

2022 State of the Phish

An In-Depth Exploration of User Awareness,
Vulnerability and Resilience



2021: THE YEAR OF THE NEW NORMAL?



A NOTE ON TERMINOLOGY

“Phishing” can mean different things to different people. We use the term in a broad sense to encompass all socially engineered email attacks, regardless of the specific malicious intent (such as directing users to dangerous websites, distributing malware, collecting credentials and so on).

Here are a few of the other terms we use throughout this report and how we define them:

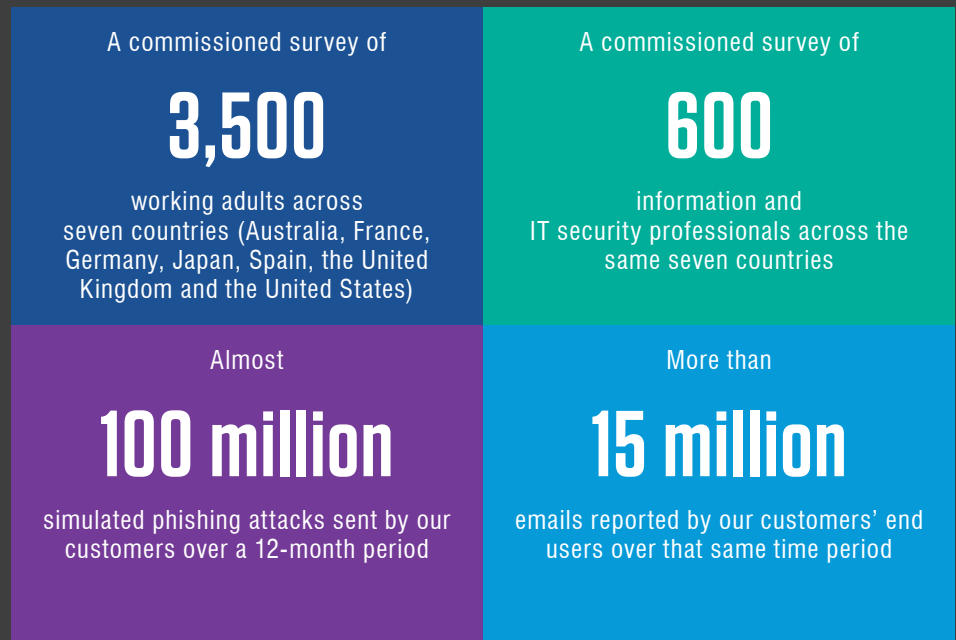
- **Bulk phishing:** indiscriminate, “commodity” attacks in which the same email is sent to many people within an organization.
- **Spear phishing:** Targeted attacks sent to selected people within an organization.
- **Whaling:** Attacks against high-value targets, such as top executives.
- **Smishing:** Attacks that use mobile text messaging (SMS) as the main communication vector.
- **Vishing:** Attacks that use phone calls or voice messages to lure targets.

Last year, we titled our introduction “A Year Like No Other.” We could easily have repeated that heading to describe 2021. The year has left many organizations contemplating what “normal” will mean for their workforces going forward.

Along with hybrid and remote work options, organizations are mulling the best ways to keep employees connected and collaborative. Studies show the ongoing pandemic has had a major impact on workers’ mental health. Employees are feeling burned out, emotionally drained and distracted.¹ Meanwhile, cyber attackers are as adept as ever. And they continue to use tactics and lures that resonate with employees and consumers alike.

In this, our eighth annual *State of the Phish* report, we explore user vulnerabilities from multiple angles. We look at issues driven by poor cyber hygiene and those that could result from a lack of knowledge and clear communication. We discuss ways organizations can become more attuned to their risks. And we outline opportunities to build and sustain engaging security awareness training initiatives in this challenging climate.

This year’s report includes analysis of data from the following sources:



¹ Society for Human Resource Management. “Ongoing Pandemic Takes Toll on Workers’ Mental Health.” August 2021.

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Section 1

The 2021 Threat Landscape: a High-Level View

For many, 2021 felt like a year-long case of déjà vu. Pandemic-related concerns remained top-of-mind for employees and organizations—and for many cyber attackers. Human resources and operations teams suddenly had to support remote and hybrid work models. Meanwhile, information security and IT teams had to secure it all.

The first three quarters of the year were busy ones for cyber attackers: we identified nearly 5,500 campaigns² that used one or more recognizable tactics. Our researchers also identified nearly 15 million phishing messages with malware payloads that have been directly linked to later-stage ransomware. Of these malware families, Dridex, The Trick, Emotet, Qbot, and Bazaloader were the most common.

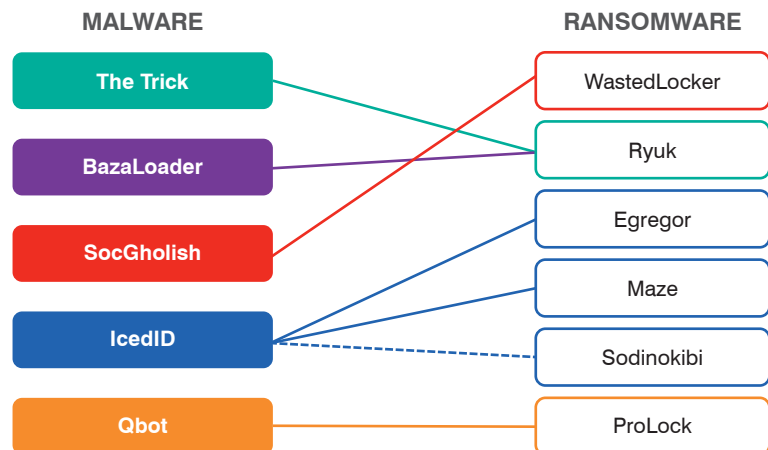


Figure 1: Observed links between first-stage malware families and later-stage malware.

² We define a “campaign” as a group of related threats and activities. Phishing messages within a campaign share common attributes, like the same or similar subject lines, the same sending infrastructure, and the same eventual payload. Further research related to a campaign often reveals further commonalities, such as the threat actor behind it, the type of malware being used, and targeted geographies or industries.



ABUSING THE BRAND: HOW ATTACKERS PIGGYBACKED BIG TECH NAMES

Microsoft, Google, Zoom and Amazon were among the most abused brands in attack campaigns seen in the first three quarters of 2021. More than 1,100 campaigns abused the Microsoft brand, using a Microsoft-themed lure or product to steal credentials or deliver malware.

Amazon campaigns tended to be high volume: fewer than 100 campaigns accounted for more than 68 million total messages. Much of this volume was attributable to sizeable Japanese-language campaigns, which continued into 2021 after surfacing in 2020. In comparison, about the same number of COVID-themed campaigns totaled around 1.3 million messages.

Cashing in on COVID

Not surprisingly, COVID-themed campaigns continued, mimicking the opportunistic attacks that piggybacked pandemic developments throughout 2020. As public concerns ebbed and flowed, so did COVID-themed phishing attacks. We saw a lull through the spring and early summer of 2021. But as the delta variant took center stage, pandemic-themed attacks surged. Beginning in June 2021, we saw an uptick in campaigns that latched onto timely, relevant COVID-related topics, such as vaccine mandates and organizational policies.³

Dialing to defraud

Another trend involved telephone-oriented attack delivery (TOAD). These schemes are nothing new—we detect and block tens of thousands of TOAD-related emails every day.⁴ But we saw an uptick in 2021, many of them part of a robust and complex attack chain. Multi-faceted TOAD efforts use a variety of tools, such as:

- Fraudulent emails
- Call centers
- Well-designed websites and mobile apps
- Remote access software
- Malware, including downloaders linked to later-stage ransomware delivery

Most TOAD threats require the victim's active participation. While this approach may seem counter-intuitive from a security standpoint, it works. Perhaps the level of detail and familiar approach work in the attacker's favor. For many people, calling a support line for help may seem a "safe" option. And many feel more comfortable when an "authority figure" talks them through account updates and refund processes. In addition, many organizations use the same remote access software that attackers exploit in TOAD schemes and other attacks. These activities could bypass security protections designed to block malicious remote access attempts.

Making it personal

TOAD threats and other attacks in 2021 targeted both personal and organizational email addresses. Amid the shift to remote work, targeting personal addresses can have a bigger impact on organizations than in years past. As we note later in the report, many people (and their family members!) are accessing personal information and accounts on employer-issued devices.

In general, the 2021 threat landscape reinforced one key point: successful threat protection requires people-centric defense in depth. Your users must be a key part of the security stack. The more informed and equipped they are, the more resilient your organization will be.

³ Selena Larson (*Proofpoint*). "As Delta Variant Spreads, COVID-19 Themes Make Resurgence in Email Threats." August 2021.

⁴ Selena Larson, Sam Scholten and Timothy Kromphardt (*Proofpoint*). "Caught Beneath the Landline: A 411 on Telephone Oriented Attack Delivery." November 2021.



A LOOK BACK AT 2020

77%

of organizations saw bulk phishing attacks

66%

of organizations dealt with spear phishing attacks.

65%

of organizations faced BEC attacks.



COUNTRY SPOTLIGHT

91%



of UK survey respondents said their organization faced bulk phishing attacks in 2021.

90%



or more of Australian respondents said their organization faced spear phishing, BEC and email-based ransomware attacks in 2021.

Section 2

By the Numbers: Targeted Attacks, Ransomware, and Ramifications

This year's *State of the Phish* again presents the results of a Proofpoint-designed study of the threat landscape, as seen through the eyes of information security and IT security professionals. Our quantitative surveys, conducted by an outside polling firm, asked 600 participants across Australia, France, German, Japan, Spain, the United Kingdom and the United States about their organizations' experiences in 2021.

Phishing attacks on the rise

According to respondents, the 2021 threat landscape was more active than 2020's. Reports of phishing attacks were up across the board. Indiscriminate "bulk" phishing attacks rose 12% year over year. And increases in targeted attacks were even higher: reports of spear phishing/whaling and business email compromise (BEC)—which includes payroll redirect and supplier invoicing fraud—were up 20% and 18%, respectively.⁵ **Note:** the figures represented in Figure 2 include both successful and unsuccessful attacks.

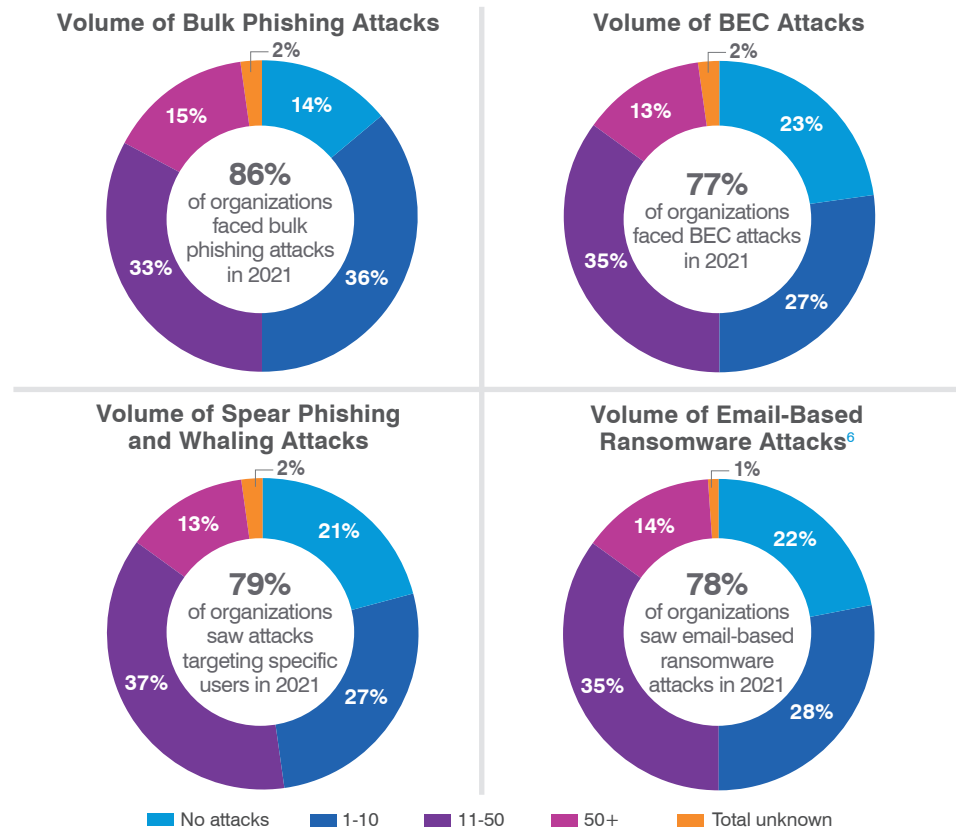


Figure 2

5 Unless otherwise indicated, survey results represent global averages. You can find country-by-country breakdowns of survey questions and findings in the [Appendix](#).

6 New figures for this year's report. Note that survey respondents were specifically asked to identify attacks in which a ransomware payload was delivered or intended to be delivered via email.



A LOOK BACK AT 2020

61%
saw smishing attacks.

61%
dealt with social media attacks.

54%
faced vishing attacks.

54%
reported USB-based attacks.



COUNTRY SPOTLIGHT

UK and Spanish respondents had very different experiences with non-email-based social engineering attacks in 2021:

Spanish Organizations Were Least Likely to Face Attacks



<60%
faced smishing and social media attacks.

<50%
faced vishing attacks and malicious USB drops.

VS

UK Organizations Were Most Likely to Face High Volumes



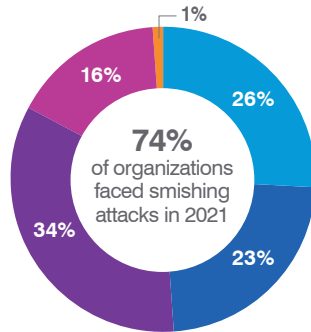
>20%
faced 50+ smishing, social media, and vishing attacks.

18%
faced 50+ malicious USB drops.

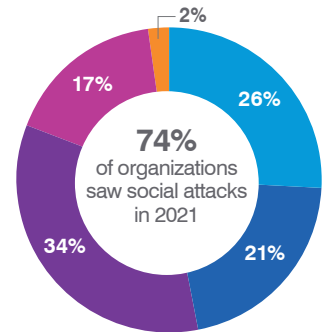
Other social engineering attacks also up

Email remains the top attack vector for cyber criminals. But it's not the only way bad actors are trying to compromise people and the organizations they work for. Reports of SMS/text phishing (smishing), voice phishing (vishing), and social media-based attacks all increased by more than 20%. And reports of USB drops were up more than 15%.

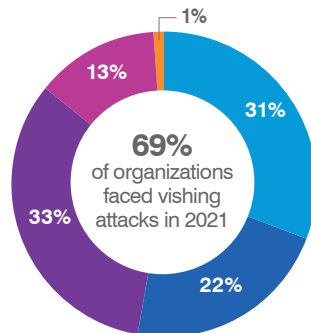
Volume of Smishing Attacks



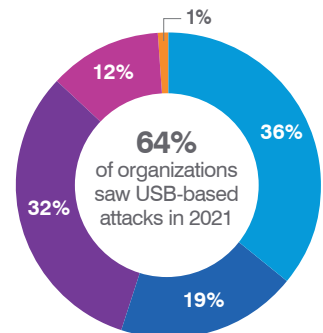
Volume of Social Media Attacks



Volume of Vishing



Volume of Malicious USB Drops



Legend: No attacks (light blue), 1-10 (dark blue), 11-50 (purple), 50+ (pink), Total unknown (orange)

Figure 3

KEY FINDINGS

83%

of survey respondents said their organization experienced a successful email-based phishing attack in 2021, up from **57%** in 2020.

54%

said their organization dealt with more than three successful attacks.

11%

experienced 10 or more successful attacks.



COUNTRY SPOTLIGHT

92%



of Australian organizations dealt with successful attacks, the highest of any region surveyed (and a **53%** year-over-year increase).

66%



of Japanese organizations experienced a successful phishing attack in 2021, the lowest of any region surveyed (though **18%** higher than 2020).

Attackers were more successful in 2021 than in 2020

Not every attempted attack succeeds. Millions of malicious emails are blocked by email gateways every day. Advanced email analysis and detection tools are getting better at identifying and stopping impostor emails and the many flavors of email fraud, including BEC. So in some ways, a successful phishing attack is like the proverbial needle in a haystack.

But those successful attacks do real damage. And 2021 was especially painful for the infosec and IT security workers we interviewed.

More than 80% of our survey respondents said their organization suffered a successful email-based phishing attack in 2021. That's a 46% jump from 2020. Several factors may be at play in the increase, including those in the following sections.

Pandemic fatigue

The World Health Organization (WHO) defines pandemic fatigue, in part, as “demotivation to follow recommended protective behaviors, emerging gradually over time.”⁷ WHO's behavioral focus centers around restrictions and suggestions related to containing infections. But many researchers have cautioned that COVID exhaustion is hurting people in other ways—including job performance.⁸

Attention spans are short. Many feel displaced and disconnected. Others struggle to remain engaged in work environments that revolve around virtual conferencing and an overload of screen time. The bottom line? People are not at their best. And that's likely leading to more mistakes in the inbox.

Exploiting legitimate services

Cloud collaboration is now a normal part of business. And where people and organizations go, attackers follow.

In the first half of 2021, we saw a marked increase in the abuse of Microsoft and Google infrastructures, which were used to host and send threats across Microsoft 365 (including Office apps, OneDrive, and SharePoint), Microsoft Azure, Google Workspace, and Firebase storage. Because these messages mimic standard business processes, it can be hard for employees to tell the difference between malicious messages and safe ones apart.

This is especially true for employees who are unaware that attackers operate this way. And plenty are uninformed: more than 30% of working adults think that emails with familiar logos are safe, and 35% believe that all files stored in a cloud service like Google Drive are safe. (See more from our survey of working adults in Section 3.)

⁷ World Health Organization, Regional Office for Europe. “Pandemic fatigue: Reinvigorating the public to prevent COVID-19.” October 2020.

