

Wired for Intelligence: Powering the future of Manufacturing with AI-Ready Networks

InfoBrief, sponsored by NTT DATA and Cisco



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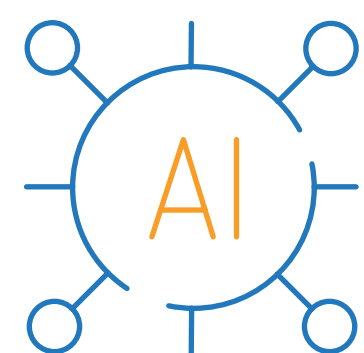
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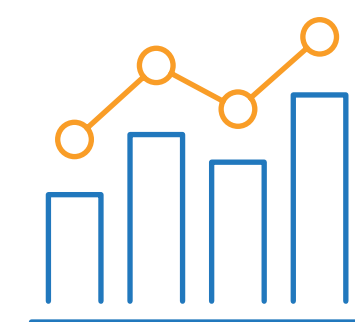
Executive Summary: AI-powered networking is redefining the digital enterprise and driving better outcomes.

In a rapidly evolving digital landscape, AI is revolutionizing networking across industries, offering unprecedented opportunities for growth and efficiency. This IDC InfoBrief delves into the transformative impact of AI on networking, highlighting its critical role in manufacturing. By leveraging AI-driven monitoring, automated configuration, anomaly detection, and self-healing capabilities, organizations can enhance network resiliency and responsiveness, driving tangible business benefits.



AI Networking Insights

AI is reshaping network management by enabling advanced automation, enhancing security, and optimizing performance, thus becoming a strategic asset for businesses.



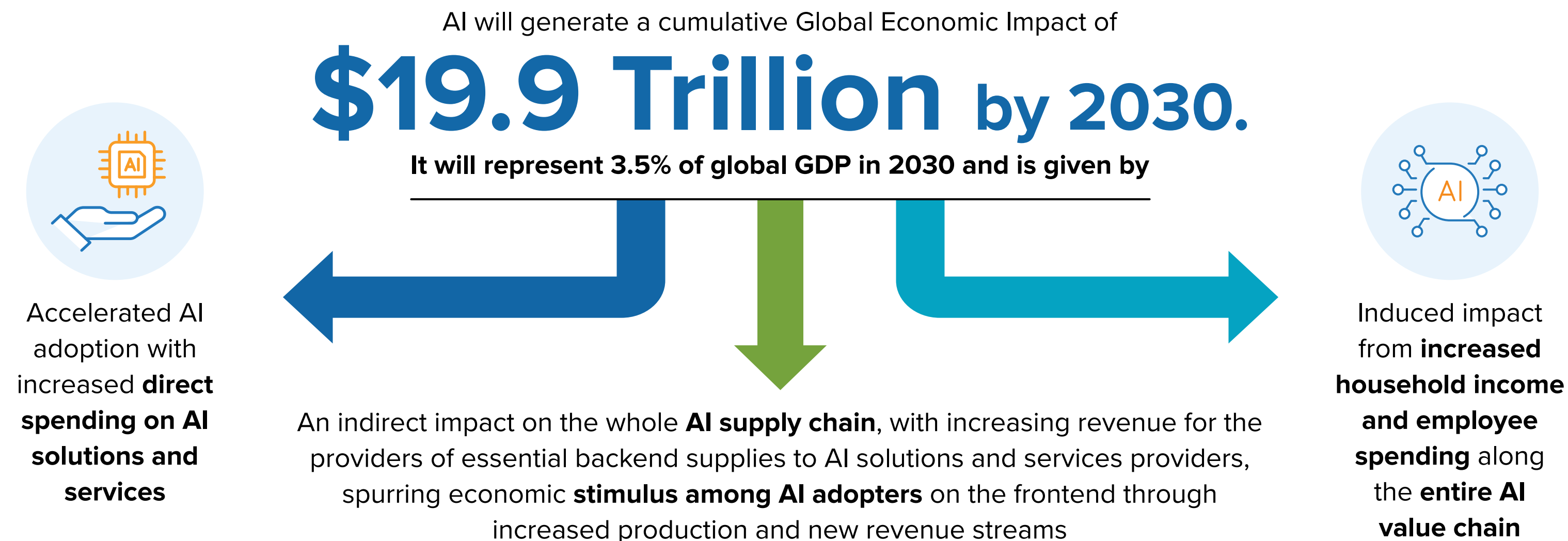
Manufacturing Trends

Manufacturing firms are already integrating AI into network functions, with expectations to increase substantially, driving operational efficiency and innovation.

Over 78% of companies state that networking capabilities are either important or very important in selecting a provider for generative AI (GenAI) infrastructure. By harnessing the power of AI in networking, organizations can enhance their operational capabilities, foster innovation, improve their competitive position, and accelerate business growth.

AI will have a significant economic impact and is transforming the future of every industry.

- Businesses across various sectors are recognizing the **transformative potential of AI** and are allocating significant portions of their budgets to integrate these technologies into their operations.
- The **entire AI supply chain**, from providers of essential backend supplies to AI solutions and services providers, is experiencing **increased revenue**.
- This growth extends to AI adopters on the frontend, who benefit from **enhanced production capabilities** and **new revenue streams**.
- The **ripple effect of AI adoption** is creating a robust economic ecosystem that supports sustained growth.

