PULSE SURVEY

Managing the Explosion of Digital Tools:

Additional Employee Applications Can Cause Rather Than Solve Problems

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As the pandemic forced employees to work from home, the number of digital tools and applications they use increased—and, in many cases, significantly so. Now that companies are developing strategies around their new workforce models, they are coming to grips with managing the diverse ecosystem of videoconferencing, communication, collaboration, storage, and customer relationship management (CRM) systems; customer-facing applications; and other digital tools that were borne of the pandemic. And they are determining how to provide employees with the capabilities they need for success going forward.

A November 2021 Harvard Business Review Analytic Services survey of 526 executives from Harvard Business Review's audience found that nearly half (48%) believe the explosion of digital tools is actually hampering productivity. **FIGURE 1** This impact can come in many forms, from employees struggling to find the information they need to employees frittering away time switching between applications and employees feeling burned out by the relentless, always-on connectivity of all these tools.

"A lot of organizations had never worked remotely for sustained periods before the pandemic," says Gary Walker, founder of Ready for Remote, an educational platform, and digital director of 22 North and Distribute, an international management consulting firm specializing in workplace mobility. "In the panic of dealing with the pandemic, they threw technology at the problem. Some organizations have rethought their approach, but some haven't. They've got all these spinning plates, with lots of shadow IT [the use of hardware and software by departments without the explicit approval of the IT

HIGHLIGHTS

78% of survey respondents say workers are **using more digital tools than before the pandemic**, with 24% saying they are using "significantly more" tools.

66% agree that getting a **complete understanding of all the digital applications and tools being used by employees**, and getting them under control, is a priority.

48% believe employees' **productivity is negatively impacted** because of the number and variety of applications and tools in use at their organization.

Due to rounding, some figures in this report may not add up to 100%.

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> "Digital resilience needs to become part of the DNA of every organization. But you cannot become digitally resilient unless you are providing employees with the relevant tools in a customized and personalized way," says Holly Muscolino, research vice president, content strategies and the future of work, for IDC.

department] and security issues. But the main consequence of all these tools is the employee experience is really suffering."

Despite companies' awareness of issues around productivity, the survey identified a number of significant disconnects in the way organizations are thinking about and dealing with their vast ecosystem of employee tools and applications. While only a quarter of respondents say they feel these tools have a negative financial impact on their organizations, few respondents (23%) report being able to track the financial impact at all.

"The companies that say they don't know the cost of their digital tools, and it doesn't matter, are ostriches with their head in the hole," says Holly Muscolino, research vice president, content strategies and the future of work, for International Data Corp. (IDC), a technology market research and advisory firm in Needham, Mass. "These companies are going to end

up the laggards behind their competitors who are aware and prepared for evaluating and dealing with the cost of their digital tools."

Most companies realize they must develop a deeper understanding of their ecosystem of digital tools. Thus, gaining a complete understanding of these tools, and getting them under control, is now a priority for two-thirds of respondents' organizations. Most companies also understand that they will have a hybrid or distributed workforce for the foreseeable future. Providing employees with the right technology, and the right infrastructure to support how employees use that technology, has emerged as a competitive advantage.

Indeed, Muscolino's research indicates that companies that are better prepared to support a hybrid working model, such as by identifying the technology that employees currently have and what they need, are already seeing better business outcomes. Companies need to create solutions and processes around the technology to solve business problems. "Ultimately, the ability to be highly adaptable, and to support the many different flavors of hybrid work we will see in the future, is going to be a competitive advantage to any organization," she says. "Digital resilience needs to become part of the DNA of every organization. But you cannot become digitally resilient unless you are providing employees with the relevant tools in a customized and personalized way."

The evolving workforce models and a thorough understanding of an organization's digital tools and applications go hand in hand, which requires that business priorities and goals be aligned between IT and other parts of the business. This paper explores the issues companies are now confronting with their employees' use of digital tools and the steps they must take to get those tools under control and provide employees with the capabilities they need for the future in a secure, efficient manner.