⁸ Healthline. “COVID Fatigue: How to Cope with Pandemic Burnout.” October 2021.

KEY FINDINGS

The impacts of successful phishing attacks varied widely in 2021. While Australia and Japan are both part of the Asia-Pacific region, respondents in the two countries reported wildly different experiences.

Australian organizations reported adverse outcomes of successful attacks at rates higher than global averages in all cases but one: just **20%** of respondents said their organization experienced a widespread network outage following a phishing attack (vs. 22% globally).

At the other end of the spectrum, many of the differences were significant. For example, **30%** reported direct financial loss, nearly twice the global average. And **61%** said their organization experienced ransomware as an email payload, 33% higher than the global average.

In contrast, Japanese respondents reported lower-than-average effects in all cases but one: they matched the **27%** global average for reports of malware other than ransomware. And their lows were markedly lower in multiple cases: just **3%** said their organization experienced direct financial loss (vs. the 17% global average) or financial penalties (vs. the 11% global average). And no Japanese respondents said their organization faced an advanced persistent threat (APT) following a successful attack in 2021.

Use of trending content

Attackers have taken advantage of trending topics and events for years. But exploiting of trends seems to have become, well, a trend in itself. And it's gotten more intense since the onset of the pandemic. We've seen attackers' lures morphing to coincide with current public concerns and discourse with greater speed and strategy than ever.⁹

Beyond evolving COVID lures in 2021, we saw attackers use lures associated with popular trends. Here are just a few examples of attack lures:

- Streaming shows, such as "Squid Game"
- Pop-culture events, such as a Justin Bieber world tour
- Economic issues, such as U.S. unemployment programs

We even saw a sophisticated, multi-faceted campaign that included a fake streaming service, luring victims looking to cancel nonexistent subscriptions. (The campaign coincided with a wave of people cancelling their pandemic-fueled streaming video subscriptions.)

Attackers are skilled and savvy. They know the appeal of relevant content. And when content is more appealing, people are more likely to engage with it.

Successful attacks had wide-ranging impacts

Successful attacks don't happen in a vacuum. Phishing emails can affect organizations in many ways. While some effects are immediate, others aren't known about or felt until later.

We expanded our view of impacts this year (see Figure 4), so we can't make year-over-year comparisons in some cases. But we did see an 8% drop in reports of credential compromise, a 6% drop in direct financial loss and a 2% drop in email-driven ransomware infections vs. 2020.

Still, these marginal improvements are little consolation, especially when considering the real-world consequences of each statistic. With the rise in crippling ransomware infections, critical infrastructure attacks and supply chain fraud, cybersecurity threats are more serious than ever.

9 *ThreatPost*. "Phishers Capitalize on Headlines with Breakneck Speed." October 2020.

Results of Successful Phishing Attacks (Global Average)

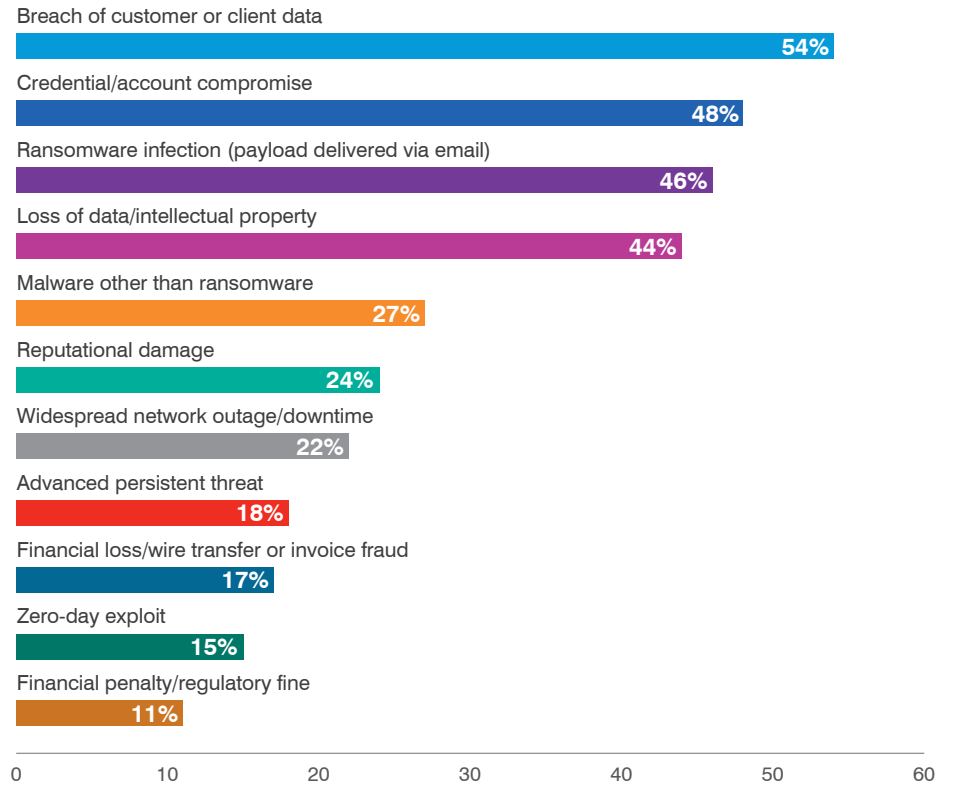


Figure 4

KEY FINDING

68%

of organizations experienced at least one ransomware infection in 2021 (up from 66% in 2020).

Ransomware: nearly 60% of infected orgs paid up—many more than once

Ransomware made headlines throughout 2021, with government and critical infrastructure sectors particularly hard hit. Security agencies around the globe cautioned organizations of all sizes to strengthen their defenses against ransomware, and with good reason.

Our researchers have been tracking threat actors who have become initial access brokers and, likely, ransomware affiliates, selling the access they’ve gained through first-stage malware to other operators. This scale and the availability of ransomware-as-a-service offerings have both fueled the rise in successful attacks.¹⁰


As shown in Figure 5, nearly 70% of organizations dealt with at least one ransomware infection 2021 (a slight increase over 2020). Of those, nearly two-thirds experienced more than three separate infections. And nearly 15% dealt with more than 10 separate infections.¹¹


¹⁰ Proofpoint. “Tips for Developing Your Ransomware Defense Strategy.” November 2021.

¹¹ This includes infections from all sources, including initial payloads and later-stage delivery. The number of separate infections may have resulted from a single intrusion or separate incidents.




COUNTRY SPOTLIGHT

81%  of French organizations experienced a ransomware infection last year, the highest of any country surveyed. (At **50%**, Japanese organizations were least likely to experience an infection.)

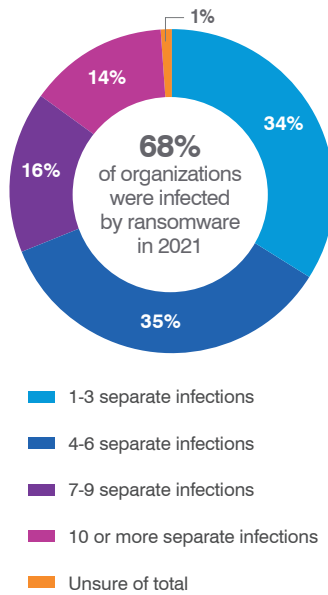
30%  of Australian organizations that experienced ransomware said they dealt with **10 or more** separate infections.

82%  of UK organizations that were infected opted to pay the ransom, the highest of any region surveyed (and **41%** higher than the global average).

42%  of Spanish organizations admitted to paying more than one ransom to regain access to data, the highest of any region surveyed. But at **21%**, they were also the most likely to refuse to pay a follow-up ransom after making an initial payment.

Once infected, nearly 60% opted to negotiate with attackers (with mixed results), despite cybersecurity and government agencies warning against the practice. As always, payment does not guarantee restoration of data (as some of our survey respondents found out firsthand). In addition, ransomware payments are likely to fuel the fire, rewarding attackers for their activities and encouraging repeat behavior.

Ransomware by the Numbers



Ransomware Infections: What Happened After Payment

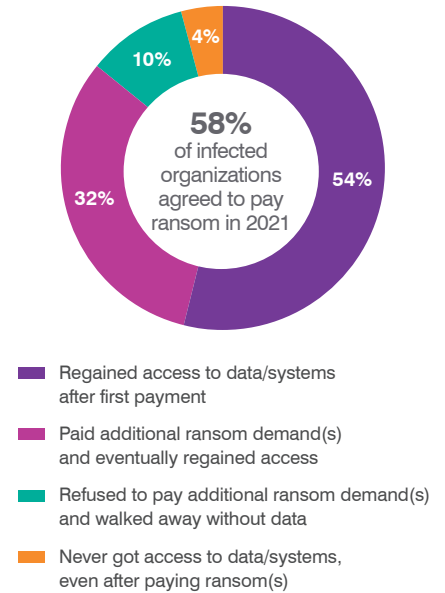


Figure 5



COUNTRY SPOTLIGHT

80%



of U.S. workers use one or more of their own mobile devices for work. **64%** said they use personal phones/smartphones, and **30%** use personal tablets. These results were the highest of any region surveyed.

32%



of Japanese workers said they do not have access to an employer-issued electronic device (but 100% use one or more electronic devices for work purposes).

33%



of U.S. workers and **30%** of Australian workers said they are now working remotely full time due to the pandemic, well more than the 20% global average.

30%



of UK workers now have a hybrid approach to working (part-time on site, part time remote).

47%



of French workers and **45%** of German workers said the pandemic did not impact their work location, the highest among the regions surveyed.

Section 3

Working Adults: Cybersecurity Habits and Knowledge Gaps

As in the past, this year's *State of the Phish* dedicates significant real estate to exploring the greatest source of organizational security risk: people. Our quantitative surveys, conducted by a third party, asked 3,500 working adults across seven countries (Australia, France, German, Japan, Spain, the United Kingdom and the United States) about their cybersecurity perceptions, habits and experiences in 2021.

All survey participants identified as being 18 years or older and employed. Different roles and responsibilities are represented in this group of respondents—a blend that reflects the workforces in many organizations.

We didn't isolate on "deskbound" workers or those in computer-dominated positions—and that was intentional. We wanted the survey group to represent the makeup of all the people who can influence an organization's security posture. And make no mistake: every person who works within an organization can have a positive or negative impact on security, no matter what their role is.

Overview: more devices, more issues

All survey respondents said they use one or more electronic devices (phone/smartphone, laptop computer, desktop computer or tablet) for their job. Among these:

- **73%** said they have access to at least one employer-issued device
- **74%** said they use one or more of their own devices for work-related purposes
- **54%** use a personal phone/smartphone and 22% use a personal tablet for work
- **44%** said they are in a new remote working environment (either full time or part time) due to the pandemic¹²
- **83%** said they received at least one suspicious communication (either via email, text message, social media, or phone call) in 2021
- **42%** said they took a dangerous action (clicked a malicious link, downloaded malware, or exposed their personal data or login credentials) in 2021

We highlight these statistics to illustrate a point that must be considered throughout this section: workers' personal choices often lead to organizational risk.¹³

¹² To add more context, we also asked our infosec and IT professionals about the impact the pandemic has had on remote work. Some 81% said at least half of their organization's employees are now working remotely, either full time or part time. Another 14% said employees had worked remotely due to COVID, but were no longer doing so (while just 6% of our working adults said the same).

¹³ Unless otherwise indicated, survey results represent global averages. You can find country-by-country breakdowns of survey questions and findings in [the Appendix](#).



Our “what is” survey questions offered three multiple choice answers and an “I’m not sure” option. In reviewing results, consider that users who don’t know an answer may pose as much risk as those who answer incorrectly.

Survey says: communicate clearly to train effectively

We’ve been assessing working adults’ recognition of common cybersecurity terminology for several years. And while we saw some decent progress last year, this year’s results have rolled that back. One considerable drop was with the term “phishing”: correct answers were down more than 15%, and “I’m not sure” responses were up more than 30%.

Ransomware responses provided the one bright spot, with recognition up about 10% and unsure responses holding steady. With the rise in ransomware attacks around the globe, this improvement comes at a good time.

The overall decline in awareness is another area where pandemic fatigue—and its impact on workers’ engagement and attention spans—could be a factor. It could also reflect a decreased prioritization of cybersecurity awareness and training initiatives during 2021. The pandemic has put many different pressures on organizations, and some may have been forced (due to lack of time, resources or other factors) to deprioritize employee education programs.

Another possibility: perhaps workers are overloaded by the sheer amount of terminology they hear or news stories detailing cyber attacks and warning of dire consequences. People may simply be feeling overwhelmed and confused.

Whatever the case, this year’s results make it clear: it is never safe to assume workers recognize security lingo, no matter how often these terms make headlines. This is especially true if your formal security awareness training sessions—apart from phishing simulations—happen infrequently. Reminders and reinforcement are critical to knowledge and skill development. Employees need to understand the language you speak to fully absorb what you’re saying and, eventually, learn from it.

Term limits: what users (don't) know

What is
PHISHING?



Correct
53%



Incorrect
27%



I Don't Know
20%

Correct answers were down from last year's 63% mark, a 16% year-over-year decrease.

UK workers were again most likely to answer correctly—but this year's 62% fell short of last year's 69%.

What is
RANSOMWARE?



Correct
36%



Incorrect
33%



I Don't Know
31%

This is the only term that saw an increase in recognition, with correct answers rising from 33% and incorrect responses falling from 36%. (Unsure responses held steady at 31%.)

At 49% correct, Australian workers performed well above the global average. French and German workers were least likely to answer correctly (at 27% and 26%, respectively).

What is
MALWARE?



Correct
63%



Incorrect
20%



I Don't Know
17%

Like last year, Spanish workers led their global counterparts in recognition of this term. But this year's 73% was lower than last year's 75% (and well off the 80% high mark from two years ago).

At 52%, Japanese workers were least likely to answer this correctly, and another 38% were unsure of how to answer.

What is
SMISHING?



Correct
23%



Incorrect
32%



I Don't Know
45%

Global recognition of this term was down from 31% last year, a 26% year-over-year drop.

Japanese workers again struggled with this term. Just 17% answered correctly (down from 19% last year), and 56% were unsure of how to answer (the same as last year).

What is
VISHING?



Correct
24%



Incorrect
31%



I Don't Know
45%


30% of global respondents answered this question correctly last year, representing a 20% year-over-year decrease in recognition.


French workers went from first to worst in recognition of this term. Last year, they led all regions at 54% correct. This year, just 17% answered correctly (a decrease of nearly 70%).





COUNTRY SPOTLIGHT

Top Performers

85%  of German workers know that email attachments can be dangerous.


82%  of UK workers know that an email's sender details can be disguised.


63%  of Japanese workers know that familiar logos in emails don't equate to safety.


49%  of Japanese workers know that unsafe contacts may email them multiple times.


VS

Bottom Performers

59%  of Spanish workers think that all internal emails are safe

57%  of Spanish workers think their organization will automatically block all malicious email (and **49%** believe their personal email provider will do the same)

46%  of U.S. workers think that all files stored in the cloud are safe

42%  of U.S. workers believe all emails with familiar logos are safe

Misconceptions about email

Defining cybersecurity threats isn't always a key to defending against them. So, we wanted to know what workers believe to be true about email and email-based attack methods.

We saw plenty of bright spots. For example, 86% of respondents recognize that they should be cautious of any unsolicited message. And this response level was mostly steady across all regions surveyed. At 81%, French workers were the only group to dip below the 85% mark.

But there's always room for improvement. We see some areas where quick and clear communication is called for. Employees need immediate clarity on key points like internal email, cloud documents, and the need to take personal responsibility for email security. More than two-thirds of respondents showed a lack of understanding about the capabilities of technical email safeguards on work accounts. That lack of knowledge is a clear and present danger to organizations around the globe.

Email Survey Results¹⁴



Figure 6

¹⁴ We asked similar questions in last year's survey, but in a different format. We believe this year's format offered more clarity and more accurate findings. Full details and results for these questions are in [the Appendix](#).

KEY FINDING

56%

of workers who have an employer-issued device grant access to friends and/or family members (up from 52% last year).

Getting personal with employer-issued devices

With 44% of global workers saying they are working remotely either part-time or full-time due to the pandemic, the line between personal life and work life is murkier than ever. But here's something that is clear: employees' personal choices can pose a major risk to your data, devices and systems.

As noted earlier in this section, 73% of our survey participants said they have access to at least one employer-issued electronic device. Of those, 77% admitted to using those devices for personal purposes. This is a drop from last year's 81%, and as shown in Figure 7, we saw a decline in several specific activities.

For example, the number of workers who said they check personal email on employer devices decreased more than 25%. Social media use also decreased, down 15% year over year. But online shopping was up—and the number of people who said they play games on employer devices jumped more than 75%.

