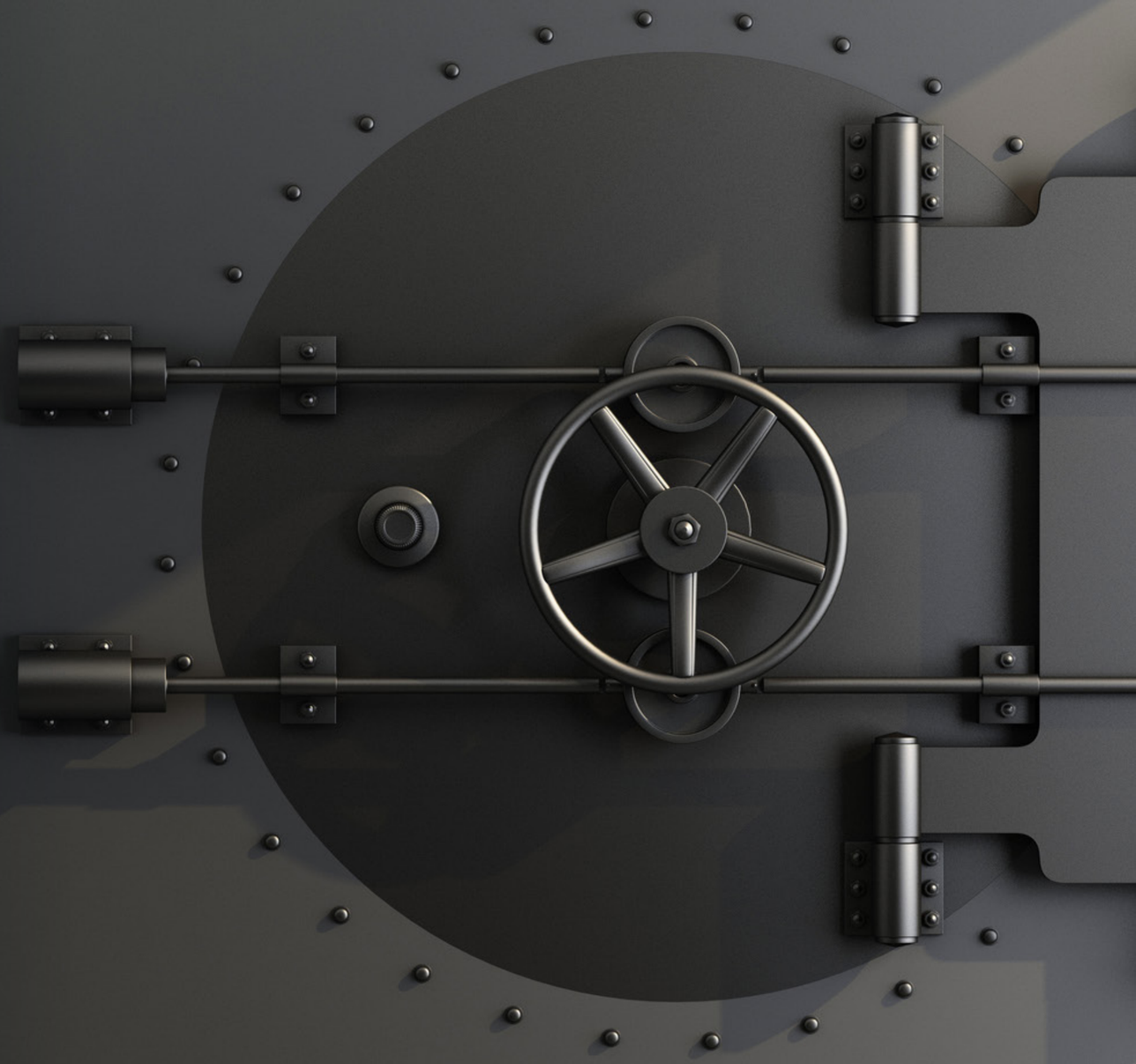
Enterprise Strategy Group | Getting to the bigger truth.™

Security Hygiene and Posture Management

Jon Oltsik, Senior Principal Analyst & ESG Fellow



OCTOBER 2021

Research Objectives

Security posture management challenges are driven by the growing attack surface. Organizations have accelerated cloud computing initiatives and have been forced to support a growing population of remote users as a result of the pandemic. Firms are also deploying new types of devices as part of digital transformation initiatives, further exacerbating the growing attack surface, leading to management challenges, vulnerabilities, and potential system compromises. Meanwhile, security teams are also concerned about recent cybersecurity issues including MS Exchange vulnerabilities and the SolarWinds hack. As a result, organizations are further assessing security posture management processes, examining vendor risk management requirements, and testing security more frequently.

In order to gain insights into these trends, ESG surveyed 398 IT and cybersecurity professionals at organizations in North America (US and Canada) personally responsible for evaluating, purchasing, and utilizing products and services for security hygiene and posture management, including vulnerability management, asset management, attack surface management, and security testing tools, among others.

THIS STUDY SOUGHT TO:

Assess how organizations approach security hygiene and posture management today.

Evaluate how organizations test the efficacy of their security controls and what this testing accomplishes.

Understand coverage gaps, why these gaps exist, and whether these gaps lead to security incidents.

Highlight which actions cybersecurity professionals believe their organizations should take to improve security hygiene and posture management.

Back to Contents

KEY FINDINGS

CLICK TO FOLLOW

Security Hygiene and Posture Management Remains One of the Least Mature Areas of Cybersecurity

PAGE 4

The External Attack Surface Is Vulnerable and Prone to Exploitation

PAGE 7

Asset Management Depends Upon Tools, Processes, and Cross-department Cooperation

PAGE 12

Organizations Believe Their Vulnerability Management Programs Are Mature, but There Is Still Work to Be Done

PAGE 16

While the Value of Security Testing Is Well Understood, Frequency and Depth Remain Underserved

PAGE 20

Organizations Will Move Toward Security Observability, Prioritization, and Validation (SOPV) Technologies

PAGE 24

Security Hygiene and Posture Management Remains One of the Least Mature Areas of Cybersecurity

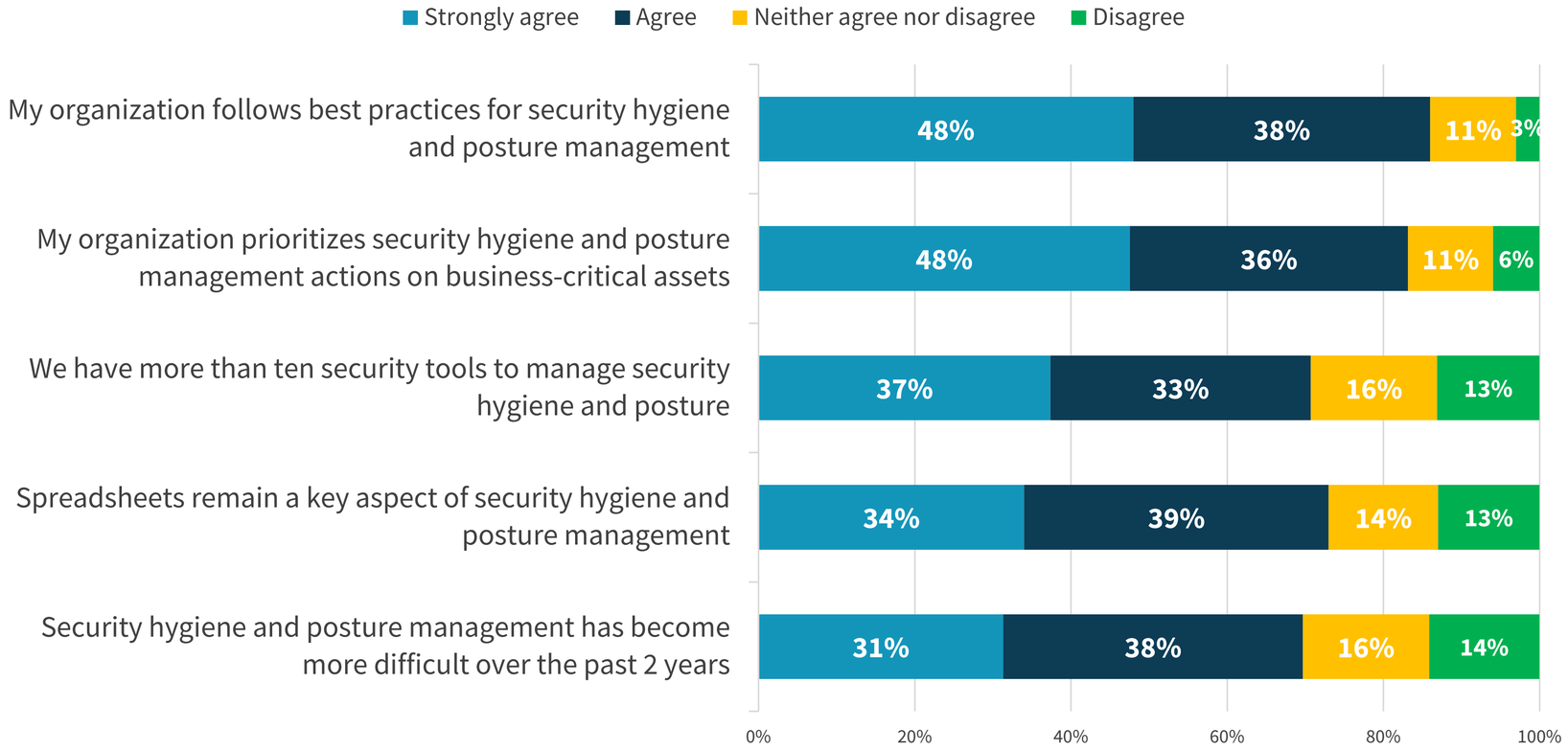
Security Hygiene and Posture Management Opinions