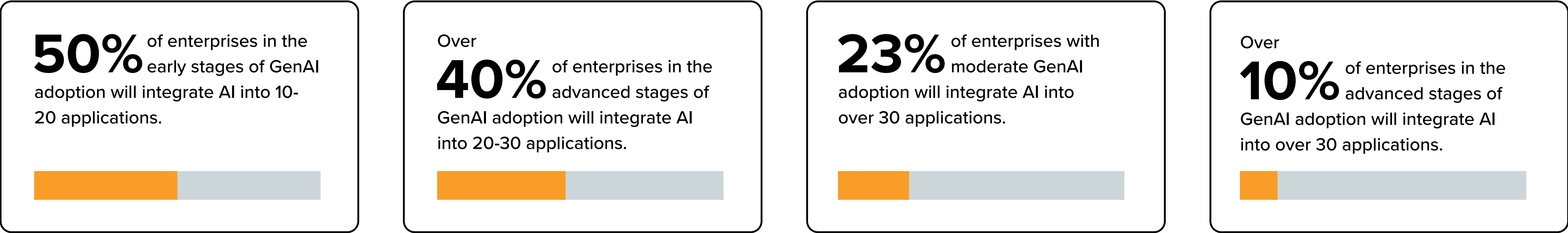


In 2030, every new dollar spent on business-related AI solutions and services will generate \$4.6 into the economy, in terms of indirect and induced effects.

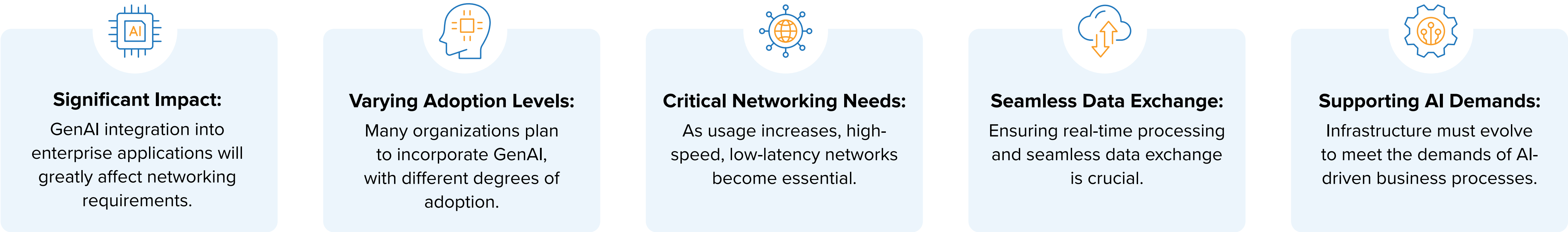
- Notes:**
- Global Economic Impact is calculated as a cumulative sum of the direct, indirect, and induced economic impact from 2024 to 2030.
 - Percentage of GDP is calculated using the total economic impact of AI in 2030 and the projected worldwide GDP by IMF in 2030.

The accelerated adoption of AI technologies is driving massive investment, which aims to unlock new efficiencies, innovation, and competitive advantage across industries.

Enterprises want to adopt AI, but they are still working from old playbooks.

