

Technology in the mid-market
Seizing opportunity

September 2019

About the survey

From July 8 to July 17, 2019, a Deloitte survey of private and mid-market companies was conducted by OnResearch, a market research firm. The survey examined technology trends taking place in this market segment to determine the role that technology plays and how it influences business decisions. The 500 survey respondents represented mid-market companies with annual revenues ranging from \$100 million to a little more than \$1 billion, with firms under \$500 million comprising 61 percent of the sample this year. Half of the respondents were C-suite executives, while the remaining executives held other management roles.

Eighty-five percent of the respondents represented companies that are privately held, while the remainder were publicly traded firms. Thirty-four percent of the respondents represented technology, media, and telecommunications companies, while 26 percent were from consumer and industrial products companies. The remaining respondents were divided among financial services; energy and resources; life sciences and health care; and, other industries. The full survey results are included in a separate appendix; some percentages in the charts throughout this report may not add up to 100 percent due to rounding, or for questions where survey participants had the option to choose multiple responses.

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Executive summary



Jason Downing

We all know technology is changing our lives in ways not even imagined two decades ago.



Brian Umbenhauer

For example, innovative new technology now makes it possible to get e-commerce orders delivered to your trunk, even if you're nowhere near the car. Accounting apps are disrupting the two-week payroll cycle, giving workers early access to wages they have already earned. Even on vacation, technology is changing how we interact, as cruise operators use facial recognition for boarding and security, helping staff find individuals amid a sea of passengers.

Despite this rapid-fire evolution that's taking virtually all business models by storm, private and mid-sized companies say they're confident they have the tools to meet the quickly changing expectations of their customers, partners, and workers.

In this, Deloitte's seventh annual survey and analysis of the technology needs and priorities of America's private and mid-market companies, business leaders we polled generally believe that they'll be able to keep pace with or even move to the vanguard of technology-driven growth. Four-fifths of survey respondents indicate that their overall business outlook is optimistic or highly optimistic. What's more, just over half of the respondents (51 percent) expect their firms to have an annual growth rate of 11 percent or more.

At least part of this optimism appears to stem from a deep-seated belief in respondents' abilities to manage technology's growing risks and other obstacles. Information security is the No. 1 technology trend on executives' minds, our survey reveals. Company leaders also indicate both through survey responses and interviews that they're actively competing for employees to fill openings amid record low unemployment rates.



Chris Jackson

Today, artificial intelligence and machine learning are symbolic of the push and pull many private firms struggle with: these technologies promise to transform their businesses and make them more competitive, but also potentially expose them to new threats. Many respondents fear cognitive tools may be tainted by bias or fail to incorporate the perspectives of customers. Others are concerned about a lack of human validation in predictive modeling.

These deliberations are positioning many private companies not only as agents of change, but as socially responsible corporate citizens. This is far from surprising, given the can-do spirit that our private company surveys have captured over the years. Private companies

take risks. They develop new products. They challenge their own teams to think differently. And when faced with uncertainty, they confront it with determination.

In the pages that follow, you will discover a detailed view of what digital disruption will likely look like in 2020 and beyond. You'll also hear from some of America's leading private and mid-sized companies, and how they are embracing technology and staying ahead of the adoption curve. We hope the findings and stories within resonate with your own experiences and may help inform your company's next iteration of success.



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01

Tech trends: Spending, investment priorities and expectations

➤ Private companies are investing in connected platforms and boosting spending on data security, predictive analytics, and 5G.

Call it “cleaning up on every aisle.”

If there's a technology deployment that captures a representative sweep of what's available to America's private companies today, it's in the autonomous robots about to glide through your local grocery store.¹ Machines currently being tested stroll down aisles scanning for out-of-stock, mispriced, or misplaced inventory, then use 5G and IoT connectivity, along with mobile data-collection systems enabled by the cloud, to transmit that information to store operators. The ultimate objectives of this technology are the same ones shared by many private companies across broad swaths of the economy: increased efficiency, improved customer service, enhanced profits, and greater collaboration between machines and humans. In other words, positive disruption.

The clear majority of respondents (82 percent) report that **digital disruption is shaking up business operations** to some degree across all the areas covered in this year's survey. Executives say disruption is changing the ways companies interact with customers, accelerating the pace of transactions, and dramatically transforming workers' job descriptions and responsibilities.

Disruption is also forcing a reckoning

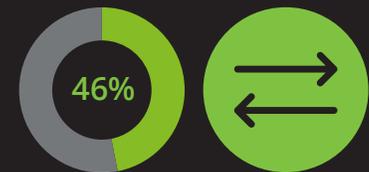
with issues that can stall a company's momentum if not handled with care, executives say. In a new question in our survey this year, respondents rank information security, the complexities of keeping up with the pace of change, and technical complexity as the top three IT challenges faced by their organizations. Among industries, financial services ranks highest among business segments that point to data security as the biggest area of technical complexity.



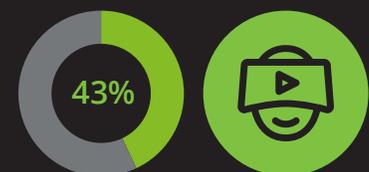
Survey respondents expect digital disruption to have significant impacts:



“Disruption will enable new ways to interact with our customers.”

