

Enterprises Embrace AI-Driven Wi-Fi to Meet Today's Network Demands

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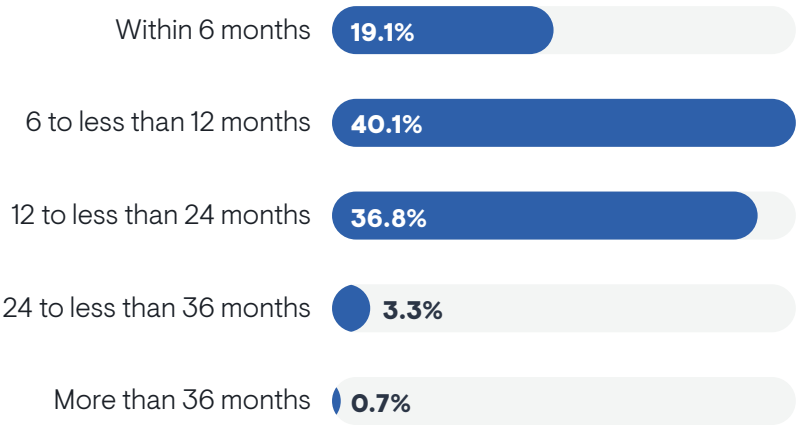
Introduction

Enterprises are changing the way they use Wi-Fi networks, and that change is kicking off a wave of infrastructure refreshes and upgrades. **Figure 1** shows that 59% of companies will initiate such a project within the next 12 months. Larger enterprises (5,000 or more employees) have an even more aggressive timeline, with 30% planning to kick off an upgrade within six months.

In its ongoing interactions with network engineers and architects, Enterprise Management Associates (EMA) has heard many reasons for why these upgrades are occurring. Anecdotally, office mobility, growing bandwidth demand, and increased performance requirements are common triggers of wireless networking investments.

With this report, EMA seeks to understand the drivers of change in enterprise Wi-Fi networks and how IT organizations successfully execute in the face of that change. This research found that IT organizations are embracing AI-powered Wi-Fi 7 solutions to meet the connectivity demands of their end users.

Figure 1. When will your organization initiate its next upgrade or refresh of its Wi-Fi network?



Sample Size = 152

Methodology

In August 2025, EMA surveyed 152 North American IT professionals who are directly engaged in how their companies design, build, and manage Wi-Fi infrastructure. **Figure 2** provides a demographic overview of survey respondents (see Appendix for more details). That survey is the foundation of this report.

Figure 2. Demographics

Job titles

- 34%** IT engineers/architects/consultants
- 7%** Project managers
- 29%** IT managers/supervisors/directors
- 31%** IT executives (VPs/CIOs/CTOs)

Company size

- 70%** Midmarket enterprise (1,000 to 4,999 employees)
- 30%** Large enterprise (5,000 or more employees)

Top industries

- 27%** Manufacturing
- 18%** Retail/Wholesale/Distribution
- 12%** Banking/Finance/Insurance
- 11%** Software and online services
- 7%** Health care/hospitals
- 7%** Oil/Gas/Energy/Utilities
- 5%** Hospitality/Events/Sports

IT groups

- 45%** IT executive suite
- 20%** Network engineering
- 13%** IT project/program management
- 10%** IT architecture
- 9%** IT security/cybersecurity
- 3%** Network operations center
- 2%** IT financial management/business analysis



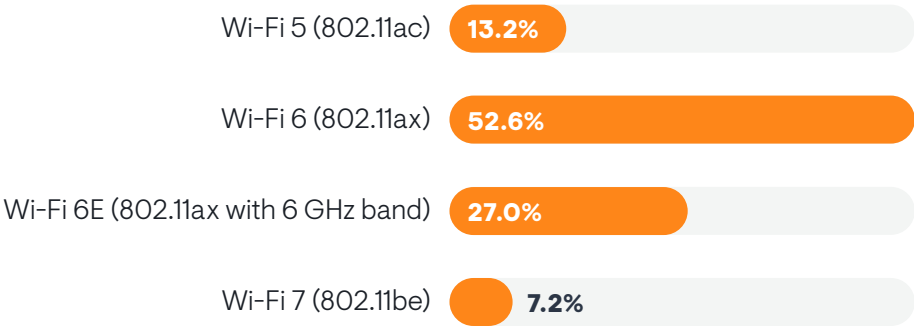
Network Snapshots: Wi-Fi 6 Dominates the Enterprise

Figure 3 reveals the generation of Wi-Fi technology that predominates enterprise networks today. The latest generation (Wi-Fi 7) is quite rare, as is Wi-Fi 5, which is more than a decade old. EMA's survey also included Wi-Fi 4 (also known as 802.11n) as an option; no respondents selected it.

Instead, Wi-Fi 6 has the largest install base. This technology became widely available in 2020. Wi-Fi 6E, an extended version of Wi-Fi 6 that added support for a third wireless band (6Ghz), became widely available a year later. Wi-Fi 6E has clearly not received wide adoption.

Given that most companies are predominantly Wi-Fi-6 today and most will upgrade their networks within 12 months, EMA projects that Wi-Fi 7 adoption will accelerate substantially in 2026. We offer one caveat: network engineers and architects project a slower timeline for Wi-Fi upgrades than IT executives. Only 9% of these subject matter experts expect a project kickoff within six months. In EMA's experience, technical personnel have more realistic expectations for project timelines.

Figure 3. Which generation of Wi-Fi technology currently predominates your organization's network infrastructure?



Sample Size = 152



Wi-Fi Success and Challenges

Most Organizations Need Better Wi-Fi

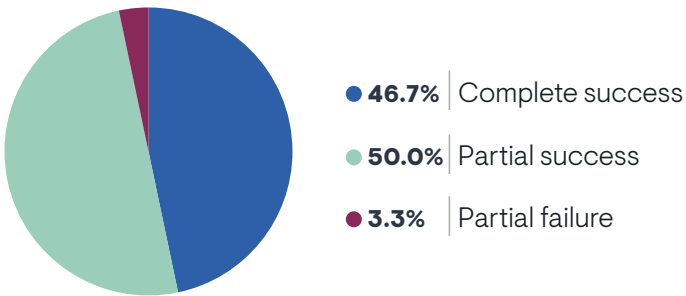
Figure 4 reveals how successful organizations are with their current approach to Wi-Fi. While only 3% described their networks as failing, 47% of respondents believe they are completely successful. Half claim only partial success, suggesting they see room for improvement. EMA believes many enterprises will make significant investments in improving their wireless networks over the next two years.

Organizations that saw significant growth in bandwidth demand over the last three years reported more success. This suggests that the need for more throughput spurred many IT organizations to act already.

Companies with successful Wi-Fi strategies were also more likely to:

- Consolidate on-premises network access control and secure remote access technologies
- Use AI-driven network management solutions

Figure 4. How successful is your organization's current approach to Wi-Fi networking?