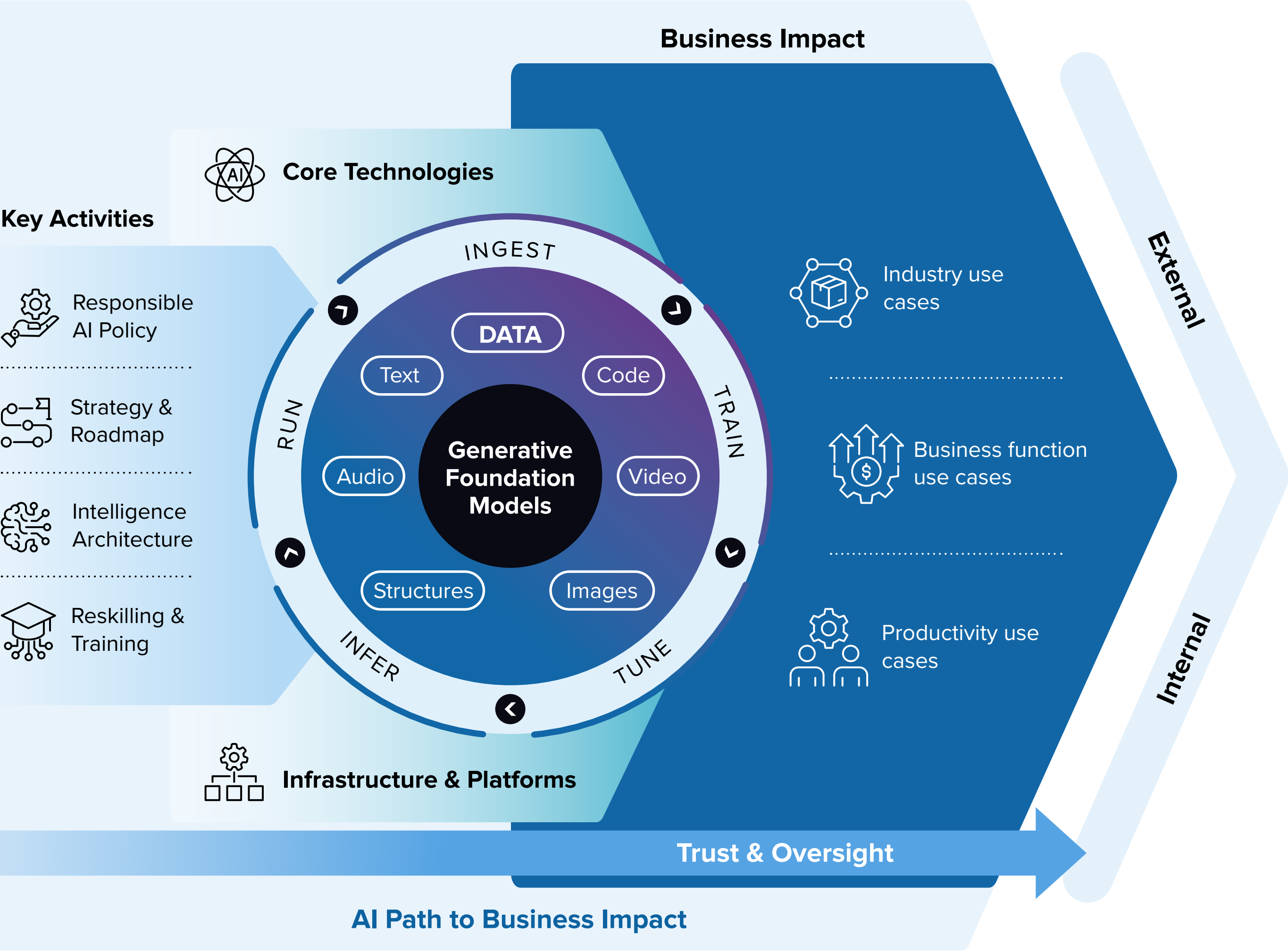


Total sample: N=1,209 – **Weighted base:** N=1,209. **Q:** Over the next year, within how many enterprise business or IT applications does your organization plan on integrating Generative AI (GenAI) model results?-



Networks must evolve to become smarter and more adaptive, leveraging AI-enabled services to meet the heightened expectations of today’s digital business and surpass the capabilities of yesterday’s service providers.

Technology support should go beyond SLAs and break-fix/uptime to include business outcomes.



Service level agreement

Performance, Reliability, Uptime

Ensures business continuity, minimizes disruptions and maximizes user productivity

KPI: Availability, response times for critical services



Utilization level agreement

Resource optimization and cost efficiency

Reduces IT spending, optimizes resource allocation and minimizes security vulnerabilities

KPI: Cost reduction and improved license usage level



Value level agreement

Business outcomes and strategic alignment

Drives business growth, enhances customer experience, mitigates risks and delivers measurable ROI

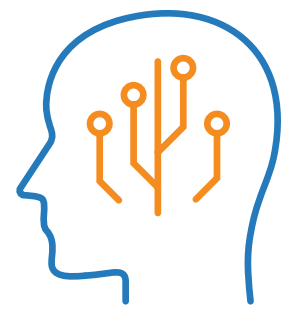
KPI: Increased revenue and customer satisfaction



Shift the focus from uptime to outcomes:

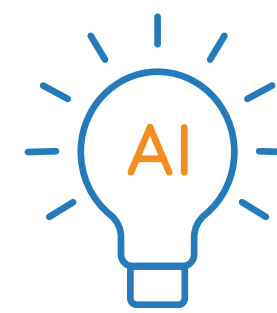
Align technology support with what the business truly values.

Companies can maximize business impact through strategic AI vendor and technology selection.



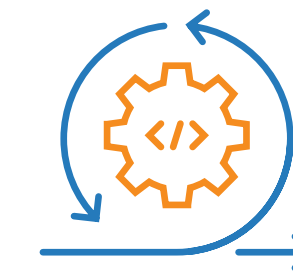
Focus on Outcomes, Not Products

When selecting vendors and technologies, prioritize **solutions that deliver tangible business outcomes** rather than just focusing on product features. Ensure that your **technology investments align with strategic goals**, driving measurable results that enhance overall business performance.



Look for Value Creation from AI Technology and Services

Choose vendors who offer **AI solutions and services designed to create value** by enhancing efficiency, fostering innovation, and providing a competitive edge. By maximizing the value derived from AI investments, businesses can achieve sustainable growth and long-term success.