Personal Activities Performed on Work-Issued Devices

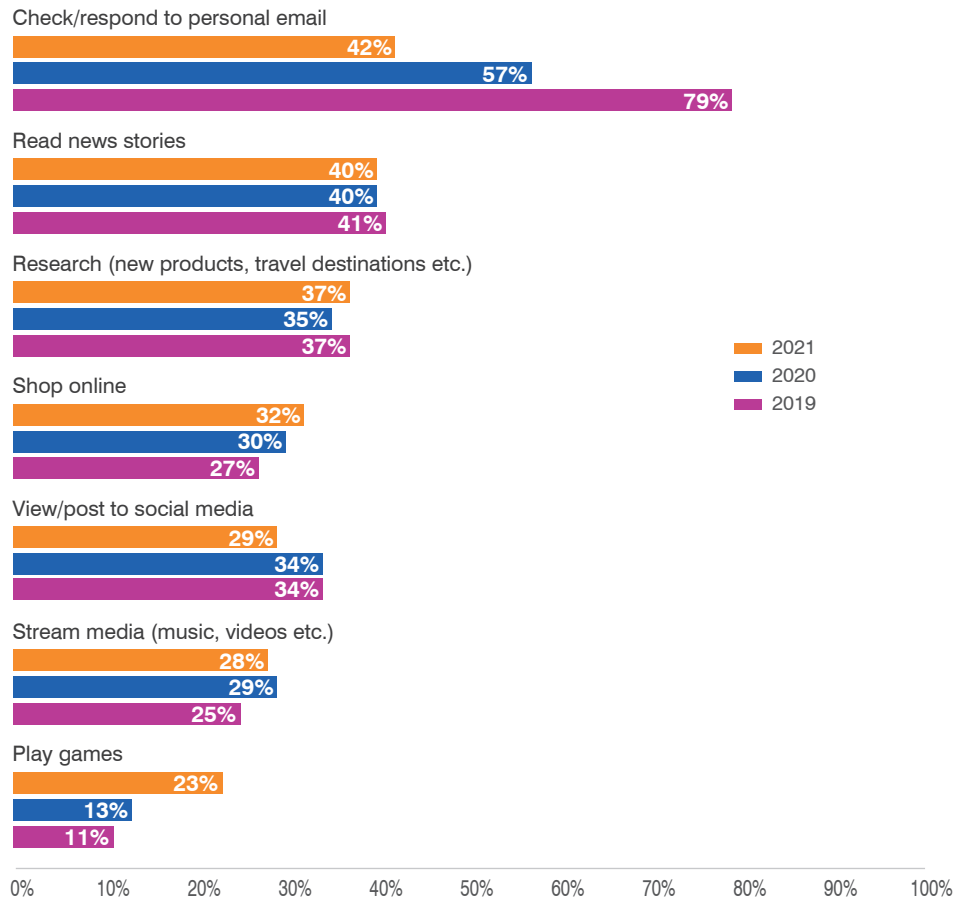


Figure 7

While workers' personal use of employer devices decreased overall, their willingness to grant access to friends and family increased. More than 55% of those with employer devices allow others to use them. About 5% admitted that use is unsupervised, meaning they do not monitor or restrict activities on the devices. (A seemingly small number, but a mighty risk.)

Some friends and family activities increased while others decreased. As with workers themselves, playing games showed the largest gain (up nearly 75% over last year). And as shown in Figure 8, several of the activities are up sharply since our 2019 survey.



COUNTRY SPOTLIGHT

69%



of Spanish workers allow friends or family members to access their employer-issued devices. This is nearly 25% more than the global average and a marked increase from last year (45%).

48%



of Australian workers grant others access to their employer-issued devices, the least of any region surveyed.

Friends and Family Activities Performed on Work-Issued Devices

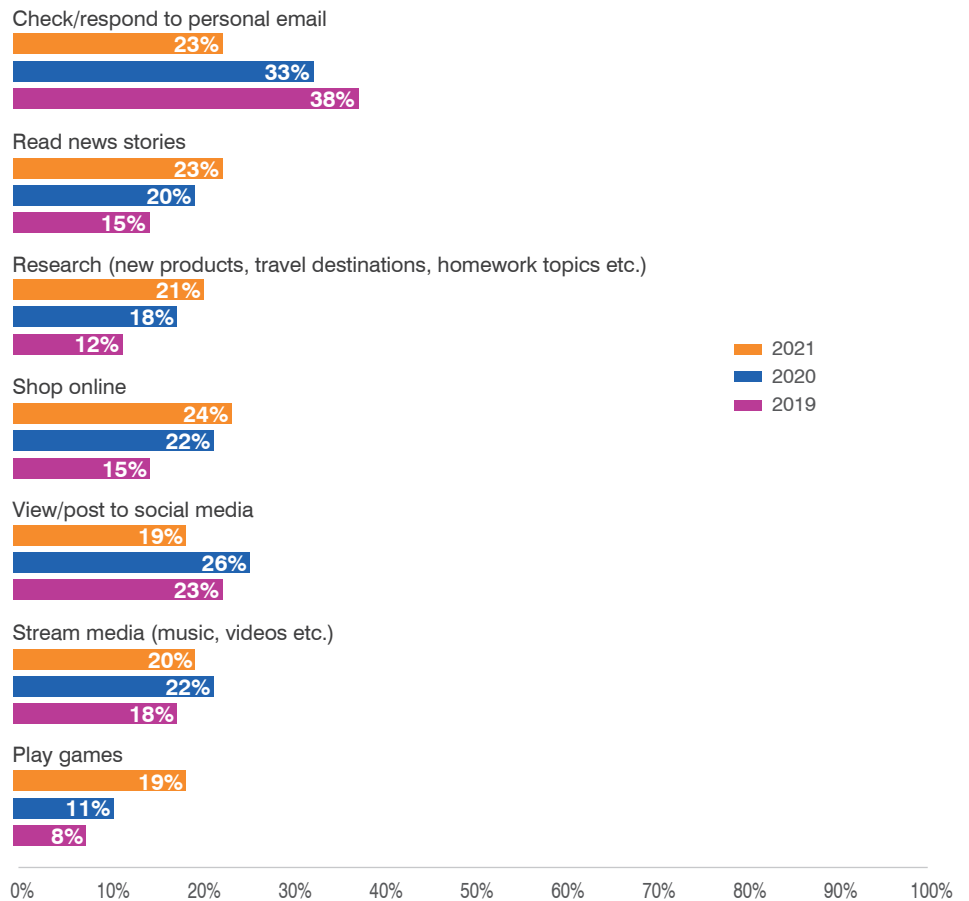


Figure 8

Employee-driven risk: the (even) bigger picture

Cybersecurity extends beyond the inbox. It even transcends the professional and personal activities that employees do on their devices. From a risk perspective, *how* people do things is often more important than *what* they do.

Think of it in terms of driving a car: there's some element of risk involved every time. But if someone drives recklessly (or doesn't know how to drive at all), the risk is much greater to that driver and to others on the road.

Password management is one of these "hows"—and it's an ongoing struggle. Much of the issue comes down to a balance of convenience and security. Generally, convenience wins. The question is: *how* are working adults opting for convenience?

We asked survey participants about password management habits for personal and work accounts—and saw strikingly similar answers. This reinforces a point we often stress: cybersecurity skills are life skills, not work skills. They are portable.

This cuts both ways. Skills and behaviors learned at work can be applied at home—but conversely, personal habits and shortcuts are likely to be a factor at work. It's one reason that ongoing training is so important. It gives people the confidence to recognize and value opportunities to make safer decisions for themselves at work and at home.



COUNTRY SPOTLIGHT

Work-Related Password Management Habits

33%



of U.S. workers save their login information in their web browser.

27%



of UK workers use a password manager.

38%



of German workers manually enter a unique password for each account.

16%



of Japanese and Spanish users rotate between one and four passwords for their accounts.

Password Management Habits at Work and at Home

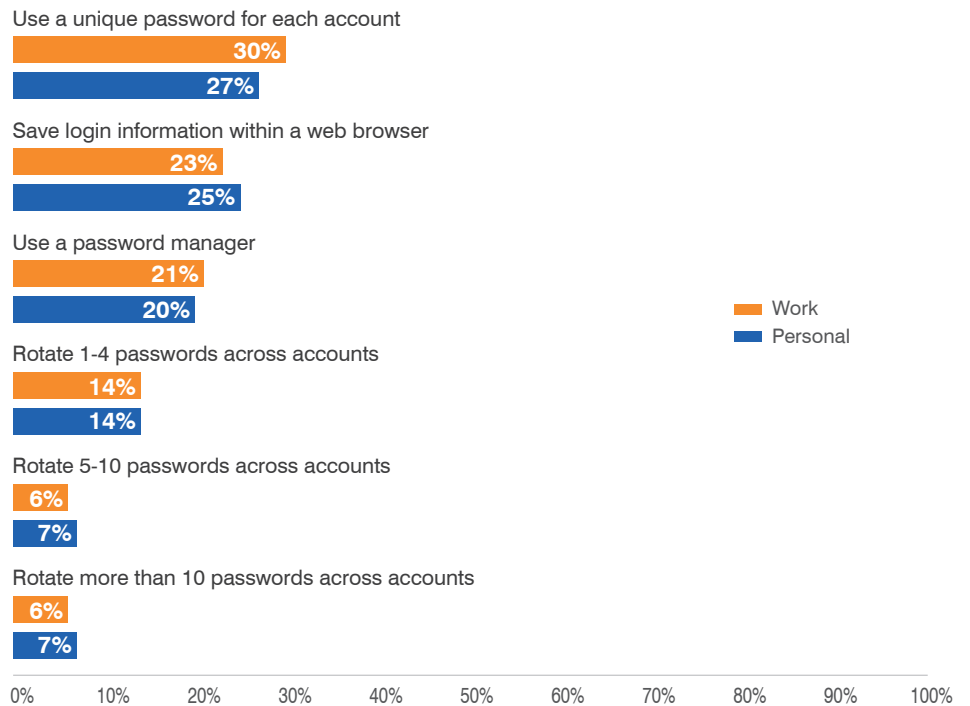


Figure 9



97%

of survey respondents said they have a home Wi-Fi network

BUT



Only **60%** said their network is password-protected.

External Wi-Fi networks are another ongoing struggle for security teams. And with the significant increase in full-time and part-time remote workers, home Wi-Fi is the elephant in the room.

Nearly all survey respondents said they have a home Wi-Fi network. But most are not taking key security precautions. That means many workers' home networks are as susceptible as open-access public Wi-Fi.

Wi-Fi Security Measures on Home Networks

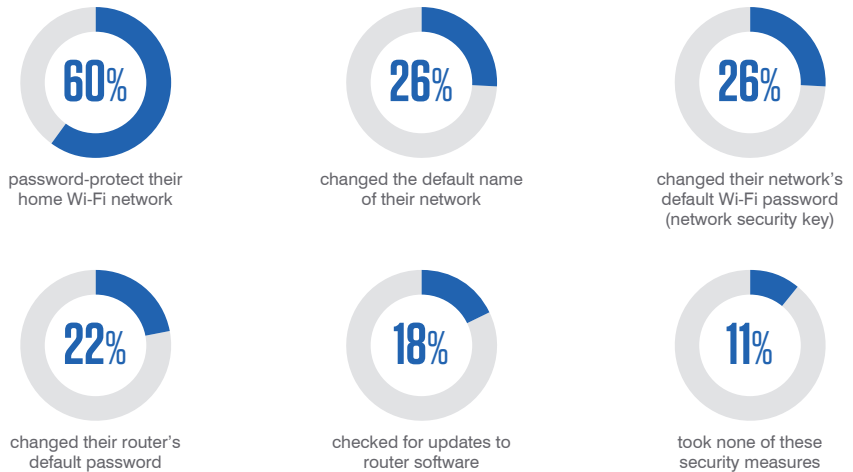


Figure 10

KEY FINDING

Among those with home Wi-Fi networks, **85%** did not complete all the security measures we asked them about (11% said they don't do any of them). Of the 85%, **62%** said they haven't taken some or all of the precautions because they aren't concerned about the security of their home Wi-Fi network. Another **34%** said they haven't adjusted their security settings because they don't know how to.


Of the **4%** who offered another (write-in) reason, we saw some common sentiments:


- Unnecessary/don't need to
- Default settings/passwords are already complex/secure
- Another person (spouse/partner, landlord) handles it
- Too inconvenient/don't want to reconnect devices
- Never thought about it


Wi-Fi-based attacks assume proximity—which can be difficult to achieve in targeted attacks. Still, it's clear that many users don't have a strong grasp of fundamental Wi-Fi practices. And with the increase in remote workers, home networks factor into organizational security more than ever. Small changes can minimize risk. So, if you haven't advised your workforce on how to close security gaps in home Wi-Fi, we suggest making the effort in 2022.



COUNTRY SPOTLIGHT

91%  of Spanish workers received at least one suspicious communication in 2021. **49%** saw a suspicious email attachment, and **20%** got a suspicious message in a work-related messaging app.

55%  of U.S. workers admitted to taking a risky action in 2021. **26%** clicked an email link that led to a suspicious website, and **17%** accidentally compromised their credentials.

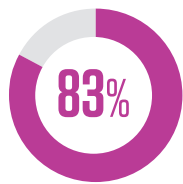
52%  of U.S. workers experienced a cyberattack or fraud. **19%** were victims of identity theft, and **17%** paid a ransom to regain access to a personal device or data.

Parting thoughts: risky business in 2021

Like successful phishing attacks, users’ beliefs and behaviors don’t exist in a vacuum. So we asked workers about cybersecurity-related events they experienced in 2021.

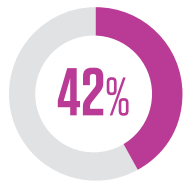
We’ve highlighted some key findings here, with more data (including country-by-country breakdowns) in the **Appendix**. (**Note:** these are self-identified by survey participants, so actual numbers could be much higher.)

Cyber Events and Impacts: Key Findings



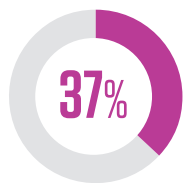
received at least one suspicious communication in 2021

- 39%** received an email that contained a suspicious attachment
- 38%** received a suspicious text message
- 37%** received a suspicious phone call/voicemail
- 16%** received a suspicious message in a work-related messaging app
- 15%** received an email impersonating their organization



took a risky action

- 19%** clicked an email link that led to a suspicious website
- 14%** clicked a link in a direct message that downloaded malware
- 13%** accidentally downloaded malware from a malicious email or website
- 12%** gave personal information to a scam artist/impostor
- 11%** accidentally compromised account credentials



experienced a cyberattack or fraud

- 14%** said one or more of their social media accounts was compromised
- 12%** said someone duplicated their social media account and attempted to impersonate them
- 12%** lost money because of a fraud committed against them
- 11%** were victims of identity theft
- 10%** paid a ransom to regain access to a personal device or data

Figure 11



Spotlight: Security Culture

KEY FINDING

85%

of infosec and IT survey respondents said they had a positive perception of their organization’s security culture. **14%** indicated a neutral stance, and just **1%** had a negative perception.

52%

of working adults are confident or extremely confident that, should they have a cybersecurity-related issue with one of their work devices, their IT team could identify and address the issue without their involvement.

There’s a lot of talk about security culture in the workplace today. And that’s a great thing. A strong security culture pays dividends. But getting there isn’t easy.

The reality is that “culture”—like “maturity”—is nebulous. Many things factor into it, and each organization is likely to interpret the term differently. And measuring gains (or losses) in cultural “strength” can be difficult.

Still, some key dimensions to culture can (and should) be assessed on an ongoing basis. In particular, you should gauge employee perception of:

- Your organization’s commitment to cybersecurity
- The role they should play in protecting your organization
- Their confidence level in identifying, reporting or acknowledging security incidents

Assessing these factors can reveal obstacles to achieving a strong security culture. In part, it can show where disconnects between perceptions of security teams, executive teams and employees exist. This is something we saw in asking similar questions to our two different survey audiences.



COUNTRY SPOTLIGHT

<45%

of Japanese infosec and IT professionals said cybersecurity is a high priority for their organization.



>50%

of Spanish and German working adults said cybersecurity is a high priority for themselves and their organization.



Level of Cybersecurity Priority Within the Organization¹⁵

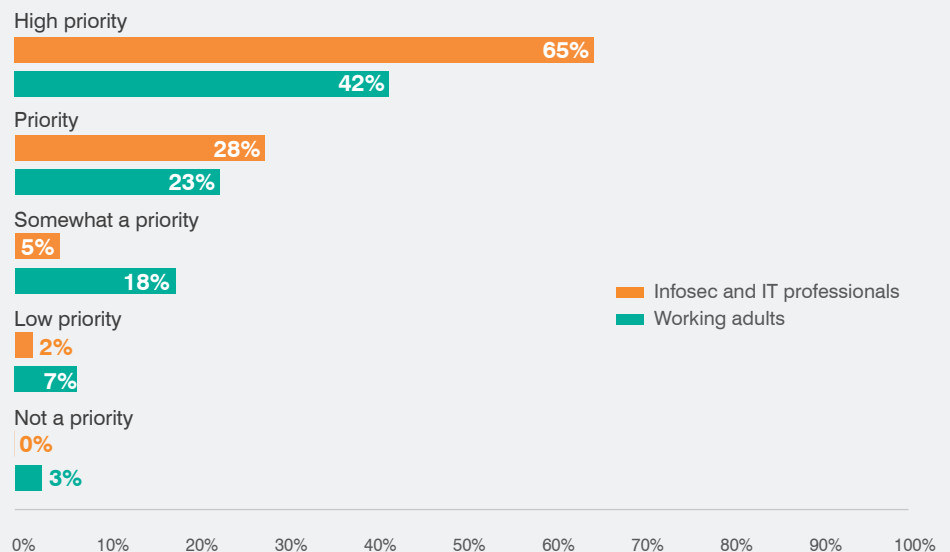


Figure 12

¹⁵ Some 7% of working adults said they were unsure of how their organization prioritizes cybersecurity.