More Tools, More Effort, Less Productivity

As the use of digital tools and applications has risen since the onset of the pandemic, concerns about employee productivity and employee dissatisfaction with those tools have increased.
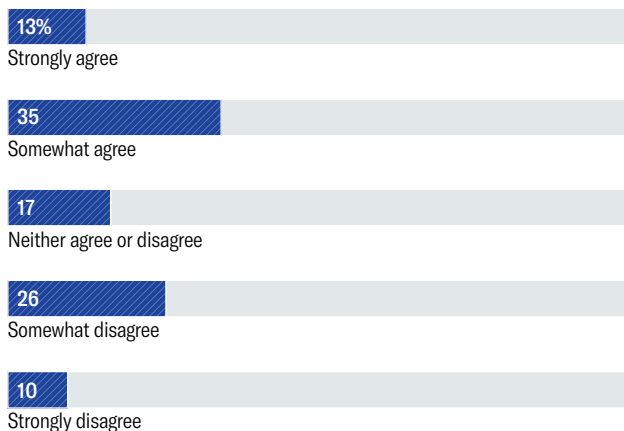
Two-thirds of survey respondents (65%) say the typical worker at their organization uses at least six digital applications

FIGURE 1

Productivity Drain

Employees may not be benefiting from adding many more digital tools

Percentage agreeing or disagreeing with the statement, "Employees' productivity is negatively impacted because of the number and variety of applications and tools in use at our organization."

13%	Strongly agree
35	Somewhat agree
17	Neither agree or disagree
26	Somewhat disagree
10	Strongly disagree

Source: Harvard Business Review Analytic Services survey, November 2021

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and tools on average per day, with 22% saying workers use at least 11 digital tools on average per day. More than three-quarters of survey respondents (78%) say workers are using more digital tools than before the pandemic, with 24% saying they are using "significantly more" tools. **FIGURE 2**

Forty-eight percent of respondents report that employee productivity is negatively impacted because of the number and variety of applications and tools in use at their organization. About a third (35%) believe that employee productivity has not been negatively impacted.

These sentiments could reflect differences in industries or companies. However, Iain Fisher, director and global future of work lead for ISG, a global technology research and advisory firm, believes many companies don't have a firm understanding of how digital tools drive productivity and, more importantly, what productivity actually means.

"Many people believe that workers were more productive at home, but they are confusing the words 'productivity' and 'production,'" he says. "By definition, productivity is doing more in the same amount of time, but that is not what happened during the pandemic."

Fisher points out that research indicates people's actual working time swelled from an average of 6.5 hours per day before the pandemic to around 9.5 hours per day during the pandemic. "People are producing more because the volume of

> "People are producing more because the volume of work has increased, but the result is burnout, mental fatigue, mental health issues, and the loss of connection," says Iain Fisher, ISG's director and global future of work lead.

work has increased, but the result is burnout, mental fatigue, mental health issues, and the loss of connection," he says.
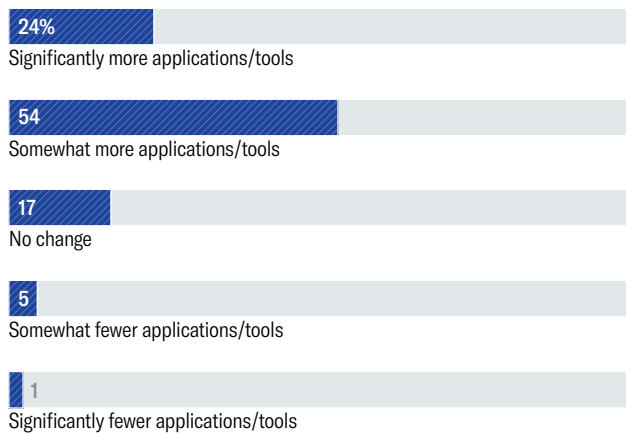
While their "production" increased as a result of their logging more hours, they sacrificed things like "water cooler moments," where they could stop by a colleague's desk and chat, which can lead to unexpected ideas, he explains. In the current environment, workers can no longer have a simple and short conversation. Rather, they now need to utilize multiple platforms to schedule and hold a longer meeting, which must last at least 15 or 30 minutes.

Uncertainty About Financial Impact of Tools

Even as companies look to get a better handle on employees' use of tools, executives generally feel that they have good visibility into the tools that workers are using. However, that apparent clarity may obscure the fact that companies are fuzzy about many aspects of how workers are using those tools and the impact those tools are having on organizations.