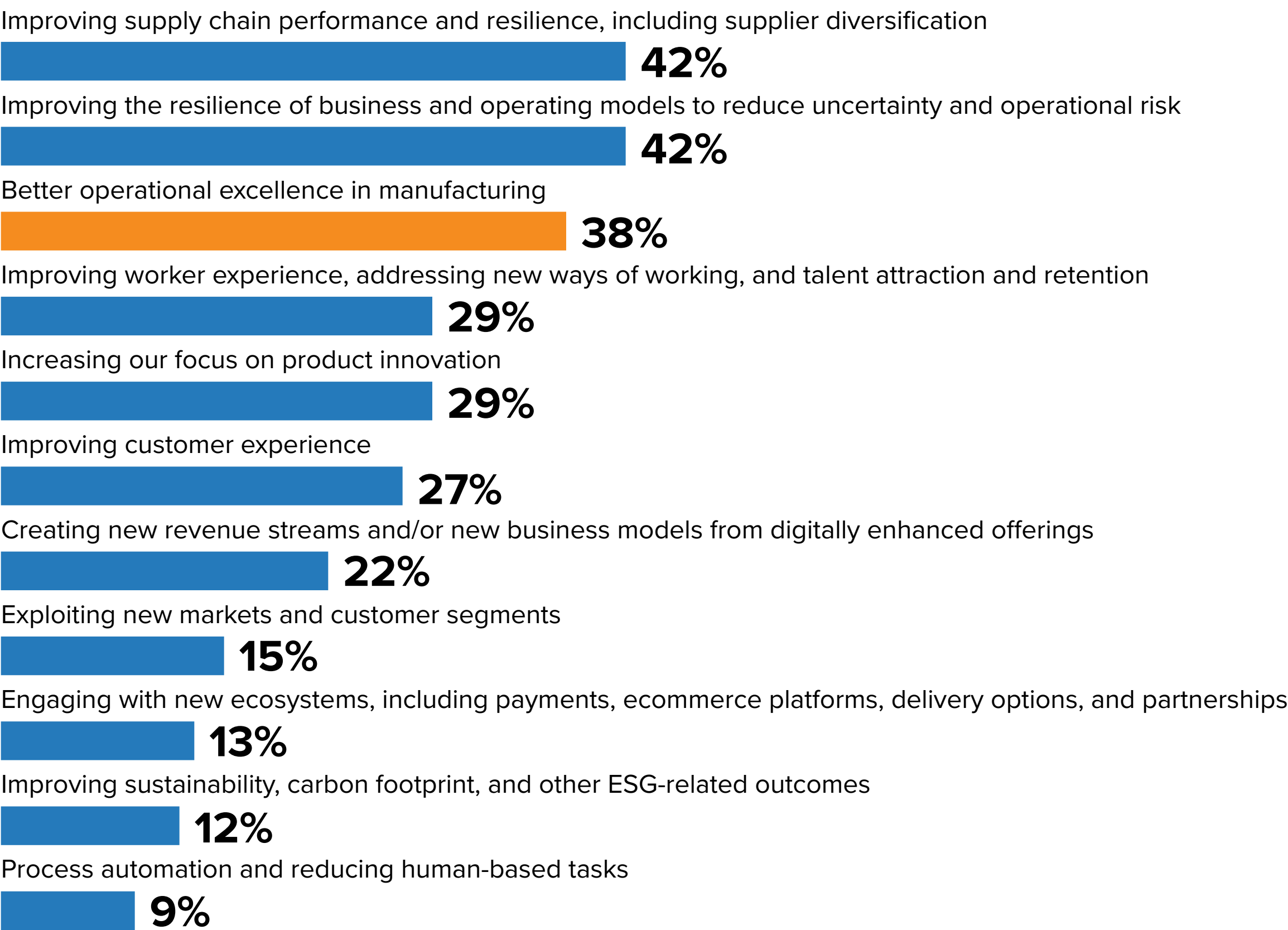


Use AI to Improve Lifecycle Services

Leverage **AI to optimize lifecycle services**, from initial deployment to ongoing maintenance, ensuring that each phase benefits from AI-driven insights and automation. This approach guarantees **continuous improvement and operational excellence** throughout the technology lifecycle, reducing costs and enhancing service quality.

Factory operations have been put front and center to drive business results. However, new practices must be established.

What are your company's top business priorities over the next 2 years?



Manufacturers manifest three main needs in making their operational process relevant today:

New production requirements: Manufacturers must effectively oversee and operate interconnected factory networks, which calls for centralized coordination to manage production adjustments to accommodate changing demand.