Organizations understand that security hygiene and posture management is an essential element of an enterprise security program. The research reinforces this point. For example, 86% of organizations believe that they follow best practices for security hygiene and posture management, and 84% report that they prioritize security hygiene and posture management actions on business-critical assets.

Unfortunately, the research also uncovers numerous security hygiene and posture management obstacles. For example, 70% of organizations have more than ten security tools to manage security hygiene and posture management, which can only lead to data management issues and operations overhead. Furthermore, 73% of security professionals admit that security hygiene and posture management still depends on spreadsheets at their organization. Little wonder then why 70% of respondents say that security hygiene and posture management has become more difficult over the past 2 years.

“86% of organizations believe that they follow best practices for security hygiene and posture management.”

Organizations’ positions regarding security hygiene and posture management.



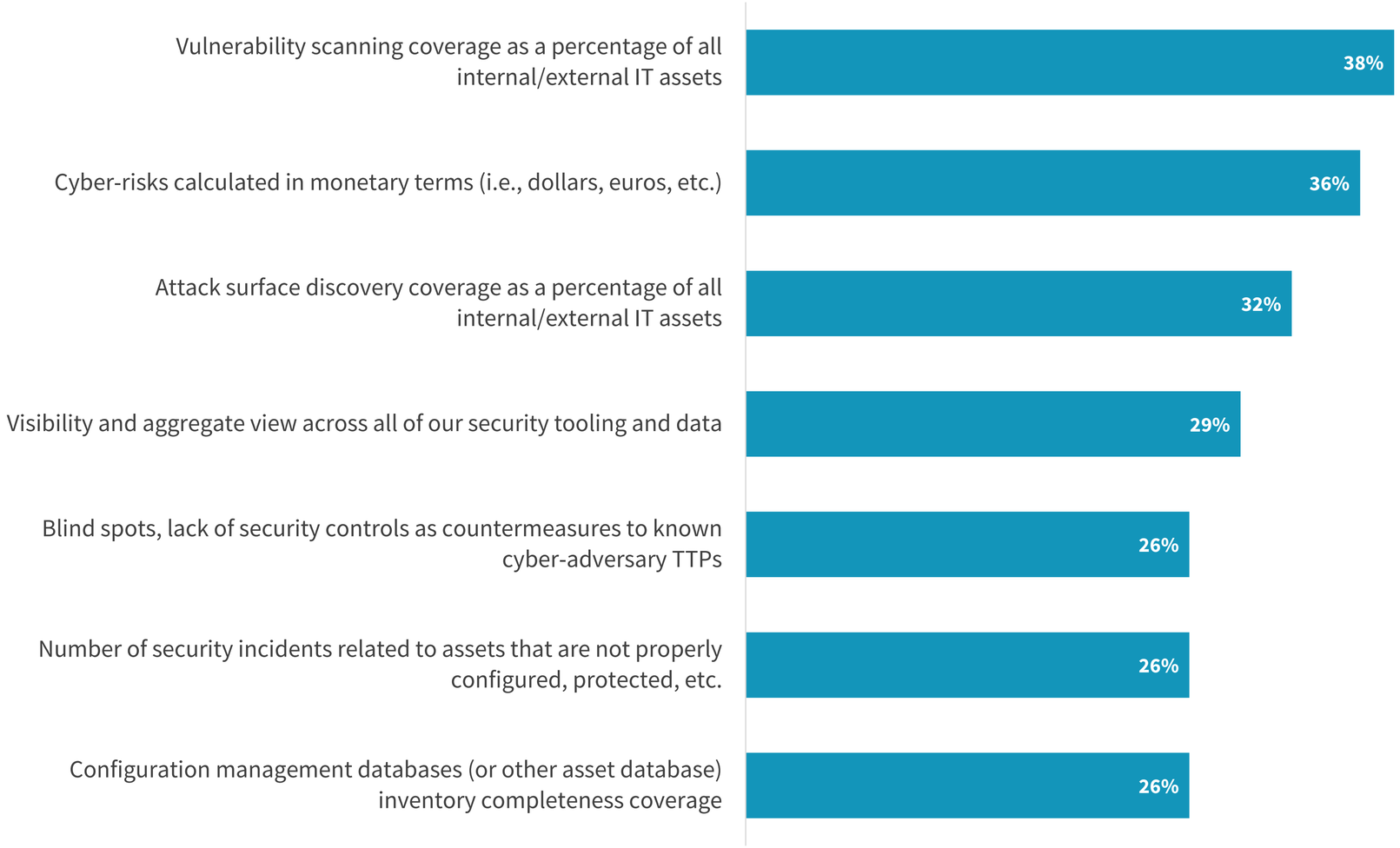
Back to Contents

Security Hygiene and Posture Management Metrics

The research indicates that organizations measure security hygiene and posture management success in numerous ways. For example, 38% of organizations point to vulnerability scanning coverage as a percentage of all internal/external IT assets as one of their most important security hygiene and posture management metrics, 36% cite cyber-risks calculated in monetary terms, and 32% believe that attack surface discovery coverage as a percentage of all internal/external IT assets is a valuable gauge.

While each of these metrics is important on its own, the data demonstrates that many organizations continue to address security hygiene and posture management tactically on a technology-by-technology basis. ESG believes that CISOs should take a more holistic approach to security hygiene and posture management by adopting technologies and processes for discovering assets, analyzing data, prioritizing risks, automating remediation tasks, and continuously testing security defenses at scale. These requirements are driving a new security technology category: security observability, prioritization, and validation (SOPV).

Most important security hygiene and posture management metrics.