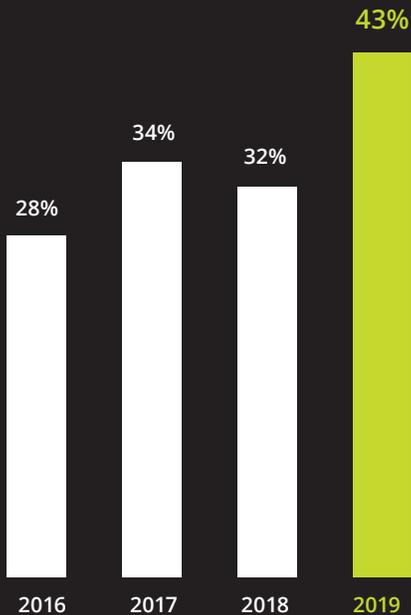


“Disruption will speed the pace of transactions and business interactions.”



“Disruption will increase worker productivity with technology augmentation.”

Survey respondents spending more than 5% of their revenue on technology:



Top technology investment priorities for the next 12 months

1. Managing information security risk
2. Adoption of 5G
3. Business innovation
4. Predictive analytics and cognitive technologies

Spending and investment priorities

Private company leaders responsible for monitoring these trends appear to have responded with a noticeable increase in technology spending this year.



While spending cooled in 2018 compared to the prior year, expenditures are up in the current survey. Now, **43 percent of respondents say they are spending more than 5 percent of their firm's revenue on technology.** That compares to 28 percent of respondents who devoted more than 5 percent of revenue to technology in 2016, a 15-percentage point increase over the past three years.

However, when compared by ownership type, respondents from family-held companies were about half as likely as those from private equity-owned firms or other privately held firms to spend more than 5 percent of revenue on technology pursuits.

The actions of companies not included in the survey also confirm these findings. "Tech spending for Merz Americas has increased, and in the last two years in particular," says company CEO Bob Rhatigan. "A lot of that has been focused on the training front, both for internal and external uses."

For example, Merz uses online training modules to educate its sales team and doctors alike about how to apply its portfolio of products (see page 12 for more). But it's also committed to deploying robotic process automation solutions to make transaction-heavy functions more efficient. Merz has also migrated its collateral materials used in doctor's offices—posters, patient brochures, promotions—to an online site where they can be accessed, downloaded, and printed at any time, rather than ordered and shipped through a fulfillment center.

Overall, plans for future investment indicate that companies surveyed recognize they will need to prepare for

an increasingly complex technology landscape—



juggling data security needs, a boom in connected devices, and a rise in predictive technologies. When asked about their company's **top technology investment priorities for the next 12 months**, those cited as most important were managing information security risk, the adoption of 5G technology, business innovation, and predictive analytics and cognitive technologies.

“Tech spending has increased, and in the last two years in particular.”

Bob Rhatigan
CEO, Merz Americas

cloud

cyber

risk

innovation

information security

transform

data

machine

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Investment preferences vary by industry. About half of technology, media, and telecommunications (TMT) firms surveyed point to 5G technology as a top investment priority over the next year. More than any other industry, consumer and industrial firms say business innovation is their top target area for future spending. Meanwhile, health care and life sciences firms cite predictive analytics and cognitive technologies as their most likely area of investment over the next 12 months.

Among the investment priorities that private companies believe will yield the greatest benefit, respondents cite the use of predictive analytics and technologies, as well as the modernization and transformation of legacy systems. Notably, private companies may not be seeing the best returns as they restyle their IT operations. While 34 percent of respondents say adjusting or redesigning their current IT organization operating model is one of their **top technology investment priorities**, only 19 percent say these investments have the potential to produce the greatest benefit for the company.

Expectations for technology impact on the business

Respondents predict **information security, cloud computing, and technologies tied to AI and machine learning will have the most impact on their workforce and customers** now. They also believe the same three technologies will have the most impact on their business in the coming year.

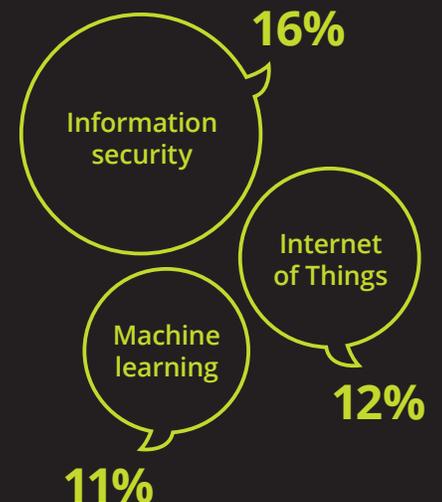
Executives in the survey rank these areas far ahead of other areas such as robotic process automation; respondents were one and a half times more likely to report information security as an area of importance, for future business or their current customers or workforce.

34% agree:

Adjusting or redesigning our IT organization operating model is one of our top technology investment priorities.



Which technologies will have the most impact on your business in the coming year?



Merz Americas: Smoothing out all the wrinkles

Like most life sciences companies, Merz Americas is keenly interested in educating doctors and others about its products.

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“Using a technology that is both proven and reliable gave us confidence.”



unlike other life sciences companies, Merz's focus with such efforts is application. The company sells a broad portfolio of medical aesthetic treatments that help people smooth wrinkles, and it's important that doctors, nurses, and other practitioners get it right when they go to treat patients.

“We believe it's our responsibility to make sure they have access to training materials to ensure proper usage and patient satisfaction,” says Merz Americas CEO Bob Rhatigan.

