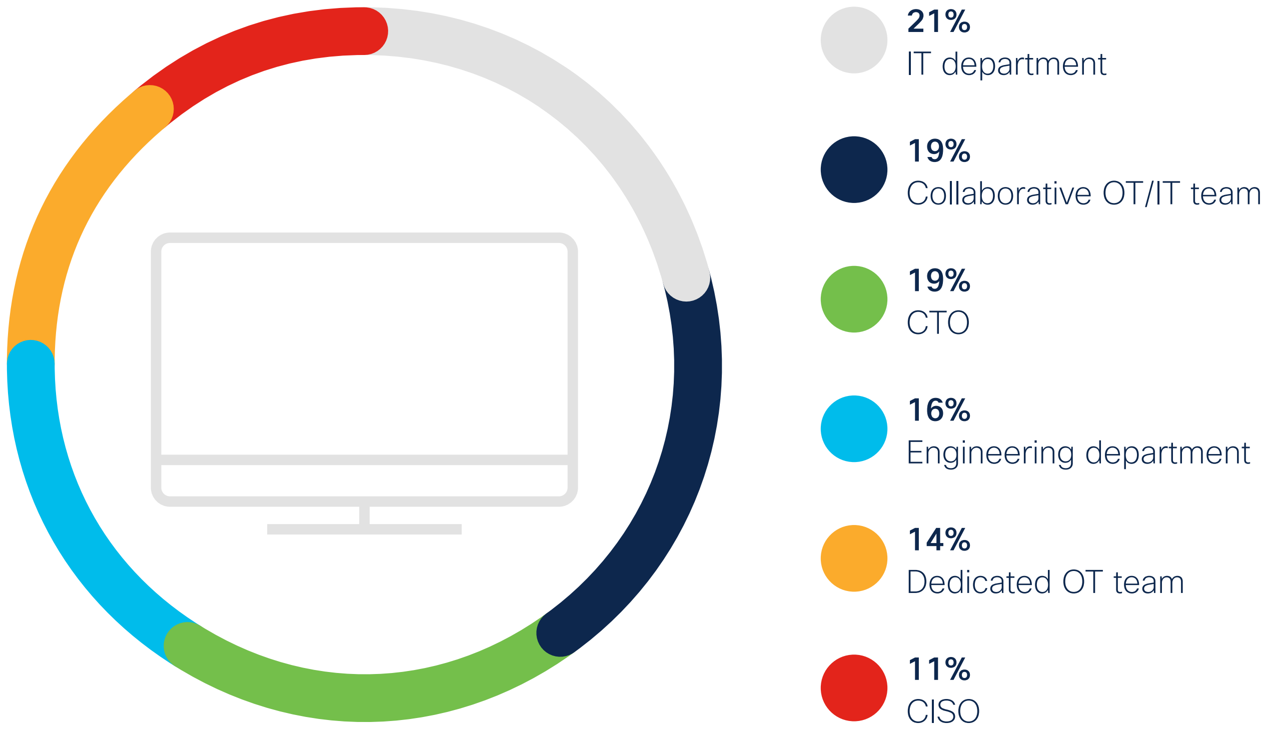
Section 2

Challenges & opportunities

Opportunities to increase IT/OT collaboration

IT and OT work together to make decisions on industrial infrastructure at only 19% of manufacturing firms.

This level of collaboration is lower than we see in sectors such as transportation, where one quarter (25%) give decision-making responsibility to a joint IT/OT team.



Q. Who is the ultimate decision-maker or decision-making unit responsible for industrial/OT infrastructure operations in your organization? Select one

Cyber attacks are biggest threat to infrastructure

Cyber threats (39%) are the largest challenge when operating industrial infrastructure, followed by a lack of standardization (37%) and managing multiple vendors (36%).

#1 39%
Implementing robust cybersecurity measures and mitigating cyber threats

#2 37%
Lack of standardization across industrial infrastructure

#3 36%
Managing multiple vendors, including strategic partners and point solutions

#4 33%
Lack of collaboration and efficiencies with IT

#5 31%
Meeting regulatory compliance requirements

#6 28%
Addressing equipment maintenance and aging infrastructure

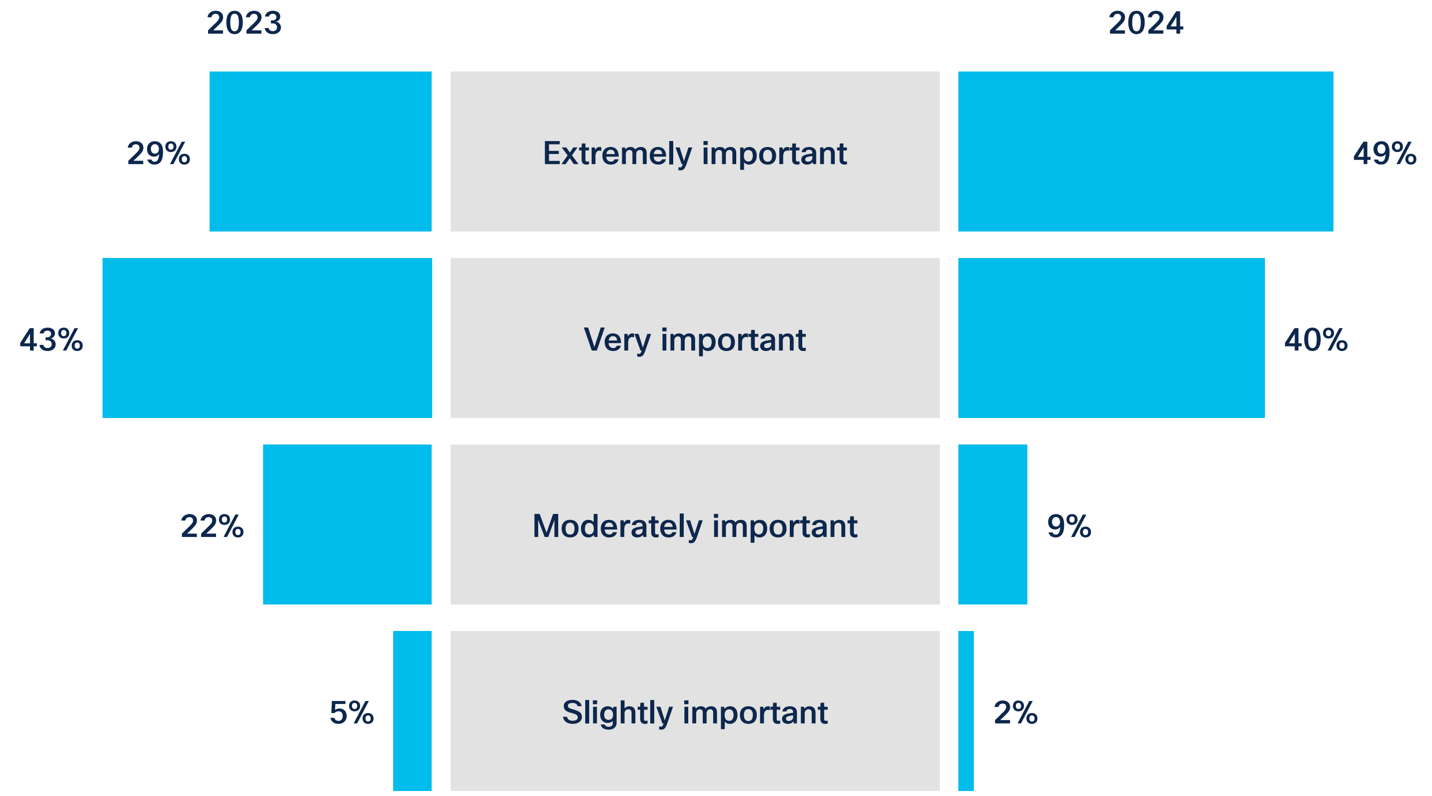
#7 25%
Lack of visibility and inventory of connected assets