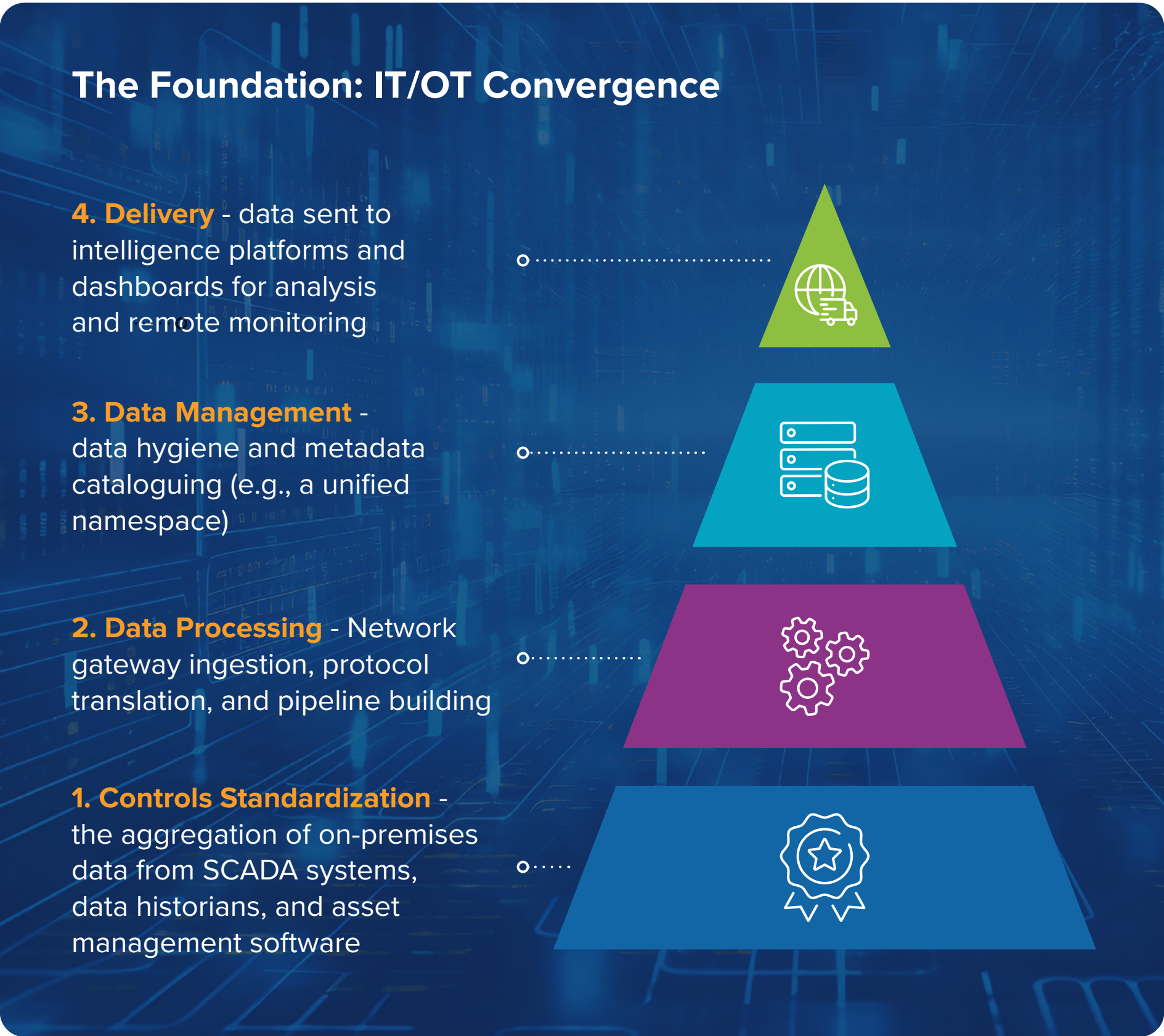
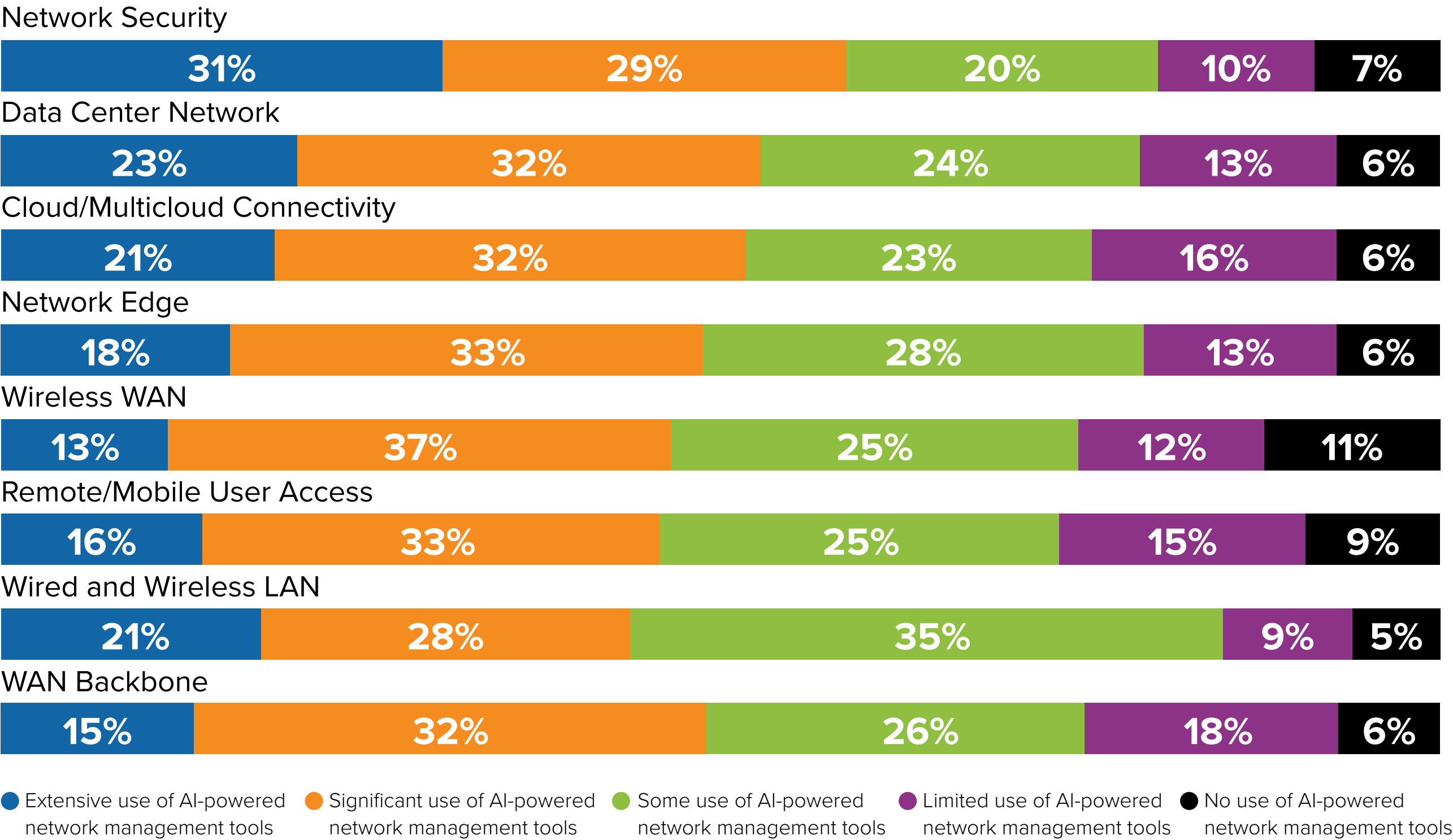
Visibility: Manufacturers must adopt advanced analytics tools to monitor production status, performance, and energy usage.

Bridging the gaps between IT and OT: The increasing integration of intelligent sensors into machinery and production assets is essential, as it will enable manufacturers to evaluate asset conditions in real time, enhancing modern asset operation practices.

Industrial IoT and AI-enabled networks in modern manufacturing underpin ultra-low latency and high reliability for automation.