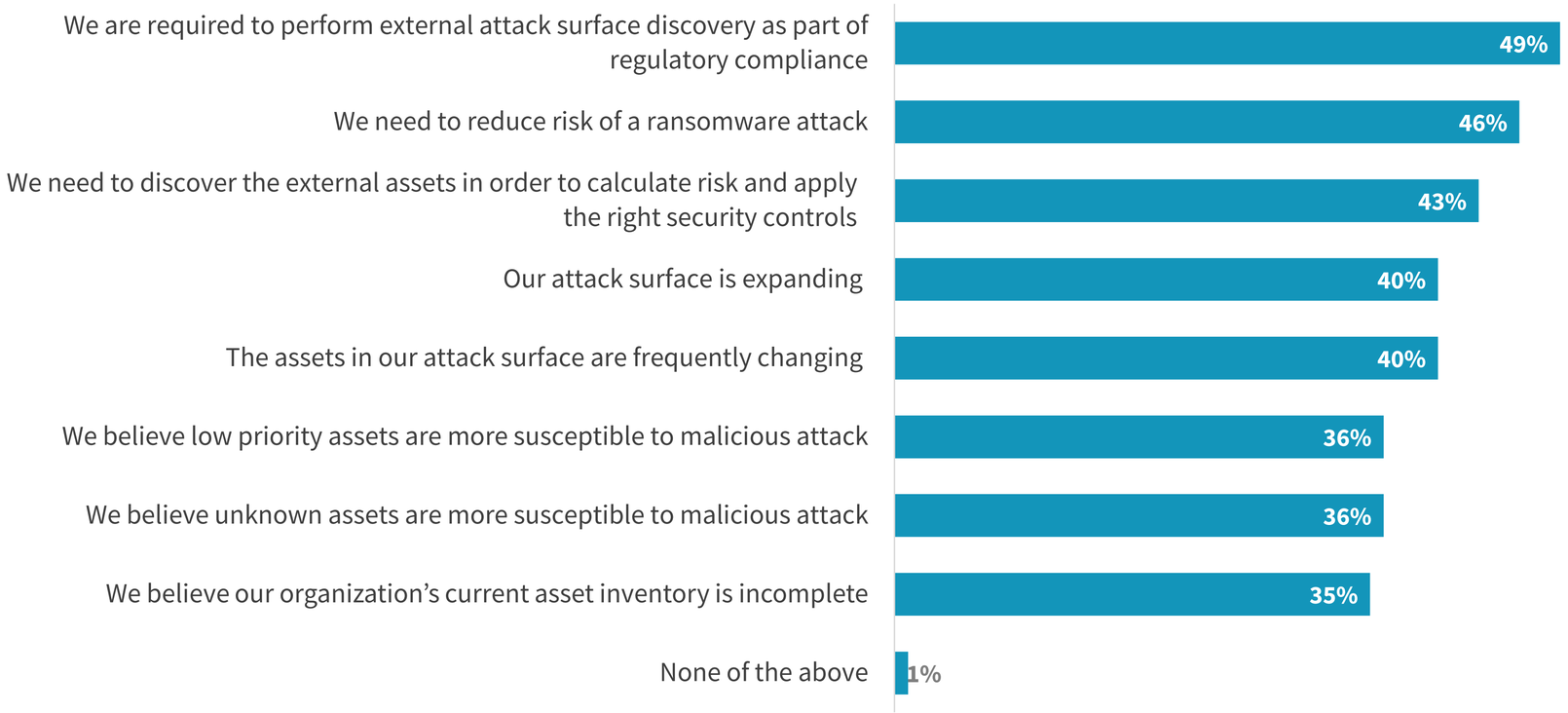
Back to Contents

The External Attack Surface Is Vulnerable and Prone to Exploitation

External Attack Surface Discovery Drivers Include Regulations, Threats, and Attack Surface Dynamics

While nearly half (49%) of organizations undertake attack surface management for regulator compliance, they also recognize other reasons to do so. For example, 46% say they perform attack surface management to reduce the risk of a ransomware attack, 43% claim they need to discover external assets in order to calculate risk and apply the right security controls, and 40% do so because the attack surface if frequently changing. These are sound reasons, but CISOs must also understand that adversaries may be continuously scanning their organization's attack surface with automated tools as part of the reconnaissance phase of cyber-attacks. Therefore, attractive target organizations should strive to safeguard internet-facing assets and reduce their attack surface, thus increasing the work and needed resources for cyber-adversaries.

Drivers for external attack surface discovery.



> **"CISOs must also understand that adversaries may be continuously scanning their organization's attack surface with automated tools** as part of the reconnaissance phase of cyber-attacks."

Back to Contents

Reasons the Attack Surface Is Increasing

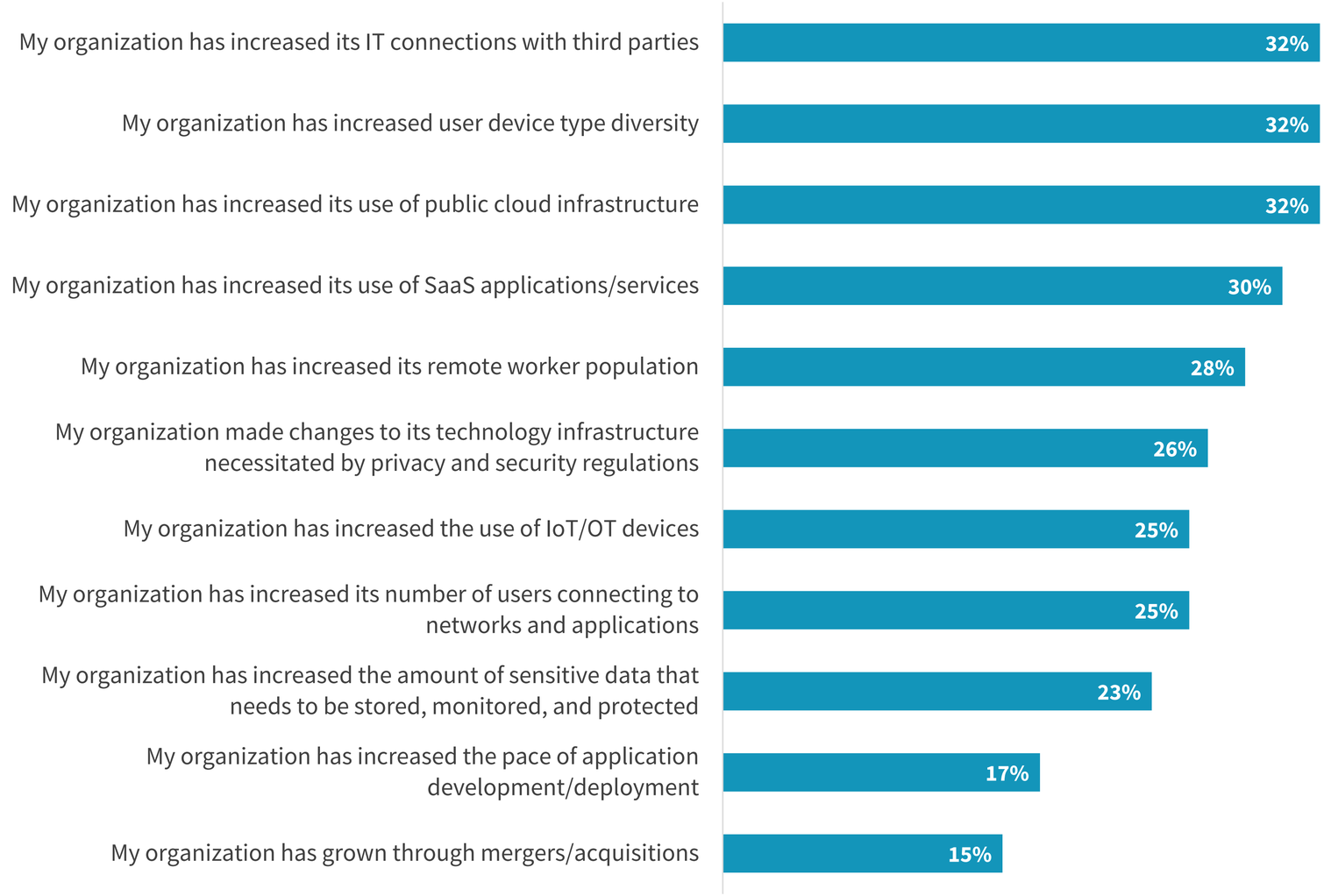
It's safe to assume that attack surface management is growing more difficult. Why? Two-thirds (67%) of organizations say that their attack surface has increased over the past two years. The research also revealed that the largest attack surfaces are growing fastest. From a security perspective, it's safe to conclude, "more assets, more problems."

Why is the attack surface growing so quickly? Nearly one-third (32%) pointed to three common reasons: more IT connections to third parties, increasing device diversity, and greater use of public cloud infrastructure. Additionally, 30% of organizations have increased their use of SaaS applications/services. To secure this growing attack surface, organizations need visibility and continuous monitoring across hybrid IT, third-party connections, remote worker devices, and all other types of internet-facing systems and services.

22%, The attack surface at my organization has increased **substantially** over the past 2 years

45%, The attack surface at my organization has increased **slightly** over the past 2 years

Primary reasons attack surface has increased.