To that end, Merz launched the Merz Institute of Advanced Aesthetics, an expert-led professional institution that offers scientific education beyond pure product knowledge as well as CME-certified courses to help health care professionals better understand the application of aesthetic treatments. Its eCampus and Virtual Clinic allow health care providers to tap on-demand training resources at their convenience. In the last year, more than 4,400 Merz Institute courses have been initiated. The company uses similar digital training modules internally in its Merz Success Center to give Merz employees critical training and resources in real-time, including the sales teams who visit physicians' offices.

The company's recent technology investments have also extended into the realm of virtual reality. Leo is a VR-based educational training tool that allows health care providers to “rehearse” challenging patient assessments and treatment approaches. Wearing a pair of Merz's VR goggles, they can practice on virtual patients, adjusting the settings to explore complex clinical patterns of disabling muscle disorders. “Treating these patients is not like going in and getting a regular injection,” Rhatigan says. “You have to be able to navigate complex anatomy and Leo helps the clinician develop an effective treatment plan.”

Virtual reality solutions have been around for a while, but Merz wanted to grow comfortable with the technology first. While some in the industry are testing cognitive analytics applications, Merz isn't one of them. Rhatigan explains, “Using a technology that is both proven and reliable gave us the confidence to be the first to utilize VR in the injectables space.”

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02

Talent: Hiring, reskilling and strategies for tech-fluent teams

➤ Hiring for tech abilities and reskilling are the strategies paying the biggest returns in the race for talent.

Where some see building tension between technology and talent, many leading companies are approaching digital disruption as an opportunity to retool their workforces and

empower them to lead the charge.

Amazon's recent proposal to spend \$700 million to retrain a third of its US workforce may be the most ambitious of these efforts to close the skills gap.² The reskilling initiative for the e-commerce giant amounts to more than twice the average annual budget among US school districts.³

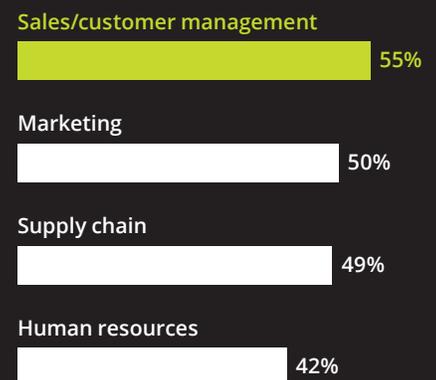
Most US private companies might not have as many resources to devote to the issue, but they share the same urgency. Unemployment rates have plummeted since the height of the Great Recession, falling to nearly 50-year lows, exacerbating skills shortages.⁴ And technology-specific jobs are among the most difficult to fill. One global study estimates the shortage of cybersecurity professional at nearly 3 million people.⁵ As explained in Deloitte's 2019 Global Human Capital Trends report, the talent crunch is driving organizations to turn to internal resources and rely on digital innovation for a better shot at success.⁶

In this year's survey of private firms and their use of technology, the **top concerns affecting business operations and customers** are largely the same ones that executives believe will drive job-related changes in the coming years. Slightly more than half of respondents (55 percent) believe sales and customer management will experience job-related changes in the next three to five years because of digital disruption. Half of respondents point to marketing as the function most susceptible to workforce changes, followed by supply chains at 49 percent, and human resources at 42 percent.

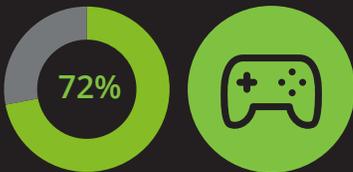
When asked about recent trends that are prompting changes for those roles, respondents point to information security, cloud applications, artificial intelligence and machine learning, and the Internet of Things.



Which areas of your business could experience job-related changes in the next 3-5 years due to digital disruption?



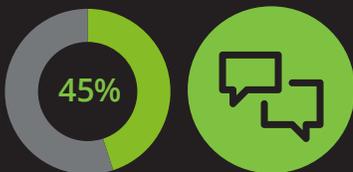
How will you harness the best of workers to sustain performance?



“Reskilling employees through experiential learning, gamification and cognitive skills.”



“New talent strategies to attract, recruit and retain workers with experience in next-generation tech.”



“Internal crowdsourcing, focus on job rotations, global mobility and diverse experiences.”

Andy Lowery, the CEO of RealWear, which makes voice-controlled, head-mounted tablets for industrial settings such as wind turbine repair, says it’s not surprising that information security and IoT rank among the top concerns in the workplace.

“I see those two tied together,” Lowery says. “We’re putting data in the cloud. We’re talking about remote collaboration, with video and voice. We’re talking about seeing data that typically just gets quarantined inside a control room and having that data out in the field with frontline workers. That agility comes with a cost.”

One thing is connected consumer devices, while quite another is the level of security needed for sensitive industrial applications, Lowery adds. “What I see as an impediment to a lot of great consumer IoT concepts making their way in earnest to the industrial world is information security,” he says. “That’s the biggest roadblock by a long, long measure.”

Shifts in hiring

The majority of respondents in this year’s survey say they have plans to hire for specific technical skills in addition to providing training and development opportunities for their existing workforces.