Over half (57%) of survey respondents say their organizations have "high" or "complete" visibility into the digital tools and applications that employees are using. An additional 29% believe they have moderate visibility (netting out to 86% reporting at least moderate visibility). Only 8% say they have "little" or "no" visibility into the use of the digital tools. On the surface, these results might suggest that respondents' companies have a good handle on their digital tools. Elsewhere, though, 66% of respondents agree that getting a complete understanding of all the digital applications and tools being used by employees, and getting them under control, is a priority for their organization. Perhaps having a high amount of visibility isn't yet enough to get a handle on all these applications and tools.

Even as the number and variety of digital tools expand, companies are uncertain about the financial impact of these

FIGURE 2

Application Explosion

Use of digital tools at many organizations has swelled during the pandemic

Compared to before the pandemic, to what extent has the total number of digital tools and applications used by your organization's employees today changed, if at all?

24%	Significantly more applications/tools
54	Somewhat more applications/tools
17	No change
5	Somewhat fewer applications/tools
1	Significantly fewer applications/tools

Source: Harvard Business Review Analytic Services survey, November 2021

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> "Because most tools are not integrated, they provide a poor user experience and make it difficult to find the information you need," says Gary Walker, founder of Ready for Remote.

point solutions. On the surface, companies do not seem overly concerned about this issue; only 23% of respondents feel the ecosystem of individual applications and tools used by employees has a negative financial impact on their organization. The rest either do not think this is the case or are unsure, and a small group (3%) say they do not use multiple tools.

"It's not just a matter of pure numbers," Distribute's Walker says. "There are a lot of hidden costs around the impact of the employee experience, time, and productivity."

Indeed, other responses demonstrate cracks in the confidence that the tools don't have a financial impact. Less than a quarter (22%) say their organization is able to

estimate the total financial impact of all the individual digital applications and tools used by employees very well or extremely well; the rest are either weaker in their ability to calculate this or are unsure if they do so at all. **FIGURE 3**

The confusion about the financial impact of digital tools is also demonstrated by the finding that 43% believe their organization won't understand the true cost of their digital ecosystem of individual applications and tools used by employees until they settle on a post-pandemic business process and workforce model.
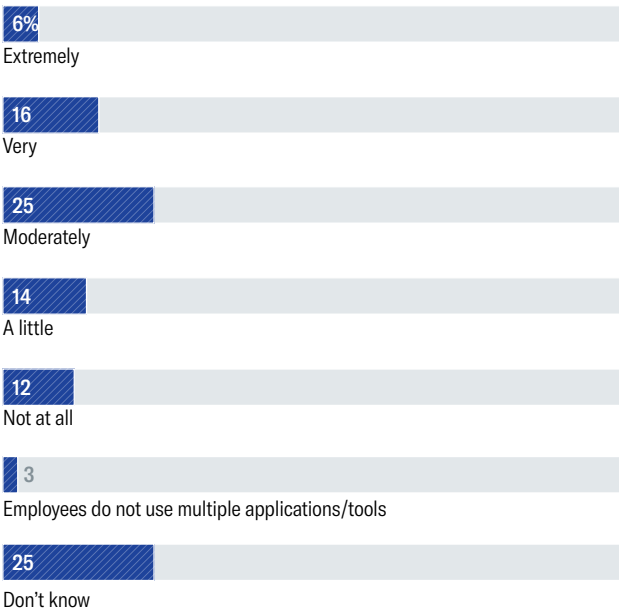
This confusion is understandable, in part because digital tools can have significant financial implications that aren't immediately apparent. "We've worked with a lot of organizations that have hundreds of tools, which blew my mind, because lots of them do the same thing," Walker says. "Sometimes companies will focus on the cost per seat or the cost per license of these tools. However, there is a much higher hidden cost around the impact of the employee experience, the lack of consistency of where they go for information, and the drain on time and productivity from using multiple tools." The potential of data breaches, caused by the use of unsanctioned tools, could be another significant cost that companies often don't account for.

Tools Should Seamlessly Interact

As companies deal with the explosion of digital tools, they feel it's important for those tools to seamlessly interact. However, currently, many tools don't, and that's become a growing concern for organizations. "Because most tools are not integrated, they provide a poor user experience and make it difficult to find the information you need," Walker says.

Having to email a document to a colleague, rather than just tagging the colleague in the document, is a minor irritant when done once or twice. When such tasks are required repeatedly, they can exasperate workers. The lack of integrated automation tools that can accomplish repetitive tasks can frustrate the entire workforce over time.