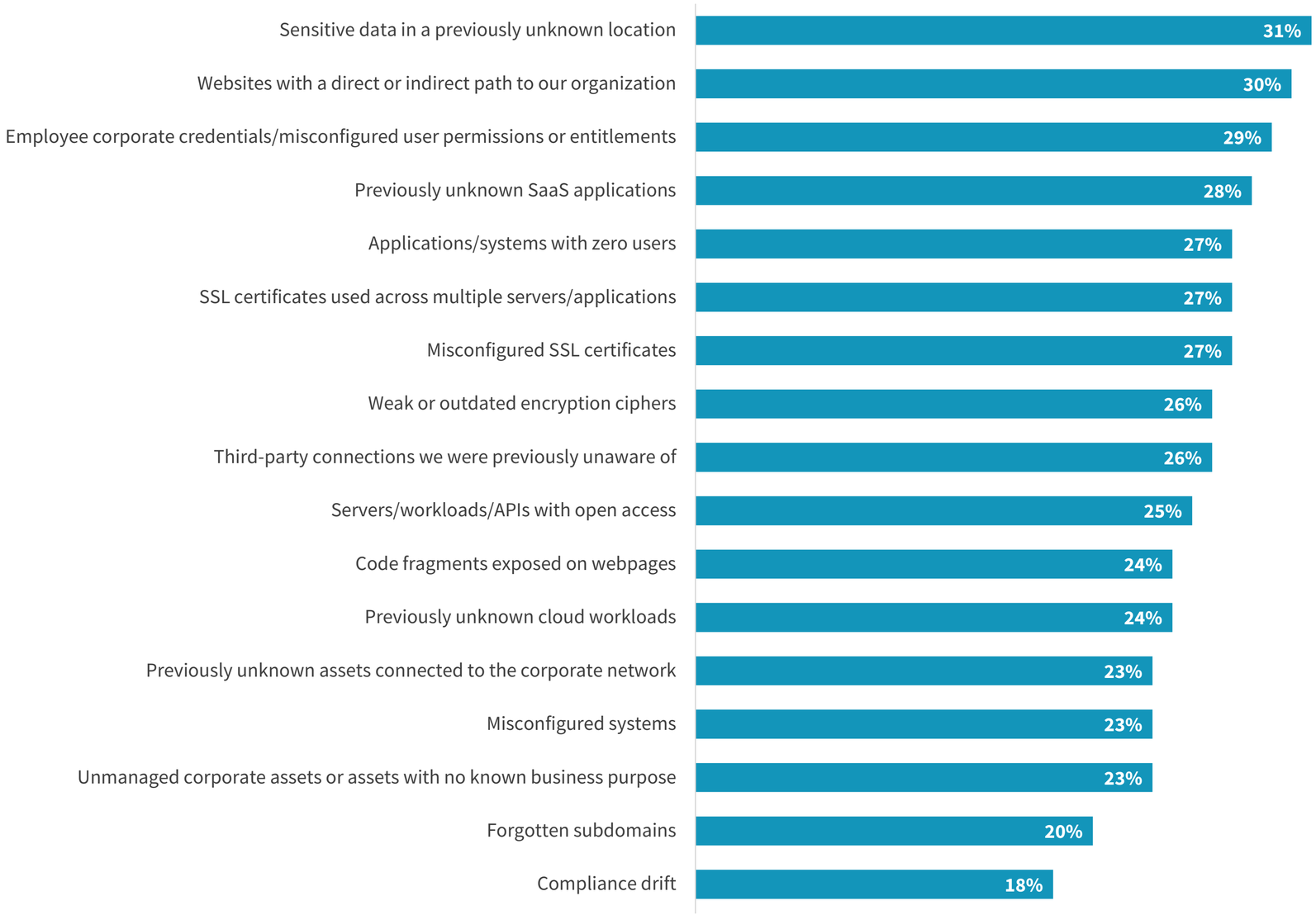


Back to Contents

Assets Exposed as Part of Attack Surface Discovery

Like other areas of security hygiene and posture management, organizations rely on an assortment of tools for attack surface management and monitoring. While extracting, normalizing, and analyzing data from different systems can be resource-intensive and introduce operational overhead, security professionals admit that their organizations have discovered many vulnerable internet-facing assets. Nearly one-third (31%) discovered sensitive data in a previously unknown location, 30% found websites with a path to their organization, 29% uncovered employee corporate credentials/misconfigured user permissions/ entitlements, and 28% exposed previously unknown SaaS applications. Other exposed assets included misconfigured SSL certificates, weak encryption ciphers, code fragments, unknown third-party connections, and forgotten subdomains.

Discoveries attributed to external attack surface monitoring.

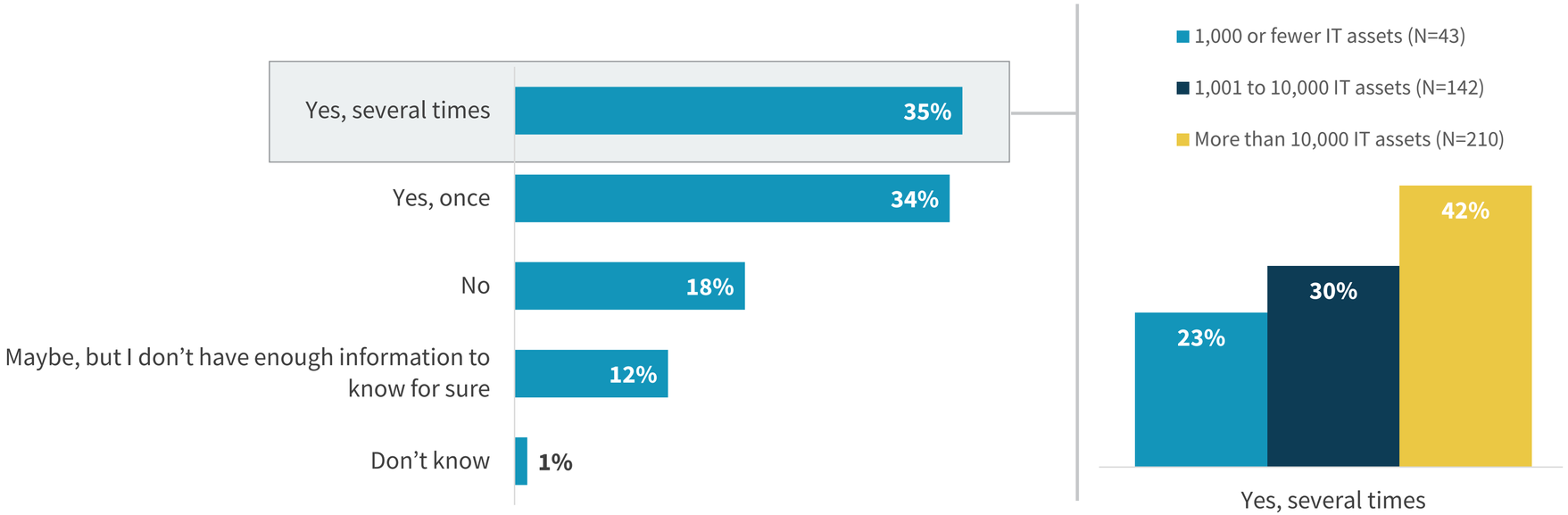


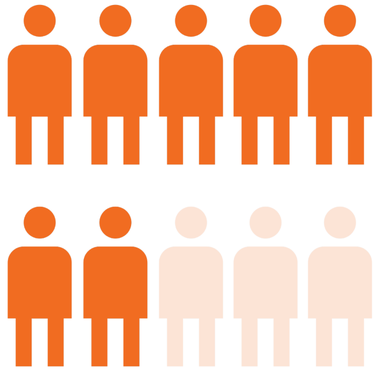
Back to Contents

Attacks Emanating from an Internet-facing Asset

ESG's research reaches an ominous conclusion: Attack surface vulnerabilities can open a door for cyber-attacks. Nearly seven in ten (69%) organizations admit that they have experienced at least one cyber-attack that started through the exploit of an unknown, unmanaged, or poorly managed internet-facing asset. Additionally, organizations with the most IT assets, and subsequently largest attack surfaces, were almost twice as likely to experience several of these cyber-attacks. This data alone should persuade CISOs to assess the effectiveness of their current attack surface management programs.

Have organizations experienced attacks tied to internet-facing assets?





Nearly 7 in 10

organizations admit that they have experienced at least one cyber-attack that started through the exploit of an unknown, unmanaged, or poorly managed internet-facing asset.

Back to Contents

Asset Management Depends Upon Tools, Processes, and Cross-department Cooperation

Asset Management by the Numbers

Nearly one-third (32%) of organizations collect, process, and analyze data from more than 10 sources for security asset management. The most common data sources used include IT asset management systems (59%), endpoint security tools (50%), cloud security posture management (46%), network scanning (39%), and endpoint management systems (35%).

Nearly half (48%) of organizations claim that it takes more than 80 person-hours to conduct a full security asset inventory, and most organizations (79%) perform full security asset inventories once per month or less frequently.