In response to what some HR leaders are calling a talent war,⁷ 68 percent of respondents say they plan to develop **new talent strategies to attract, recruit and retain workers** with experience in cognitive, analytics, AI, and other emerging technologies. In addition, nearly two-thirds of companies (63 percent) say the deployment of new technology is driving their hiring plans toward hiring for specific technical skill sets. Health care organizations, as well as TMT companies, lead among industries that say

emerging technology has changed their hiring efforts and talent needs.

“Agility comes
with a cost.”

Andy Lowery
CEO, RealWear

information

operations
a h i e l e a r n i n g
reskilling
n a i n o n
curity t i o n
s b o t i c
A G I C

Automation and new technologies are also having an impact, as 22 percent of **respondents expect to shrink their workforces based on the implementation of new technologies.** Notably, among energy firms, 36 percent of respondents plan to downsize based on the implementation of new technologies.

Meantime, more than one-third of respondents (36 percent) anticipate **they'll need to hire highly trained specialists such as data scientists as a result of digital disruption.** According to Bersin™, Deloitte Consulting LLP, addressing that challenge means organizations also need to make data skills a core requirement for HR roles, so teams can ask better questions and make more informed talent decisions.⁸ Deloitte's 2019 Global Human Capital Trends survey adds additional perspective, as 61 percent of respondents of that survey say

finding qualified, experienced candidates is the biggest challenge in talent acquisition.⁹

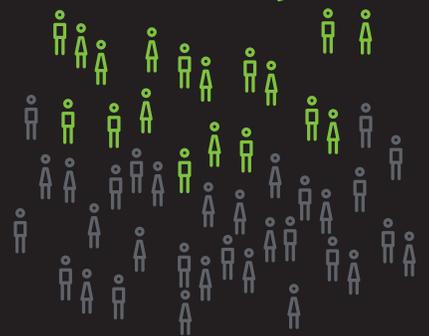
Lowery says operating from an emerging technology hub such as the Portland metropolitan area has been an advantage.

"We've been successful in recruiting locally, and relocating talent we need," Lowery says. "I need mid-level and junior engineers, sales, administrative, and marketing talent. And there's plenty of those in a lot of cities in America."

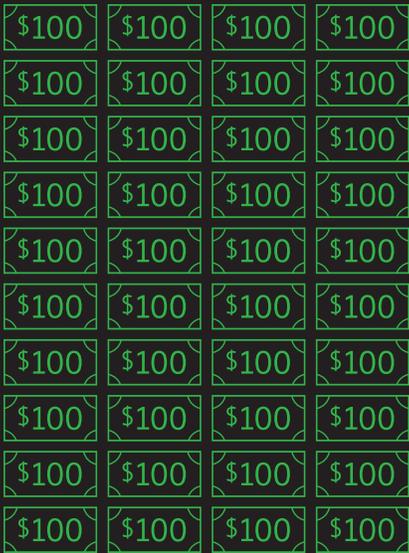


36% agree:

We'll need to hire highly trained specialists such as data scientists as a result of digital disruption.



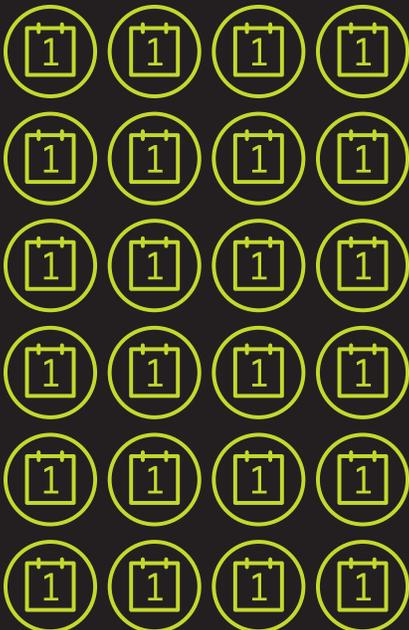
What does it take to hire a new employee?



\$4000

+

24 days



Reskilling for tech fluency

One calculation private companies are making is whether it's more cost-effective to train workers instead of hiring new ones altogether. **The average company spends around \$4,000 and 24 days to hire each new employee.**¹⁰ After tallying external costs such as background checks, internal recruiting expenses such as referral rewards, and hiring metrics such as attrition rates, many of the private company leaders in our survey have decided

it's preferable to retrain workers already in place.

Respondents largely believe that the education and reskilling of employees through enhanced internal learning and development is **the best path to realize a worker's potential** (72 percent). Needs for new skills cut across functions. Notably this year, compared to 2018, a significantly larger share of respondents say their marketing, supply chain, and human resources functions will see job-related changes in the next three to five years because of digital disruption.

Ann Cuiellette Marr, Executive Vice President, Global Human Resources at World Wide Technology, says the company's insistence on identifying internal talent early in their careers and coupling that with development opportunities has paid off handsomely.

"Our chief technology officer was an intern when he started with the company," Marr says. "If you're hiring someone right out of college, create a path for them within the organization. If you don't invest in people, they're going to leave. And if you don't continue to advance their skills and competencies, their job can outgrow them."

“If you don't
invest in people,
they're going
to leave.”

Ann Cuiellette Marr
Executive vice president, World Wide Technology

**World Wide Technology: Innovative endeavors
for talent acquisition and development**

Winning the talent war

starts with efforts long before
internships, entry-level positions,
or upskilling programs for emerging executives,
Ann Cuiellette Marr believes.