Survey respondents echo this point. The vast majority (94%) agree that it's important that the digital applications and tools employees use seamlessly interact with one another. Yet only 61% somewhat or strongly agree that the tools workers at their organizations use actually do seamlessly interact. This disconnect is even starker among those who "strongly agree"

FIGURE 3

Confused About App Costs

The financial impact of digital tools is hard to determine

How well is your organization able to estimate the total financial impact of all the individual digital applications and tools (i.e., point solutions) used by employees?

6%
Extremely

16
Very

25
Moderately

14
A little

12
Not at all

3
Employees do not use multiple applications/tools

25
Don't know

Source: Harvard Business Review Analytic Services survey, November 2021

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tools should and do interact—73% strongly agree they should versus 18% strongly agree that they do.

In a survey Walker conducted for one organization, he found that employees lost five workdays per year just searching for the information they need to do their job. While this is not related solely to the explosion of digital tools, having a variety of tools, some of which perform the same task, can make information more difficult to find.
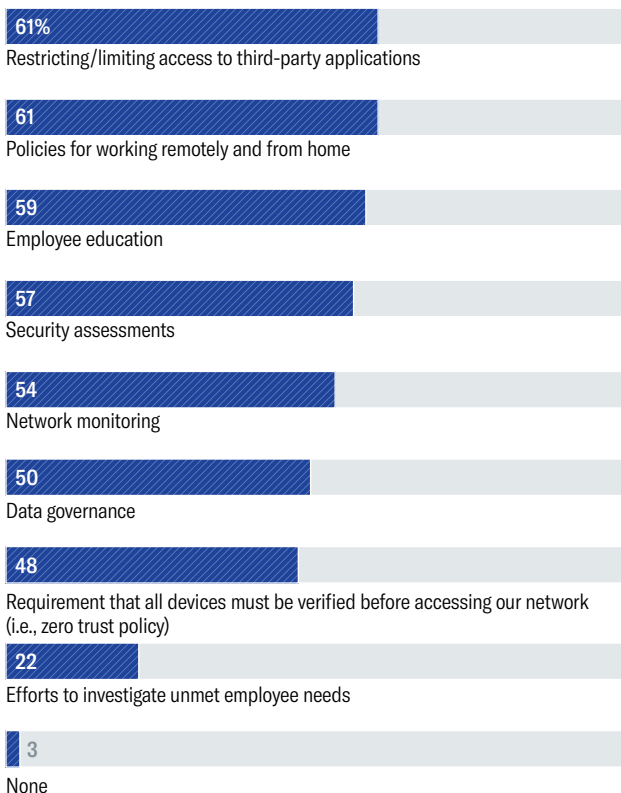
Integrating those tools can bring eye-opening insights, though. He points to a U.K. company that was about to spend a few million pounds on a new learning management system, with the idea the system would whet employees' curiosity and encourage them to explore the system's offerings. Upon looking into it, the IT team realized employees used the learning system only for mandatory training.

FIGURE 4

Battling Shadow IT

Companies use many strategies to deal with unsanctioned apps

Which of the following items does your organization currently have in place to address shadow IT concerns? [SELECT ALL THAT APPLY]

61%	Restricting/limiting access to third-party applications
61	Policies for working remotely and from home
59	Employee education
57	Security assessments
54	Network monitoring
50	Data governance
48	Requirement that all devices must be verified before accessing our network (i.e., zero trust policy)
22	Efforts to investigate unmet employee needs
3	None

Source: Harvard Business Review Analytic Services survey, November 2021

Instead, the company created an integrated employee experience platform that could integrate existing tools, giving employees an easy and seamless way to find educational material at the exact moment they had an issue to deal with. "We were able to do that at a fraction of the cost," Walker says. "But that wouldn't have happened if the team hadn't looked at the core tools they already had in place."

Connecting IT, Workers, and Digital Tools

The explosion of technology adoption comes in tandem with employees being dissatisfied with digital tools and the support needed for them, both of which are provided by IT.

"During the pandemic, the biggest challenge that companies have had was providing effective IT support to remote locations," IDC's Muscolino says. "The other challenges were employees not being able to find the data they need or find who they needed to talk to in order to get information. Anything that impedes the ability to get information is going to cause dissatisfaction."