Q. What are the biggest challenges your company faces in the optimal running and maintenance of its industrial infrastructure? Select all that apply

A leap in cybersecurity importance

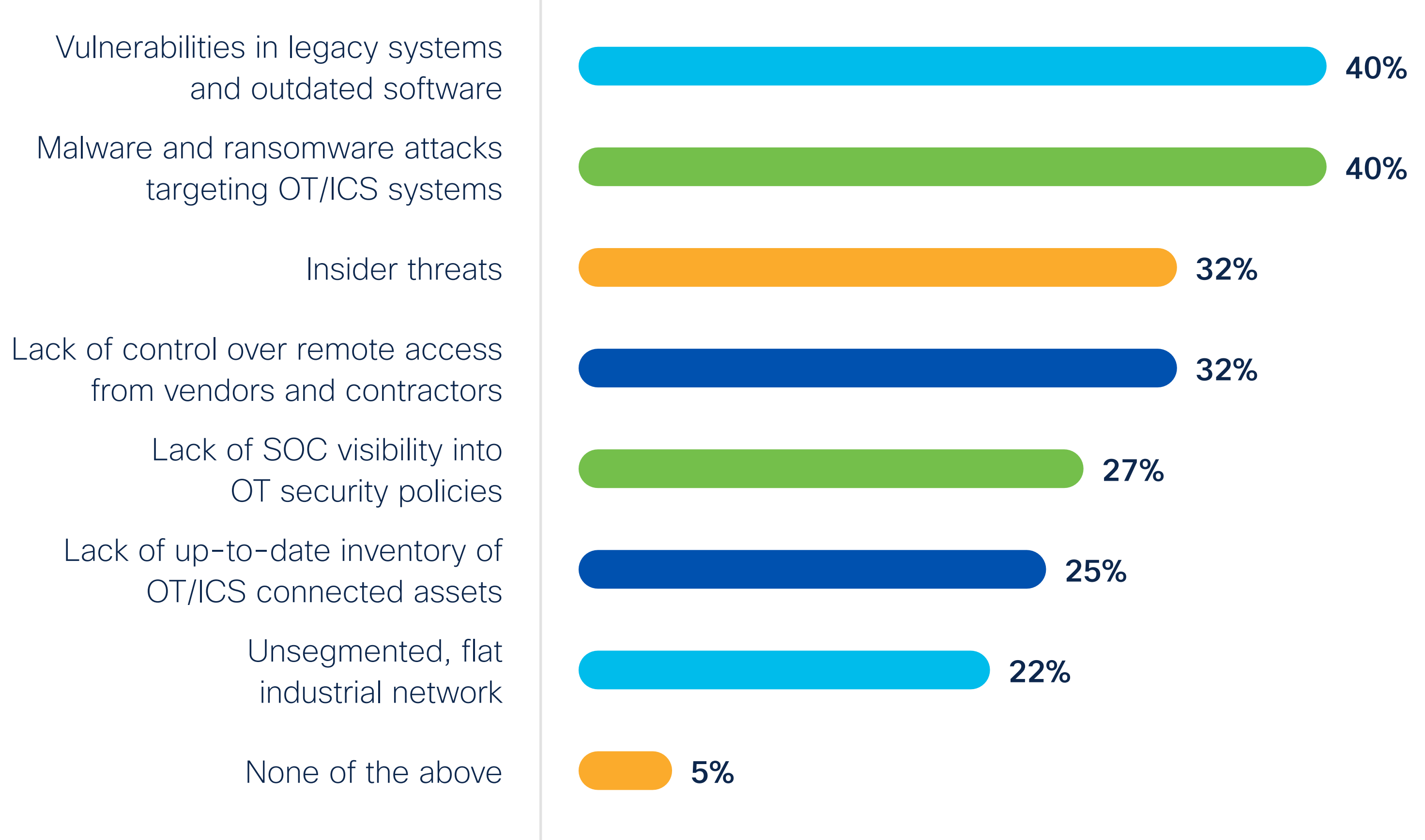
Ensuring cybersecurity compliance in operational networks is a global priority and is growing year-on-year.

Twenty percent more firms say cybersecurity compliance is extremely important in their operational network this year, compared to 2023.