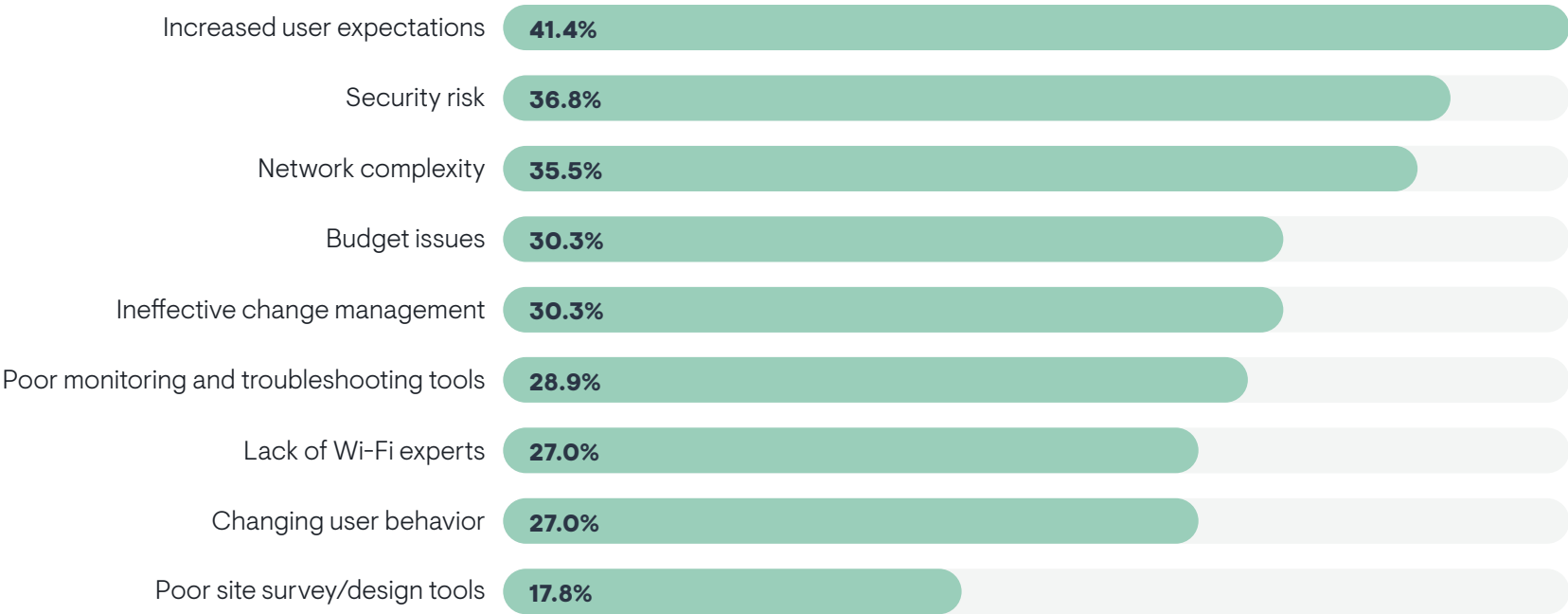
Network Teams Struggle to Meet User Expectations

Figure 5 reveals the top challenges that network teams face with their Wi-Fi networks. User expectations are the biggest source of pain. Employees and customers simply expect more from Wi-Fi networks today. Tolerance for a poor experience is very low thanks to the rise of hybrid work in the pandemic era. They grew accustomed to a home Wi-Fi experience that was superior to what they were getting at the office. At home, these users aren't competing with dozens or hundreds of coworkers for bandwidth. Their connections are usually strong and fast, as long as they are close to the router and ISP connectivity is healthy. At the office, they encounter legacy Wi-Fi networks often designed as a backup to wired connectivity. Network teams are feeling this now. Users want a wireless experience that is equal to or better than what they get at home.

The other top challenges are security risk and network complexity. Wireless airspace can be vulnerable to attack. Hackers might sit in a company's parking lot and scan for vulnerabilities, such as a client device that is advertising an insecure hotspot. Network complexity is a perennial issue made worse as network teams try to redesign their networks to meet changing usage patterns.

Among the several secondary challenges, network engineers and architects (41%) feel budget problems more than IT middle managers (21%). This suggests that technical personnel feel constrained by the budget set by upper management, and they struggle to deliver a good networking solution with the resources they have.

Figure 5. What does your organization find most challenging about its Wi-Fi networks?





Understanding Drivers of Change

User Behavior

Figure 6 examines the nature of how people are using enterprise networks. Respondents selected behaviors that either emerged or increased on their networks over the last three years. Hybrid work is predominant. Employees are splitting their time between the office and their homes (or elsewhere). Hybrid work leads to fundamental changes in network access. For instance, companies will replace permanently assigned desks and workspaces with hot desks and shared workspaces. This change has trickledown effects. Users become more mobile now that they aren't attached to a permanent desk. They may also use location-based services to find unoccupied workspaces.

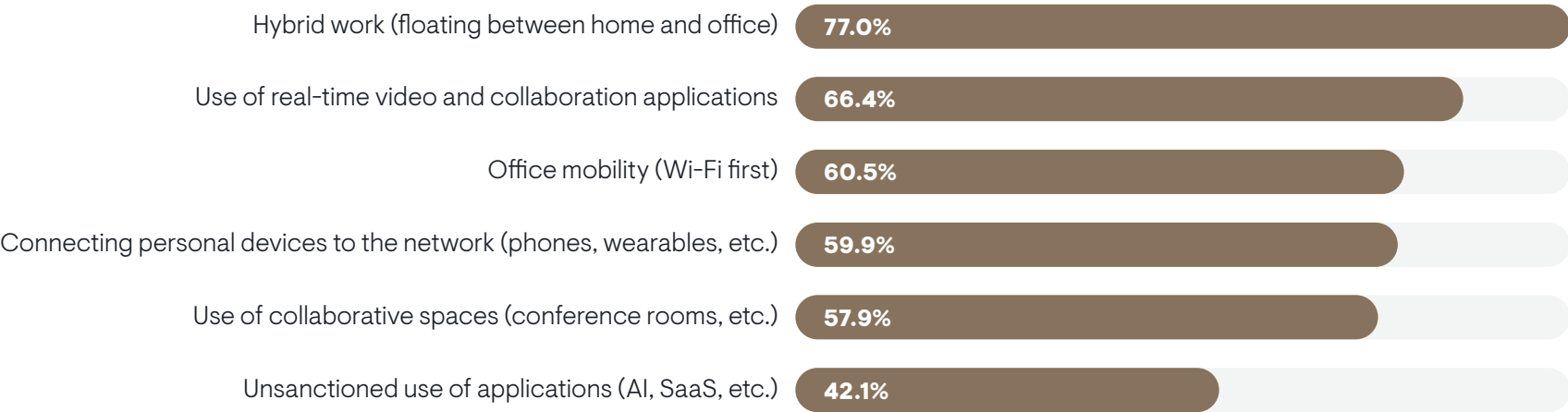
The chart also shows that most companies are seeing increased use of real-time video and collaboration applications, a behavior that surged during the 2020 Covid-19 pandemic lockdowns. These applications consume significant bandwidth and they are very sensitive to adverse network performance.

Office mobility is very common, and this behavior places more demand on Wi-Fi. Workers are no longer plugging into Ethernet, unless Wi-Fi is poorly performing. This leads to more users and more demand on a Wi-Fi network that previously served mostly guest users.

Many companies are also seeing growth in users connecting their personal devices to the network, such as phones and wearables. This puts more pressure on Wi-Fi networks, which will see a spike in concurrent connections on access points.

Finally, most companies observed more use of collaborative spaces like conference rooms. Access points that cover these spaces will see higher densities of concurrent connections.