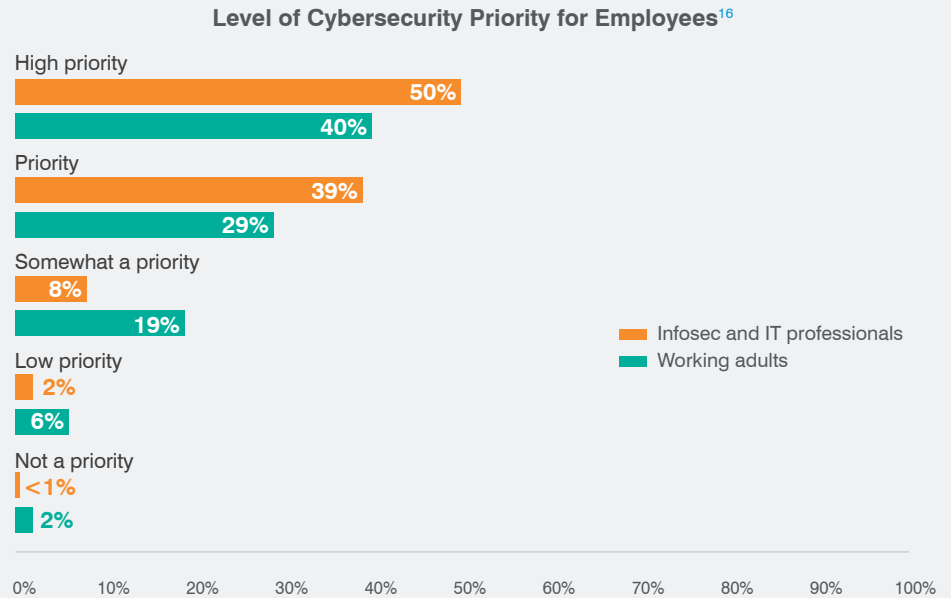


Figure 13

That 35% of infosec and IT professionals said cybersecurity is not a high priority for their organization is borderline alarming. But we see other key disconnects:

- Infosec and IT professionals have a more positive view of employees’ commitment to cybersecurity than employees themselves do (89% priority/high priority vs. 69%)
- Working adults are more likely to say cybersecurity is a priority or a high priority for themselves than they are to say the same about their organization (69% vs. 65%)
- **10%** of working adults believe cybersecurity is a low priority or not a priority for their organization

And among workers who indicated that cybersecurity is not a priority or is a low priority for them, we see key misconceptions:

- **32%** said that since they’ve never experienced any issues, they don’t need to prioritize cybersecurity
- **27%** believe their job is not high-level enough to be a target of cyber attackers, so they don’t need to worry about cybersecurity
- **22%** feel they don’t interact with devices often enough to be worried
- **19%** believe their organization or IT team will take care of any security needs they have or mistakes they make

These survey results cover many organizations, industries and regions. But they illustrate the value of understanding where the disconnects may be within your organization. Once you identify issues, you can begin to address them through clearer communication and targeted education.

¹⁶ For this question, infosec and IT professionals were asked their perception of cybersecurity priority for the average employee. Working adults were asked about the priority they personally place on cybersecurity. Note that 4% of working adults were not sure how to classify their personal commitment to cybersecurity.

KEY FINDINGS

11%

average failure rate on phishing tests.

33%

average view rate of simulated attacks.



FUN FACT

Over the past 10 years, our customers have sent nearly 275M simulated phishing emails to their users.

Section 4

Benchmarking: Failure Rates and Comparison Data

Our customers actively tested their end users' response to phishing emails over the course of our 12-month measurement period. They sent nearly 100 million simulated attacks, an increase of more than 50% over 2020. And they saw positive results: the average failure rate held steady at 11%, even with the increase in activity.¹⁷

But as we've cautioned before, average failure rates don't provide the level of detail needed to fully assess risk. Nor do they allow organizations to adequately benchmark themselves against others who are running these types of tests.

We dig into our data to provide you with better benchmarking—and to help you identify areas for improvement.

Failure rates by template type

Within our phishing simulation tool, customers can select from a variety of themes and lures among three primary template types: link-based, data entry-based and attachment-based.

This year, we saw a slight drop in the use of link-based templates (65% vs. 68%) and an increase in the use of data entry-based templates (26% vs. 23%). Use of attachment-based templates remained the same year over year, with fewer than 10% of tests falling into this category.

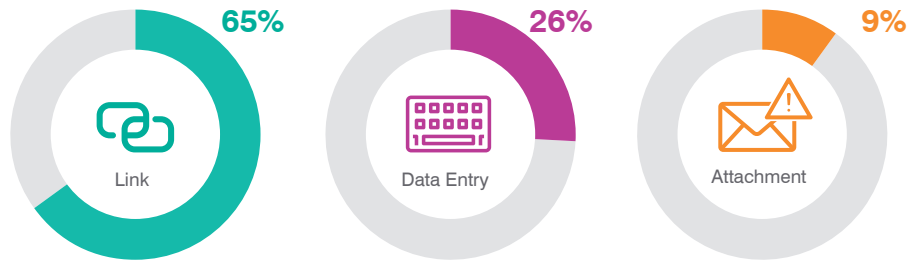
This breakdown isn't necessarily misguided; more attacks use malicious links and lures designed to harvest credentials. But we saw plenty of attacks that used Microsoft Office and PDF attachments, among other file types, to deliver malware in 2021. So the combination of low usage and high failure rates on attachment-based tests is noteworthy. (See the full comparison in Figure 14.)

¹⁷ We calculate average failure rates at the organizational level rather than the user level, giving equal weight to each organization's average failure rate rather than equally weighting each user's failure rate. This approach helps to eliminate the sway of large organizations and high-volume programs, providing a more balanced view of failure data.



“Failed” data-entry tests refer to cases in which users submitted data after clicking a link in the simulated attack. Overall, the average click rate in data entry-based tests was **12%** and the average failure rate was **4%**.

Phishing Template Types: Frequency of Use



Phishing Template Types: Average Failure Rates

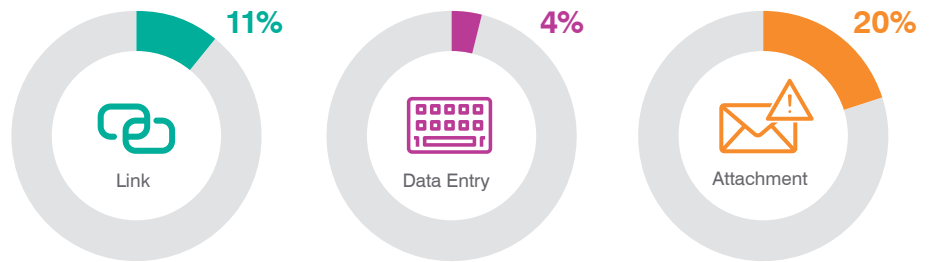


Figure 14

You should assess your organization’s approach to phishing simulations with this insight in mind. Also critical: understanding the types of attacks your organization and your users are facing, as well as how your employees work. If your organization sees a high number of emails with attachments (malicious or not), test and train users about this attack method. If your users widely assume that attachments are safe to interact with, attackers—especially those who use ransomware—could easily exploit that.

In general, simulated phishing programs should include a variety of templates across a variety of themes. We know attackers are adept and adaptive. Your security awareness training efforts should prepare your users to follow suit.

KEY FINDINGS

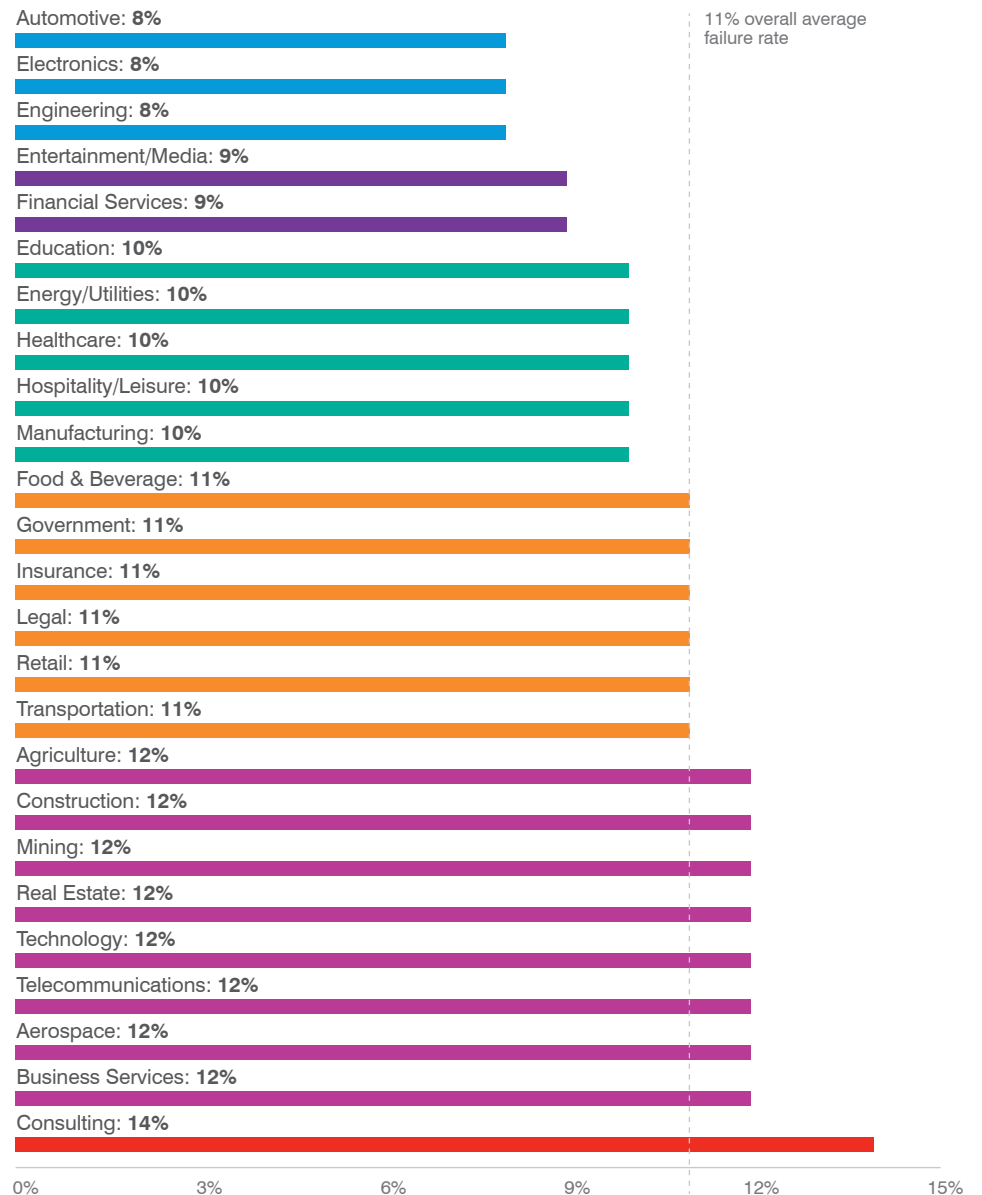
The industries that ran the most phishing tests in 2021 were healthcare, financial services, energy/utilities, manufacturing and technology.

Industry failure rates

Many organizations like to compare themselves to others in their industry. This year, we've expanded our reporting on industry performance to 25 industries (compared to 20 last year). Our data set per industry also increased over last year (see sidebar). This provides the most robust industry benchmarking we've offered to date.

Overall, we saw some great year-over-year improvements on both ends of the spectrum. Last year, the lowest average failure rate was 9%; this year, it's 8%. And this year's high mark of 14% bests last year's 16%.

Average Failure Rate by Industry¹⁸



Each industry represented in our failure rate comparison includes data from at least 20 organizations and at least 300,000 simulated phishing attacks (vs. 15 orgs and 150,000 phishing tests last year).

Figure 15

¹⁸ Look for industry failure rates by template type in [the Appendix](#).

KEY FINDINGS

Facilities was last year’s worst-performing department, tallying a **17%** average failure rate. This year, they sit at a **9%** average failure rate, a nearly **50%** year-over-year improvement.

Even two of this year’s worst-performing departments—quality and maintenance, each at **12%**—are ahead of their average failure rates from last year (**14%** and **15%**, respectively).

There is one notable bit of bad news: purchasing, last year’s best performer with a **7%** average failure rate, dropped to join the lowest performers at **12%**.

Department designations represented in our failure rate comparison were used by at least 85 organizations and include data on a minimum of 2,500 users (vs. 40 orgs and 1,500 users last year).

Department failure rates

People in key roles are targeted for different reasons—and a high position on an org chart is often not a factor. Distribution lists and aliases are also popular targets. These email addresses are frequently published publicly, and they carry the bonus of potentially reaching multiple people with a single send.

Department-level failure rates can help organizations pinpoint teams that are struggling with identifying and avoiding phishing—and begin to address those vulnerabilities.

With 25 departments¹⁹ now represented (vs. 20 last year), this year’s report provides even more opportunities for benchmarking. And like our industry comparisons, the department data set is more robust than ever.

We saw some exciting improvements in the annual comparison. This year’s lowest average failure (6%) beats last year’s 7% mark. But the best news comes with the highest failure rate: 12% vs. last year’s 17%.

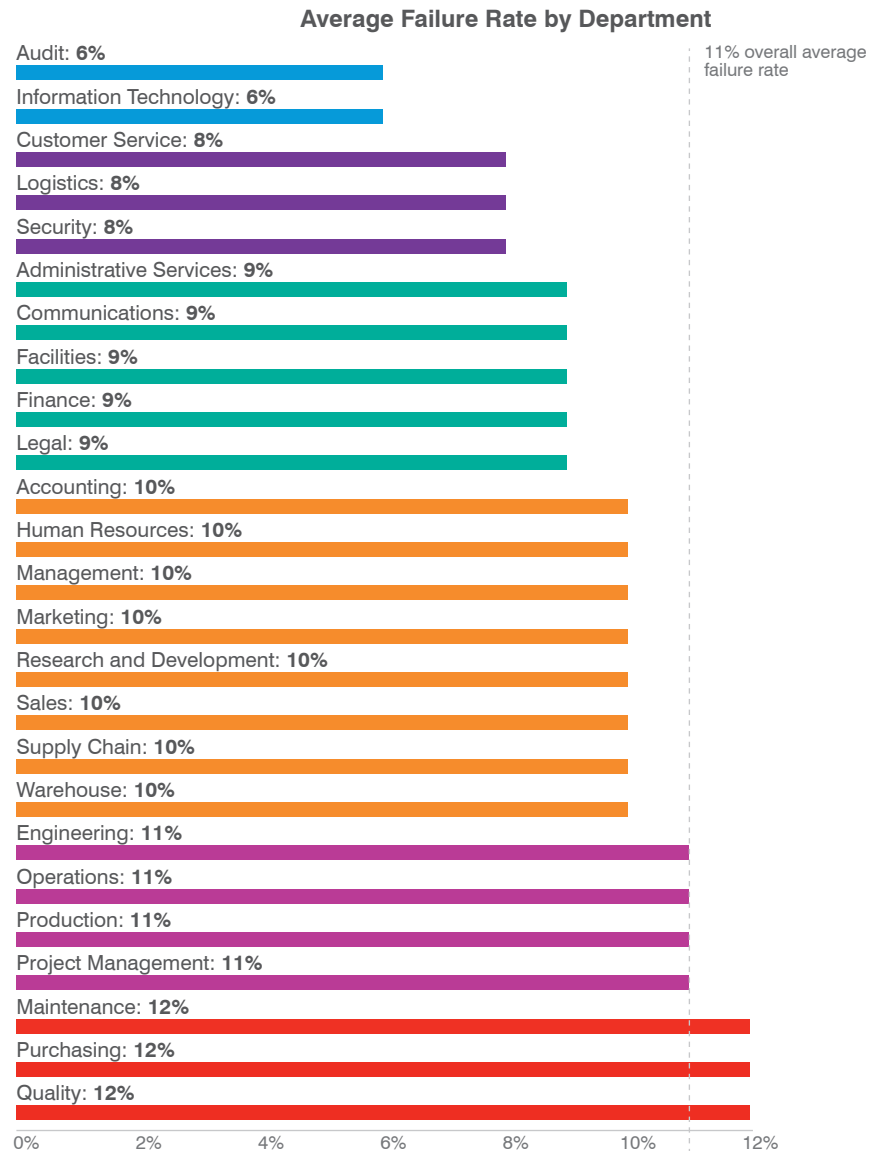


Figure 16.

¹⁹ Note that our customers self-select department designations. As such, similar designations could mean different things across multiple organizations. For example, “facilities” and “maintenance” might overlap in one organization but have fully separate duties in another.



Spotlight: Template Themes



The most-used templates highlighted were sent to between 73,000 and 1.5M users.

The most “successful” templates highlighted were sent to a minimum of 10,000 users (and as many as 52,000 users).

Some templates used in smaller-scale campaigns (sent to fewer than 1,000 users) had significantly higher failure rates. This includes a Tax Refund Notification template and a New Company Policy template, each of which topped a 70% failure rate.

As we noted earlier, our customers have access to a frequently updated template library. They can test their users on a wide variety of themes, topics, and tactics, including some of the latest threats our researchers spot in the wild.

On average, our customers sent out nine phishing campaigns over the course of our 12-month measurement period. That’s an increase from the eight-campaign average we saw last year. This is a positive trend; we recommend testing users at least every four to six weeks (and, ideally, at least once a month).

In 2021, organizations heavily favored “corporate”-themed phishing tests; more than 50% of templates used featured this theme. The emphasis was not misplaced. Many attackers used process and policy lures in their campaigns. We also saw a surge in attacks that abused cloud services that many organizations rely on for communication and collaboration.

Here are the top 10 most-used templates last year and 10 well-used templates that proved trickiest for recipients (resulting in users taking the bait). This year, we’ve also included the average failure rate for each of the templates.

Most-Used Templates

1. Voicemail from unknown caller	18%
2. Parcel arrival notice	15%
3. Email password change: Urgent attention	10%
4. Deactivation of old OneDrive account	8%
5. Missed Zoom meeting	7%
6. Urgent Microsoft 2FA activation	7%
7. Microsoft Teams invitation	6%
8. O365 password expiration notice	6%
9. Important information about queued email	4%
10. Unusual account sign-in activity	3%

Table 1

Trickiest Templates

1. Dress code update	30%
2. Local holiday giveaways and samples	28%
3. Bonus review	26%
4. Denny’s food order	26%
5. Important social media policy change	24%
6. Updated EMR policy (healthcare)	24%
7. Updated vacation policy	24%
8. Urgent message re: dress code	23%
9. Code of conduct: reported incident	23%
10. Updated payroll timetable	22%

Table 2



On average, our customers used two different templates within each simulated phishing campaign in 2021. Using more than one template in a single campaign can help organizations avoid the so-called “prairie dog effect,” which happens when one employee spots a test (or fails a test) and warns others about the email.

A majority of the most-used templates revolve around internal accounts and tools—and many of those have very low failure rates. This is why it pays to mix things up when testing users. Though most of the trickiest templates also mimicked internal communications, they used topics that are likely to draw an immediate and emotional response from recipients (like the two separate dress code templates).