Q. How would you describe the importance of cybersecurity compliance in your operational network?

The main industrial infrastructure cybersecurity challenges are **vulnerabilities in legacy systems and outdated software (40%) and malware or ransomware attacks specifically targeting operational technology (40%).**



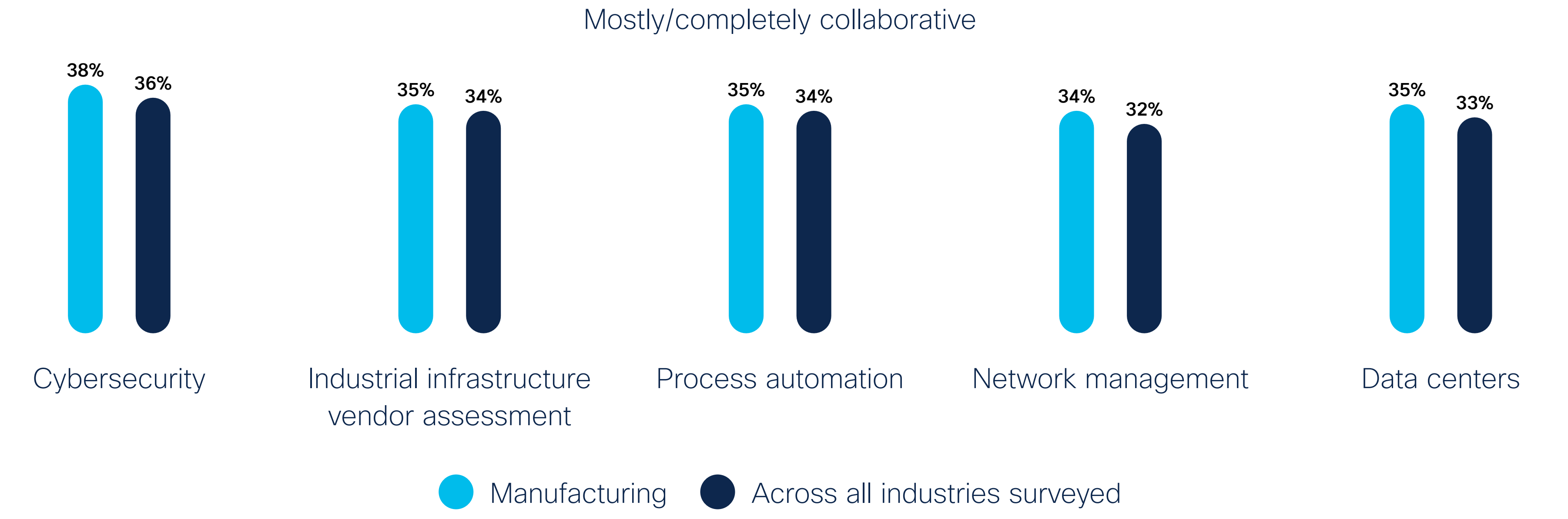
Q. What specific cybersecurity challenges have you encountered in your industrial networks? Select all that apply

Cybersecurity sees most collaboration

Collaboration between IT and OT is paramount to boost performance, operate more efficiently, and protect more effectively against cybersecurity threats.

Our findings reveal an opportunity for more firms to capitalize on these potential benefits through partnering on areas of functional overlap. **Cybersecurity is the area of most collaboration for IT and OT teams (38%)**, while they're least likely to work together on network management (34%).

Across four of the five areas surveyed (data centers being the exception) **we see most IT/OT collaboration in LATAM and least in APAC**. The widest disparity is in cybersecurity, where 52% of LATAM teams are collaborating compared to just 29% in APAC (41% in EMEA and 38% in North America).