Figure 6. Over the last three years, have you seen any of the following types of employee behavior emerge and/or increase on your corporate networks?



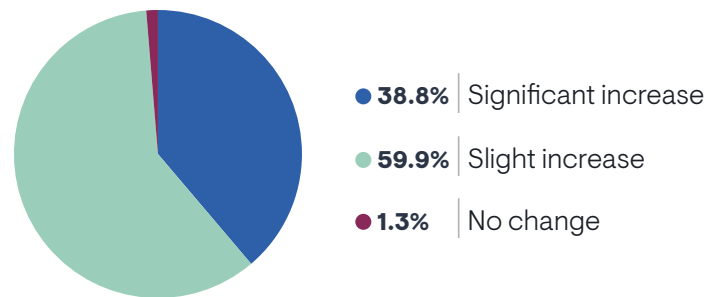
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Bandwidth Demand

At a fundamental level, enterprises need faster wireless networks. **Figure 7** reveals that 99% percent of the companies in this research observed increased bandwidth demand on their campus and office network over the last three years, with 40% characterizing this increase as significant.

This trend alone potentially explains the wave of Wi-Fi upgrades this research is predicting. Historically, new Wi-Fi standards increased the amount of bandwidth an organization can get from its wireless network, which in turn enables higher throughput, improved capacity, and lower latency. Wi-Fi 7 access points can support a maximum theoretical bandwidth of 320 MHz, which doubles Wi-Fi 6 and Wi-Fi 6E. This bandwidth supports a potential network speed of 46 Gbps. However, bandwidth demand isn't the sole driver of change.

Figure 7. Over the last three years, how did bandwidth demand change for your campus and office networks?



Sample Size = 152

Top Drivers of Wi-Fi Change

Figure 8 gets specific about the factors that force organizations to change and upgrade their networks, particularly their Wi-Fi networks. This chart puts increased bandwidth demand in context with other factors. Specifically, performance requirements are a bigger driver than bandwidth demand, but both top the list. Given that real-time video and collaboration application usage has spiked, this finding makes sense. These applications become unusable if Wi-Fi networks introduce loss, latency, or jitter to a network session. Also, these applications consume significant bandwidth.

Most organizations are also updating their Wi-Fi to support user mobility, which includes broadening overall coverage (legacy Wi-Fi designs often focus on coverage around desks, for instance) and seamless roaming.

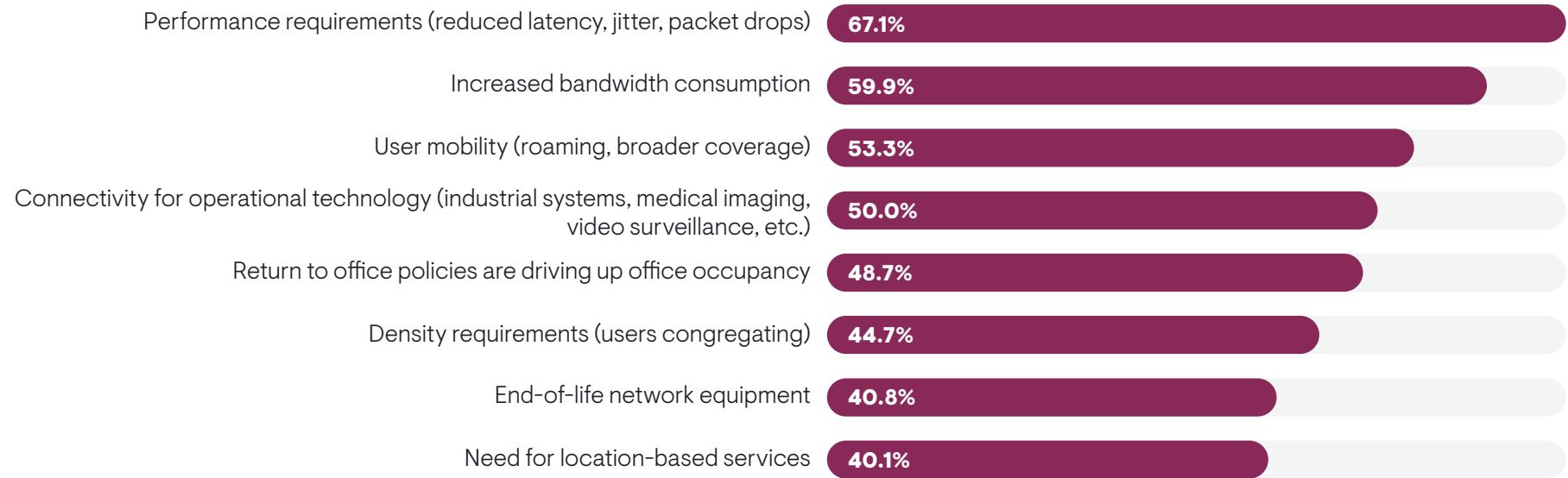
Exactly half of respondents say the need to provide connectivity for operational technology (OT) particularly drive changes to Wi-Fi networks. Many

OT systems have very strict requirements for network availability, which may require a resilient network architecture. This requirement is more common in larger companies with 5,000 or more employees.

Nearly 49% are particularly driven by return to office (RTO) policies that have increased workspace occupancy. For example, many companies have grown their employee headcounts since the pandemic began in 2020. Now, RTO policies are bringing those people into offices where Wi-Fi networks lack the capacity and coverage to provide them with connectivity.

Location-based services are the least common driver of change; however, engineers and architects were more likely (50%) to select them than middle managers (27%). This gap suggests an emerging requirement that IT management is not yet aware of.

Figure 8. Which of the following are driving changes and upgrades in your campus and office networks, particularly your Wi-Fi networks?



Sample Size = 152



Network Upgrade Strategies

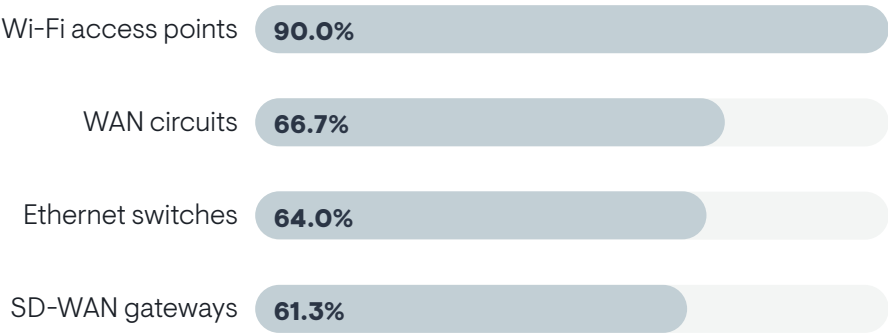
The Trickle-Up Effect of Bandwidth Demand

This report established that growth in bandwidth demand is nearly universal. **Figure 9** reveals how that demand plays out in network upgrades. Ninety percent of organizations need to upgrade their Wi-Fi access points, but most need to go beyond wireless upgrades. Two-thirds need to upgrade to WAN circuits. As users push more data through the Wi-Fi network, much of that data will also be transmitted across the WAN. WAN circuits will eventually become a bottleneck unless they are upgraded.