That emotional impact is reflected in the failure rates. The lowest among the most “successful” templates is still 20% higher than the highest failure rate among the most-used templates (and more than seven times higher than the lowest failure rate).

Granted, these types of “triggering” tests can be a hard sell with reviewers and approvers. And they may not be a good fit for every organization’s culture. Regardless, the fact remains: attackers are not at all concerned about offending, frightening or tricking your employees. At the very least, users must be made aware that threat actors are freely using these types of lures and tactics, even if you don’t use them in simulated phishing emails.



AMONG ORGANIZATIONS THAT USE OUR PHISHALARM EMAIL REPORTING TOOL

15%

overall average reporting rate (up from 13% last year).

10%

overall average failure rate (down from 11% last year).

1.5

overall average resilience factor (up from 1.2 last year).

AVERAGE REPORTING RATE BY TEMPLATE TYPE

18%

for attachment campaigns.

17%

for data entry campaigns.

16%

for link-based campaigns.

Section 5

Email Reporting and Resilience: Measurements and Goals

Email reporting: a critical part of your cyber defenses

Reporting tools are a relative newcomer to the security arsenal. Many organizations have not implemented an easy-to-use, in-client reporting tool like PhishAlarm®.

If we could shout it from the rooftops, we would: email reporting is critical to both defending against cyber attackers and evaluating effectiveness of your security awareness training efforts.

We encourage all of our customers to implement our PhishAlarm in-client reporting button, because it:

- Allows users to actively participate in email defenses
- Alerts security teams to suspicious, malicious and nuisance emails that evade filters
- Promotes a collaborative relationship between users and security teams
- Enables you to correlate failure rates and reporting rates to gauge resilience
- Enables you to integrate of reporting and remediation functions, simplifying and accelerating identification and removal of active email-borne threats

Calculating resilience

Among customers who use our PhishAlarm button, the average overall reporting rate on simulated attacks in 2021 was 15%, up from 13% last year. The overall average failure rate among these organizations was 10%, down from 11% last year. Both of these are positive signs in general, especially in terms of resilience.

Last year, we introduced the concept of a resilience factor. An organization's resilience factor is a measurement of simulated phishing reporting rates in comparison to failure rates. The first goal is to achieve a resilience factor greater than 1, which means more people are reporting than failing. Last year, our PhishAlarm customers' overall resilience factor was 1.2. This year, we saw a 25% improvement:

$$15\% \text{ average reporting rate} \div 10\% \text{ average failure rate} = 1.5 \text{ resilience factor}$$

A resilience factor of 1.5 is clearly not ideal. But the year-over-year improvement is a step in the right direction.

The ultimate goal is to increase resilience over time, which happens through improvements in users' responses to phishing tests. Higher reporting rates are a sign that users are paying more attention to the emails they're receiving and are taking intentional action to help protect your organization.



TIP

If your organization's failure rate is higher than your reporting rate, calculate your resilience factor by inverting the equation and adding a negative sign to the result.

While lower failure rates can also be a positive sign, not clicking a simulated phishing email is not the same thing as actively rejecting it. Phishing tests might be ignored or avoided for any number of reasons, not just because users believe them to be suspicious.

We reiterate our advice from the past couple of years: work toward the stretch goals of an overall reporting rate of 70% and an overall failure rate of 5%—an overall resilience factor of 14. This would put you in the very positive position of having a user base that's 14 times more likely to report a phishing test than engage with one. That attention to detail will pay off when real-world phishing attacks evade your perimeter defenses.

It bears repeating that we consider a 70/5 ratio to be a stretch goal. It's not something that will happen overnight.

Still, we regularly see customers' campaigns meeting or surpassing these marks. So, it's achievable. Yes, it's more easily achieved on individual campaigns. But we see organizations sustaining even higher resilience factors across multiple campaigns. So it's also repeatable.

As with all security awareness training initiatives, you'll need to be patient and allow for improvements to come. To make gains, email reporting must carry weight within your organization—from both a training and measurement perspective.

Consider these key actions:

- **Coach users about reporting.** It's not enough to simply give them access to a reporting tool. They need to know how to find it and how to use it.
- **Communicate about the positive impact user-reported emails can make within your organization.** A reporting tool empowers users to help stop cyber attacks. That is compelling.
- **Train users about when to report.** And allow time to grow their confidence in their ability to identify and take action on suspicious messages.
- **If necessary, shift organizational focus away from failure rates as the ultimate indicator of phishing awareness.** Become an internal advocate for reporting and emphasize reporting rates in metrics that are socialized internally.
- **Share successes with users, too.** Highlight real-world phishing attempts reported by employees. These stories both reinforce the positive impacts of reporting and remind employees that they can make a difference when they apply what they learn in your security awareness training program.

Benchmarking: industry resilience factors

KEY FINDINGS

Last year's single highest reporting rate—20%, achieved by the financial services industry—was matched or beaten by nine industries this year (including financial services, which reached a **23%** reporting rate).

Last year, six industries had a negative resilience factor (more users failed than reported phishing tests). This year, just one—education—was in negative territory. But even that industry saw an improvement over 2020 (-1.3 vs. -2.0).

Just four industries had a reporting rate of 10% or lower this year, compared to nine in 2020.

As noted earlier, we know organizations are eager to level-set their performance against more granular measurements than overall failure and reporting rates. Our industry-based reporting and resilience analysis supports those efforts. As with our earlier set of industry comparisons, we've expanded our coverage to include 25 industries this year.

In Table 3, we present each industry's average reporting rate, failure rate, and resilience factor. You'll note that the failure rates in this section may vary slightly from those in [Figure 15](#). The average failure rates seen here are based on customers who use both our phishing simulations and our PhishAlarm button, a smaller subset of the data used earlier.

Industries are ranked in order of reporting rate, highest to lowest.

Industry Reporting, Failure and Resilience Data

Industry	Reporting Rate	Failure Rate	Resilience Factor
Aerospace	26%	6%	4.3
Electronics	26%	8%	3.3
Energy/Utilities	24%	7%	3.4
Financial Services	23%	6%	3.8
Legal	23%	6%	3.8
Agriculture	22%	7%	3.1
Insurance	21%	8%	2.6
Consulting	20%	10%	2.0
Engineering	20%	7%	2.9
Construction	18%	8%	2.2
Real Estate	17%	11%	1.5
Automotive	16%	10%	1.6
Manufacturing	16%	7%	2.3
Government	13%	7%	1.9
Mining	13%	6%	2.2
Business Services	12%	12%	1.0
Entertainment/Media	12%	5%	2.4
Retail	12%	8%	1.5
Telecommunications	12%	9%	1.3
Healthcare	11%	7%	1.6
Technology	11%	7%	1.6
Food & Beverage	10%	8%	1.3
Transportation	8%	6%	1.3
Education	6%	8%	-1.3
Hospitality/Leisure	5%	4%	1.3

Table 3



Worried that user-reported emails will overwhelm your remediation team? Solutions like our Closed-Loop Email Analysis and Response (CLEAR) can help streamline management of abuse mailboxes, using automation and advanced email security features to cut operational overhead.

Real-world phishing and reporting accuracy

Over our one-year measurement period, we saw the immense value in allowing users to actively participate in email defenses. Our customers' employees spotted and reported many active threats, including emails that contained malware affiliated with nation-state and financial APTs. They alerted infosec teams to:

- More than 350,000 credential phishing emails
- Nearly 40,000 emails with malware payloads like Trojans, downloaders, stealers, keyloggers and ransomware
- More than 20,000 malicious spam emails
- More than 8,500 emails associated with botnets or spambots
- More than 8,000 attacks using remote access or banking Trojans
- More than 6,000 attacks containing downloaders

This year, we've also analyzed reporting accuracy data. This is calculated for PhishAlarm customers who also use PhishAlarm Analyzer. Email reporting is even more effective when paired with real-time analysis. Tools like PhishAlarm Analyzer use advanced machine learning, behavioral insights and sandboxing to quickly analyze reported messages.

In this process, we can definitely auto-classify between 60% and 80% of user-reported messages as malicious/spam or bulk/benign. Using a tool like CLEAR (see sidebar), those classifications can be tied to an automated action such as removing the message and similar threats, resetting user credentials or closing the case (if the email is benign).

The accuracy rates shown in Table 4 reflect the percentage of messages sent to Analyzer that were classified as malicious, suspicious or spam. (Messages classified as bulk, low risk or unknown are not factored into accuracy rates.)²⁰

Even the "lower" accuracy rates we see here have value: at least 2 of every 10 messages reported had evaded perimeter defenses. Naturally, a higher accuracy rate is more favorable—and it's a great metric to evaluate over time because it reflects users' ability to distinguish problem emails from safe ones.

We suggest targeting an accuracy rate of 50% or higher, which would indicate that most of the messages your users are reporting are spam or potentially malicious, rather than innocuous. But like resilience, it's a metric that requires time and patience—and a focused effort to assess your users' weaknesses and provide the right training. If you have a tool like CLEAR, your remediation teams won't be overtaxed as reporting accuracy is given space to improve.

²⁰ Note that simulated phishing attacks, when reported, are not forwarded to PhishAlarm Analyzer. So, by default, simulated phishing reports are not factored into accuracy ratings.

Reporting Accuracy Rates by Industry

Industry	Accuracy Rate
Legal	45%
Engineering	42%
Education	41%
Government	36%
Agriculture	35%
Real Estate	35%
Business Services	34%
Entertainment/Media	34%
Insurance	34%
Manufacturing	34%
Construction	33%
Electronics	32%
Financial Services	32%
Hospitality/Leisure	32%
Telecommunications	32%
Energy/Utilities	30%
Technology	30%
Transportation	30%
Aerospace	29%
Food & Beverages	29%
Consulting	29%
Healthcare	28%
Retail	27%
Automotive	26%
Mining	22%

Table 4



99%

of organizations have a security awareness training program

BUT

Only 57%

provide organization-wide training

AND

Only 85%

educate employees who fall for real or simulated phishing attacks.

Section 6

Security Awareness Training: Insights and Opportunities

Understanding of industry trends, employee knowledge gaps and benchmark data won't do much for you if you don't act on what you learn. Security awareness training is a must for organizations across the globe. And security frameworks and compliance requirements shouldn't be the only things driving you to make it part of your defense-in-depth strategy.

The good news is that nearly everyone is doing something to educate employees: 99% of the infosec and IT professionals we surveyed said their organization has a security awareness training program. The bad news? How programs are being implemented leaves much room for improvement. (And as we noted earlier: from a risk perspective, how people do things is often more important, than what they do.)

Here are some areas of concern revealed in our global survey:

- Fewer than **60%** of organizations deliver organization-wide training. Nearly **30%** focus their efforts strictly on specific departments and roles, and another **15%** are only concerned about specific individuals.
- Fewer than **50%** of organizations formally cover email-based phishing in their training programs, and just **43%** cover ransomware. In comparison, more than **80%** of organizations experienced at least one successful phishing attack in 2021, and nearly **70%** dealt with at least one ransomware infection. (See more on topics later in this section.)
- **81%** of organizations said that more than half of their employees are working remotely (either part time or full time) due to the pandemic. But just **37%** educate workers about best practices for remote working.
- Only **34%** educate employees about best practices for email reporting.
- Nearly **15%** of organizations do not educate workers who interact with real or simulated phishing emails. (And just to be clear: we consider this to be too large a number.)



COUNTRY SPOTLIGHT

68%

of French organizations deliver organization-wide training, the highest of any region surveyed.



45%

of Japanese organizations train only specific departments and roles (60% higher than the global average).



23%

of Spanish organizations train only specific individuals, followed closely by Australian organizations (22%).



**73%**

of organizations deliver formal security awareness training to their employees (via computer-based, in-person or instructor-led virtual training).

Training tools and frequency of use

Security awareness training programs should use several different tools—variety is your friend when it comes to educating users. A mix of tools will not only help to keep employees engaged, it will also help you learn different things about the people you rely on to protect your organization’s data, devices and systems.

Variety also helps apply key learning principles to your program: reinforcement and repetition. Reaching users in multiple ways and keeping cybersecurity a relevant and palatable conversation are critical.

Don’t focus just on teaching and testing. Friendly reminders, notes about trending threats, and even program performance news—like big saves when employees report real-world phish—offer opportunities to show how important cybersecurity is to your organization and plant the seeds for a strong security culture.

Nearly 75% of organizations said they assign what we consider to be “formal” training to their users (note that more than one answer was permitted):

- **43%** deliver computer-based training
- **38%** provide in-person training
- **35%** offer virtual, instructor-led training

Formal education sessions were, by far, the most used component of security awareness training programs in 2021, according to survey participants. Other tools, and their percentage of use, include:

- Simulated phishing emails (41%)
- Newsletters or informative emails (39%)
- Awareness posters or videos (35%)
- Smishing and/or vishing simulations (33%)
- Internal cybersecurity chat channel (32%)
- Cybersecurity-based contests and prizes (30%)
- Simulated USB drops (28%)
- Internal cybersecurity wiki (26%)

Just 14% of organizations that use formal training said they train users only once or twice a year. Ideally, this number would be 0%. Still, the trend toward more frequent training is a positive one.

We saw some indications that organizations could be using formal training and phishing simulations *too* frequently (more on that to follow). But on the other end of the spectrum, we also saw 38% organizations saying they allocated an hour or less to formal training in 2021 (vs. 28% in 2020).



COUNTRY SPOTLIGHT

37%

of Australian organizations use simulated phishing attacks, the least of any region surveyed. But they are *by far* the most active in using them: 61% said their organization sends phishing simulations *daily*.

37%

of UK organizations simulate malicious USB drops, the most of any region surveyed. But this represents fewer than half of UK orgs that faced USB-based attacks in 2021.

<25%

of Spanish and German organizations use gamification techniques like contents and prizes, the least among all regions surveyed.

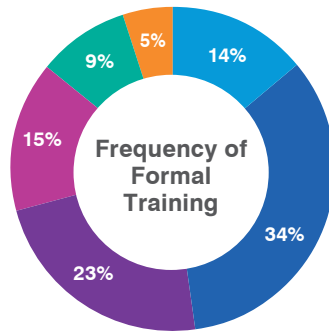


Figure 17

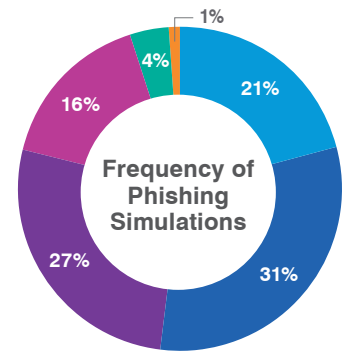


Figure 18

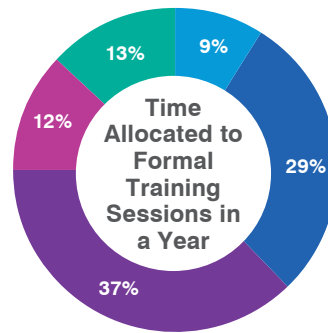


Figure 19

The key is balance. Yes, we believe cybersecurity *must* be talked about frequently. And security awareness and training initiatives should be an ongoing pursuit that allows skills to develop consistently over time. But an overabundance of anything “extra” is not likely to be well-received by users. Training fatigue is a legitimate concern.

We recommend a blend of formal, computer-based training assignments (done at least quarterly) and monthly phishing simulations. These should be paired with regular use of supporting materials and activities like posters, flyers, newsletters and lunch-and-learn sessions.

Ultimately, it might take some time to comfortably identify the appetite for training among your user base. For example, you may find that microlearning modules (those that offer about 1-3 minutes of “bite-sized” training) are better received by your users than longer, more intense training. And that may pave the way to a monthly training schedule vs. a quarterly one.

One thing to always keep in mind: attackers are putting in time and effort to identify and compromise your employees. Organizations that don’t allocate time and effort to security awareness training in a way that’s most likely to resonate with their people will be at a disadvantage.



COUNTRY SPOTLIGHT



Australian organizations lagged behind their global counterparts (and global averages) on coverage of several key security awareness training topics:

37%
cover email-based phishing.

35%
cover mobile device security.

35%
cover ransomware.

29%
cover BEC.

29%
cover cloud-based threats.

29%
cover internet safety.

27%
cover malware.

Orgs ignore too many important topics when training users

Of the 99% who said their organization has a security awareness training program, all but one Japanese survey respondent said their program covers at least one of the topics we surveyed about. But both globally and regionally, there's not nearly the breadth or depth of coverage needed to prepare users to defend against more sophisticated threat actors, who frequently use multiple techniques and tactics in a single attack campaign.