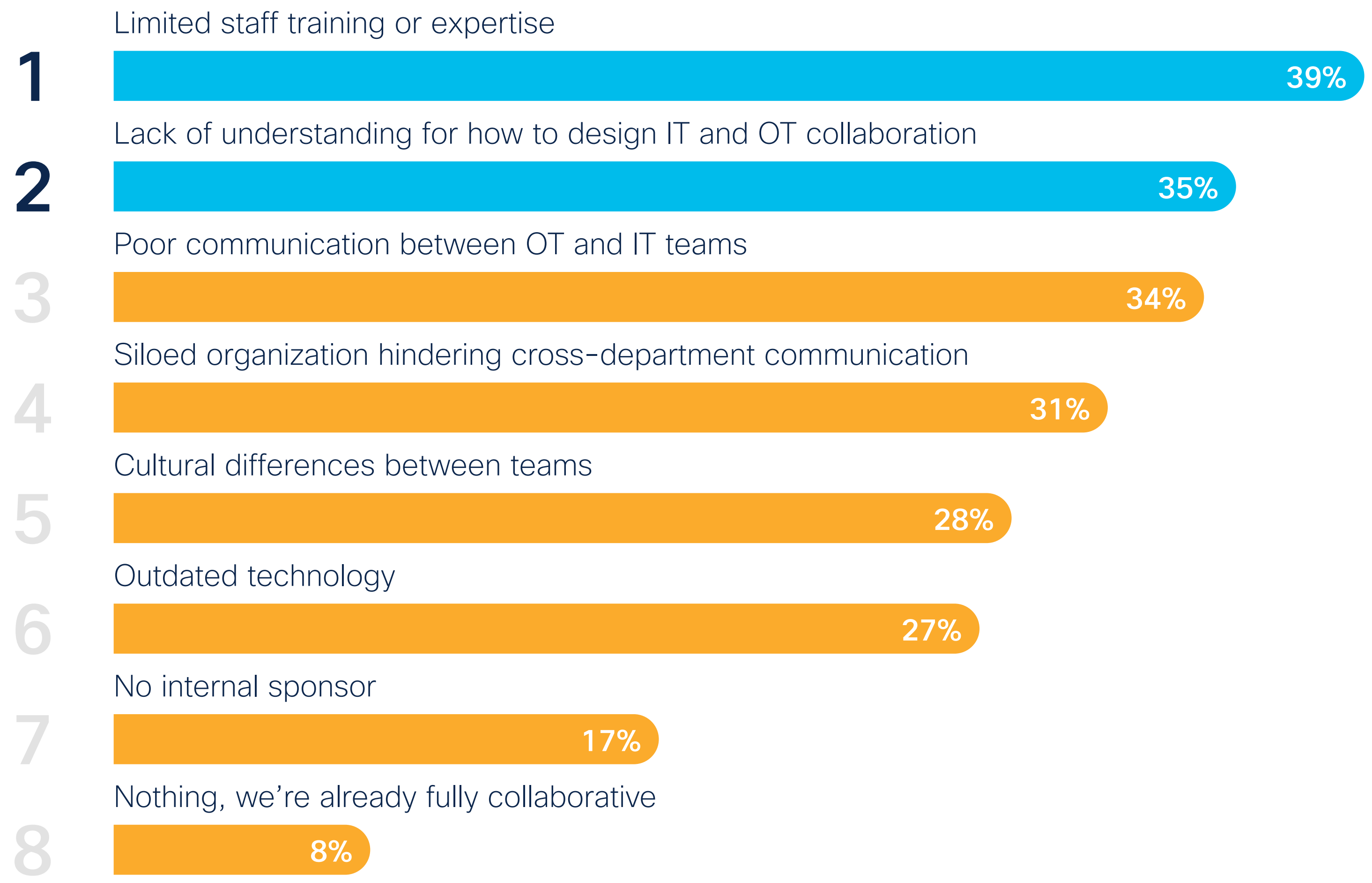


Q. On a scale of 1 to 5, with 1 being completely independent and 5 being completely collaborative, how would you rate the state of inter-working between IT and OT in relation to your organization's… [cybersecurity, industrial infrastructure vendor assessment, process automation, network management, data centers]?

Training issues hamper IT/OT alignment

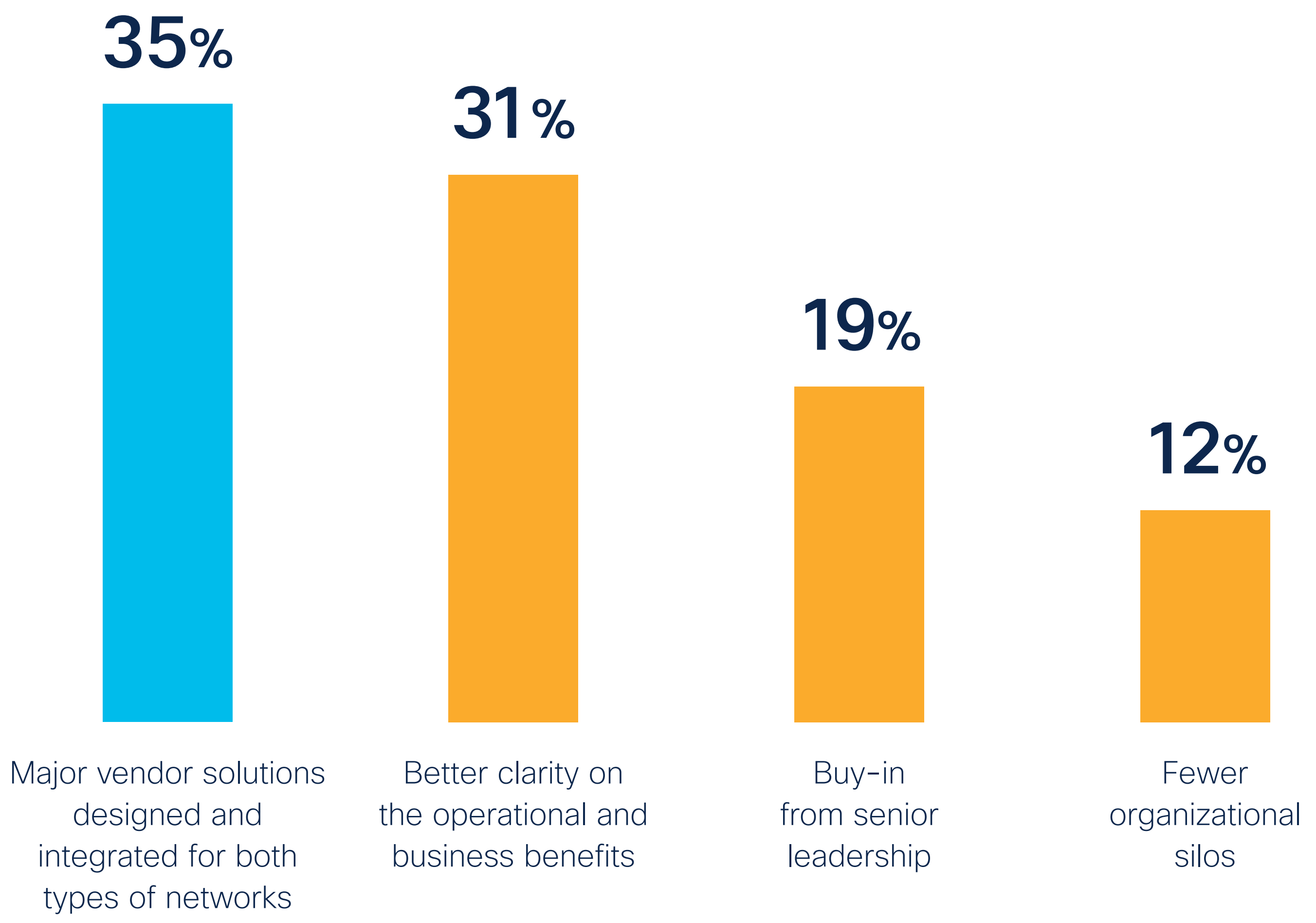
IT and OT teams would partner more if better training and expertise were available to support them (39%) and if there were more understanding of how to design collaboration between the two functions (35%).

The largest companies in our report, those with $30 billion-plus revenues, are 15 percentage points more likely to say organizational barriers are hindering collaboration than the smallest ($100m-$499.9m revenue).