The same goes for the Ethernet switches that connect Wi-Fi access points to the rest of the enterprise. Increased Wi-Fi throughput will require more total throughput across the wired LAN behind it. Since next-generation wireless access points also require more power to enable increased bandwidth, many organizations will need to install switches that support the latest power-over-Ethernet standard, PoE++, which provides 60 watts of power per port.

Finally, many research participants also reported a need to upgrade their software-defined WAN (SD-WAN) gateways to ensure they are compatible with the higher throughput companies get with WAN circuit upgrades.

Figure 9. You indicated increased bandwidth demand for your campus and office networks. Which of the following must be upgraded to meet this demand?



Sample Size = 152

Key Considerations for Vendor Selection

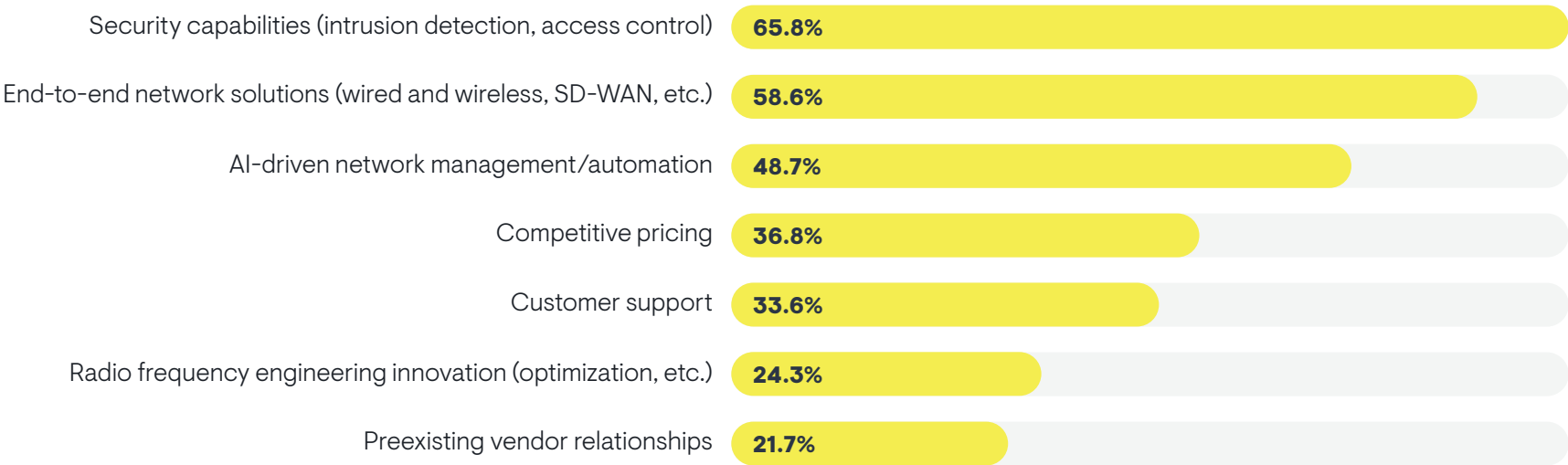
Figure 10 reveals what IT organizations look for when selecting a Wi-Fi vendor. Security capabilities and end-to-end networking solutions are the top factors. On the security side, IT decision-makers are looking for access control, wireless intrusion prevention, rogue device detection and other features. Secondly, larger vendors that can sell a single portfolio of Wi-Fi, switching, routing, and SD-WAN offer end-to-end networking solutions. End-to-end solutions offer cost efficiencies, integrated customer support, and unified network management platforms. Notably, a security focus is not a best practice. The most successful organizations in this research made it a lower priority.

AI-driven network management emerged as another major factor in vendor selection. Most leading Wi-Fi vendors enrich their network management tools with AI features that make network operations more effective and efficient.

IT executives were more likely to select AI and end-to-end networking solutions than network engineers and architects. This hints at some AI skeptics among technical personnel and a willingness to engage with best-of-breed campus networking vendors rather than working with a strategy provider for all networking technology.

Network engineers and architects were more likely to select some of the lower priorities in the chart, including radio frequency (RF) innovation, customer support, and preexisting vendor relationships. Engineers and architects are more likely than executives to understand the technical benefits of RF innovation. It makes sense that they value customer service more, since technical personnel are more likely to interact with support. Finally, vendor relationships matter to technical personnel because they build their careers on specializing in a certain vendor's products.

Figure 10. Which of the following factors primarily drives your organization's vendor selection for Wi-Fi infrastructure today?



Sample Size = 152

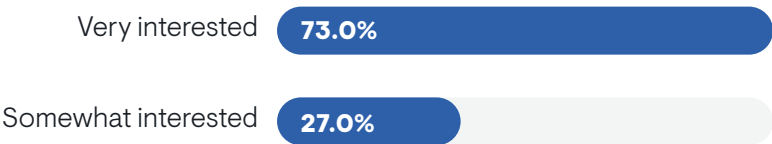
Solution Requirements

Consolidating Network Access Controls and Policies

As enterprises update their Wi-Fi networks, most will look for ways to consolidate the tools they use to control network access. Many companies today use siloed tools for secure remote network access (e.g., VPNs) and on-premises network access (e.g., network access control). This siloed approach results in fragmented and complex policy management at a time when many users are hybrid workers who consistently access networks both remotely and on-premises.

Many vendors have introduced solutions that manage network access authentication and authorization regardless of a user's location. These products are often termed universal zero trust network access. **Figure 11** shows that 100% of research participants have at least some interest in in the unification of on-premises network access control and secure remote access. Respondents who reported the most success with their Wi-Fi network had the strongest interest in such consolidation.

Figure 11. To what extent is your organization interested in consolidating its secure remote access solutions (e.g., VPN, zero trust network access) and on-premises network access control solutions onto a unified platform from a single vendor?



Sample Size = 152

Figure 12 reveals the benefits that IT pros anticipate from unifying secure remote access and on-premises network access control. Respondents identified four key opportunities: reduced security risk, improved collaboration between network and security teams, reduced management complexity, and increased flexibility. Many also anticipate an improved user experience, since users will no longer have to deal with multiple logins. Large enterprises were more likely to experience improved network and security collaboration. Midsized enterprises were more likely to report reduced security risk.

Figure 12. What would be the top benefits of a unified platform for secure remote access and network access control?



The chart shows that reduced cost is not a major driver of this consolidation, but respondents who reported more success with managing their Wi-Fi networks were more likely to see a cost savings with this consolidation. This suggests that a best-in-class approach to building and managing Wi-Fi can impact whether saving money is feasible.

Sample Size = 152

High-Availability Wireless

High-availability wireless networking (via private 5G, Wi-Fi, etc.) is an architectural approach that uses redundant systems to ensure no loss of connectivity. Enterprises adopt high-availability wireless for critical systems (public safety, manufacturing systems, etc.) that have zero tolerance for downtime.

Figure 13 reveals that 96% of research participants need high-availability wireless. This is a higher number than expected. EMA suspects that some research respondents have broader definitions for high-availability and critical infrastructure.

Figure 13. Does your organization need high-availability wireless connectivity to support critical infrastructure?