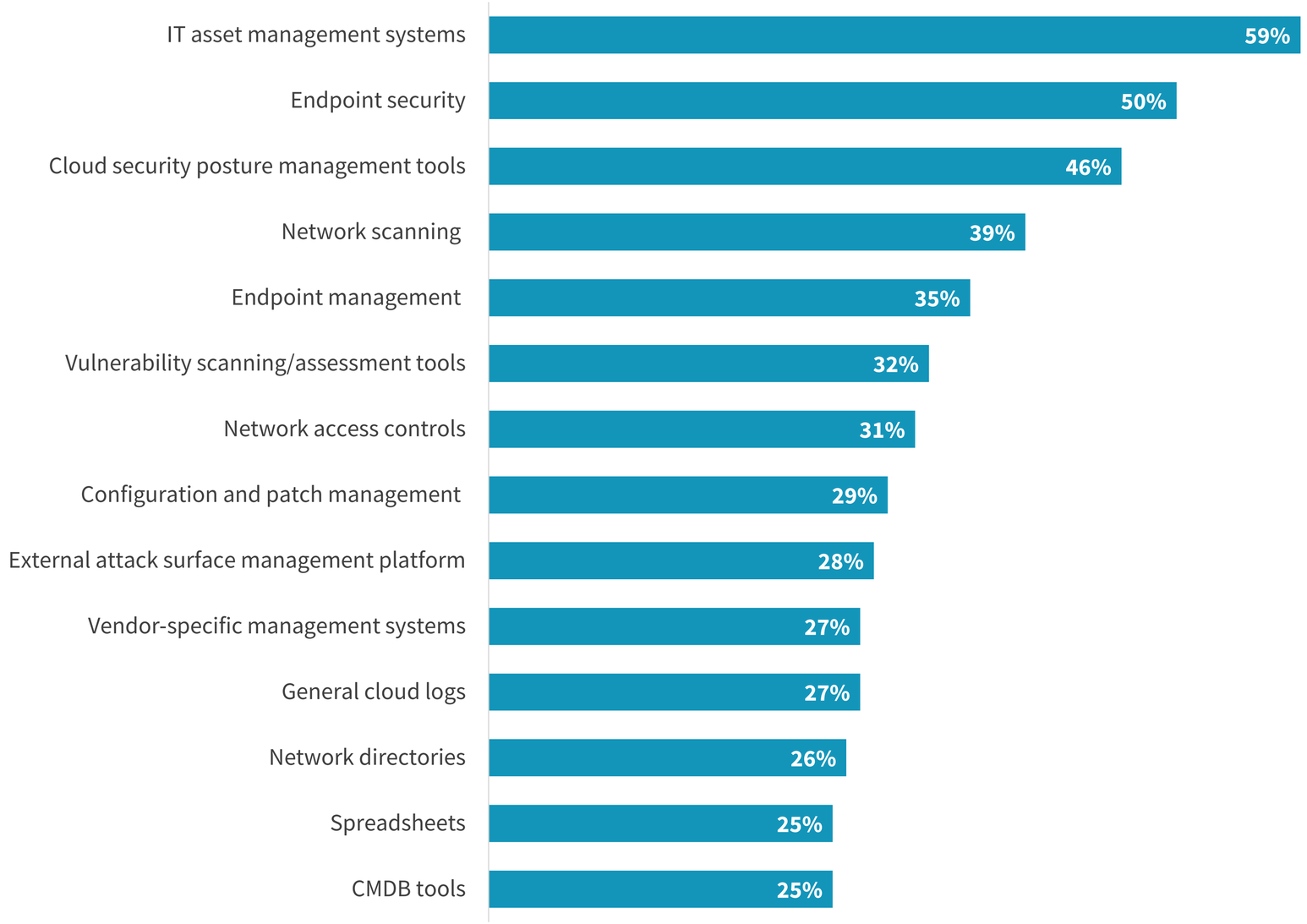
ON AVERAGE, ORGANIZATIONS:

Use 10
IT asset inventory systems.

Devote 89
person-hours to generate an IT asset inventory.

Conduct IT asset inventory audits every
2 months.

Tools/systems used as part of organizations' IT asset inventory process.



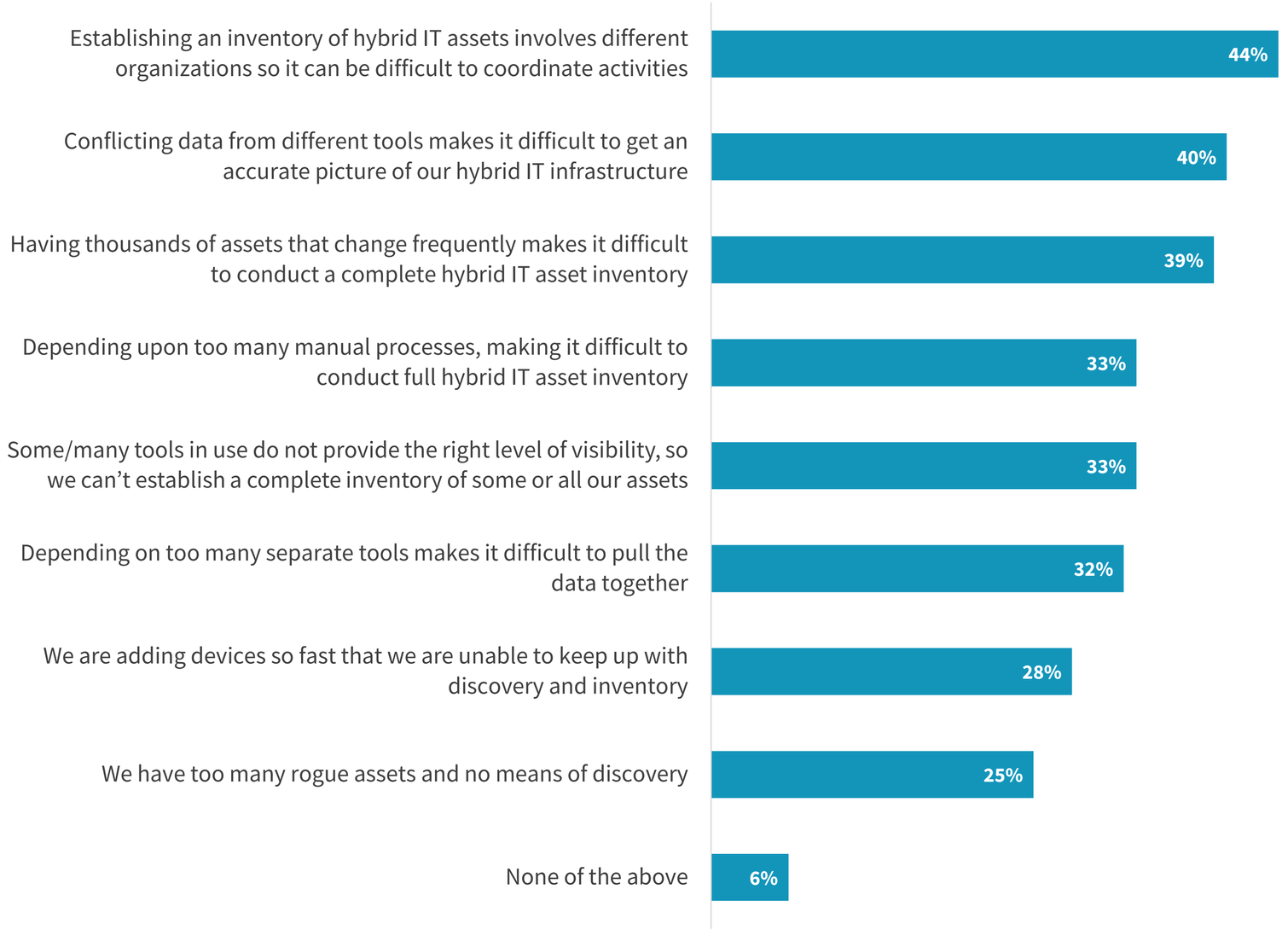
Back to Contents

Security Asset Management Challenges

The combination of multiple data sources and time-consuming processes results in numerous security asset management challenges. Forty-four percent of organizations claim that establishing an inventory of hybrid IT assets involves different organizations, which makes it difficult to coordinate activities, 40% say that conflicting data makes it difficult to get an accurate picture of assets, and 39% report that it is difficult to keep up with thousands of changing assets. It is also noteworthy that one-third of organizations depend on manual processes, making it difficult if not impossible to do security asset management at scale.

When asked to identify the types of assets to track and inventory, more than one-third (34%) of security professionals identified software (i.e., software misconfigurations, coding errors, vulnerabilities, etc.), 30% recognized cloud-based workloads, 30% acknowledged user accounts, 28% pointed to user entitlements, and 27% said IoT devices.

Challenges understanding IT asset inventory.



Back to Contents

Actions for Improving Security Asset Management

Survey respondents were asked how their organizations could improve security asset management. Nearly one-third (31%) said this could be accomplished by automating security asset management processes, 28% suggested integrating security and IT tools, 27% recommended establishing business-centric KPIs, metrics, and reports, and 24% mentioned improving their organization's ability to analyze risk scores to help them determine which assets are truly at risk.