Q. What's holding your organization back from further collaboration between of OT and IT? Select all that apply

Over **one-third (35%) say major vendor solutions designed and integrated for both types of networks would speed up IT/OT collaboration.**

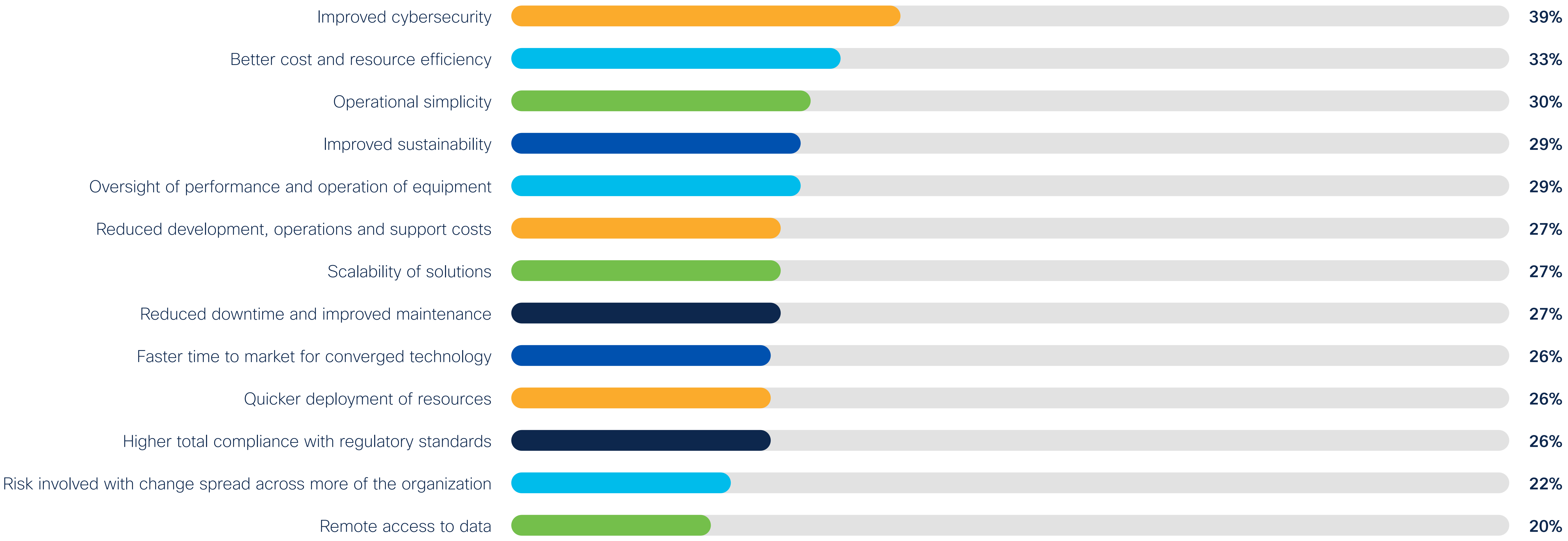


Q. What would accelerate the rate of OT and IT collaboration most within your organization? Select one

Closer IT/OT improves cybersecurity

The number one benefit of IT/OT collaboration in manufacturing is improved cybersecurity (39%).

One third (33%) also see cost and efficiency benefits, and another 30% say collaboration improves operational simplicity. Firms seeing the strongest cybersecurity benefits from IT/OT partnerships are those operating in life sciences (46%), and hi-tech and semiconductors (42%).



Q. What do you think are the main benefits of IT and OT collaboration? Select all that apply

Section 3

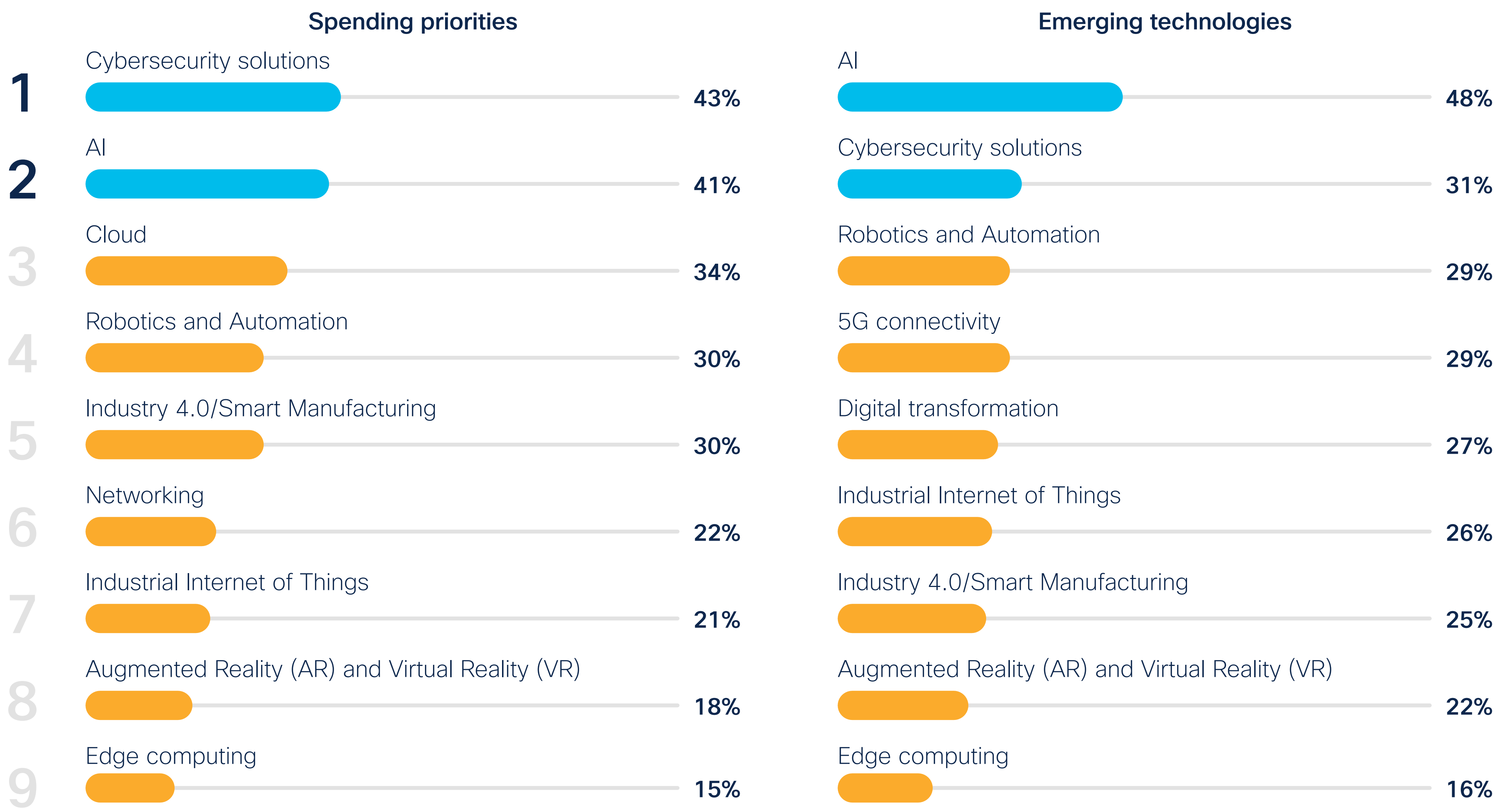
Looking ahead

AI and cybersecurity top investment priorities

Cybersecurity (43%) and AI (41%) top the charts of planned investments for the next one to two years.