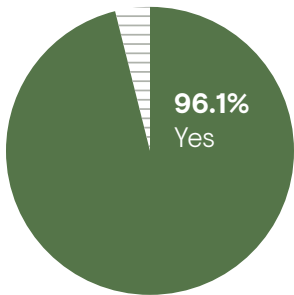
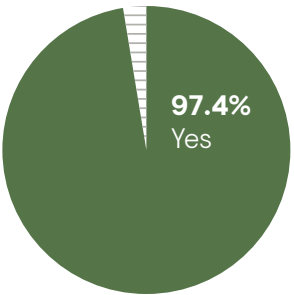


Figure 14 demonstrates that enterprises believe Wi-Fi is a viable option for high-availability wireless connectivity. Respondents who reported no increase in bandwidth demand on their networks in recent years were less likely to perceive Wi-Fi as an option. Given that Wi-Fi generally offers more bandwidth than other options for high-availability wireless, it makes sense that organizations with lower bandwidth demand would prefer alternative technologies, such as private 5G.

Sample Size = 152

Figure 14. Are you considering Wi-Fi as an option for delivering high-availability wireless connectivity?



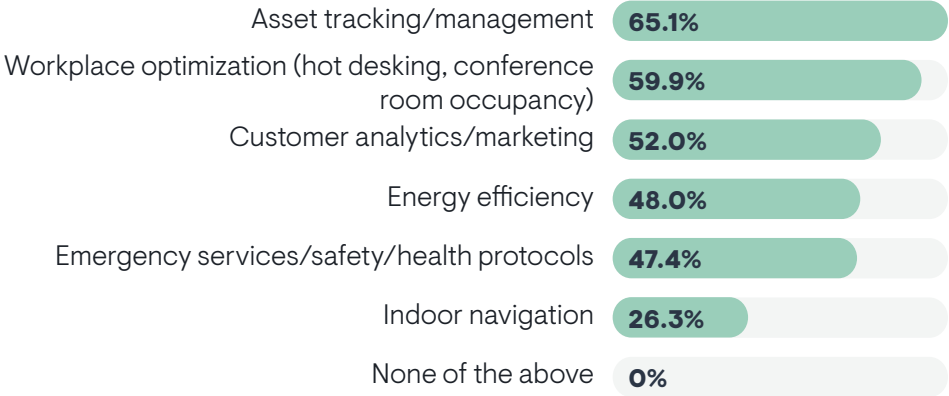
Sample Size = 152

Location-Based Services

Figure 15 reveals that 100% of research participants are interested in leveraging location-based services on their Wi-Fi networks. They are primarily looking at asset tracking and workplace optimization. Many also see an opportunity in customer-facing applications, such as customer analytics and marketing.

Energy efficiency and emergency services are secondary opportunities, and indoor navigation is a low priority.

Figure 15. Is your organization using or interested in adopting Wi-Fi-enabled location-based services for any of the following use cases?



Sample Size = 152



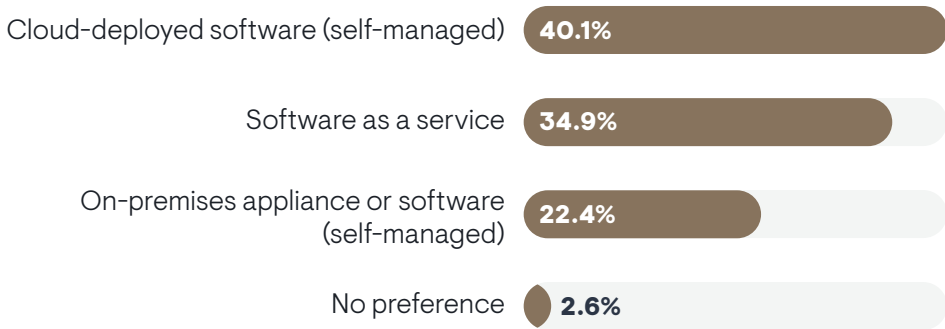
Managing Wi-Fi Networks

Cloud-Based Management Solutions

The days of on-premises wireless LAN controllers are waning. Network solution providers are increasingly offering cloud-delivered management capabilities for their infrastructure products for managing and control of wireless LAN. Today, most Wi-Fi vendors offer SaaS-based platforms.

Figure 16 shows deployment model preferences for Wi-Fi management tools. Only 22% of companies prefer on-premises solutions. The rest want to consume their tools in the cloud, with 40% preferring to self-deploy tools in a public cloud environment and 35% preferring a pure SaaS offering. EMA research has steadily observed a shift toward cloud-based network management tools over the last decade, with fewer IT organizations still embracing on-premises deployments. IT executives in this research were especially unlikely to prefer an on-premises deployment (10%).

Figure 16. What is your organization’s preferred deployment model for the tools you use to manage your Wi-Fi network infrastructure?



Drivers of Deployment Preferences

Figure 17 shows that security and compliance risk has the greatest impact on an organization’s deployment preferences for Wi-Fi management tools. Anecdotally, this is the major factor that compels some enterprises to keep

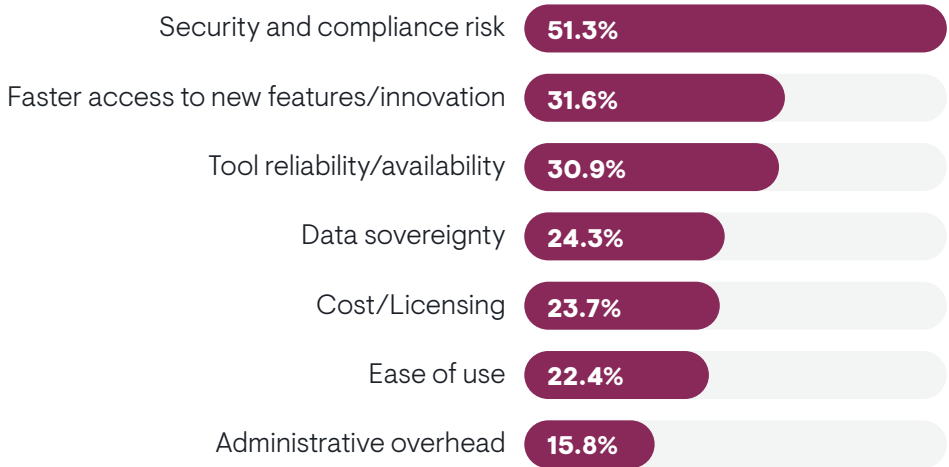
Sample Size = 152

their tools on-premises. However, most companies are embracing the cloud. Thus, EMA believes that IT decision-makers should start any evaluation of a cloud-based tool by examining issues such as a vendor’s security certifications and data protection strategy. Network engineers and architects were much less likely to consider security and compliance risk (36%), suggesting that technical personnel see less reason to worry.

Speedy access to new features and overall tool reliability are the top secondary drivers. Speedy access to features is a hallmark of SaaS solutions. Any kind of deployment model can provide resiliency, but a resilient on-premises deployment tends to be expensive. Technical personnel were more compelled by fast access to new capabilities than middle management and IT executives.

Data sovereignty, cost, and ease of use are tertiary factors.

Figure 17. Which of the following is most responsible for determining your organization’s preferred consumption model for network management tools?