“You really have to look to the future, ask what you’re doing to develop a pipeline, and start to get students interested in technology that can result in careers.”



Her company, St. Louis-based World Wide Technology (WWT), sponsors high school STEM forums to get a head start on talent development. Students work with WWT mentors and get six weeks to turn an idea into a technology product. The students then return to WWT, a global provider of consulting, application, and supply chain services, to pitch their ideas for a chance at cash prizes. This year’s projects include sensors to help visually-impaired students navigate hallways, and a ride-sharing service for carpools.¹¹

“They’re brilliant, motivated, and creative,” says Marr, Executive Vice President, Global Human Resources at WWT. “You really have to look to the future, ask what you’re doing to develop a pipeline, and start to get students interested in technology that can result in careers.”

In this year’s survey, 68 percent of respondents say they’re developing new strategies to attract, recruit, and retain workers with experience in cognitive, analytics, AI, and other next-generation technologies in order to maximize employees’ future performance.

At WWT, talent strategies also include a collaboration with the nonprofit NPower, providing intensive training for military veterans and young adults from underserved communities who show promise as technology professionals. Marr says the program has served as another valuable source of skilled talent for the company and demonstrates why HR leaders looking for tech savvy candidates need to look beyond channels such as campus recruiting and interviewing.

“Not everyone is college-bound, but that doesn’t mean they don’t have the ambition, the skill, or the competency to do the job,” Marr says of the company’s efforts to find candidates from the widest possible pool. “If you close yourself off to that, you are potentially losing incredible talent.”

In outlining some of the top trends for financial services for 2019, upskilling the IT workforce was one of WWT’s areas of focus.¹² In Deloitte’s technology survey, 54 percent of respondents say reskilling employees to realize the greatest benefit from new technology tools is having the biggest impact on their company’s ability to leverage technology. Related research from Deloitte Consulting LLP’s Bersin shows that continuous learning in the flow of work correlates not only to better learning experiences but also stronger business outcomes.¹³

One area of business disruption Marr is watching closely is automation. In this year’s technology survey, 22 percent of respondents expect to shrink their workforces based on the implementation of new technologies. Marr says automation has helped the firm’s HR organization streamline certain functions through an app that allows employees to access compensation and total rewards information.

“Before, employees were calling the HR department, but now it’s self-service, and I can deploy those individuals to do other things within the organization,” Marr says. The goal is freeing up HR teams for more strategic tasks. “They can work with a manager on a strategic plan around hiring. They can work with the manager to develop some leadership initiatives. We can be more agile.”

Notwithstanding the surge in automation and disruptive technologies, Marr says companies still need workers who can excel at old-fashioned people skills. She says, “It may seem like a lost art, but when you go to an interview, the first thing you’re going to be evaluated on is communication.”

03

Risks: Data security, data privacy and tech-enabled bias

➤ Targeted attacks, data security, and potential for bias in AI systems are among the critical risks facing private organizations.

The relentless demand for cybersecurity talent

is easy to understand in the current context of massive information security breaches.¹⁴ A study from IBM and the Ponemon Institute places the average cost of a breach for US companies at about \$8 million.¹⁵ By 2021, cybercrime damage is expected to reach \$6 trillion annually—about 10 percent of the global economy.¹⁶

The risks affecting private company leaders are not limited to information security, however. In addition to simply keeping up with the pace of technology change (ranked as the No. 2 IT challenge in the survey), companies are increasingly grappling with legal and ethical concerns tied to new technologies. One dimension of technology change that survey respondents have flagged as an emerging area of risk is the potential for impropriety or bias to appear in the development and execution of emerging technologies.

Information security

Virtually all respondents in our survey have **some type of plan in place to mitigate information security risks**, with 99 percent reporting ideas in the works, or actions underway.

They'll need to act strategically to deal with risks that grow more complex by the day. For the second year in a row, **targeted attacks and employee-introduced risk rank as the two most concerning privacy and security issues**. Life science and health care companies identify targeted attacks as their biggest worry, more than any other industry, while financial services firms are most likely to cite employee-introduced risk as their top data privacy and security concerns.



How does your company mitigate information security risks?



“We encrypt sensitive information.”

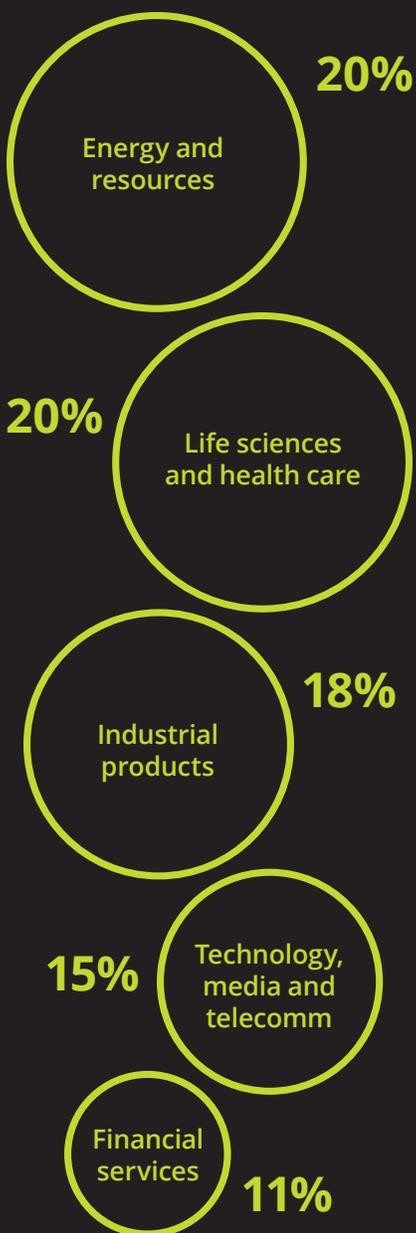


“We perform periodic testing and certification.”