There is a significant difference of 31 percentage points between the number of LATAM firms who say AI is a top spending priority (65%) and those in North America who say the same (34%).

AI (48%) is the emerging technology expected to have most impact on OT, followed by cybersecurity solutions (31%). Again, we see a disparity of opinion on the topic between North American firms (38%) and those in the LATAM region (74%). Conversely, 24% of firms in North America believe edge computing will have a significant impact on industrial networking in the next one to five years, compared to just 9% in LATAM.

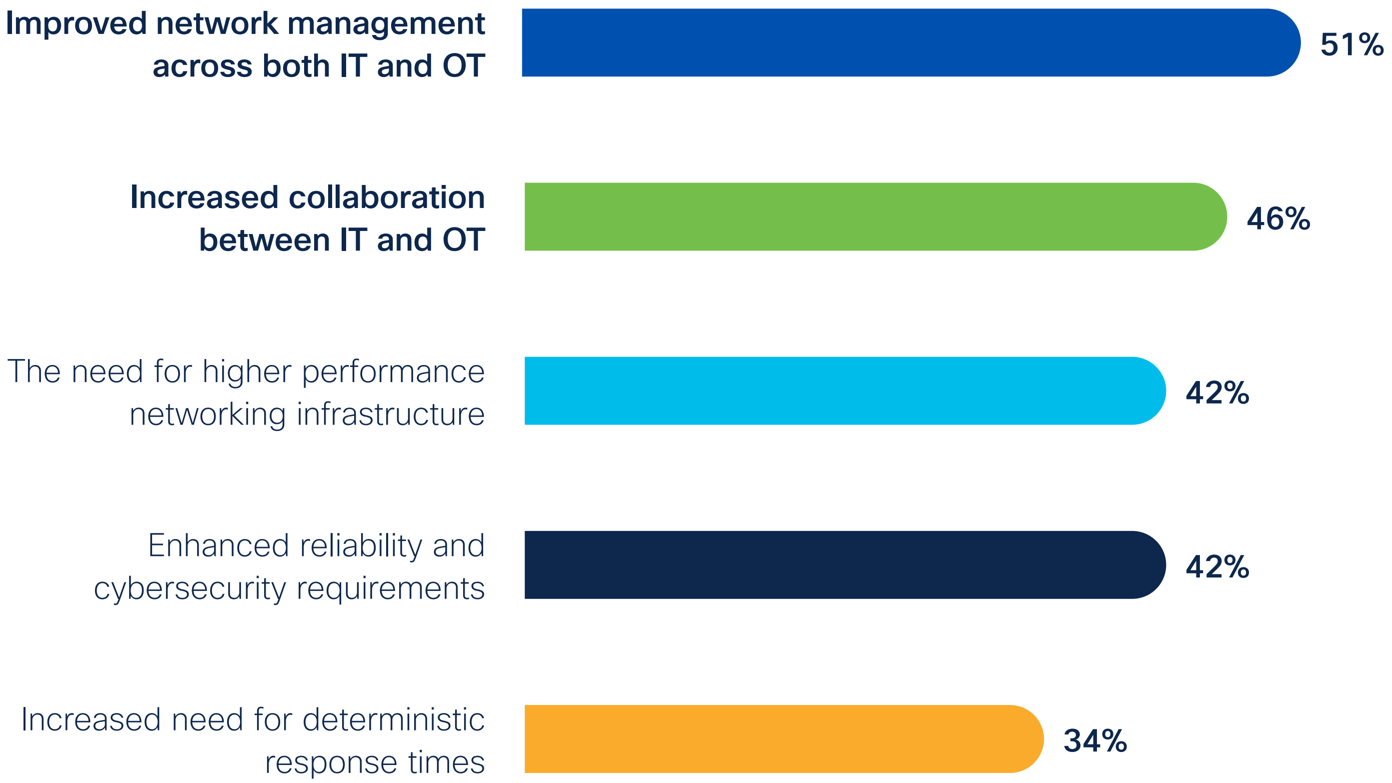


Q. What are your organization’s main technology spending priorities for the next 12-24 months? Select up to three
Q. What emerging technologies do you believe will have the most significant impact on industrial networking over the next 5 years? Select up to three

AI expected to improve network management

Over half (51%) of respondents are looking forward to AI improving network management across both IT and OT in their organizations.