Topics Covered in Security Awareness Training Programs

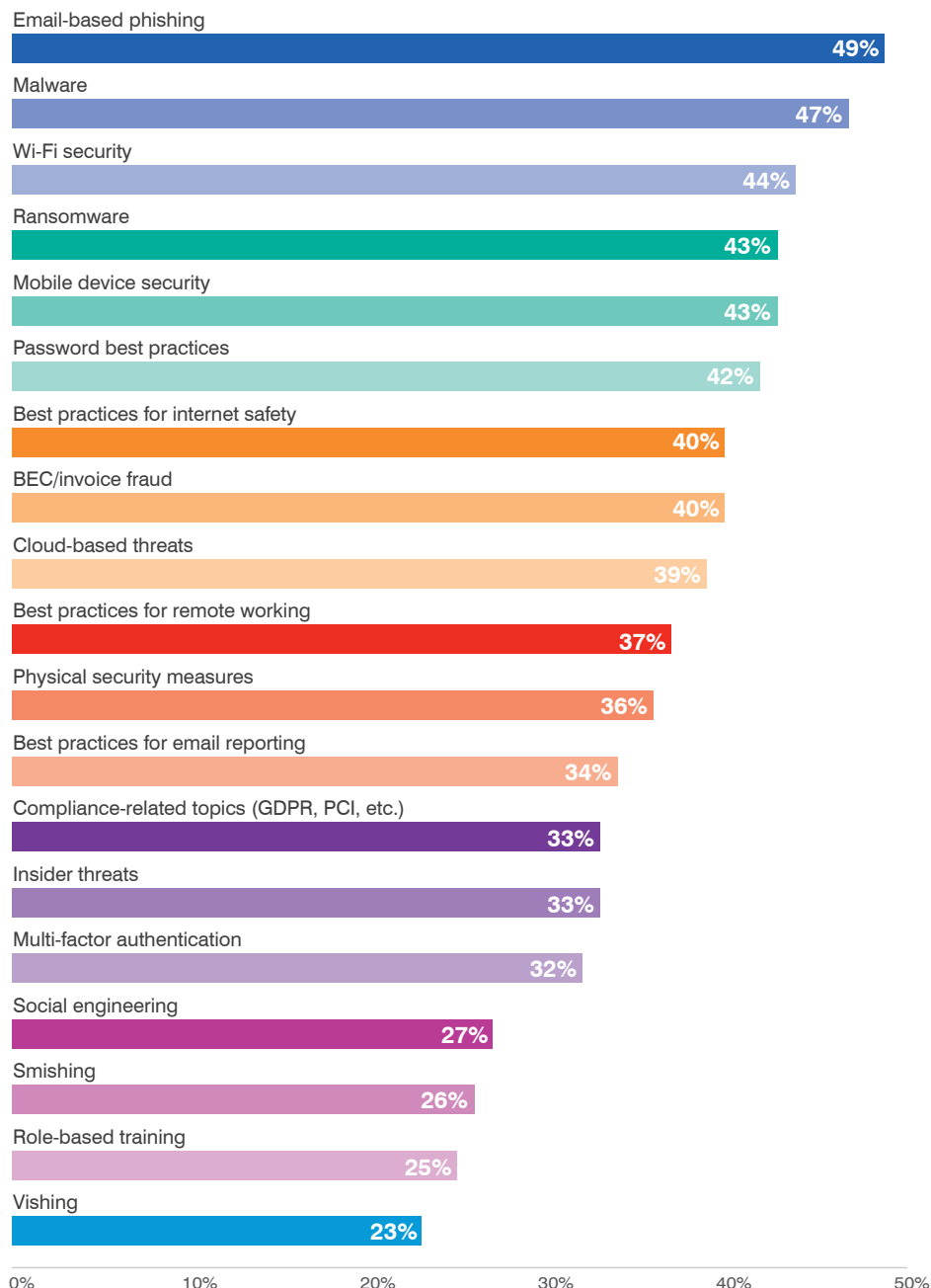


Figure 20

KEY FINDINGS

55%

of organizations take disciplinary action against employees who fall for real or simulated phishing attacks, the same percentage as last year.

24%

of organizations said a consequence model is not the right fit for their organization's culture (a new response choice this year).

70%

of those who employ a consequence model said it has increased employee awareness of phishing, a 15% year-over-year drop. **25%** said awareness is about the same, and **4%** feel awareness has decreased since the introduction of consequences.

Consequence models: could they cost you?

Here are some stats we don't love:

- More than half of the infosec and IT professionals we surveyed said their organization disciplines or punishes employees who interact with real or simulated phishing emails.
- Another 4% said the launch of a consequence model is imminent within their organization, and an additional 14% said they're considering the approach.
- Among those using a consequence model, more than 95% said that both real and simulated attacks trigger consequences within their organization.

Nearly three-quarters (73%) of survey respondents seem comfortable with the idea of punishing/disciplining (two words we used in our survey) employees for their mistakes in handling email. That's concerning enough. It's even more vexing when you consider these points:

- Just 49% of survey respondents said their organization covers email-based phishing in their security awareness training program
- Only 25% said their organization allocates two or more hours to formal employee training each year.
- Sometimes one mistake by a user is all it takes to trigger a consequence, even when the mistake is made in handling a hypothetical threat to the organization.

As we did last year, we excluded training from the list of "punishments" within consequence models. That's because training should never be presented to users as a punishment. Training is an opportunity to learn and improve. And it should always be positioned as a positive experience, not a negative one.

FOR YOUR CONSIDERATION

Technical safeguards that are purpose-built to identify and block phishing threats aren't perfect 100% of the time. Is it fair to ask employees who are not cybersecurity experts to be perfect or be punished?

GLOBAL “LEADERS”

>75% 

of Australian and UK organizations use a consequence model

73% 

of U.S. organizations ask managers to counsel employees

56% 

of Australian organizations ask their HR teams to enforce certain disciplinary actions

42% 

of UK organizations impose a monetary penalty (62% higher than the global average)

39% 

of Spanish organizations said a consequence model isn't a cultural fit, followed closely by German organizations (37%)

25% 

or more of UK, U.S., and Spanish organizations include termination in their consequence models (vs. ~10% of German and Japanese organizations)



COUNTRY SPOTLIGHT

26% 

of German organizations have a consequence for users who fail a single phishing simulation.

38% 

of U.S. organizations punish users who fall for one real-world phishing attack.

Figure 21 shows the disciplinary actions that are used within our survey respondents' organizations, and Figure 22 breaks down the thresholds that trigger the first consequence.

Consequences for Interacting with Real or Simulated Phishing Attacks

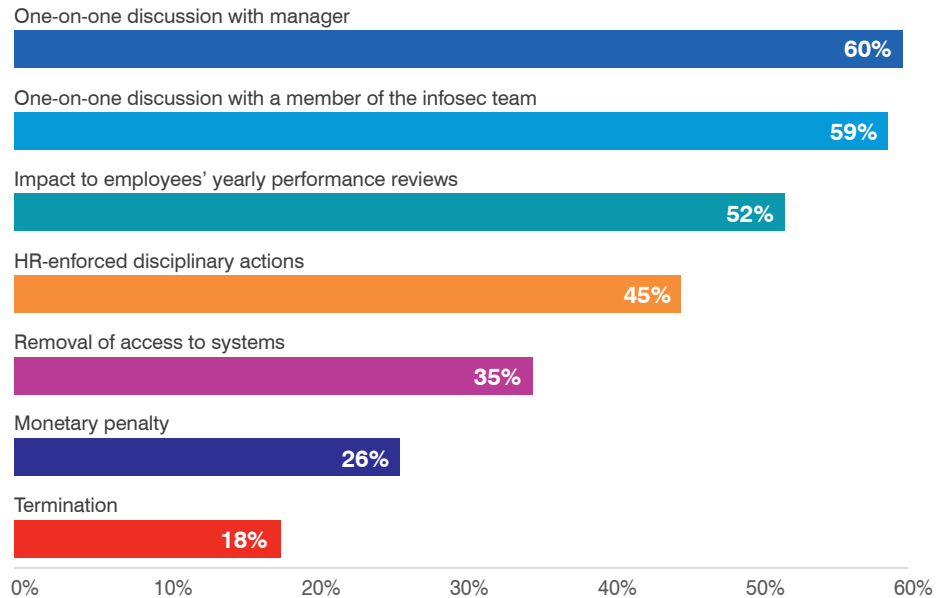


Figure 21

Figure 22 illustrates that it's not just “repeat offenders” who are being punished for their email actions. And Figure 23 shows that many organizations are just as eager to introduce consequences as they are to launch a security awareness training program.

The First Action That Triggers a Consequence²¹

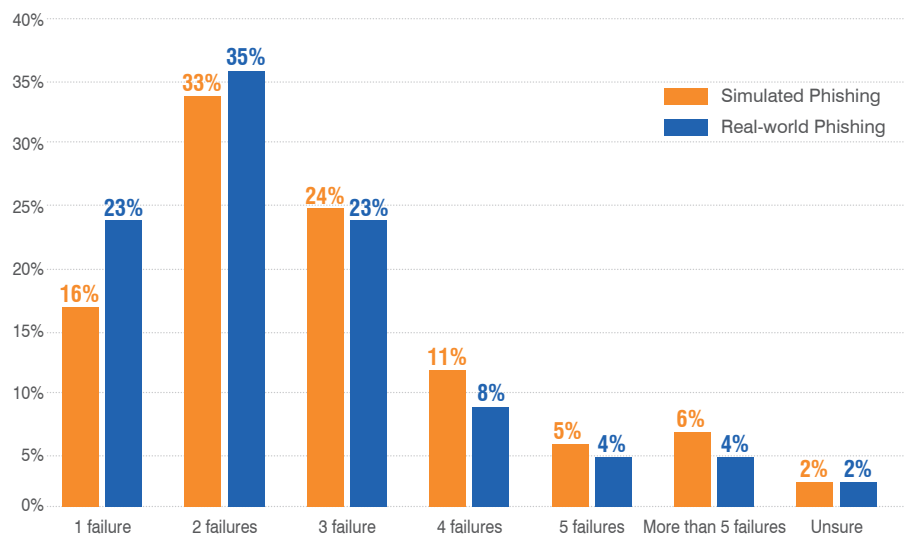


Figure 22

²¹ Just 3% of respondents said that phishing test failures do not result in a consequence. Only 1% said that falling for a real-world phishing attack doesn't trigger a consequence.

Correlation of Consequence Model Launch to Launch of Security Awareness Training Program

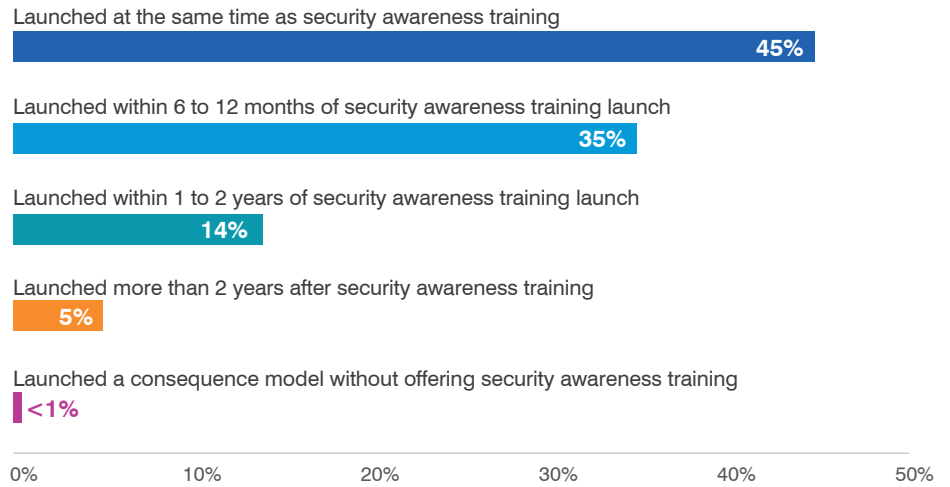


Figure 23

Some organizations feel they must punish users for their email mistakes. And if handled with careful consideration and clear communication, a consequence model may prove beneficial in some cases.

But it's a slippery slope. Many organizations have found there are limited options for delivering consequences in a fair, consistent and legally sound way.

And as found in our survey, many employees are not receptive to consequence models. This sentiment can hurt an organization's overall culture, leaving employees less engaged, less responsive and less likely to want to participate in cybersecurity initiatives.

KEY FINDING

At **62%**, Spanish organizations were most likely to say that employees understand and accept the use of a consequence model. But they're also most likely to say that, in spite of many complaints, the organization is firm in their belief that consequences are the right approach to take (**28%**).

Users' Response to Consequence Model

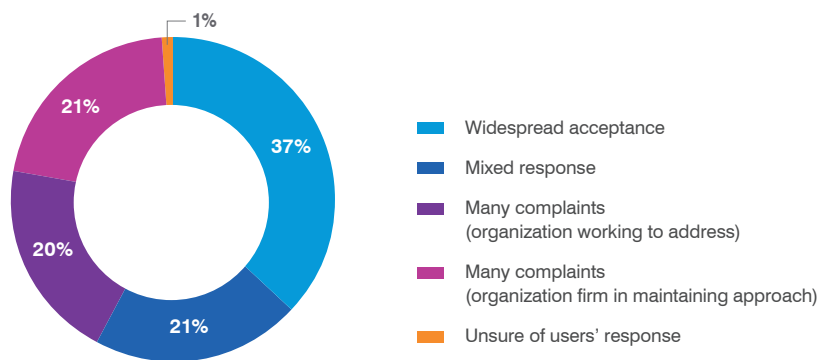


Figure 24

Section 7



72%

of infosec and IT professionals surveyed said their organization's current security awareness training program has lowered phishing failure rates.



COUNTRY SPOTLIGHT

84%

of U.S. organizations said security awareness training has reduced phishing failure rates, the highest of any region surveyed.



6%

of Japanese organizations say phishing failure rates have increased since the implementation of their current security awareness training program, twice the global average.



Making It Personal: Identifying Vulnerabilities, Gauging Success

We've analyzed a lot of information for this year's report and provided more (and more robust) benchmarking data than ever. But we get that it can be overwhelming—much like running a security awareness training program itself.

Just over 70% of the infosec and IT professionals we surveyed said they've seen a reduction in phishing failure rates since launching their organization's security awareness training program. (Another 24% said phishing susceptibility has stayed about the same, 3% said failure rates are higher, and 1% weren't sure how training has impacted failure rates.) The good news: based on our findings, there is a lot of opportunity to run these programs more effectively.

Here are three key steps you can take to that end:

1. Prioritize the things that are important within your organization

Here's a key belief of ours: Everyone who can influence your organization's cybersecurity posture should be trained in cybersecurity best practices. Everyone should have a foundational understanding of common cybersecurity threats and practical defense measures. Everyone who touches your network and data, everyone who handles your equipment, everyone who manages or controls access to organizational assets. Everyone.

Just 57% of the infosec and IT professionals we surveyed said they take this approach (and that number hovers around 50% for Japanese, Spanish and Australian organizations). Too many people who contribute to cybersecurity risk are being left out of training.

Still, that doesn't mean you can't be deliberate and strategic about how you assess and train your people. And it doesn't mean that everyone has to receive the exact same training at the exact same time. And it certainly doesn't mean that your program should replicate that of an organization in another industry (or even that of direct competitor).

Your program should prioritize topics you know are relevant to your industry and your organization—and the people who work within it. The following information can help you determine what to cover and with whom:

- Knowledge levels across your user base, including those who struggle to understand basic concepts vs. those who exhibit more advanced skills
- Known, wider-spread issues within your organization (for example, credential compromise, problems with lost devices, BYOD concerns or improper use of cloud accounts)
- Compliance, regulatory or contractual training requirements

- Specific job functions that are a threat to your organization if handled incorrectly (for example, paying invoices/executing wire transfers, managing confidential customer or employee data, accessing high-risk websites)
- High-visibility roles within your organization (for example, executives, spokespeople and influencers)
- Department-level failure rates on phishing simulations
- Benchmark data and insights from others in your industry

2. Use threat intelligence to your advantage

Threat intelligence can help you determine a key piece of information: when to deliver specific training to specific people.

High-level threat intelligence shared publicly or privately is invaluable. This may include the information we deliver on the Proofpoint Threat Insight blog, our Threat Hub or in our customer-facing Threat Alerts and Attack Spotlights.

But it's just as critical to understand the people and departments within your organization that are being attacked and targeted at any given time, and the ways attackers are trying to compromise your organization.

More than 90% of infosec and IT survey respondents said their organization's threat intelligence influences security awareness training decisions. But *how* that happens could use some work.


We were glad to see gains in all three of the areas we surveyed (see Figure 25). But ideally, many more organizations would be taking advantage of knowledge about their specific threat landscape and using that to inform their training approach.





93%
of organizations factor threat intelligence into their security awareness training plans (up from 90% last year).




COUNTRY SPOTLIGHT

71%  of Spanish organizations train about topics that relate to attacks they know their organization is facing.

67%  of U.S. organizations use phishing tests that mimic trending threats.

53%  of UK organizations train individuals they know are being targeted by specific types of attacks.

14%  of Japanese organizations do not adjust training based on threat intelligence, and another **4%** say they do not have access to threat data.

Use of Threat Intelligence



Figure 25

In 2021, we added a CISO Dashboard to our Security Education Platform. A key feature of that dashboard is the User Vulnerability Summary, which identifies key indicators of vulnerability among an organization's employees. Customers can view users with low participation rates and low performance rates. Those who leverage Proofpoint Targeted Attack Protection (TAP) can also identify their organization's Very Attacked People (VAPs) and Top Clickers.

To improve the effectiveness of your security awareness training program, we suggest identifying the following:

- **The individual and group inboxes that are being sent the largest number of suspicious and malicious messages.** We refer to these individuals and inboxes as Very Attacked People™ (or VAPs). These users are sometimes VIPs—but often, they're not. And your organization's VAPs can change a lot over time.
- **Trending attack characteristics.** Attack intensity and methodology can change over time, just as VAPs can. Examining the how behind the what can reveal vital information. For example, suppose threat intelligence shows an increase in credential harvesting attempts targeting specific people and groups. With the right intel, you can quickly communicate that insight and deliver training tailored to reduce specific risks.
- **Vulnerable users.** Being able to identify specific people who have fallen for real or simulated phishing attacks and the lures they fell for can be incredibly valuable.
- **The intersection of vulnerability, attacks and privilege.** This is what we like to call the “perfect storm”: privileged users within your organization who are vulnerable to attack and are being actively targeted. These are the risks to know about—and address. (The User Vulnerability Summary in our CISO Dashboard helps our customers do this. See the callout on this page for more.)

**Security Program Effectiveness:
Ranking by industry**

1. Engineering
2. Financial Services
3. Aerospace
4. Energy/Utilities
5. Manufacturing
6. Legal
7. Telecommunications
8. Consulting
9. Construction
10. Insurance
11. Electronics
12. Mining
13. Entertainment/Media
14. Automotive
15. Food & Beverages
16. Hospitality/Leisure
17. Technology
18. Transportation
19. Agriculture
20. Education
21. Real Estate
22. Business Services
23. Government
24. Healthcare
25. Retail

Table 5

3. Evaluate key security awareness training metrics to gauge success

You should not hinge your view of success on a single measurement (like phishing test failure rates). And benchmark data should neither induce panic within your organization nor give you a false sense of security.

As with a security awareness training program itself, “success” measurement should include multiple components and take individual organizational factors into account.