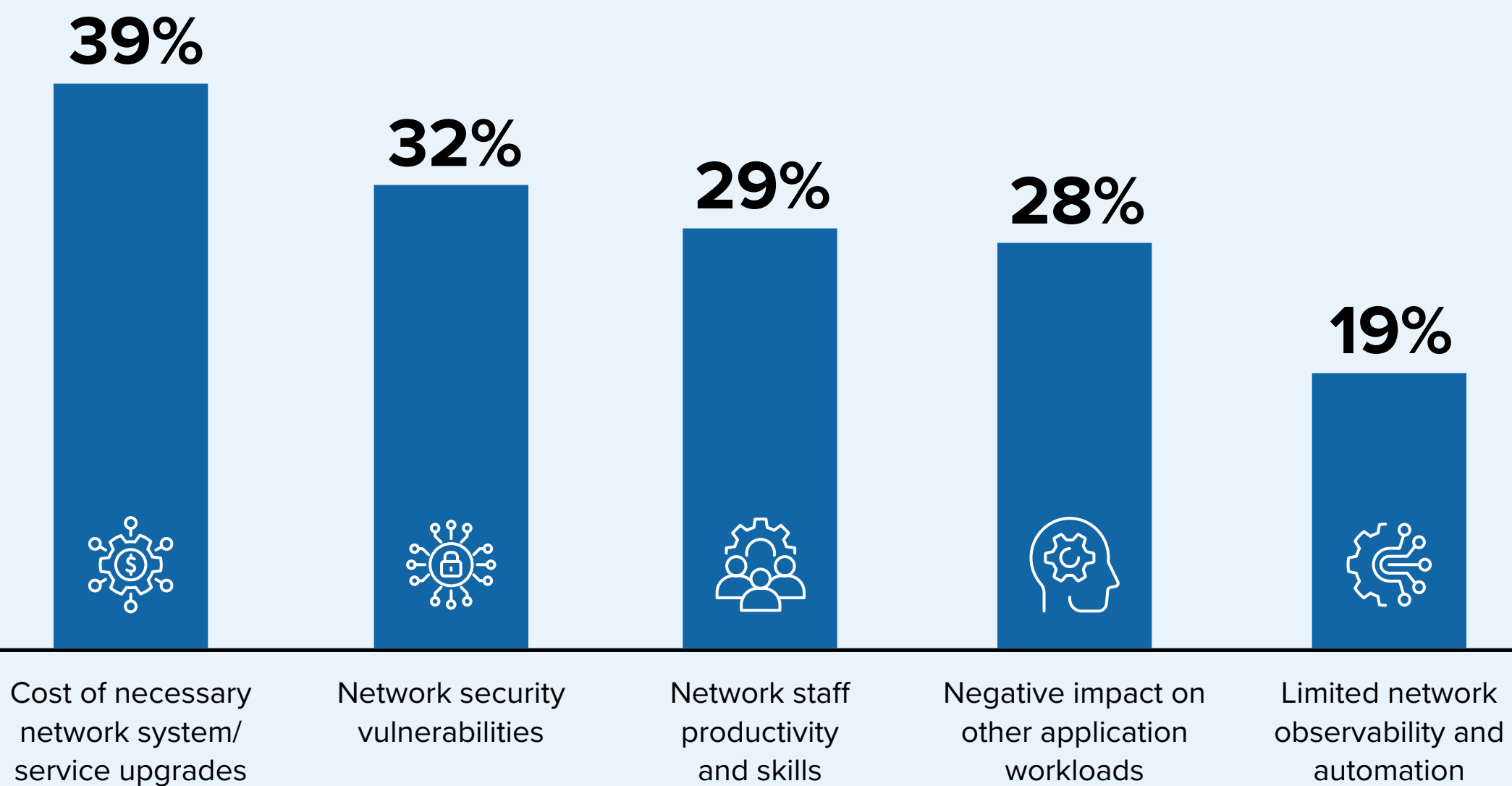
Manufacturers must prioritize the set of activities necessary to digitize the operating conditions within a manufacturing operations setting to create net new data connections into operations or to unify existing digital information.

In each of the following network domains, to what extent does your organization (currently/plan to) use AI-powered management tools to support network engineering and operations?