Overall, the data suggests that security asset management programs are likely informal, disorganized, and immature. Organizations would benefit from greater integration technology, advanced analytics, and process automation here.

Actions likeliest to improve security asset management programs.

Back to Contents

Organizations Believe Their Vulnerability Management Programs Are Mature, but There Is Still Work to Be Done

Volume of Process Coordination Most Common Vulnerability Management Challenge

When asked to identify vulnerability management challenges, 30% said keeping up with the volume of open vulnerabilities, 29% said automating the process of vulnerability discovery, prioritization, dispatch to owner, and mitigation, 29% said coordinating vulnerability management processes across different tools, and 28% said coordinating vulnerability management processes across different teams.

Biggest vulnerability management challenges.

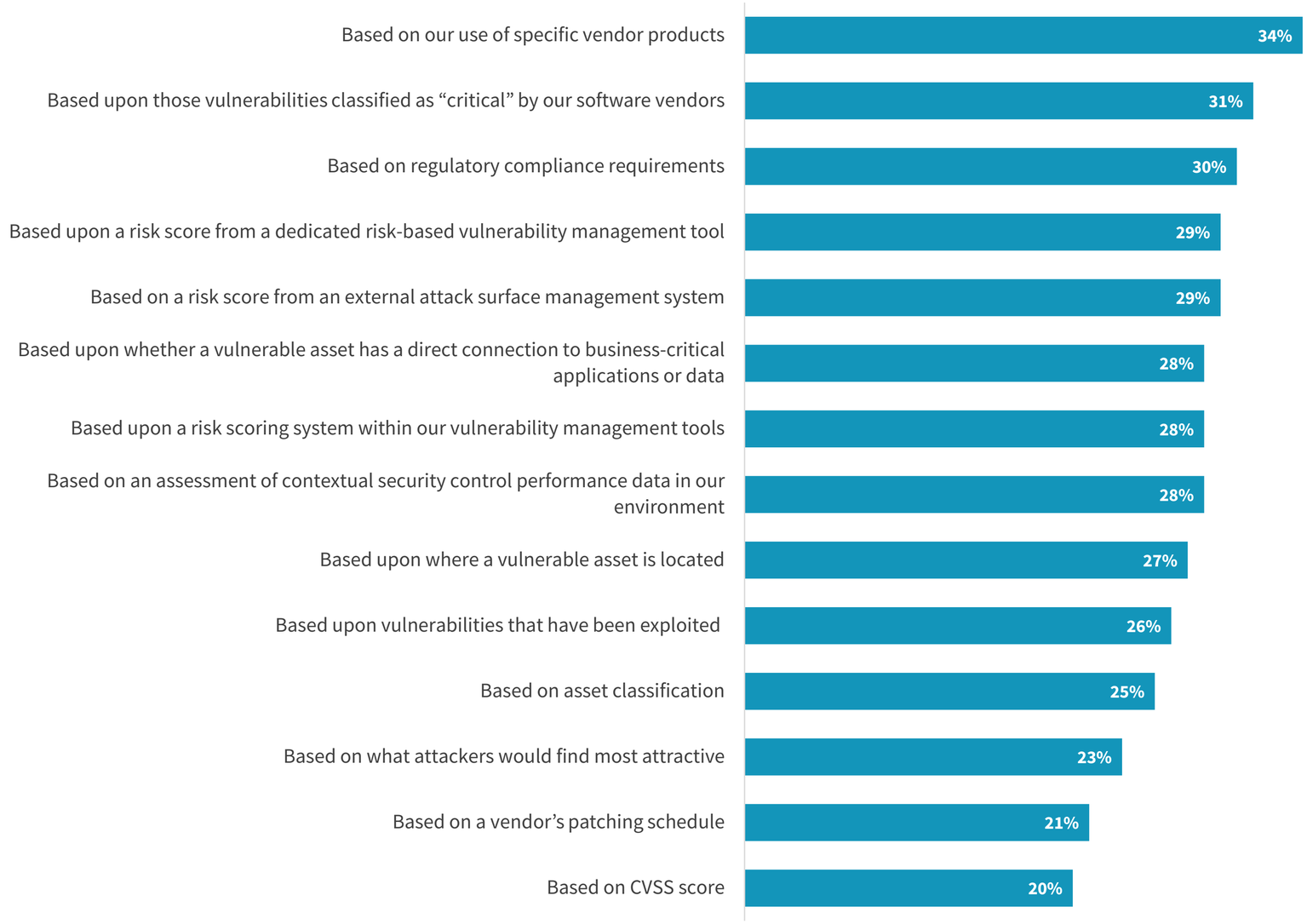
Back to Contents

Determining Patching Priorities

Upon scanning and vulnerability identification, security teams analyze the data and then determine which vulnerabilities should be remediated first. How do organizations make these prioritization decisions? The research seems to indicate that individual organizations have multiple inputs for decision making. For example, 34% make patching priority decisions based on their use of specific vendor products, 31% do so based upon those vulnerabilities classified as “critical” by software vendors, and 30% use regulatory compliance guidelines. Interestingly, 20% say that they base prioritization and patching decisions on CVSS scores. While this seems to be a secondary consideration, ESG’s experience is that CVSS scores are included in all vulnerability prioritization and patching decisions.

It is also noteworthy that 29% say that vulnerability prioritization and patching decisions are driven by risk scores from a dedicated risk-based vulnerability management system. These tools analyze vulnerability data as it relates to other factors like asset value, connections, threat intelligence on adversary TTPs, and whether vulnerabilities have a history of exploitation. Risk-based vulnerability management tools are gaining in popularity as they can help organizations streamline vulnerability and patch management operations while maximizing risk mitigation.

Approaches to vulnerability prioritization and patching.



Back to Contents

Improving Vulnerability Management

How can organizations improve vulnerability management? Security professionals have a multitude of suggestions, including integrating VMs and other security/IT technologies (35%), establishing KPIs, metrics, and reports to help communicate VM performance to the business (30%), and providing VM training to security and IT personnel (28%).

Two other suggestions stand out: 28% recommend gaining insight into asset exploitability, exposure, and impact on critical systems to understand the underlying business risk posed by critical visibility. This means correlating VM and asset data with threat intelligence, a nod toward commercial risk-based vulnerability management technologies that provide this functionality. Additionally, 28% propose continuously updating the external attack surface inventory so they can perform more accurate and timely vulnerability scans. Once attack surface management tools discover and analyze unknown assets, VM tools should be triggered to immediately scan these assets, analyze cyber-risks, and provide suggestions for remediation prioritization.

| Top five actions to improve vulnerability management programs.

35%

Integrating vulnerability management and other security and IT technologies

30%

Establishing KPIs, metrics, and reports that could help communicate the importanceof vulnerability management to the business

28%

Providing more vulnerability management training to security and IT staff

28%

Gaining insight into asset exploitability, exposure, and impact on critical systems to understand underlying business risk posed by critical vulnerabilities

28%

Continuously update the external attack surface inventory so we can perform more accurate and timely vulnerability scans

Back to Contents

While the Value of Security Testing Is Well Understood, Frequency and Depth Remain Underserved

Why Conduct Security Testing?

While some organizations perform frequent security testing, many periodically do formal penetration testing or red teaming exercises on a quarterly or biannual basis. In the past, security testing was driven by regulatory compliance or governance requirements, but the ESG data seems to indicate a change in motivation as nearly half (47%) of security professionals say that their organizations conduct penetration tests/red teaming as a best practice for risk assessment, 39% conduct penetration testing after a security incident, and 38% do so at the behest of executive management and/or the board of directors.

It is also noteworthy that over one-third (35%) of organizations conduct penetration tests after another firm in their industry has experienced a data breach. This is especially true in industries like education, financial services, healthcare, and the public sector that have been the primary targets of ransomware attacks.

“Nearly half (47%) of security professionals say that their organizations conduct penetration tests/red teaming as a best practice for risk assessment.”

Primary reasons for conducting penetration tests and red team exercises.

Back to Contents

Actions Taken as a Result of Security Testing

Security testing provides facts and feedback to security teams, so its value is well understood. For example, 46% of organizations use testing reports to reassess security and IT processes as well as cyber-risk. In other words, security tests uncover previously unknown blind spots and gaps that can then be addressed. Additionally, 38% use security testing to help them improve the efficacy of security controls, and 37% review testing reports with leadership teams.