“We provide education and training.”

Industries reporting that of all tech trends, information security has the most impact on their workforce:



As these types of risks are introduced, there are many times where the risks are not focused immediately on company data: it is merely a reconnaissance effort; however, the outcomes of a successful campaign execution can have damaging consequences for their employers. Lamont Orange, chief information security officer at cloud security platform Netskope, says digital habits such as location-tagging on social media posts can provide an entry point for hackers—revealing information on a user’s whereabouts, patterns, job responsibilities, and even details about their company. Orange says prospective cybersecurity professionals in particular should think about the traces they’re leaving online—and limit their digital footprints as much as possible. For a diligent and inquisitive bad actor, “You can inadvertently provide me access to many different vectors for attack. Cybersecurity professionals are held to a higher level of accountability and I look for those that subscribe to this mindset when looking to fill positions.” he says.



Respondents from energy firms, and those from life sciences and health care companies were more likely than any other industry to say that **information security had the most impact on the workforce.**

“IT security is really key given all of the spam and hackers that pop up on a daily basis,” says Merz Americas CEO Bob Rhatigan. “Our people are pretty well-tuned to the issue because we’ve completed training around the risks and we are alerted right away when they see something fishy.”

While scores of other industries are trying to develop business models around data collection, federal regulations such as those enforced by the Health Insurance Portability and Accountability Act (HIPPA) severely restrict the use of information-sharing outside of the health care field.

As large-scale data breaches dominate headlines,

corporate leaders say they’re addressing the risks in several ways. **Approximately one-half of firms surveyed are encrypting sensitive information** (54 percent), conducting periodic testing (53 percent), providing security training (52 percent), and establishing security plans and processes (50 percent).

“Cybersecurity professionals are held to a higher level of accountability.”

Lamont Orange
Chief information security officer, Netskope

Top risk considerations for leadership:



55%

“Using AI for hiring/firing decisions that are not aligned with legal issues.”



53%

“Lack of objective review of AI used for monitoring human behavioral patterns.”



39%

“Non-diverse teams developing AI software that could have bias.”



38%

“AI models determining business outcomes without human validation.”

People and process are becoming more important than ever in combatting those risks. In an evolution for DevOps (where coders and server managers operate in distinct groups), companies are being much more deliberate about information security. In this emerging “DevSecOps” environment, information security workers can no longer afford to wait until the very end; rather, they are part of the team keeping systems and data safe by operating in unison with the developers and operators.¹⁷

That tracks with findings in Deloitte’s 2019 Future of Cyber Survey, which shows that organizations that do not incorporate security into every phase of their development and operations pipelines can end up leaving significant value on the table.¹⁸

Combatting bias in intelligent systems

More than one-half of respondents (55 percent) say they are **concerned about the use of AI for HR hiring and firing decisions that may not satisfy regulatory or legal requirements**. Among the considerations when using AI in hiring: whether the data system is secure, protects job candidates’ privacy, and assesses workplace issues such as fair pay while having a full understanding of issues such as race, location, or age.¹⁹

A similar share of respondents (53 percent) report **a lack of objective review of AI solutions** designed to detect human behavioral patterns, such as facial recognition software.

Some startups are beginning to discuss how to identify and reduce bias in algorithms that govern AI technology.²⁰ That’s especially important as coders design programs that operate as a “nudge” or “recommendation,” according to research from Deloitte Consulting LLP’s Bersin. Private company leaders who want to mitigate the risk of bias can ask if the data or inputs are designed to produce an intended effect—in other words, not excluding, discriminating, or inadvertently biasing the intended result.²¹

“People create algorithms using data. In some cases, data can encode human biases; and sometimes the people creating algorithms also have biases. Either or both of these sources of bias can have undesirable effects,” says James Guszczka, US chief data scientist, Deloitte Consulting LLP. “A small detail in an algorithm that seems insignificant could have a vast effect on the outcomes.”

Marr, from World Wide Technology, says technology can enhance talent acquisition but can't replace human skills. “It comes down to conversations with individuals,” she says. “You can have the fanciest screening tool, but if you don't have the ability to talk to people and see if they're not only a technical fit but also a cultural fit for the company, they're not going to be successful here.”

Although technology tools can present some risks, they also provide numerous rewards. In this year's survey, there is a significant increase in the perceived benefit of cognitive automation compared to 2018, continuing a trend of increased support for the technology. This year, 32 percent of respondents cite potential benefits of including machine learning, robotic process automation, and other cognitive tools, compared to 20 percent who believed these approaches would be beneficial in their companies in 2018.

cloud
cyber
risk
can
form
ta
mach

Netskope: Cloud security for the app-driven workplace

Netskope offers a good example of

technology disruption

in its latest look at
enterprise cloud usage:

“It’s an opportunity for us to have a fresh start as security leaders, because what we’ve built historically won’t take us to the next level.”