Sample Size = 152

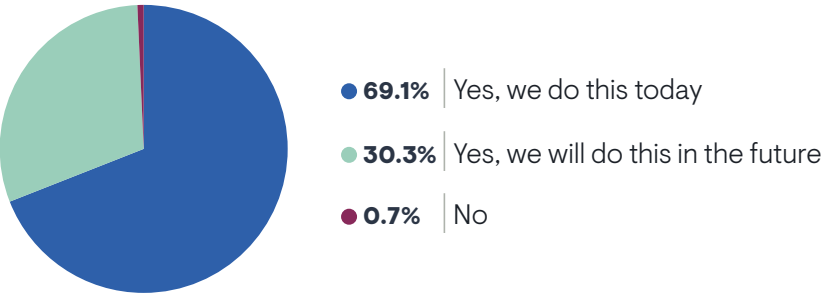
AI-Driven Wi-Fi Management

EMA’s ongoing research reveals growing interest in applying artificial intelligence (AI) to network management in general and Wi-Fi management in particular. Network engineers and architects tell EMA analysts that they expect AI innovation from their network infrastructure and network management vendors. Many also seek opportunities to integrate their own company’s internal AI investments with their networks.

AI Interest is High

Figure 18 reveals how universal this expectation has become. Ninety-nine percent of research participants are interested in applying AI to network management and 69% already do so. Large enterprises with 5,000 or more employees were more likely to use AI already (80%). More notably, organizations that are the most successful with Wi-Fi networks are extremely likely to already apply AI to network management (89%).

Figure 18. Is your organization interested in applying artificial intelligence (AI) to network management to drive efficiency and automation?

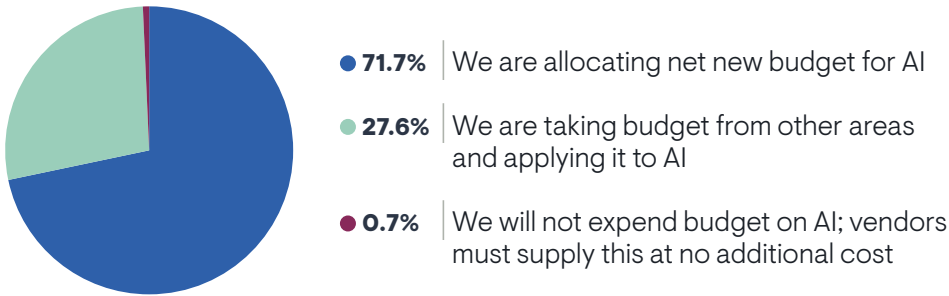


Sample Size = 152

IT Organizations Budgeting for AI

Figure 19 reveals that 99% of companies are allocating budget for AI technology that they apply to network management. This could be in the form of AI-specific modules from their incumbent network management vendors, or they could apply these resources to new vendors that offer AI capabilities unavailable from their existing vendors.

Figure 19. Which of the following best describes your organization’s disposition toward allocating budget for AI-driven network management capabilities?



Most respondents said they are allocating net new budget for AI-driven network management, but 27% reported that they are clawing back budget that was previously allocated elsewhere. Only 1% insisted that their vendors must deliver AI features at no additional cost.

Sample Size = 152

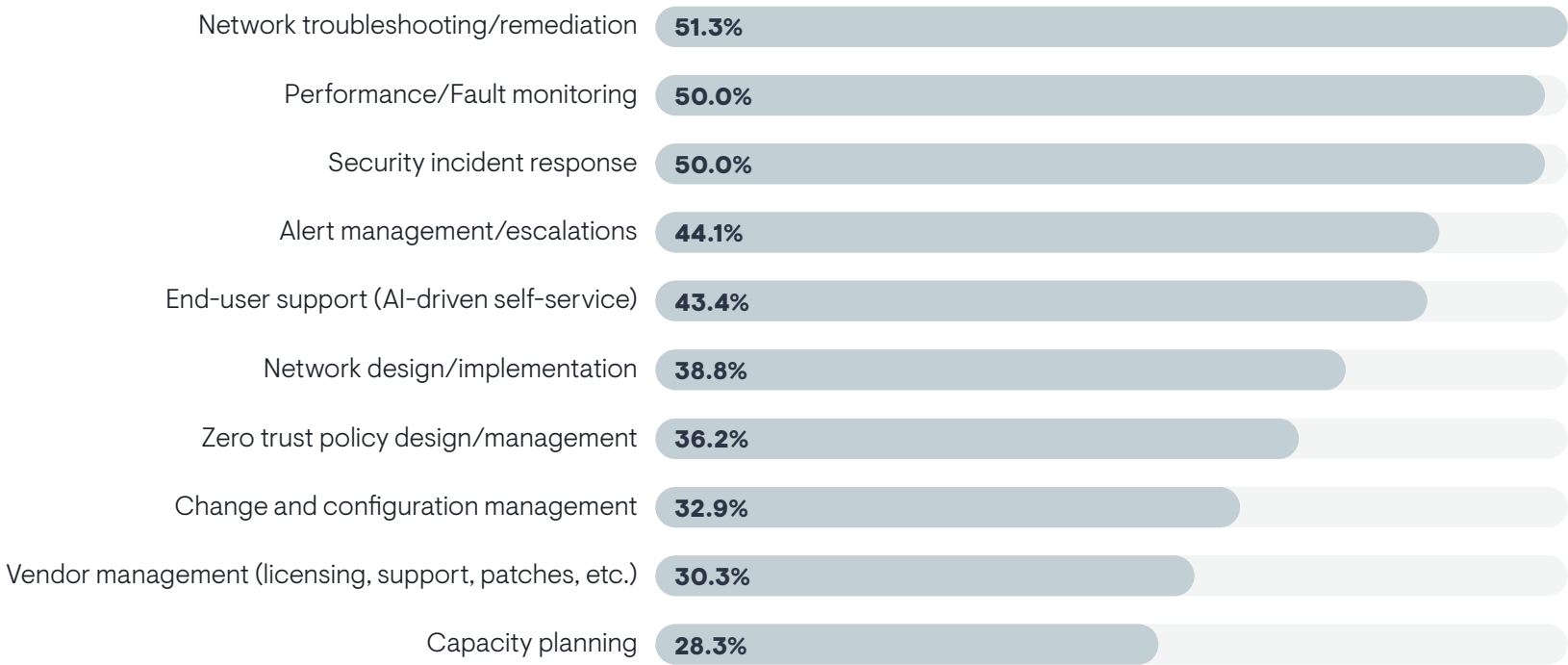
How Network Teams Apply AI to Wi-Fi Operations

Figure 20 identifies the Wi-Fi management tasks that network teams want to target with AI. The big opportunities are troubleshooting, performance and fault monitoring, and security incident response. For example, AI's ability to detect and analyze anomalies and correlate events can streamline all three of these tasks. IT middle managers were especially likely to select performance and fault monitoring, and executives were especially likely to pick troubleshooting.

Alert management, escalations, and end-user support are secondary priorities. AI can reduce alert noise by correlating multiple alerts into a single event, enriching alerts with preliminary analysis and recommendations, and forwarding a ticket to the right technical expert. AI can enhance end-user support by providing a chatbot that can help people connect to Wi-Fi networks and troubleshoot simple issues without involving IT support personnel.

Vendor management and capacity planning are the lowest priorities for AI-driven Wi-Fi management. However, respondents who reported more significant growth in bandwidth demand were more likely to target both use cases.

Figure 20. Which Wi-Fi management tasks and processes do you think AI is best capable of enhancing or automating?