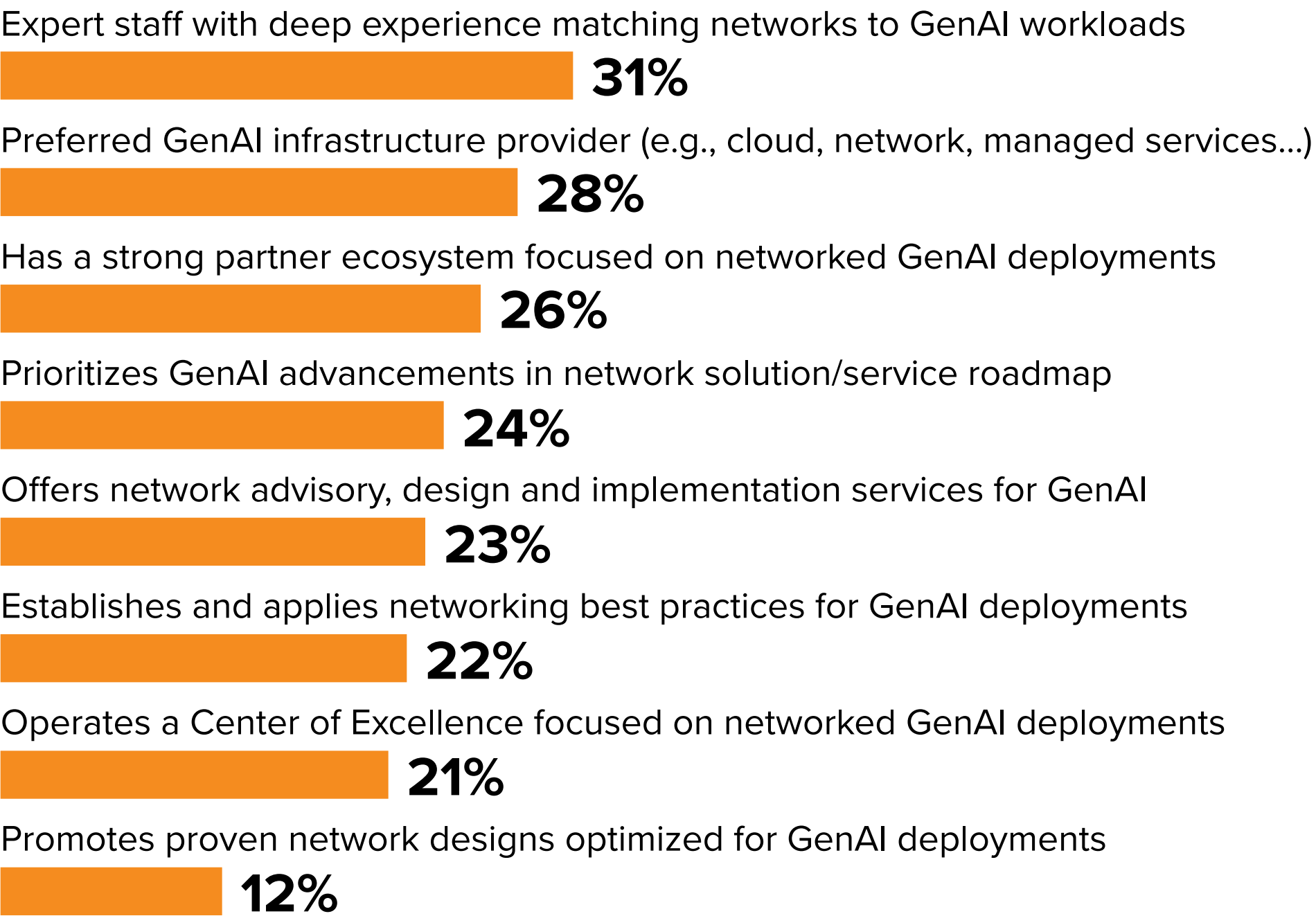


Networks may not be fit to run AI workloads. Therefore, when selecting an industrial network strategic partner, the main requirements are staff skills and experience around GenAI workloads.

What are you top two biggest network concerns when it comes to supporting present and future planned GenAI workload deployments in your organization? (TOP 5)



When selecting a strategic networking partner to support deployment of GenAI workloads across your network infrastructure, which will be top two most important characteristics?



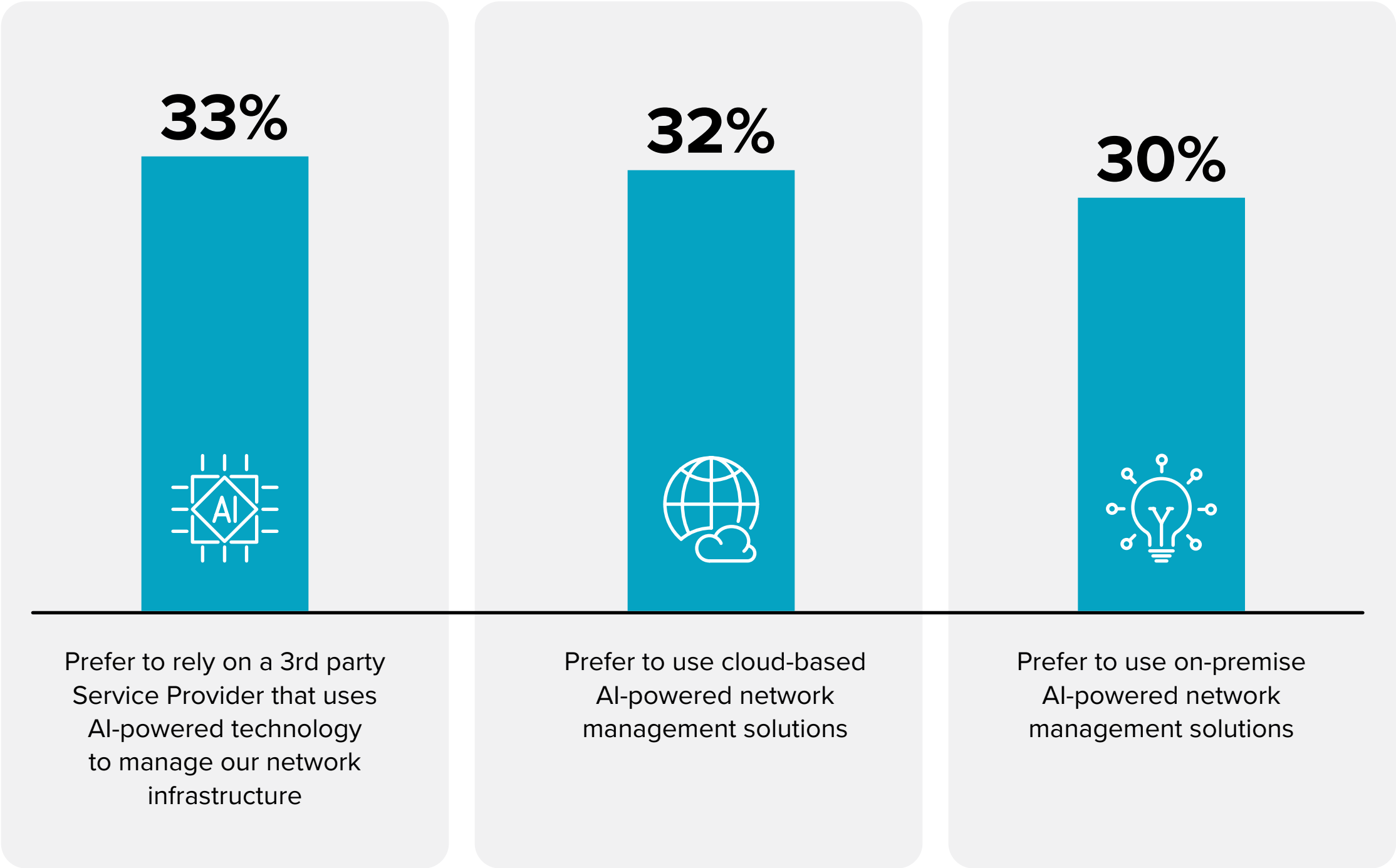
AI-driven systems enable manufacturers to achieve higher efficiency, reliability, and adaptability across multiple operational use cases.