It's also worth noting that 36% use testing to determine ineffective security controls for elimination. Over the years, many organizations accumulated dozens of security tools that may be redundant with one another or ineffective against modern threats. Security testing can uncover these inefficiencies, helping organizations simplify their security infrastructure while bolstering security efficacy.

By identifying outstanding cyber-risks and defense gaps, security testing can also help organizations pinpoint and prioritize security investments. This is precisely why 31% of organizations use security testing reports to justify security budgets and projects.

Actions the organization takes based on penetration tests and red team exercises.

Back to Contents

BAS Technology Facilitates Purple Teams and Automated Testing

To make the best use of security testing benefits while minimizing management overhead, some organizations are considering breach and attack simulation (BAS), a technology that can emulate adversary behavior through automated testing. In fact, the ESG research seems to indicate that BAS is becoming increasingly attractive as 27% of organizations say they are already using BAS technology, 52% claim it is very likely they will purchase and utilize BAS technology in the future, and another 18% believe it is somewhat likely they will adopt a BAS solution.

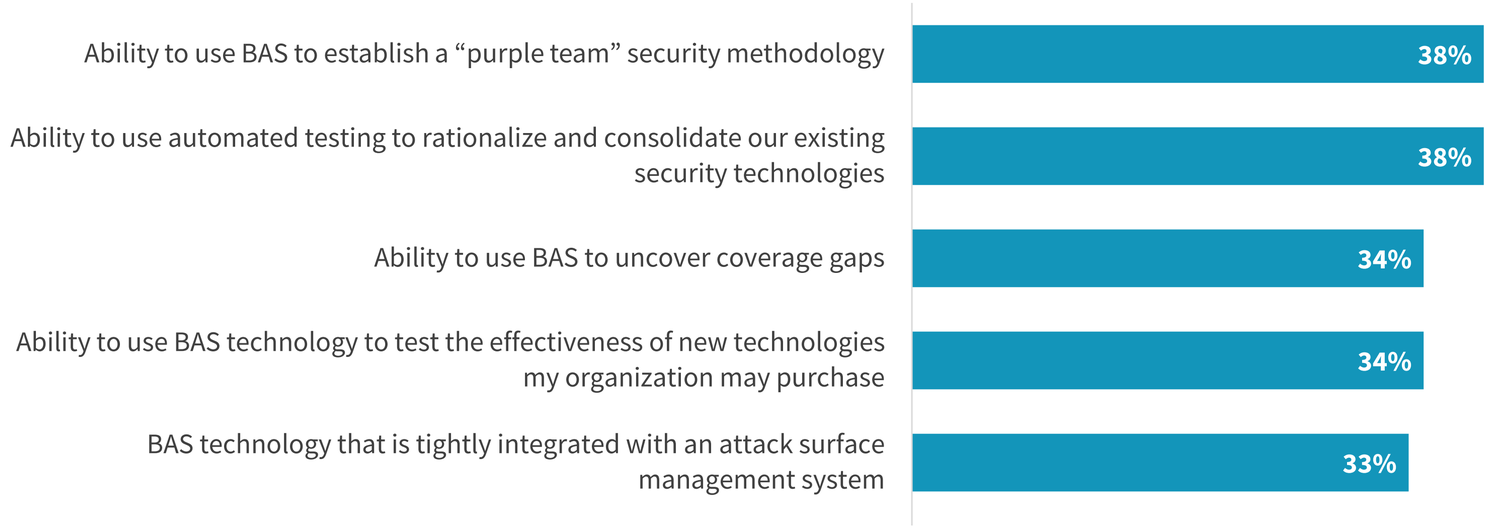
Why are organizations open to BAS? More than one-third (38%) believe BAS presents a compelling option due to its ability to help them establish a “purple team” security methodology. In other words, BAS can help red teams (i.e., adversary emulators) and blue teams (i.e., security defenders) better understand each other and then work together on collaborative solutions.

27% already use BAS technology

52% very likely to use BAS technology

Additionally, 38% believe BAS can provide automated testing to help them rationalize and consolidate existing security technologies. In this way, BAS can uncover which controls work best, helping organizations eliminate redundant or ineffective tools, thus engineering simpler yet stronger defenses. BAS can also help organizations identify coverage gaps (i.e., missing controls and data sources) (34%) and test the effectiveness of new security technologies (34%). BAS can also add value by integrating with attack surface management systems to help organizations understand whether exposed internet-facing assets could truly be used as part of a cyber-attack (33%). Finally, 30% of security professionals believe that BAS can help them map security testing with the MITRE ATT&CK framework. In other words, BAS can help organizations emulate known attack campaigns, assess controls as they relate to adversary TTPs, and build a threat-informed defense.

Top five reasons attack surface has increased.



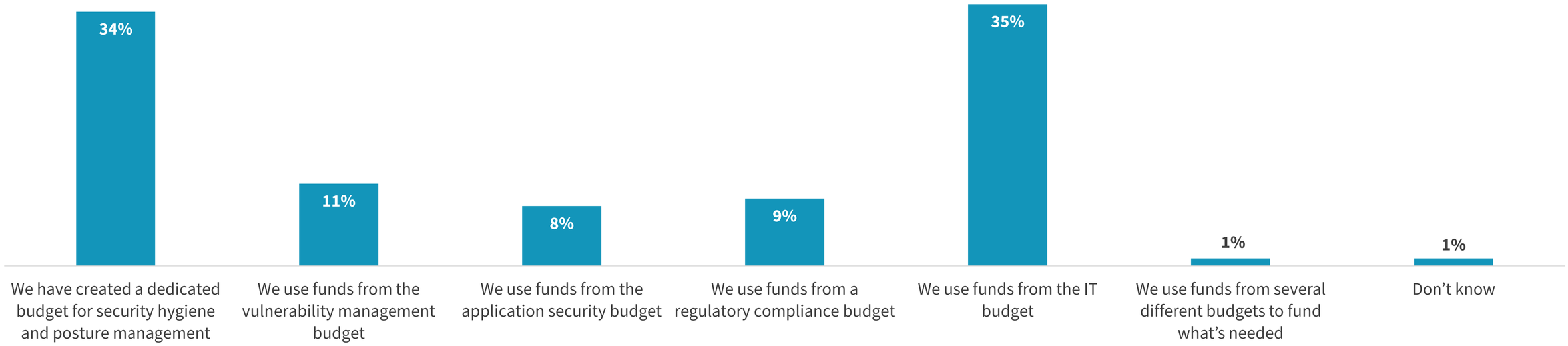
Back to Contents

Organizations Will Move Toward Security Observability, Prioritization, and Validation (SOPV) Technologies

Security Hygiene and Posture Management Budget

How do organizations allocate funds for security hygiene and posture management budgets? The majority (65%) use funding from other areas like the IT budget, a vulnerability management budget, the regulatory compliance budget, or an application security budget. Alternatively, just more than one-third (34%) of organizations have created a dedicated budget for security hygiene and posture management. ESG believes that a dedicated security hygiene and posture management budget is a leading indicator of market behavior. As attack surfaces increase and organizations suffer more security incidents as a result, they will realize the need for a comprehensive and holistic strategy. This recognition will then serve as a tipping point from tactical and haphazard actions to a strategic security hygiene and posture management program.

Source of budget for security hygiene and posture management.