Forty-four percent of survey respondents agree that employees feel that IT does not adequately understand their technology needs and does not provide them with adequate tools or support. More than a third of respondents (39%) take this sentiment a step further, saying employees feel they must use tools that aren't sanctioned by IT to get their work done. "People don't use their own tools because they want to be rogue," Walker says. "They just want to get the work done."

This reality may also reflect the earlier observation that having visibility into tools is not synonymous with having a handle on them. This point is underscored by the concern that companies have about shadow IT. Respondents report that their organizations are using a variety of strategies to combat shadow IT. Restricting/limiting access to third-party applications and having policies for working remotely and from home topped the list of survey responses, both cited by 61% of respondents as items they currently have in place to address shadow IT concerns. **FIGURE 4** The following strategies are named by more than half of respondents: employee education (59%), security assessments (57%), and network monitoring (54%).

The least-cited (22%) solution respondents say their organizations have in place to reduce shadow IT is "efforts to investigate unmet employee needs," which is unsurprising given employees' dissatisfaction with the tools provided by IT.

Gaining a Deeper Understanding of Employee Needs

ISG's Fisher believes that companies must develop processes for gaining a deeper understanding of workers' needs in order to provide them with the right digital tools. He says that

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companies must focus on the "personas" of different worker types—such as remote and office-based, or specific roles like HR specialist, contact center agent, or finance specialist—and develop software packages customized to their needs. "There are going to be roles in the near future, something like a digital productivity manager, who will determine what applications work best for different personas, rather than just deploying technology wholesale."

Fisher adds that it will become increasingly important to design digital solutions that deliver enhanced customer and employee experiences while also addressing compliance requirements, such as those for stock traders. He notes that having a broker work at home, where people who share the space can walk past their screens, has been seen as a possible insider trading event, which might require added security or artificial-intelligence–enhanced tools. "It is the mass customization of wholesale platforms that needs to occur across personas that will drive secure and increased productivity," he says.

This same concept of gaining a deeper understanding of employee needs can be applied to IT and security, which are becoming synonymous at many companies.

Experts say that organizations can boost security, improve productivity, and enhance the employee experience by having IT work with employees to understand what digital tools they want and need. However, given how overwhelmed IT departments are, this may also require recognition from upper-level executives that IT needs the authority and ability to research employee needs.

If IT and security are empowered in this way and it's made clear they are working toward understanding employees and meeting their needs, it could go a long way toward eliminating some of the issues that lead to shadow IT. Today, workers often prefer to ask forgiveness rather than permission. If IT and the workforce have more of a partnership, the issues can be headed off.

"Security teams are often seen as the enemy," Walker says. "You need all parties to come to the table with an open mind. You need to create a playground where emerging technologies can be experimented with and [brought] into the organization in a safe way. Ultimately, security can only benefit from that, rather than dedicating resources to locking down tools."

He says IT and security teams should survey workers about their use of tools to determine what applications workers need to do their jobs. "The security department can use that

information to create a team that becomes the funnel for any new tool that is going to be onboarded to the organization," Walker says. "You can create default tools by category, but also have a mechanism for adding new tools that workers need based on security and employees understanding each other and working together."

Preparing for the Hybrid Workforce

A hybrid work model seems to be here to stay. Before the pandemic, 91% of respondents say nearly all or most employees worked from an office. During the pandemic, 80% say most or all worked remotely. For the foreseeable future, the work configuration of remote versus office workers will be highly variable.

The largest number of respondents (38%) say their workforces will be split 50-50 between offices and remote locations. The share of respondents saying work will be at least half, if not more, remote for the foreseeable future is 57 percentage points higher (66% versus 9%) than how many reported this remote work arrangement was in place before the pandemic.

However, Muscolino notes these numbers might even be conservative. In her research, business leaders and managers assume that a significant number of employees will want to return to a central office full time. By contrast, a larger number of employees tend to assume they will continue with a hybrid work style. "My personal opinion is, the longer the pandemic goes on, the more companies will have some type of hybrid arrangement," she says.

The growing numbers of remote and hybrid workers will increasingly need to be served by digital tools and applications that run in the cloud, providing employees with easy access to the tools and information they need no matter where they are. Half of respondents say at least 60% of their organizations' digital applications and tools used by employees run in the cloud now. More than a quarter (28%) say at least 80% of the digital tools are cloud-based.