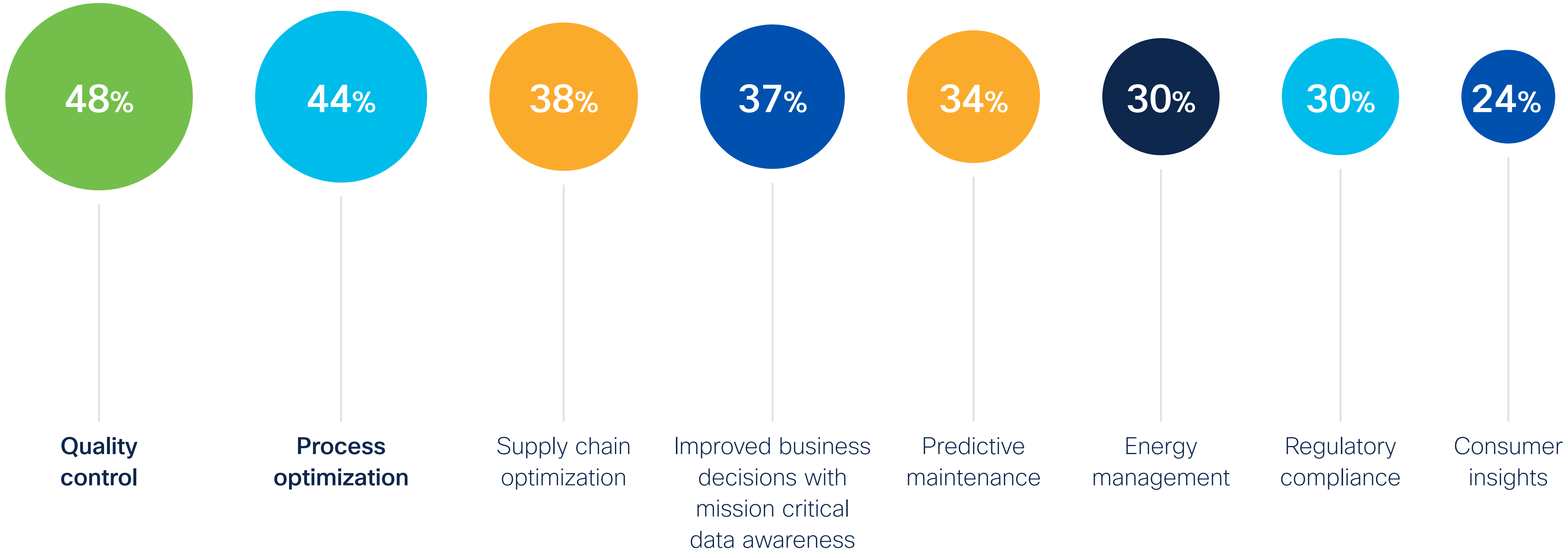
A further 46% anticipate it leading to better collaboration across IT and OT.



Q. What impact, if any, do you think the deployment of AI will have on industrial networking within your organization? Select all that apply

OT data fuels quality and optimization

Those companies who successfully capture and analyze the data from industrial networking will gain a competitive advantage: **48% plan to use OT data to improve quality, while 44% will optimize their processes.**



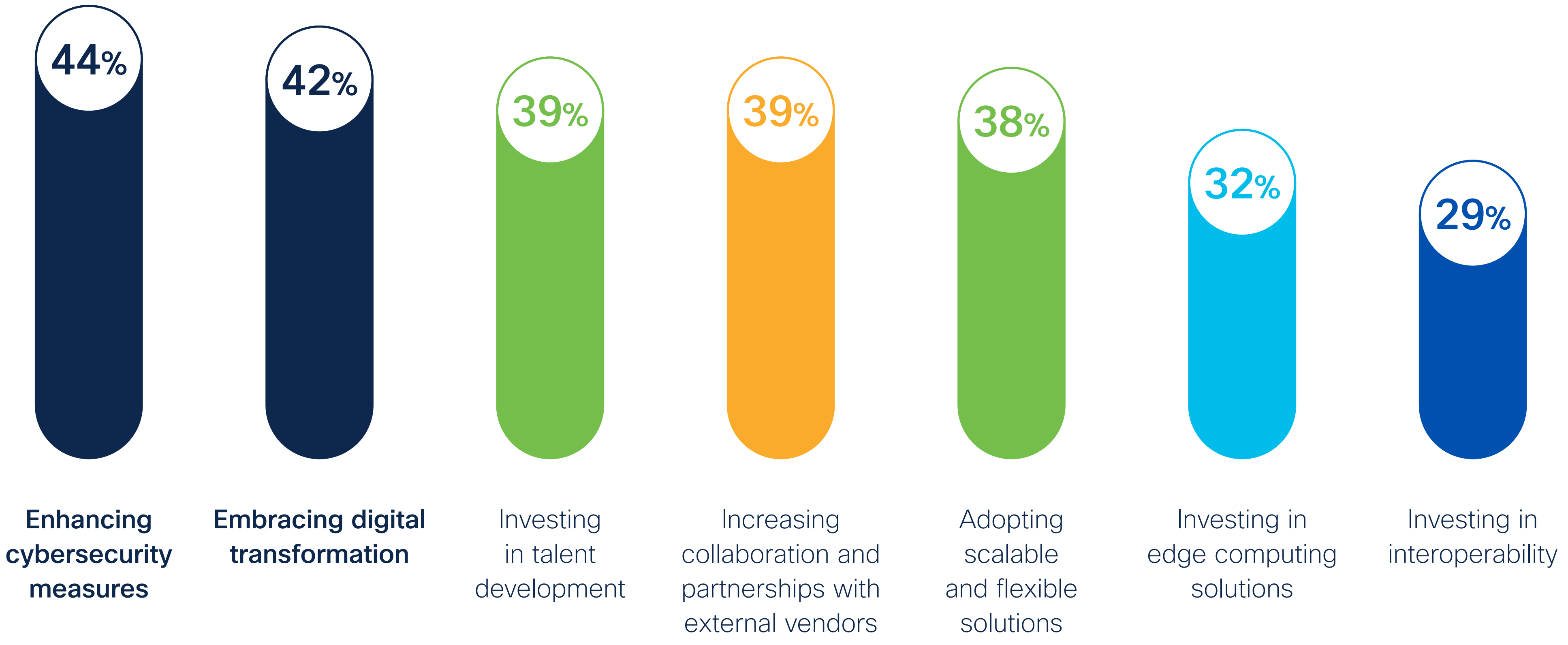
Q. How is your organization leveraging or planning to leverage the data obtained from operational technology (OT)? Select all that apply

Future-proofing through tech and talent

Forty-four percent of respondents are planning on enhancing cybersecurity measures to future-proof their OT infrastructure over the next two years.

Another 42% are driving forward with digital transformation. Manufacturing firms are also planning to mitigate the impact of skills shortages on OT infrastructure by investing in talent development (39%) and increasing external partnerships (39%).

Increasing collaboration and partnerships with external vendors is the #1 strategy for those at the top of the company (C-suite, director and vice-president/senior vice-president level).



Q. What strategies is your organization looking to implement in the next two years to future proof their OT infrastructure? Select all that apply

Key takeaways

The industrial operational networking landscape is a place of enormous change and opportunity for manufacturing firms who can overcome its inherent challenges.

1 Prioritize cybersecurity in your manufacturing infrastructure

Strengthening cyber defenses is imperative not only to maintain operations today, but to allow for progress toward a more robust and resilient manufacturing environment. Cybersecurity considerations must be prioritized in industrial networking strategies.