“We focus on the common denominator of data and data protection,” Orange says. Furthermore, he says, “we want to empower you with a method that’s frictionless, allows you to be efficient, and perform your job as best as you can for the organization.”

Information security ranks as the No. 1 technology trend in Deloitte’s survey this year. One area of focus for Netskope is promoting a continuous, holistic culture of security. Though the company’s work focuses on the cloud, it’s just as concerned with routinely ensuring that employees’ badges are still valid. The company doesn’t plan information security sessions at regular intervals. Rather, it seeks ongoing opportunities to instill data protection principles, empowering employees to be ambassadors for the company’s products, Orange says.

Modernizing security practices also means changing the way companies configure and manage their teams, methods, and controls, according to Orange. When organizations start to include security personnel within various functions, they can begin to function as “security emissaries,” he says. “You’re dispersing your security influence throughout the business functions,” Orange says. “It’s easier for me to help manage consistency around security if I know I have people in each one of these groups.”

Orange says he’s hopeful that security chiefs can begin to think like business owners for the benefit of their organizations as information threats grow increasingly complex. “It’s an opportunity for us to have a fresh start as security leaders,” Orange says. “Because what we’ve built historically won’t take us to the next level. The Internet has evolved. Application communications have evolved. We’ve got to really open our minds and think very differently about how to attack this challenge.”



Companies on average are using more than 1,200 SaaS apps.²² From HR to marketing to expense management, the tools are running across multiple devices and operating systems, often remote and outside the network. Add in “apps within apps” in the midst of constant data privacy risks, and it’s clear why Lamont Orange, the company’s chief information security officer, sees cloud security as a critical agenda item for company leaders.

“There are more applications that IT no longer controls,” Orange says, “Employees are accessing them via cloud networks or some sort of device that the company may not own. For years we’ve been managing the system, the devices, and the day-to-day interactions.”

Within its platform, Santa Clara, California-based Netskope offers tools for malware monitoring, security assessments, and data encryption.²³ Orange describes the company’s mission in part as reframing the traditional philosophy on security—from a reflexive “no” from IT leaders when fielding technology requests, in favor of adapting to new tools and the dramatically different ways people get work done today.²⁴

04

Cognitive tech and automation: Analytics, machine intelligence and RPA

➤ Machines and humans can achieve greater collaboration as private companies grow comfortable with cognitive insights.

One of the biggest pressures on private companies today is

getting a global supply network to perform with responsiveness, transparency, and speed.

Supply chains comprise more than physical collection of physical plants and other assets; they are connected information ecosystems that reach every corner of the globe.²⁵ Consider that 60 percent of firms in this year's survey collect **more than a quarter of their revenue outside the United States**. Regardless of where those customers happen to be, they're demanding faster response times, pushing firms to strengthen their forecasting, synchronization, and fulfillment capabilities.²⁶

Cognitive technologies can be credited with an increasing role in that progress. Five years ago, only 30 percent of mid-market companies reported using predictive analytics to forecast business results, or predictively assess client, customer or business behavior.²⁷ In this year's survey, virtually all respondents (95 percent) say they're **benefitting from the use of predictive analytics** in at least one area, with sales, marketing, and supply chains as the leading functions.

In a separate survey of manufacturing and supply chain leaders, respondents expected the adoption rate of predictive analytics to jump to 82 percent—more than four times the current share.²⁸



Which business areas in your company are using predictive analytics?



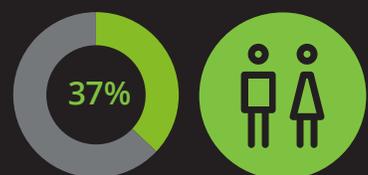
Sales/customer management



Marketing



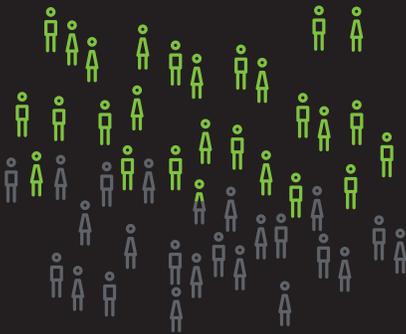
Supply chain



Human resources

53% agree:

We're redesigning competency requirements to include skills such as robotics, AI and cognitive analytics.



We are using robotic process automation in data aggregation.

56%
2019

41%
2018

For the mid-market survey, companies were also asked about their adoption of emerging technologies, including new intelligent interfaces. In response, 65 percent of financial services firms say they are using intelligent interfaces to track digital habits and purchasing patterns, as seen through a new breed of predictive analytics and technologies for specific areas, such as retail settings, to predict shopping behavior.²⁹ Meanwhile, 59 percent of financial services firms are using technology to understand behavior and micro-personalize products and services.

Cognitive insights

Private firms are also exploring a new dimension of machine learning capabilities that can augment employee performance and simulate human thinking and engagement. This year, significantly more respondents are using AI more for analysis automation (48 percent in 2019 vs. 30 percent in 2018).

There has been a significant increase in the perceived benefit of cognitive automation since 2018. Among other areas, that's changing how private firms decide who to hire, and how new hires are evaluated once they're on the job—as advanced tools such as natural language processing capture data and help managers assess performance.³⁰



In this year's survey, 53 percent of respondents say they're **redesigning competency requirements to include skills such as robotics**. In the case of financial services, health care, and TMT firms, more than 60 percent of respondents in these categories say they're adding more technical skills to performance assessments.