"In the future, companies will need an environment that's going to be location- and device-agnostic, which means it needs to be cloud-enabled," Muscolino says. "This [necessity] indicates the tremendous opportunity that companies have to come back stronger after the pandemic by adopting technology which is adaptable."

Ironically, she says this new approach to technology depends on having a greater understanding of people's needs and

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desires. "We're seeing a lot of humanity being injected into business these days," she says. "Those companies that come back stronger from the pandemic will develop an approach to technology that starts with the employee perspective, which is really a human perspective."

As noted, technology aimed at increasing productivity can actually drain it and increase frustration in numerous ways. In a hybrid work model specifically, remote workers who conference in can be alienated by workers in the same office who are chatting among themselves, oblivious to their physically distant colleagues.

"It's important to build the human side into your technology plans, as well," Fisher says. "A lot of people are feeling overwhelmed today. What's quite ironic is that technology is being blamed for the addiction to technology, people not being able to disconnect, and the constant interruptions. Actually, technology can be a solution to those problems at the same time."

Solutions can range from auto-scheduling breaks between meetings to designating entire meeting-free days or disabling notifications outside an employee's chosen work hours. Many digital platforms have the ability to monitor how employees are using the platform, determine their workload, and build in downtime and reflection time for employees.

"Not many people know these features exist," Fisher says. "Organizations and management who have a culture of openness tell employees about these features in the tools and direct them to use them as they see fit. It's very different than using these features to track employees so you assure they are meeting some kind of work quota. The ability to address the human factors of the hybrid workplace will be the key challenge of next year."

Conclusion

The explosion of digital tools is not just a warning or a wake-up call; it's an opportunity. Employees' use of so many tools, many of which are redundant, shows that they are struggling with working effectively as workforce models change.

"Enlightened leaders definitely have the ability to open up discussions about how digital tools can enable employees to be not just more productive but more effective," Walker says.

Integrated tools are a key element in addressing the frustration that employees feel because of—and the productivity that is being drained by—the expanding ecosystem of tools. In a time when agility is paramount, companies shouldn't wait to take stock of redundancies, productivity gaps, and employee needs. The foreseeable future will likely be a fluid state of change, and companies should look for solutions that can adapt and grow as their business does.

As companies develop new workforce models, they must closely examine the digital tools and applications that workers

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use as they move between their homes, their offices, and other locations. "The hybrid worker is probably the hardest thing to integrate into a pre-pandemic workplace because it's typically an older building that lacks the connectivity you need," Fisher says. "Now that we have supercharged the home experience, we need to offer a dynamic office experience, as well, so we can join the two worlds together."

The digital tools and applications must be considered as one part of the new workforce models rather than as ends in themselves. "Leading companies are providing the tools that those workers need at home, in a way that is secure without impeding experience," Muscolino says. "They're making sure these folks still have the same development, training, and career path, no matter where they're located."

In the new future of work, companies must slough off their old notions of applications and tools. IT departments must expand their vision beyond technology and understand the tools and digital applications that employees use can have a significant impact not just on employees' work life but also on their well-being. Just as digital tools, correctly chosen and adroitly used, can increase connection and collaboration, the wrong tools can be hindrances.

"The biggest thing is just the lack of guidance of how the tools can really support you in achieving your job, and also support you in disconnecting and reducing feelings of being overwhelmed," Walker says. "The digital tools are not the goal. You need to understand the outcomes you are working toward and how the tools can support that outcome."

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METHODOLOGY AND PARTICIPANT PROFILE

A total of 526 respondents drawn from the Harvard Business Review audience of readers (magazine/enewsletter readers, customers, HBR.org users) completed the survey.

Size of Organization	Seniority	Key Industry Sectors	Job Function	Regions
32% 10,000 or more employees	**23%** Executive management/ board members	**19%** Financial services	**16%** General/executive management	**41%** North America
31% 1,000–9,999 employees	**34%** Senior management	**16%** Manufacturing	**10%** HR/training	**23%** Europe
10% 500–999 employees	**33%** Middle management	**15%** Technology	**8%** Consulting	**22%** Asia Pacific
27% 499 and fewer employees	**10%** Other grades	**8%** or less other sectors	**8%** IT	**7%** Latin America
			7% or less other functions	**7%** Middle East/Africa
				1% Other

Figures may not add up to 100% due to rounding.

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