Back to Contents

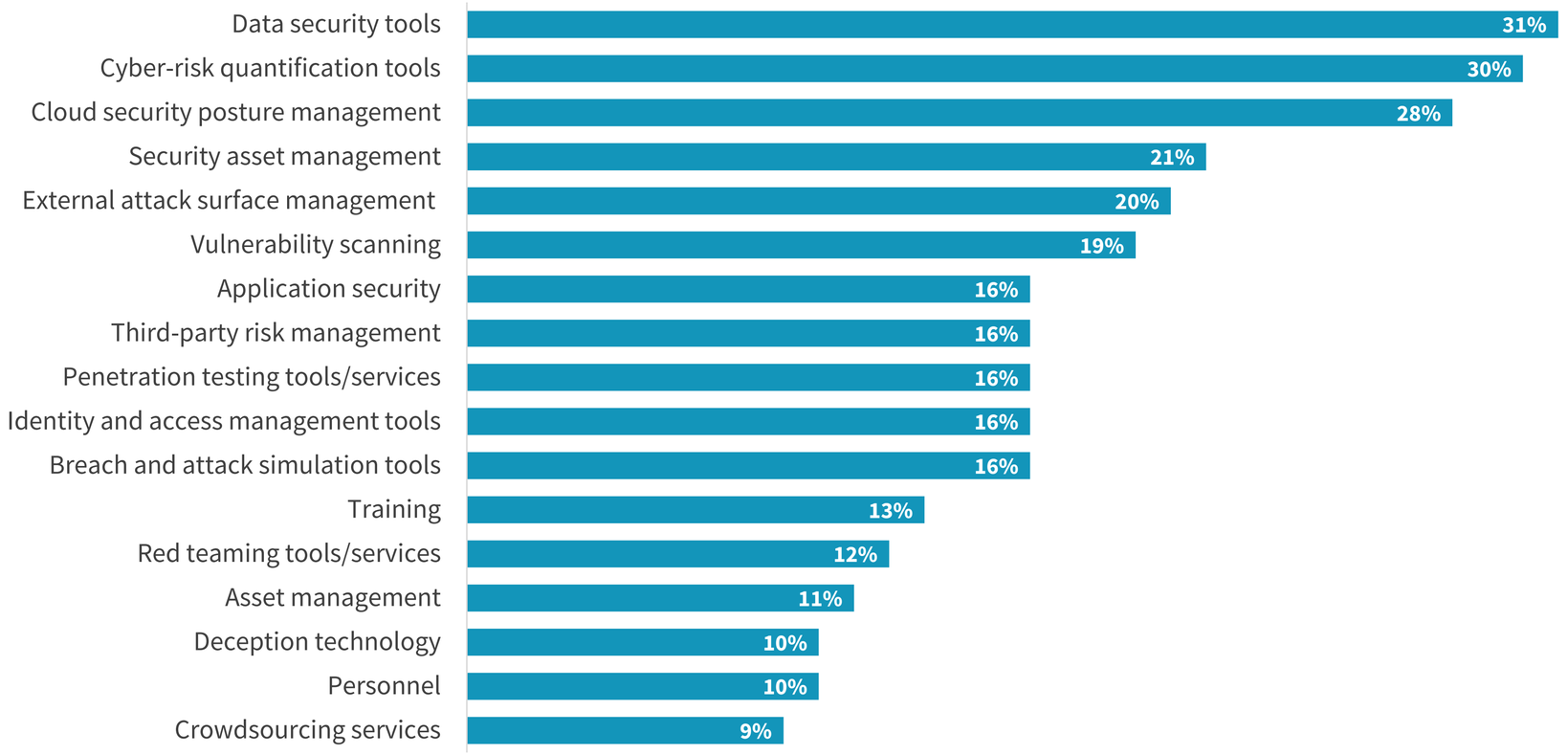
Following the Security Hygiene and Posture Management Money

In addition to the creation of a dedicated budget, this research indicates that CISOs are already focused on improving cyber-risk identification and mitigation through security hygiene and posture management. In fact, 80% of organizations plan to increase security hygiene and posture management spending over the next 12 to 18 months.

While security hygiene and posture management spending will be sprinkled across hybrid IT infrastructure, security professionals believe the biggest increases will be in data security tools (i.e., data discovery, classification, DLP controls, digital rights management, etc.) (31%), cyber-risk quantification tools (30%), cloud security posture management (i.e., CSPM) (28%), security asset management (21%), and external attack surface management technology (20%).

“80% of organizations plan to increase spending for security hygiene and posture management over the next 12-18 months.”

Spending priorities for security hygiene and posture management.



Back to Contents

Actions for Improving Security Hygiene and Posture Management

Aside from increased budgets, security professionals offered several suggestions for how their organizations can improve security hygiene and posture management. Consistent with the interest in BAS technology, 38% recommend performing continuous security controls validation to discover gaps in existing security tools and perform prompt remedial actions to harden security posture. Furthermore, 36% suggest automating security hygiene and posture management processes, 35% propose deploying a dedicated tool for security/IT asset management, and 31% advocate for increasing the staff dedicated to security hygiene and posture management.

Top ten steps to improve security hygiene and posture management.

Back to Contents

JupiterOne

JupiterOne is a cyber asset management and governance solution company, providing visibility and security into your entire cyber asset universe. JupiterOne creates a contextual knowledge base using graphs and relationships as the single source of truth for an organization's cyber asset operations. With JupiterOne, teams can discover, monitor, understand, and act on changes in their digital environments. Cloud resources, ephemeral devices, identities, access rights, code, pull requests, and much more are collected, graphed, and monitored automatically by JupiterOne.

LEARN MORE

ABOUT ESG

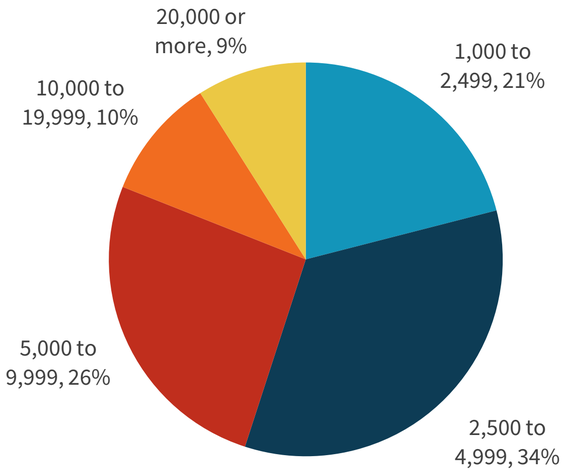
Enterprise Strategy Group is an integrated technology analysis, research, and strategy firm providing market intelligence, actionable insight, and go-to-market content services to the global technology community.

Research Methodology

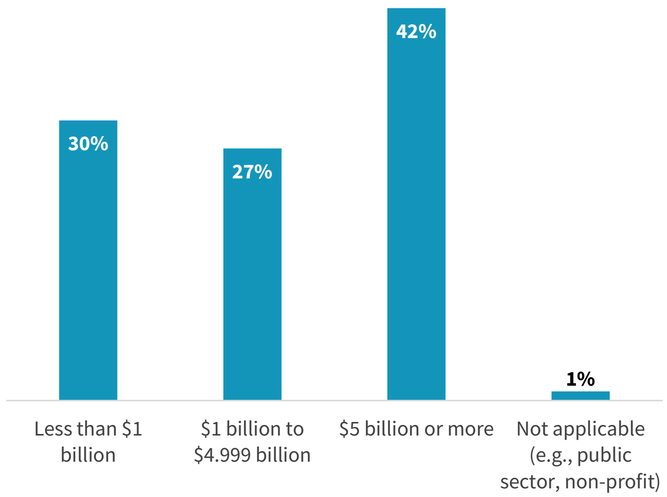
To gather data for this report, ESG conducted a comprehensive online survey of IT and cybersecurity professionals from private- and public-sector organizations in North America between August 3, 2021 and August 14, 2021. To qualify for this survey, respondents were required to be IT or cybersecurity professionals responsible for evaluating, purchasing, and utilizing products and services for security hygiene and posture management, including vulnerability management, asset management, attack surface management, and security testing tools, among others. All respondents were provided an incentive to complete the survey in the form of cash awards and/or cash equivalents.

After filtering out unqualified respondents, removing duplicate responses, and screening the remaining completed responses (on a number of criteria) for data integrity, we were left with a final total sample of 398 IT and cybersecurity professionals.

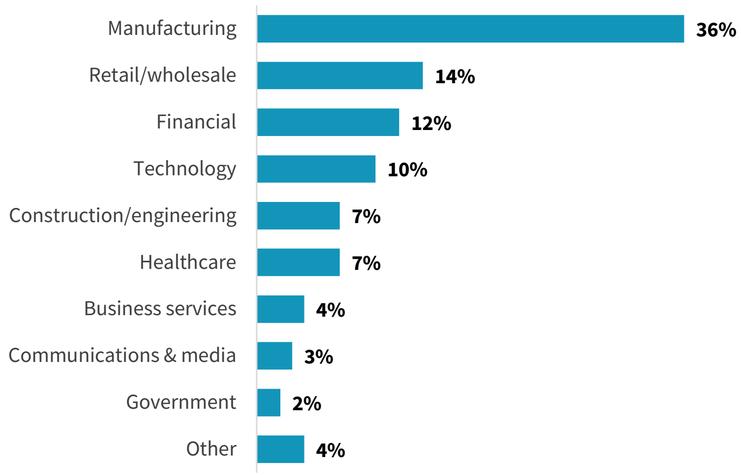
RESPONDENTS BY NUMBER OF EMPLOYEES



RESPONDENTS BY ANNUAL REVENUE



RESPONDENTS BY INDUSTRY



Back to Contents

Enterprise Strategy Group is an integrated technology analysis, research, and strategy firm providing market intelligence, actionable insight, and go-to-market content services to the global technology community.