To help organizations better gauge how effective their programs are, we introduced a new feature in our Security Education Platform in 2021: the CISO Dashboard. In addition to at-a-glance views of user vulnerability (see callout on page 43), this dashboard displays and aggregates key performance and participation indicators that help drive decision-making.

Our overall Security Program Score provides a holistic review of an organization’s security awareness program and its results. The overall score factors in the following:

1. Phishing simulation failures
2. Phishing simulation reporting
3. Knowledge assessments
4. Reported email accuracy
5. Training participation

This type of high-level view helps organizations gauge the relative health of their security awareness training program and improvements over time. It also helps with decision-making, course corrections and program planning.

After all, a security awareness training program should be an ongoing initiative. Where you are today isn’t where you’ll be in a year. As threats, knowledge levels and key metrics evolve, your program should adapt with them.

With that in mind, we leave you with a final ranking: overall program effectiveness by industry. This ranking, shown in Table 5, is based on participation and performance across all five aspects of security awareness training listed above.

Section 8

Appendix

A. Infosec and IT security survey: country-by-country breakdown

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
How many of these cyberattacks—successful and unsuccessful—did your organization experience in 2021?								
Bulk phishing attack (same email sent to multiple people)								
0	10%	12%	15%	22%	11%	9%	17%	14%
1-10	46%	41%	20%	30%	49%	33%	36%	36%
11-25	18%	20%	26%	14%	17%	13%	18%	18%
26-50	10%	14%	18%	16%	15%	23%	11%	15%
51-100	8%	8%	11%	6%	2%	12%	8%	8%
100+	6%	5%	6%	8%	6%	9%	9%	7%
Unsure of total	2%	0%	4%	4%	0%	1%	1%	2%
Spear phishing/whaling (targeted email attack)								
0	8%	14%	16%	40%	26%	18%	23%	21%
1-10	18%	39%	26%	28%	32%	29%	20%	27%
11-25	48%	16%	24%	14%	22%	25%	29%	25%
26-50	12%	15%	12%	8%	5%	18%	15%	12%
51-100	8%	13%	16%	8%	9%	3%	5%	9%
100+	4%	2%	2%	0%	5%	7%	7%	4%
Unsure of total	2%	1%	4%	2%	1%	0%	1%	2%
Business email compromise (for example, wire transfer fraud or invoice fraud)								
0	10%	25%	25%	36%	23%	19%	21%	23%
1-10	30%	29%	22%	24%	33%	25%	26%	27%
11-25	24%	22%	14%	10%	19%	20%	24%	19%
26-50	26%	17%	21%	6%	14%	19%	11%	16%
51-100	4%	6%	10%	12%	4%	9%	9%	8%
100+	4%	1%	5%	8%	7%	7%	7%	5%
Unsure of total	2%	0%	3%	4%	0%	1%	2%	2%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Email-based ransomware attack (ransomware payload delivered via email)								
0	10%	20%	20%	32%	32%	16%	22%	22%
1-10	14%	31%	32%	26%	37%	28%	25%	28%
11-25	36%	24%	13%	22%	8%	21%	21%	21%
26-50	24%	10%	16%	8%	8%	18%	17%	14%
51-100	8%	13%	13%	8%	9%	9%	9%	10%
100+	8%	2%	3%	2%	5%	7%	5%	4%
Unsure of total	0%	0%	3%	2%	1%	1%	1%	1%
Smishing (SMS/text message phishing)								
0	8%	29%	27%	26%	43%	20%	25%	26%
1-10	24%	23%	19%	38%	21%	16%	16%	23%
11-25	26%	14%	16%	6%	21%	20%	24%	18%
26-50	22%	26%	18%	10%	5%	19%	13%	16%
51-100	12%	5%	9%	14%	6%	13%	11%	10%
100+	8%	3%	7%	2%	4%	11%	10%	6%
Unsure of total	0%	0%	4%	4%	0%	1%	1%	1%
Vishing (voice phishing via phone calls)								
0	8%	31%	34%	44%	51%	22%	28%	31%
1-10	22%	26%	20%	24%	22%	20%	19%	22%
11-25	30%	20%	15%	10%	15%	21%	27%	20%
26-50	30%	11%	12%	8%	6%	16%	10%	13%
51-100	8%	10%	11%	8%	2%	15%	7%	9%
100+	2%	2%	4%	2%	4%	6%	9%	4%
Unsure of total	0%	0%	4%	4%	0%	0%	0%	1%
USB drops (thumb drives weaponized with malicious software or code)								
0	10%	38%	36%	48%	59%	22%	37%	36%
1-10	18%	22%	19%	24%	15%	20%	19%	19%
11-25	30%	15%	13%	14%	15%	19%	19%	18%
26-50	24%	17%	14%	6%	7%	21%	9%	14%
51-100	8%	6%	9%	6%	3%	10%	11%	8%
100+	10%	2%	5%	0%	1%	8%	5%	4%
Unsure of total	0%	0%	4%	2%	0%	0%	0%	1%
Social media attacks (for example, pretexting or account takeover)								
0	8%	23%	26%	42%	45%	15%	25%	26%
1-10	22%	26%	17%	18%	22%	24%	22%	21%
11-25	36%	19%	18%	18%	12%	15%	19%	20%
26-50	14%	15%	16%	4%	10%	24%	15%	14%
51-100	10%	13%	11%	10%	8%	9%	10%	10%
100+	10%	4%	8%	2%	3%	13%	7%	7%
Unsure of total	0%	0%	4%	6%	0%	0%	2%	2%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
How many SUCCESSFUL phishing attacks did your organization experience in 2021?								
0	8%	12%	20%	34%	18%	9%	21%	17%
1-3	14%	30%	28%	26%	36%	26%	20%	26%
4-6	38%	32%	21%	22%	26%	27%	25%	27%
7-9	16%	17%	12%	12%	11%	24%	23%	16%
10 or more	20%	8%	15%	6%	8%	13%	9%	11%
Unsure of total	4%	1%	4%	0%	1%	1%	2%	2%
What impact(s) did successful phishing attacks have on your organization in 2021?								
Loss of data/intellectual property	52%	51%	50%	24%	25%	57%	52%	44%
Breach of customer/client data	64%	49%	57%	48%	42%	57%	60%	54%
Credential/account compromise	57%	52%	46%	42%	38%	58%	43%	48%
Ransomware infection (email payload)	61%	40%	49%	45%	33%	50%	40%	46%
Other malware infection(s)	36%	25%	28%	27%	15%	30%	28%	27%
Financial loss/wire transfer fraud	30%	20%	14%	3%	9%	29%	18%	17%
Advanced persistent threat	30%	16%	17%	9%	14%	24%	19%	18%
Zero-day exploit	18%	13%	14%	0%	14%	29%	17%	15%
Widespread outage/downtime	20%	22%	22%	12%	19%	28%	34%	22%
Reputational damage	27%	21%	22%	15%	17%	33%	29%	24%
Financial penalty (e.g., regulatory fine)	14%	7%	8%	3%	5%	24%	18%	11%
I'm not sure	2%	1%	0%	6%	2%	1%	1%	2%
Did your organization experience any ransomware infections (due to email, later-stage malware delivery, etc.) in 2021?								
Yes	80%	81%	54%	50%	62%	78%	72%	68%
No	20%	17%	42%	48%	33%	21%	25%	29%
I'm not sure	0%	2%	4%	2%	5%	1%	3%	3%
How many SEPARATE ransomware infections did your organization experience?								
1-3	18%	35%	35%	48%	48%	25%	31%	34%
4-6	47%	39%	35%	24%	32%	32%	35%	35%
7-9	5%	19%	9%	20%	15%	24%	22%	16%
10 or more	30%	7%	21%	4%	5%	18%	12%	14%
Unsure of total	0%	0%	0%	4%	0%	1%	0%	1%
Did your organization pay any ransoms to resolve a ransomware infection/attack in 2021?								
Yes	80%	56%	65%	20%	39%	82%	64%	58%
No	20%	43%	33%	80%	61%	18%	36%	42%
I'm not sure	0%	1%	2%	0%	0%	0%	0%	<1%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Thinking of the most recent payment made, what happened?								
Paid one ransom and regained access to data/systems	53%	69%	54%	40%	37%	69%	54%	54%
Paid an initial ransom and follow-up ransom(s) and got access to data/systems	41%	20%	37%	20%	42%	28%	39%	32%
Paid an initial ransom, refused to pay more, and did not get access to data	3%	4%	9%	20%	21%	3%	7%	10%
Never got access to data, even after paying	0%	7%	0%	20%	0%	0%	0%	4%
I'm not sure	3%	0%	0%	0%	0%	0%	0%	<1%
Does your organization run a security awareness training program?								
Yes	98%	100%	97%	98%	100%	98%	100%	99%
No	2%	0%	3%	2%	0%	2%	0%	1%
Which of the following topics are covered in your security awareness training program?								
Email-based phishing	37%	54%	42%	57%	58%	40%	57%	49%
Malware	27%	48%	48%	61%	61%	35%	48%	47%
Wi-Fi security	39%	37%	43%	35%	58%	46%	49%	44%
Ransomware	35%	44%	47%	37%	58%	40%	43%	43%
Mobile device security	35%	40%	44%	47%	49%	36%	51%	43%
Password best practices	37%	37%	47%	45%	47%	32%	46%	42%
Best practices for internet safety	29%	42%	36%	45%	59%	35%	38%	40%
BEC (e.g., wire transfer/invoice fraud)	29%	35%	38%	57%	53%	31%	38%	40%
Cloud-based threats	29%	36%	41%	45%	51%	35%	37%	39%
Best practices for remote working	35%	30%	25%	43%	48%	35%	43%	37%
Physical security measures	33%	32%	35%	45%	31%	38%	41%	36%
Best practices for email reporting	33%	30%	32%	27%	43%	30%	43%	34%
Insider threats	27%	34%	31%	39%	34%	32%	38%	33%
Compliance topics (e.g., GDPR and PCI)	31%	31%	34%	29%	36%	28%	40%	33%
Multi-factor authentication	33%	26%	34%	35%	34%	28%	37%	32%
Social engineering	39%	17%	25%	22%	21%	33%	31%	27%
Smishing	22%	27%	19%	24%	33%	30%	30%	26%
Role-based training	31%	25%	23%	14%	25%	27%	28%	25%
Vishing	14%	22%	25%	22%	33%	19%	26%	23%
None of these	0%	0%	0%	2%	0%	0%	0%	<1%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Who does your organization assign security awareness training to?								
Everyone in the organization	51%	68%	56%	49%	50%	59%	64%	57%
Select departments/roles	25%	23%	33%	45%	26%	25%	22%	28%
Select individuals	22%	9%	11%	6%	23%	16%	14%	15%
I'm not sure	2%	0%	0%	0%	1%	0%	0%	<1%
Which of the following tools are used in your security awareness training program?								
In-person training sessions	22%	35%	35%	37%	52%	41%	47%	38%
Virtual, instructor-led training	29%	38%	38%	27%	46%	31%	34%	35%
Computer-based training	31%	41%	48%	35%	44%	51%	50%	43%
Simulated phishing attacks	37%	38%	44%	47%	39%	38%	41%	41%
Awareness posters and videos	39%	41%	30%	37%	19%	41%	38%	35%
Newsletters and emails	39%	40%	37%	43%	40%	35%	42%	39%
Cybersecurity-based contests/prizes	31%	29%	23%	29%	22%	39%	35%	30%
Smishing and/or vishing simulations	37%	29%	31%	35%	31%	30%	37%	33%
Simulated USB drops	35%	28%	21%	24%	23%	37%	29%	28%
Internal cybersecurity chat channel	33%	28%	35%	33%	33%	26%	36%	32%
Internal wiki	31%	22%	31%	24%	24%	29%	22%	26%
How often does your organization send phishing simulations to employees?								
Daily	61%	5%	26%	0%	5%	38%	15%	21%
Weekly	28%	39%	26%	39%	28%	22%	37%	31%
Monthly	6%	34%	28%	35%	39%	21%	27%	27%
Quarterly	5%	11%	16%	17%	23%	19%	19%	16%
Twice a year	0%	8%	2%	9%	5%	0%	2%	4%
Once a year	0%	3%	2%	0%	0%	0%	0%	1%
Does your organization offer educational training to employees who fall for simulated or real-world phishing emails?								
Yes	88%	86%	83%	82%	89%	84%	83%	85%
No	10%	12%	15%	18%	10%	13%	16%	13%
I'm not sure	2%	2%	2%	0%	1%	3%	1%	2%
How often does your organization assign formal training (in-person, instructor-led, or computer-based)?								
Daily	23%	8%	10%	3%	5%	32%	20%	14%
Weekly	47%	37%	22%	37%	25%	34%	36%	34%
Monthly	24%	24%	23%	23%	27%	23%	19%	23%
Quarterly	3%	15%	17%	23%	25%	6%	16%	15%
Twice a year	3%	12%	14%	11%	11%	5%	2%	9%
Once a year	0%	4%	14%	3%	7%	0%	7%	5%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
In a year, how much time does your organization allocate to formal training (in-person, instructor-led, or computer-based)?								
30 minutes or less	29%	5%	3%	6%	4%	4%	12%	9%
31-59 minutes	29%	37%	29%	29%	21%	32%	25%	29%
1-2 hours	24%	31%	38%	53%	35%	38%	37%	37%
2-3 hours	6%	14%	17%	10%	19%	10%	12%	12%
More than 3 hours	12%	13%	13%	2%	21%	16%	14%	13%
Since implementing your current security awareness training program, has your organization experienced lower phishing failure rates?								
Yes	78%	74%	69%	55%	72%	68%	84%	72%
About the same	18%	20%	30%	35%	26%	26%	13%	24%
No, they are higher	4%	4%	0%	6%	2%	5%	1%	3%
I'm not sure	0%	2%	1%	4%	0%	1%	2%	1%
Does your organization's threat intelligence influence your security awareness training decisions? (Multiple responses allowed.)								
Yes, we use phishing tests that mimic trending threats	56%	61%	43%	48%	45%	51%	67%	53%
Yes, we train on specific topics that relate to attacks we are facing	68%	64%	55%	50%	71%	58%	56%	60%
Yes, we train specific individuals we know are being targeted	40%	39%	44%	40%	45%	53%	43%	43%
No, we do not adjust our training according to threat intelligence	2%	5%	8%	14%	4%	6%	5%	6%
N/A (I don't have access to my organization's threat intelligence)	0%	0%	2%	4%	0%	1%	0%	1%
As a product of the pandemic, are more than 50% of your organization's employees working remotely?								
Yes, full-time remote	50%	26%	23%	16%	24%	49%	47%	34%
Yes, part-time remote, part-time on site	38%	49%	57%	62%	56%	32%	35%	47%
They were but aren't any longer	10%	17%	13%	14%	16%	15%	16%	14%
No, our employees were not impacted this way by the pandemic	0%	5%	5%	6%	3%	2%	1%	3%
More than 50% of our employees always work remotely	2%	3%	2%	2%	1%	2%	1%	2%
Excluding educational training, do employees in your organization face discipline/punishment (i.e., a consequence model) for interacting with real or simulated phishing attacks?								
Yes	78%	53%	42%	44%	29%	77%	60%	55%
No, it's not a fit for our culture	14%	28%	37%	24%	39%	5%	21%	24%
No, but we're considering this approach	4%	12%	15%	18%	22%	11%	15%	14%
No, but we will implement this soon	2%	4%	4%	6%	9%	4%	2%	4%
No, I don't know what this is	0%	0%	2%	8%	0%	1%	2%	2%
I'm not sure	2%	3%	0%	0%	1%	2%	0%	1%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Excluding educational training, what are the consequences employees face? (Multiple answers allowed.)								
Counseling from manager	56%	57%	55%	59%	48%	73%	73%	60%
Counseling from the infosec team	59%	66%	64%	68%	52%	51%	50%	59%
Impact to yearly performance reviews	67%	47%	45%	45%	34%	65%	63%	52%
Disciplinary actions (like a written warning) enforced by HR	56%	53%	50%	41%	28%	48%	42%	45%
Removal of access to systems	46%	30%	31%	27%	34%	53%	25%	35%
Monetary penalty	31%	30%	21%	5%	31%	42%	25%	26%
Termination	15%	11%	10%	9%	28%	29%	25%	18%
I'm not sure	3%	0%	2%	0%	0%	0%	2%	1%
For simulated phishing attacks: What is the FIRST action that determines whether an employee faces a consequence?								
Failing 1 phishing test	8%	6%	26%	23%	17%	13%	20%	16%
Failing 2 phishing tests	28%	49%	26%	32%	45%	23%	28%	33%
Failing 3 phishing tests	31%	19%	29%	27%	17%	26%	20%	24%
Failing 4 phishing tests	13%	21%	5%	14%	4%	12%	10%	11%
Failing 5 phishing tests	8%	2%	2%	0%	4%	12%	8%	5%
Failing more than 5 phishing tests	8%	2%	5%	0%	10%	10%	7%	6%
Failing phishing tests does not result in a consequence	0%	0%	5%	4%	0%	3%	5%	3%
I'm not sure	4%	1%	2%	0%	3%	1%	2%	2%
For real-world phishing attacks: What is the FIRST action that determines whether an employee faces a consequence?								
Falling for 1 real-world phishing attack	10%	2%	31%	32%	28%	17%	38%	23%
Falling for 2 real-world phishing attacks	36%	56%	34%	41%	35%	21%	27%	35%
Falling for 3 real-world phishing attacks	31%	23%	24%	18%	24%	31%	8%	23%
Falling for 4 real-world phishing attacks	10%	11%	2%	0%	0%	19%	13%	8%
Falling for 5 real-world phishing attacks	8%	6%	5%	0%	3%	5%	5%	4%
Falling for more than 5 phishing attacks	0%	0%	0%	4%	10%	7%	5%	4%
Falling for real-world phishing attacks does not result in a consequence	0%	0%	2%	5%	0%	0%	2%	1%
I'm not sure	5%	2%	2%	0%	0%	0%	2%	2%
How did the implementation of a consequence module correlate to the launch of your security awareness training program?								
Launched at the same time as security awareness training	57%	41%	33%	27%	45%	57%	57%	45%
Launched 6 to 12 months after security awareness training	31%	40%	38%	46%	41%	24%	27%	35%
Launched 1 to 2 years after security awareness training	5%	11%	22%	18%	10%	17%	13%	14%
Launched more than 2 years after security awareness training	8%	8%	5%	9%	4%	1%	3%	5%
Launched a consequence model without having a training program	0%	0%	0%	0%	0%	1%	0%	<1%
I'm not sure	0%	0%	2%	0%	0%	0%	0%	<1%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
How has the use of a consequence model impacted employee awareness of phishing?								
Awareness has increased	61%	68%	64%	91%	65%	71%	70%	70%
Awareness is about the same	31%	28%	31%	9%	28%	25%	27%	25%
Awareness has decreased	8%	4%	2%	0%	7%	4%	3%	4%
I'm not sure	0%	0%	3%	0%	0%	0%	0%	<1%
What best describes how employees have responded to these consequences overall?								
For the most part, people seem to understand and accept the approach	33%	40%	22%	32%	62%	40%	30%	37%
The response has been mixed	23%	17%	24%	32%	0%	29%	25%	21%
There have been many complaints, but we're working to resolve concerns	21%	26%	38%	9%	10%	10%	22%	20%
There have been many complaints, but we firmly believe it's the right approach	21%	17%	14%	27%	28%	21%	22%	21%
I'm not sure	2%	0%	2%	0%	0%	0%	1%	1%
Cybersecurity for your organization is:								
High priority	70%	65%	65%	44%	74%	67%	69%	65%
Priority	24%	32%	25%	46%	20%	22%	30%	28%
Somewhat a priority	4%	3%	7%	6%	5%	9%	1%	5%
Low priority	2%	0%	3%	4%	1%	2%	0%	2%
Not a priority	0%	0%	0%	0%	0%	0%	0%	0%
In your organization, cybersecurity for the average employee is:								
High priority	66%	44%	48%	32%	53%	56%	53%	50%
Priority	26%	43%	43%	46%	41%	34%	39%	39%
Somewhat a priority	4%	13%	7%	16%	6%	7%	5%	8%
Low priority	4%	0%	1%	6%	0%	2%	3%	2%
Not a priority	0%	0%	1%	0%	0%	1%	0%	<1%
Organizations often talk about building a culture of security. How do you feel about the security culture at your organization?								
Positive	90%	88%	80%	76%	89%	84%	86%	85%
Neutral	8%	12%	18%	24%	11%	15%	13%	14%
Negative	2%	0%	2%	0%	0%	1%	1%	1%