Sample Size = 152

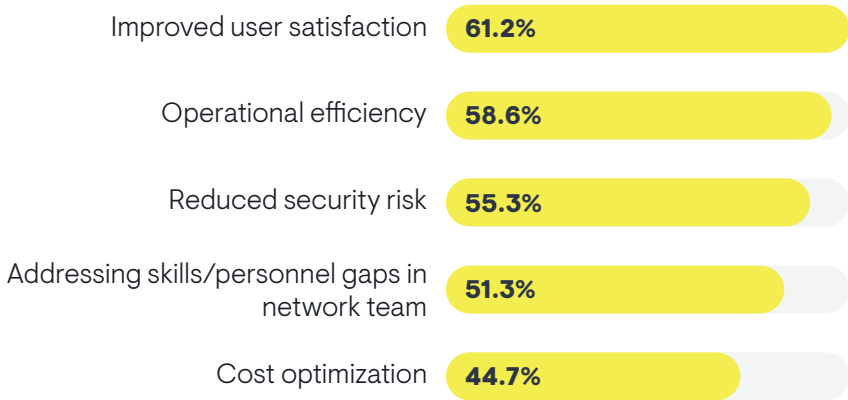
Benefits of AI-Driven Wi-Fi Management

Figure 21 shows that improved user satisfaction is the most compelling gain that IT pros experience from applying AI to Wi-Fi operations. By streamlining management and potentially enabling end users to troubleshoot problems on their own, network teams can deliver a better overall network experience with AI.

IT pros also often appreciate the ability to improve operational efficiency and reduce security risk with AI. Large enterprises (5,000 or more employees) were more likely to see the value of operational efficiency (72%).

Closing skills gaps and cost optimization are less compelling AI benefits, but engineers and architects were more likely (66%) to find the remediation of skills gaps compelling, probably because it reduces their workloads.

Figure 21. What do you think are the most compelling potential benefits from applying AI to Wi-Fi management?



Sample Size = 152



EMA Perspective

Over the last few years, end users changed how they use office connectivity. They often split time between home and the office, which can lead to security policy complexity. They use more real-time video and collaboration applications, which drives up bandwidth consumption and performance requirements. They are more mobile within the office, since they are less tethered to their desks and are more likely to gather with colleagues in collaborative workspaces.

These behavioral shifts are forcing IT organizations to upgrade their Wi-Fi networks to meet heightened network performance requirements, increased bandwidth consumption, and the need for broader network coverage.

EMA's research shows that most enterprises will kick off Wi-Fi upgrades over the next year, which will drive expanded adoption of Wi-Fi 7. These upgrades will often trigger upgrades to switching, SD-WAN, and WAN circuits, too.

As IT organizations plan these upgrades, they will seek solutions that offer universal zero trust network access capabilities, high-availability architecture, location-based services, cloud-based management, and AI-driven operations. Generally, EMA's research found that IT organizations have more success with Wi-Fi when they adopt such solutions.





Demographics

Figure 22. Which of the following best describes your role in the IT organization?

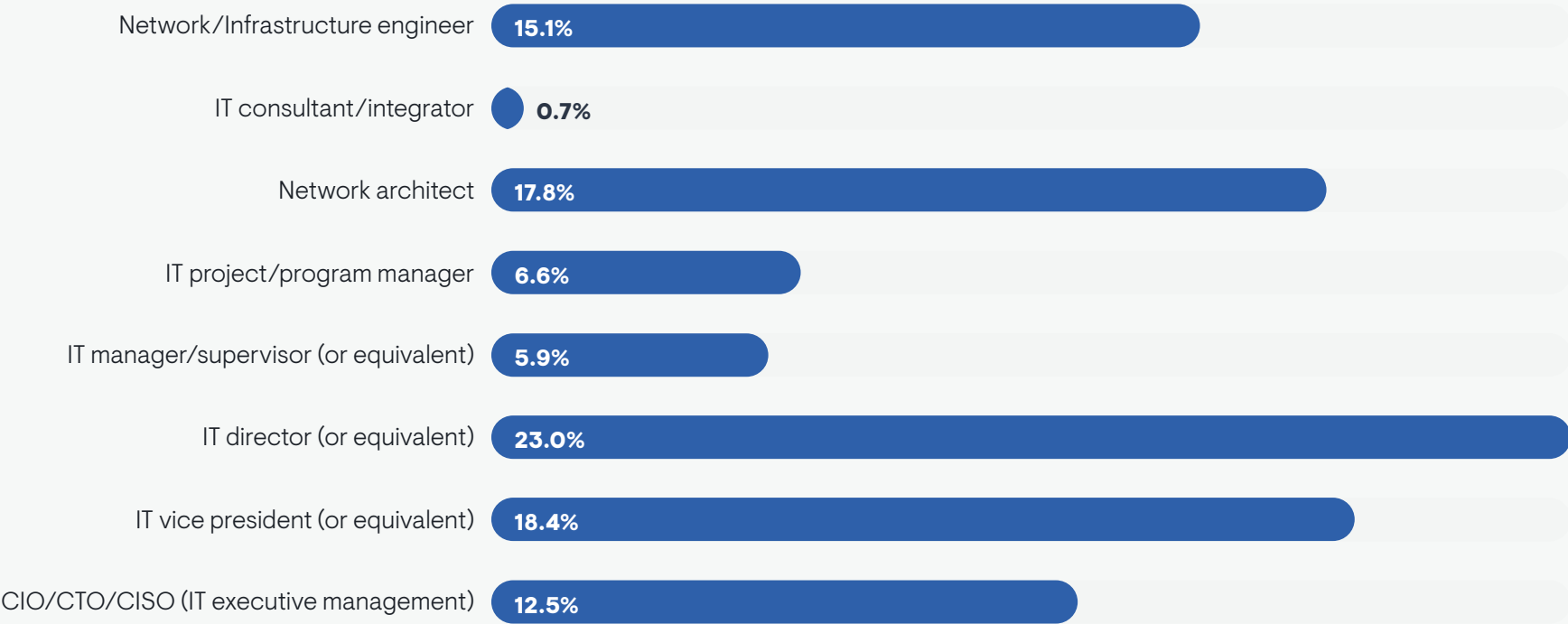
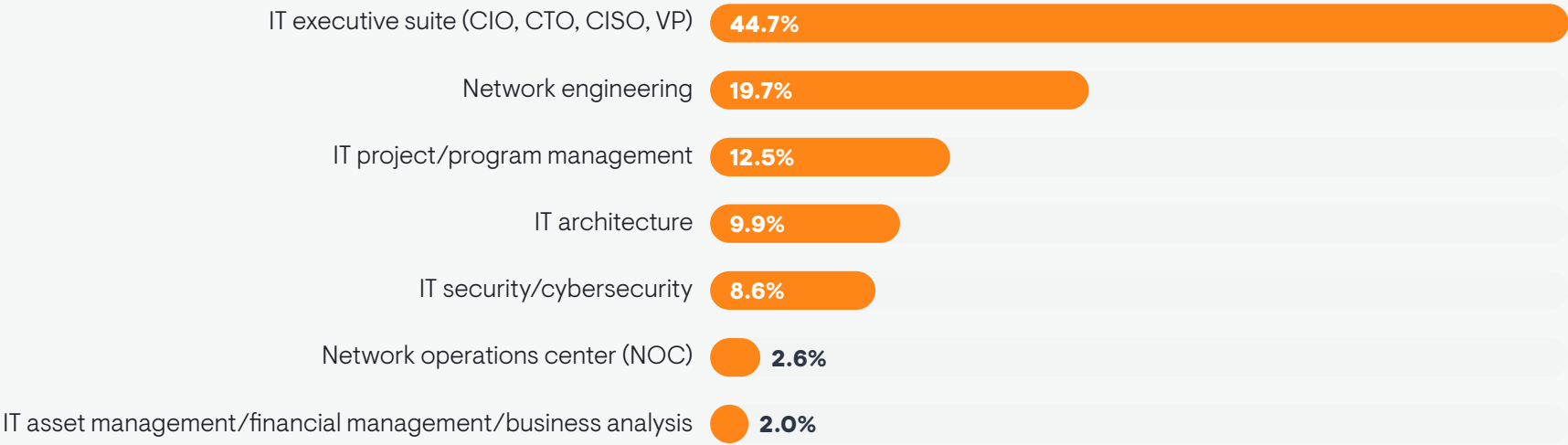
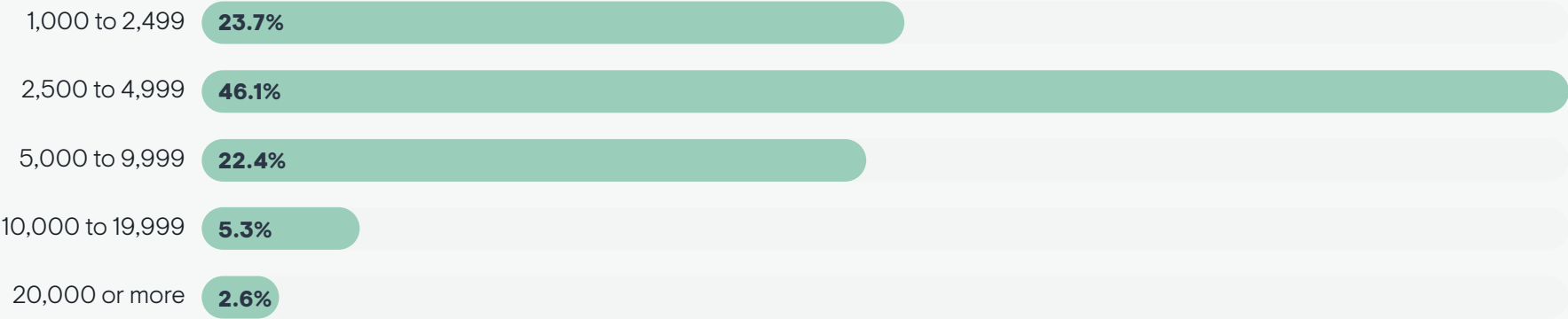