2 Introduce measures to encourage IT/OT collaboration

IT and OT can no longer work in isolation as their skills and domains increasingly overlap. A combination of human and organizational factors, alongside unified technological solutions, will be required to optimize and protect data and assets.

3 Harness AI for competitive advantage

Leaders in the manufacturing sector are embracing AI to improve network management, cybersecurity, quality, and collaboration. Organizations who fail to refresh their industrial networking infrastructure for AI will struggle to compete.

Industrial networking partner considerations

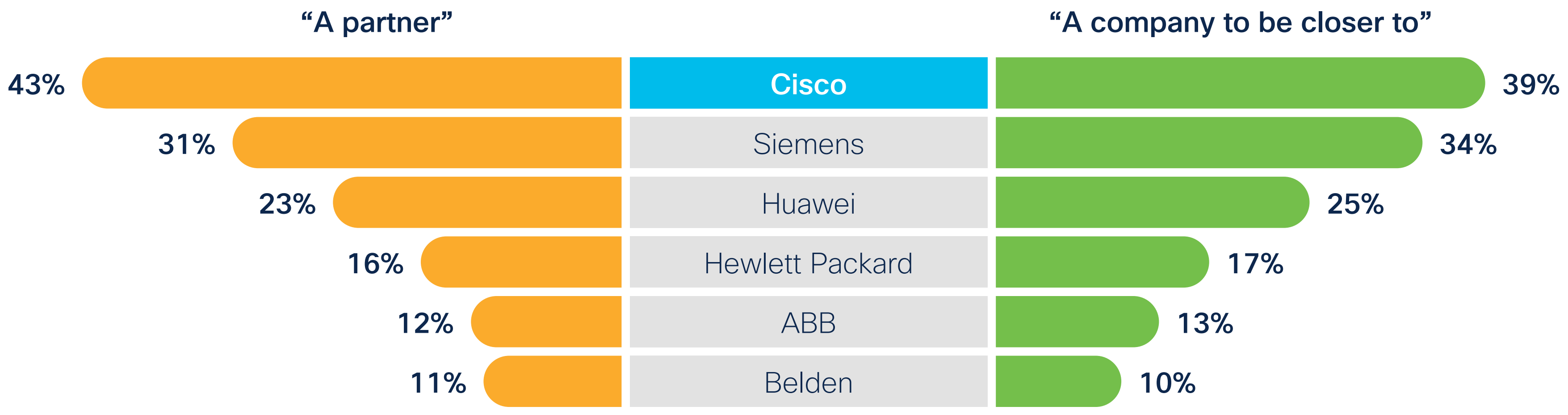
As you outline your industrial networking strategy and select a partner to support you on that journey, consider four important factors.

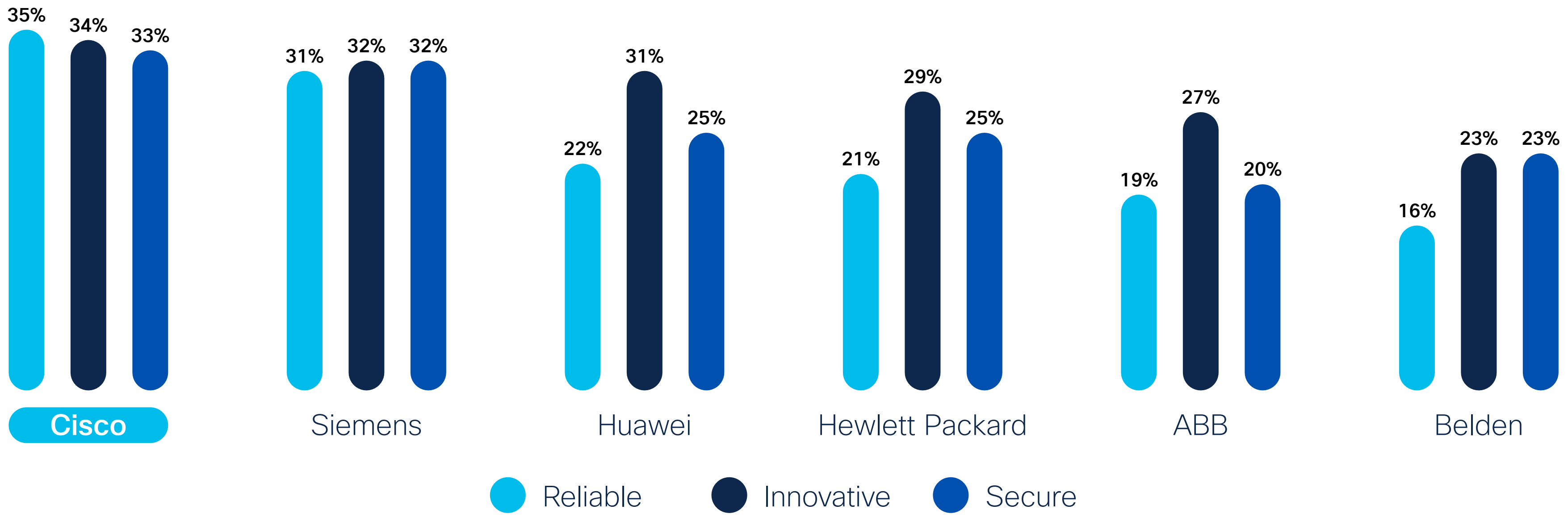
#1
A major vendor solution, designed for both IT and OT, can support better collaboration between these two teams (while, conversely, siloed point solutions can have the opposite effect).

#2
In order to maximize AI potential via fit-for-purpose infrastructure, it's important to partner with a provider such as Cisco, that is consistently named a networking leader by analysts including Gartner and Forrester.

#3
A strong, open relationship with a partner naturally leads to more successful deployments. Respondents to our global survey were more likely to describe Cisco as a 'partner' (43%) or a company they were 'closer to' (39%) than five other named providers.

#4
Reputation matters when it comes to choosing the right partner. Against five other named providers, Cisco was named top by survey respondents for reliability, innovation, and security.





Q. Of the following suppliers, which do you consider to be a partner/closer to? Select all that apply
Q. Which of these attributes do you associate most with each of these suppliers? Select all that apply

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