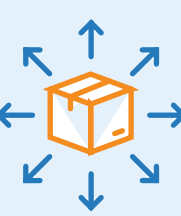
	Predictive Maintenance	Real-Time Quality Management	Production Line Monitoring
Overview 	- Machines equipped with sensors continuously send operational data to AI systems. - AI analyzes this data to predict equipment failures and prevent such failures from occurring.	- Manufacturers aim for “zero defects, zero waste, and zero damage at the right cost” to meet operations and customer expectations. - The sophistication of digital metrology, including quality evaluation, has increased.	Smart factories require horizontal integration across the value chain, from product development to service delivery. Manufacturers must operate interconnected networks of factories with centralized coordination capabilities.
Key Features 	- Instant alerts and automated maintenance workflows (triggered by AI insights). - Intelligent prioritization within the network (critical-control traffic and disruption circumvention).	- Augmented reality (AR) for quality inspections. - Improved metrology and statistical process control (SPC) powered by intelligent analytics. - AI-enabled vision systems that proactively predict quality failures instead of reacting to them.	- Material tracking integrated with supply chain fulfillment processes. - Real-time process execution visibility, with analytics tools providing insights into efficiency targets, KPIs, and overall equipment effectiveness (OEE).
Main Benefits 	- Significant reduction in downtime and increased production throughput. - Enhanced ability to adapt quickly to changing demand, supporting just-in-time manufacturing.	A transition from passive quality management to proactive systems that ensure consistent quality outcomes.	Realizing the global plant floor concept: a virtual factory, enabling seamless information flow across production lines for real-time monitoring and decision-making.

Manufacturers prefer to rely on a third-party service provider to manage their network infrastructure.

It is mandatory for manufacturers to future-proof their industrial networks to make way for the next generation of AI-powered operational transformation.

What is your organization’s preferred approach to applying AI capabilities in the management of your network infrastructure?



- Essential guidance for manufacturers embracing their industrial network journey: 
- 1 Setting clear expectations is paramount; thus, it is essential to achieve internal alignment before engaging with any provider. 
- 2 Always place the user experience at the forefront, as insights from those on the shop floor are invaluable. 
- 3 Rather than limiting projects to immediate needs, partner with a vendor to craft a clear long-term transformation plan for future success. 
- 4 To dodge the trap of “pilot purgatory,” industrial network initiatives must be designed with a vision for long-term scalability. 

Networking leaders should create a clear road map for future AI networking adoption. The keys are assessment, planning, and investment.

Start the AI networking journey with pilot programs:

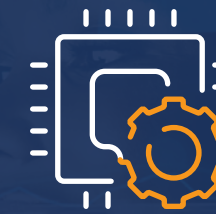


- Gain visibility and control over the current network infrastructure.
- Implement AI-enabled platforms with natural language interfaces for operations.
- Architect networks to integrate AI throughout the enterprise.
- Develop a skills transformation plan and identify early-win AI use cases.

Year 1

Use AI-enabled networking for observability and control.

Drive the adoption of advanced and AI-enabled networking:

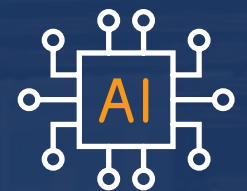


- Incorporate intent-based network concepts for enhanced assurance.
- Build datacenter networks to support AI workloads outside of cloud environments.
- Explore early use cases for AI-driven networks with automated root-cause analysis and remediation.
- Extend AI assistant usage as capabilities improve and confidence increases.

Year 2

Build out the datacenter network to support AI workloads.

Embed AI features into all networking areas:



- Integrate network automation with wider IT application deployment.
- Implement network and security platform convergence techniques for unified security controls.
- Expand the use of network-generated data for improved operational and business insights.

Year 3

Identify opportunities and implement AI across all operations.

Building the Digital Infrastructure foundation for AI-Driven Growth



NTT DATA and Cisco together deliver secure, scalable, and high-performance digital infrastructure solutions purpose-built for AI. We help organizations build the digital backbone for AI—from secure networking and cyber-resilient systems to hybrid data centers and AI-ready experiences for employees and customers. With Cisco’s industry-leading technology portfolio and NTT DATA’s global reach and end-to-end service portfolio, we deliver best-in-class infrastructure and service innovation. AI is embedded across every layer of our service delivery model—from AI Assistants and Agents to AI-powered services. Our AI-first, technology-centric approach gives organizations the visibility, control, and intelligence they need to plan, deploy, and operate with confidence. Together, we empower technology leaders to reinvent digital infrastructure for AI and unlock agility, efficiency, and measurable outcomes.

Visit our [Secure Networking page](#) to learn more .

Book an [Infrastructure & Software Lifecycle Assessment](#) to get started.

For more about our partnership, visit our [NTT DATA-Cisco partner page](#).

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