Figure 23. Which of the following best describes your group within IT?



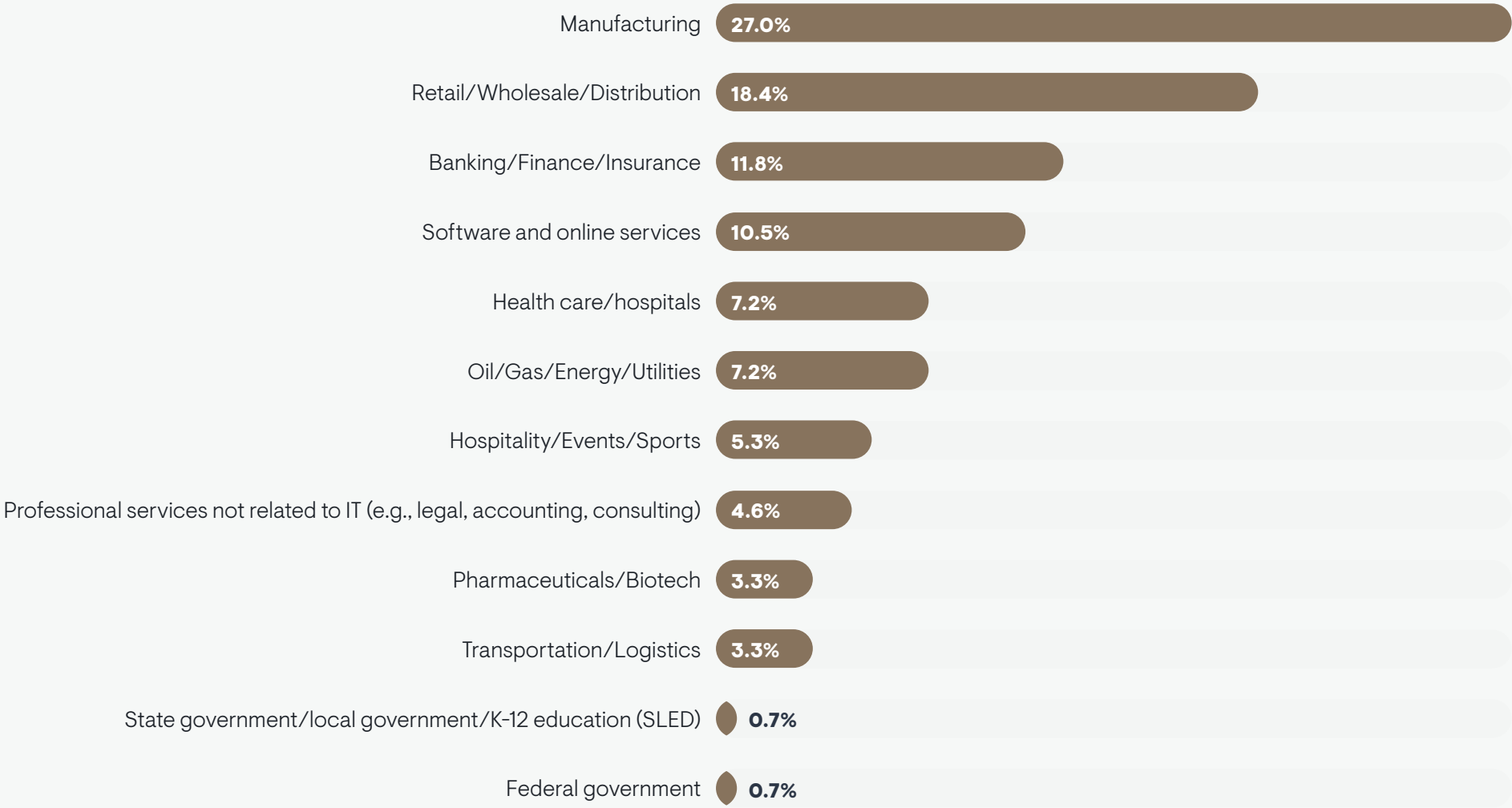
Sample Size = 152

Figure 24. How many employees are in your company worldwide?



Sample Size = 152

Figure 25. Which of the following best describes your company's primary industry?



Sample Size = 152





About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading IT research and consulting firm dedicated to delivering actionable insights across the evolving technology landscape. Through independent research, market analysis, and vendor evaluations, we empower organizations to make well-informed technology decisions. Our team of analysts combines practical experience with a deep understanding of industry best practices and emerging vendor solutions to help clients achieve their strategic objectives. Learn more about EMA research, analysis, and consulting services at www.enterprisemanagement.com or follow EMA on [X](#) or [LinkedIn](#).

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