B. Working adult survey: country-by-country breakdown

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
What is phishing?								
Correct answer	59%	47%	54%	52%	52%	62%	49%	53%
Incorrect answer	21%	29%	29%	23%	29%	28%	32%	27%
I don't know	20%	24%	17%	25%	19%	10%	19%	20%
What is ransomware?								
Correct answer	49%	27%	26%	31%	36%	47%	38%	36%
Incorrect answer	30%	32%	34%	28%	21%	37%	39%	33%
I don't know	21%	41%	40%	41%	33%	16%	23%	31%
What is malware?								
Correct answer	69%	63%	56%	52%	73%	71%	61%	63%
Incorrect answer	17%	21%	26%	10%	17%	21%	26%	20%
I don't know	14%	16%	18%	38%	10%	8%	13%	17%
What is smishing?								
Correct answer	23%	24%	25%	17%	27%	24%	24%	23%
Incorrect answer	26%	27%	34%	27%	30%	41%	37%	32%
I don't know	51%	49%	41%	56%	43%	35%	39%	45%
What is vishing?								
Correct answer	26%	17%	24%	22%	26%	27%	25%	24%
Incorrect answer	23%	29%	39%	22%	31%	35%	38%	31%
I don't know	51%	54%	37%	56%	43%	38%	37%	45%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Understanding of email								
An email can appear to come from someone other than the person or company who sent it.								
True	79%	71%	81%	68%	76%	82%	81%	77%
False	11%	14%	9%	13%	14%	11%	11%	12%
I'm not sure	10%	15%	10%	19%	10%	7%	8%	11%
If an email includes logos and contact information from a familiar brand, I know it's safe.								
True	32%	28%	32%	19%	34%	28%	42%	31%
False	52%	53%	49%	63%	48%	59%	42%	52%
I'm not sure	16%	19%	19%	18%	18%	13%	16%	17%
Email attachments can be infected with software that can damage my computer.								
True	84%	78%	85%	78%	83%	83%	79%	81%
False	9%	11%	7%	10%	10%	10%	12%	10%
I'm not sure	7%	11%	8%	12%	7%	7%	9%	9%
All internal emails (like those I exchange with coworkers) are safe.								
True	48%	52%	54%	21%	59%	48%	50%	47%
False	36%	29%	29%	59%	28%	39%	34%	36%
I'm not sure	16%	19%	17%	20%	13%	13%	16%	16%
If a link in an email takes me to a file that's stored in a reputable cloud service (like Office 365, Google Drive, or Dropbox), I know that file is safe.								
True	28%	35%	32%	27%	44%	29%	46%	35%
False	42%	34%	35%	42%	30%	46%	32%	37%
I'm not sure	30%	31%	33%	31%	26%	25%	22%	28%
If I have exchanged multiple emails with someone, I know that is a safe contact.								
True	45%	52%	49%	28%	57%	46%	50%	47%
False	40%	33%	31%	49%	31%	42%	34%	37%
I'm not sure	15%	15%	20%	23%	12%	12%	16%	16%
I should be cautious of any unexpected emails.								
True	88%	81%	85%	89%	90%	88%	85%	86%
False	5%	13%	7%	6%	5%	8%	9%	8%
I'm not sure	7%	6%	8%	5%	5%	4%	6%	6%
My organization's security tools will automatically block all suspicious/dangerous emails.								
True	49%	46%	55%	43%	57%	45%	49%	49%
False	35%	32%	23%	28%	23%	38%	32%	30%
I'm not sure	16%	22%	22%	29%	20%	17%	18%	21%
My personal email provider will automatically block all suspicious dangerous emails.								
True	38%	37%	49%	43%	49%	36%	45%	43%
False	47%	39%	35%	31%	31%	49%	38%	38%
I'm not sure	15%	24%	16%	26%	20%	15%	17%	19%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Has the pandemic impacted where you currently work?								
Yes, now work remotely full time	30%	11%	12%	10%	16%	26%	33%	20%
Yes, now work remotely part time and on site part time	27%	21%	25%	23%	27%	30%	16%	24%
Yes, now work on site full time	10%	13%	14%	24%	10%	14%	15%	14%
I was working remotely, but I don't anymore	3%	8%	4%	6%	12%	4%	7%	6%
My work location hasn't changed	30%	47%	45%	37%	35%	26%	29%	36%
Which of the following applies to your home Wi-Fi network? (Multiple responses allowed.)								
I have changed the default name of my wireless network	23%	22%	37%	16%	28%	21%	34%	26%
My wireless network is password protected	61%	50%	69%	44%	69%	68%	61%	60%
I have changed my wireless network's default password	22%	21%	34%	22%	28%	19%	32%	26%
I have changed my wireless router's default password	23%	10%	32%	19%	22%	20%	24%	22%
I have checked for software updates to my wireless router	18%	10%	23%	19%	14%	16%	24%	18%
I currently haven't done anything like this for my Wi-Fi network	8%	15%	6%	25%	8%	8%	7%	11%
I don't have a home W-Fi network	4%	3%	2%	6%	1%	1%	3%	3%
I'm not sure	9%	11%	3%	9%	1%	5%	5%	6%
You have not taken some/all of the Wi-Fi security actions noted. Why?								
I am not worried about my home Wi-Fi network	65%	64%	65%	57%	54%	62%	68%	62%
I don't know how to change these settings	30%	34%	31%	38%	41%	36%	29%	34%
Other, please specify (see the body of the report for common write-in reasons)	5%	2%	4%	5%	5%	2%	3%	4%
Which of these PERSONAL devices do you use for work-related purposes? (Multiple responses allowed.)								
Phone/smartphone	56%	43%	50%	54%	59%	50%	64%	54%
Laptop computer	39%	31%	34%	37%	42%	33%	41%	37%
Desktop computer	25%	21%	26%	20%	27%	20%	27%	24%
Tablet	20%	17%	24%	17%	26%	21%	30%	22%
None of these	23%	32%	29%	31%	20%	29%	19%	26%
Which of these EMPLOYER-ISSUED devices do you use for work? (Multiple responses allowed.)								
Phone/smartphone	31%	38%	40%	36%	46%	36%	45%	39%
Laptop computer	45%	36%	40%	42%	41%	51%	43%	43%
Desktop computer	29%	27%	33%	25%	31%	29%	34%	30%
Tablet	18%	15%	22%	14%	22%	22%	29%	20%
None of these	28%	29%	27%	32%	26%	20%	24%	27%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Which of these personal activities you do on your employer-issued device? (Multiple responses allowed.)								
Check/respond to personal email	50%	39%	32%	37%	51%	40%	47%	42%
View/post to social media	26%	23%	22%	29%	35%	26%	39%	29%
Stream media (music, videos)	26%	24%	24%	20%	35%	25%	42%	28%
Shop online	35%	30%	33%	20%	39%	31%	40%	32%
Read news stories	44%	34%	36%	44%	48%	38%	36%	40%
Research (new products, travel)	41%	30%	31%	42%	41%	34%	38%	37%
Play games	19%	27%	27%	11%	25%	22%	34%	23%
None of these	21%	22%	28%	25%	20%	24%	17%	23%
Which of these activities do you allow friends/family to do on your employer-issued device? (Multiple responses allowed.)								
Check/respond to email	19%	18%	22%	20%	34%	20%	30%	23%
View/post to social media	13%	14%	17%	18%	29%	16%	26%	19%
Stream media (music, videos)	19%	14%	18%	13%	28%	16%	28%	20%
Shop online	22%	19%	27%	13%	36%	20%	34%	24%
Read news stories	20%	18%	20%	25%	38%	19%	24%	23%
Research/complete homework	19%	19%	15%	24%	26%	18%	23%	21%
Play games	14%	19%	20%	10%	22%	19%	26%	19%
Not sure how they use my device	4%	5%	6%	3%	4%	4%	3%	4%
None of these	52%	44%	44%	51%	31%	49%	39%	44%
How do you currently manage your passwords for your PERSONAL online accounts?								
Logins saved in a browser	25%	22%	19%	31%	23%	21%	36%	25%
Use password manager	20%	15%	20%	17%	21%	26%	23%	20%
Manually enter a unique password for every account	27%	32%	34%	16%	30%	29%	22%	27%
Manually enter and rotate 1 to 4 passwords across accounts	14%	13%	14%	16%	14%	14%	10%	14%
Manually enter and rotate 5 to 10 passwords across accounts	8%	8%	7%	8%	7%	5%	4%	7%
Manually enter and rotate more than 10 passwords	6%	10%	6%	12%	5%	5%	5%	7%
How do you currently manage your passwords for your WORK-RELATED online accounts?								
Logins saved in a browser	20%	22%	16%	27%	26%	16%	33%	23%
Use password manager	20%	18%	20%	19%	22%	27%	21%	21%
Manually enter a unique password for every account	32%	32%	38%	19%	28%	33%	27%	30%
Manually enter and rotate 1 to 4 passwords across accounts	14%	14%	14%	16%	16%	13%	8%	14%
Manually enter and rotate 5 to 10 passwords across accounts	5%	7%	7%	7%	5%	6%	6%	6%
Manually enter and rotate more than 10 passwords	9%	7%	5%	12%	3%	5%	5%	6%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
In 2021, did you receive any of the following? (Multiple responses allowed.)								
An email from a sender who impersonated someone I know	17%	20%	20%	13%	19%	17%	22%	18%
An email from a sender who impersonated another person/organization	33%	31%	25%	27%	32%	29%	26%	29%
An email that impersonated your current organization	16%	12%	18%	12%	14%	15%	18%	15%
An email that contained an untrustworthy attachment	44%	32%	40%	33%	49%	35%	39%	39%
Suspicious text messages on your phone/smartphone	51%	36%	33%	24%	39%	42%	41%	38%
Suspicious messages on social media	24%	24%	24%	22%	34%	24%	33%	27%
Suspicious messages in a work-related messaging app	12%	17%	14%	17%	20%	14%	19%	16%
Suspicious phone calls or voicemails	53%	29%	32%	23%	39%	34%	46%	37%
No, I didn't receive any of these	13%	18%	17%	29%	9%	15%	15%	17%
In 2021, did you do any of the following? (Multiple responses allowed.)								
Clicked a link in an email that led to a fake website	16%	18%	16%	10%	23%	20%	26%	19%
Accidentally compromised an account password	5%	10%	10%	7%	14%	12%	17%	11%
Accidentally downloaded malware from a dangerous email or website	9%	14%	14%	7%	18%	11%	19%	13%
Clicked a link in a direct message that downloaded malware	9%	14%	16%	10%	17%	12%	22%	14%
Gave personal information to a scammer or impostor	11%	13%	13%	6%	11%	12%	18%	12%
No, I did not do any of these	69%	54%	56%	75%	50%	58%	45%	58%
In 2021, did you experience any of the following? (Multiple responses allowed.)								
Some hacked into one or more of your social media accounts	8%	13%	17%	7%	13%	14%	22%	14%
Someone duplicated one or more social media profiles and tried to impersonate you	8%	13%	13%	9%	14%	10%	18%	12%
Identity theft	7%	8%	13%	8%	10%	10%	19%	11%
A ransomware infection that led to paying money to regain access to personal files/device	8%	9%	10%	6%	11%	11%	17%	10%
Financial loss due to a fraud committed against you	11%	15%	10%	6%	12%	12%	18%	12%
No, I did not experience any of these	73%	61%	59%	76%	62%	64%	48%	63%

	Australia	France	Germany	Japan	Spain	UK	U.S.	Global Average
Cybersecurity for my organization is:								
Not a priority	2%	4%	4%	5%	2%	2%	5%	3%
Low priority	5%	9%	5%	10%	4%	8%	7%	7%
Somewhat a priority	18%	18%	14%	21%	18%	19%	14%	18%
Priority	25%	30%	19%	25%	21%	21%	21%	23%
High priority	44%	31%	53%	21%	53%	46%	45%	42%
I'm not sure	6%	8%	5%	18%	2%	4%	8%	7%
Cybersecurity for me is:								
Not a priority	1%	3%	3%	3%	<1%	1%	4%	2%
Low priority	5%	7%	3%	9%	3%	7%	7%	6%
Somewhat a priority	21%	19%	14%	24%	17%	21%	17%	19%
Priority	30%	38%	26%	28%	26%	31%	27%	29%
High priority	40%	30%	52%	22%	53%	39%	42%	40%
I'm not sure	3%	3%	2%	14%	<1%	1%	3%	4%
You mentioned cybersecurity is a low priority or not a priority for you. Why?								
My organization/IT team will take care of any security needs or mistakes I make	10%	14%	33%	17%	12%	18%	27%	19%
I don't interact with devices often enough to be worried	28%	27%	17%	24%	12%	21%	24%	22%
I've never experienced any cybersecurity issues, so I don't need to prioritize it	31%	24%	33%	31%	44%	32%	27%	32%
My job isn't high-level enough for me to be a target for cyberattackers	31%	35%	17%	25%	32%	29%	22%	27%
Other	0%	0%	0%	3%	0%	0%	0%	<1%
If you have a cybersecurity issue with a work device, how confident are you that your IT team can identify and address that issue without your involvement?								
Not at all confident	3%	11%	4%	11%	4%	3%	4%	6%
Not confident	6%	17%	10%	17%	17%	11%	7%	12%
Neutral	24%	32%	36%	44%	23%	21%	26%	30%
Confident	45%	26%	36%	23%	47%	47%	37%	37%
Extremely confident	22%	14%	14%	5%	9%	18%	26%	15%

C. Industry failure rates by simulated phishing template style

As was the case last year, users across all industries struggled to identify and avoid attachment-based phishing tests in 2021. But even the highest average failure rates—including mining’s 36%—didn’t have much influence on overall industry failure rates. It’s further proof of something discussed in Section 4: that attachment-based tests are not frequently used in many organizations.

As we cautioned in the main report, an overall average failure rate is a general view; it cannot reveal more specific areas of risk. Susceptibility to attachment-based phishing attacks could be a hidden issue for many organizations. Regular testing and training about these types of threats could prove beneficial.

Average Failure Rate

Industry	Link-Based Tests	Attachment-Based Tests	Data Entry-Based Tests	Overall
Aerospace	11%	18%	4%	12%
Agriculture	13%	18%	7%	12%
Automotive	9%	15%	3%	8%
Business Services	12%	29%	4%	12%
Construction	12%	21%	5%	12%
Consulting	14%	25%	6%	14%
Education	11%	17%	4%	10%
Electronics	9%	17%	3%	8%
Energy/Utilities	10%	20%	4%	10%
Engineering	8%	18%	4%	8%
Entertainment/Media	10%	19%	5%	9%
Financial Services	10%	17%	3%	9%
Food & Beverages	13%	17%	3%	11%
Government	12%	14%	4%	11%
Healthcare	10%	26%	4%	10%
Hospitality/Leisure	9%	29%	4%	10%
Insurance	13%	20%	4%	11%
Legal	12%	18%	6%	11%
Manufacturing	11%	20%	4%	10%
Mining	11%	36%	5%	12%
Real Estate	11%	23%	6%	12%
Retail	12%	23%	5%	11%
Technology	14%	25%	4%	12%
Telecommunications	13%	21%	7%	12%
Transportation	14%	15%	5%	11%

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Test your current security awareness program with our free People Risk Assessment. You'll get visibility into your users' cybersecurity knowledge and vulnerability. It covers critical cybersecurity topics such as phishing, visit passwords, data protection and more. proofpoint.com/us/people-risk-assessment

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