There has also been a progressive increase in use of robotic process automation (RPA) for tasks such as data entry, error analysis, and contract automation. This year, 56 percent of respondents cite the aggregation of disparate data as **an area of focus for RPA technology**, compared to 41 percent in 2018. A majority of respondents (56 percent) tag diagnostics and error collection as areas of emphasis for automation, compared to 45 percent in 2018. In addition, 54 percent of respondents say they're concentrating on automation to streamline contracts, compared to 47 percent in 2018.

"The nature of work is changing through machines and automation," says Chris Jackson, managing director, Deloitte Consulting LLP and Deloitte Private technology leader. "But you still need people to solve problems on the plant floor. You still need human interaction to deal with things that are complex in nature that automation hasn't caught up with."

“The nature of work
is changing
through machines
and automation.”

Chris Jackson
Managing director, Deloitte Private

RealWear: Connected headgear for rugged environments

Drivers who take a BMW or Mini to the dealership for service might soon have RealWear to thank for

shorter
wait
times.

a r

“We want higher bandwidth, robust video streaming, and real immersive augmented reality.”



RealWear, which makes head-mounted computers for factories and other workplaces, recently announced a partnership with all US BMW service centers and selected Mini dealers. The RealWear devices allow offsite engineers to interact with technicians as they troubleshoot problems in the service department. As a result, service experts no longer have to drive from one location to another to oversee repairs. The work is now taking as little as a quarter of the time it used to, says RealWear CEO Andy Lowery.³¹

The hands-free displays attach to hardhats and sit right below or above the user’s line of sight. The devices run on voice commands in multiple languages, respond to head gestures, and use noise-cancelling technology so workers can use the equipment even when ambient noise exceeds 90 decibels—about the sound level of a jetliner a mile before landing.³²

Some customers need the equipment for rugged environments. One of the company’s wearables is designed for settings such as oil and gas refineries and is engineered to withstand potentially explosive situations, Lowery says. A separate model is designed for comparatively lighter duty, giving workers hands-free tools when climbing scaffolding or utility poles, for instance. Lowery says this model can also be used in medical settings, displaying notes on the screen while a doctor attends to the patient. In warehouses, the wearable can help workers with augmented “visual picking” tasks, as additional information about objects on the shelves appears on the screen.

The BMW arrangement comes as Vancouver, Washington-based RealWear is entering new markets and expanding its lineup of IoT-enabled devices (the No. 2 technology trend in this year’s survey after information security). Among the company’s upcoming projects is a mass rollout of 10,000 wearables for a Smart Cities project in Kazakhstan—using 5G networks and IoT sensor data to reduce data lag times.³³

Lowery describes the Kazakhstan project as a critical test for 5G networks for connected devices. “We want higher bandwidth, robust video streaming, and in the future, real immersive augmented reality that has to have the very low latencies that 5G provides,” he says.³⁴

Some of the other challenges plaguing IoT-enabled devices include mobile device management, information security concerns, and issues with application support, Lowery says. For RealWear, one of the consistent areas of focus for its wearables is voice capabilities for workers on a jobsite.

“My problem is, I don’t want any sound around them,” Lowery says. “My voice technology is local and it’s directed at the mouth of the person wearing the devices, and everything else is squelched out. That’s my technology challenge.”

Meeting those challenges will keep RealWear’s engineering teams busy as the company grows and explores a services division to include equipment leasing. For now, expect the company’s “reality-first” philosophy to continue to guide connected workers—including the BMW engineers who are saving time so drivers can get back on the road. Lowery says, “they’re virtual super technicians that can do just as good from afar.”



Conclusion: The next decade:
From trends to action

➤ Don't be
left behind.

...recruiting new talent and reskilling employees are the best weapons to capitalize on technological change.

Technology trends such as automation and machine learning may replace some tasks or roles that currently exist in private companies, but this innovation will also create new opportunities in the workplace.³⁵ The private firms we surveyed have made it clear that recruiting new talent and reskilling employees are their best weapons to capitalize on technological change. The top-rated issue in Deloitte's Global Human Capital Trends report this year is the need to improve learning and development. And as the results of our technology survey indicate, these areas require company leaders to recognize the urgency of the changes, commit to lead in an environment of disrupted business models, and collaborate more effectively across functions.³⁶ Indeed, as we've seen in our surveys over time, technology is no longer the sole purview of IT—instead it's a shared responsibility among leaders across the organization.

Private companies should consider putting their full weight behind technology as a growth driver. If they're not addressing security needs, tapping into the power of the cloud, or figuring out how humans and machines can work together to take full advantage of cognitive tools, they're apt to be left behind.

Those that truly want to accelerate innovation should ask these questions as they get ready to confront a new year and make plans for a new decade:

- Does your company's talent strategy include a plan to reskill employees to provide specific skill sets required by new technologies?
- How would you assess your company's position relative to that of your competitors in areas including your sales and customer management systems, supply chain, and marketing capabilities?
- Where can you achieve efficiencies in your finance function via digital technologies?
- Have you broken down the walls between development and operations to get them to work together as a team?
- What is your cloud strategy?
- Do your AI systems run the risk of creating issues in hiring, with your customers, or regulators?
- What technologies are you exploring now to prepare for the ways customers will interact with you in the coming year? In the next five years?

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