The Future Of Work Is Now: Build Resiliency And Adaptability With Automation And AI

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Executive Summary

The current wave of digital transformation relies on workflow and task automation and mostly leaves existing processes intact. How work is done, and who is doing the work, remains largely unchanged. With intelligent automation (IA), things will be different. Forrester defines intelligent automation as a set of 19 technologies which are important to the next phase of digital transformation: this includes robotic process automation (RPA) and workflow automation as well as AI components such as conversational intelligence and machine learning (ML). Intelligent automation technologies combine task and process automation with AI building blocks to drive the next phase of digital transformation.

Businesses have learned the hard way that global disruptions, such as pandemics, can also affect the workforce. Climate change, trade wars, and other macro events are also potential threats. Resiliency, the ability to recover quickly from disruptive change, is now a front-page headline. And the main topics of today's resiliency story are business continuity, work distribution, cloud migration, and cost efficiency.

Automation, in all forms, helps to respond to these macro events.[1] Intelligent automation presents an opportunity for businesses to build much greater adaptability into their operating models and service delivery frameworks. For example, intelligent automation can be deployed to handle peaks in demand for core processes that get goods, information, or services to customers. Digital workers will execute supply chain processes in a time of disruption, adding resilience and business continuity. Therefore, fear of future global disruptions will drive automation investment and faster transformation of the workforce. This report helps organizations understand how this phase of digital transformation will affect the workforce and provides insights on how to plan for these changes.

IBM commissioned Forrester Consulting to evaluate how firms are preparing for intelligent automation adoption and its effects on the workforce. This resulted in a collection of three reports, which summarize the research based on studies of over 700 respondents. These reports can be viewed as a whole or individually. The first report, "Reinventing Workflows," emphasizes the role of process and workflow modernization in digital transformation. The second report, "How Intelligent Automation Will Shape The Workforce Of Tomorrow," describes the timing and issues of automation-led transformation. The third report, "Preparing Your Firm For The Future Of Work," makes the research of the first two reports actionable. Reports 2 and 3 are based on a January 2020 Forrester online survey with 269 IT and business decision makers that have executed and are responsible for automation and AI initiatives at global organizations. Based on the breadth of technologies they have adopted, these organizations consider themselves automation leaders.

Close to two-thirds of surveyed firms expect advancements in automation to significantly disrupt their workforce in the next five years.

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KEY FINDINGS

1. **Tomorrow's workforce looks radically different than today's.** Due to the advancements in automation, 80% of surveyed firms expect at least some disruption in their workforce over the next five years. While this is a projection, the early indicators of change are already here. On average, respondents need to retrain, upskill, or change roles in the workforce due to new automation initiatives on a faster than yearly basis (every 10 months), and this is expected to accelerate given the current economic environment.

2. **Automation will have differing impacts on the workforce.** While nearly all workers will have their jobs changed as a result of automation, the nature of that change will vary based on the structure of their work, as well as the industry they are in. Survey respondents see workers who perform less complex tasks as more vulnerable to automation. While less complex work may be replaced by automation, more complex work may be transformed in other ways, with automation creating both benefits and challenges.

3. **Organizations must prepare for the future of work and keep up with automation acceleration.** The goal will be to successfully navigate the changes that are brought on by increased automation. This includes hiring and retaining talent that will thrive in a new workforce, changing operational models to embrace human-machine collaboration, and creating change management practices to guide workers through the transformation. How firms implement practices to deal with these challenges will determine how competitive they are in the future.

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The Forces Of Automation Will Transform How Business Is Done

Forrester defines three main forces of automation: scale, control, and convergence.[2] These forces describe how automation will affect how businesses grow, operate, and make decisions. Forrester surveyed large companies that have implemented intelligent automation technologies to see what impact these forces will have on them over the next five years (see Figure 1):

› **Scale.** Increased automation allows businesses to grow with investment in data and technology, rather than investment in human labor and/or physical infrastructure. Sixty-two percent of surveyed firms say this new form of scale will have a significant impact (8+) on their organization in five years. The average impact of scale from surveyed automation leaders is a 7.8, on a scoring system of 1 (no significant effect) to 10 (massive, fundamental changes to how business is done).

› **Control.** Intelligent automation will, by design, transfer a level of decision making and management of the business from humans to machines. Data and algorithms will help to drive decisions that affect both machines and humans, which will make explaining those decisions more critical than ever. Sixty-six percent of surveyed firms rate this shift of control as having a significant impact on their organization in five years (average 7.9).

Figure 1

"On a scale of 1 to 10, where 1 = no significant effect and 10 = massive, fundamental changes to how business is done, to what degree are the following forces of automation affecting how your company does business in the next 5 years?"

Scale is the idea that businesses can now grow with investments in data and technology, rather than through human labor and physical infrastructure.

Avg: 7.8 — scale from 1 to 10

Control is automation and AI transferring decision-making and management of the business from human to machine.

Avg: 7.9 — scale from 1 to 10

Convergence is the embedding of digital intelligence, e.g., sensors, in the physical world which alters many existing human worker tasks.

Avg: 7.8 — scale from 1 to 10

Base: 269 business and technology decision makers and influencers (director+) responsible for automation and AI initiatives or centers of excellence at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

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› **Convergence.** Intelligent automation creates new interaction points between the digital and physical world, which will radically change existing tasks of human workers. For example, IoT sensors and digital workers will replace or alter many routine tasks performed by humans today. Sixty-three percent of surveyed firms rate convergence as having a significant impact on their organization in five years (average 7.8).

The forces of automation will accelerate the rate that business is done and work is executed. This is a double-edged sword for the workforce, they'll need to rely on automation to do their jobs faster and better, but they'll also be subject to an ever-accelerating pace of work. Sixty-six percent of surveyed firms expect that information overload and a faster pace of work will have a significant impact on their organization in five years (average 7.8).

TODAY'S WORKFLOW MODERNIZATION SETS THE STAGE

Digital transformation to date has prioritized business productivity. The next stage will focus on reinventing the way that business is done.

The IBM commissioned Forrester Consulting report, "Reinventing Workflows," found that digital transformation to date has emphasized process and workflow modernization.[3] Workflow modernization will continue to provide productivity, customer engagement, and employee experience benefits. However, over 75% of surveyed decision makers in the "Reinventing Workflows" report acknowledge that further digital transformation goes beyond process modernization, i.e., it will require a fundamental shift in how work is done.

This next stage of digital transformation will not only change how work is done, but it will also substantially affect the makeup of the workforce.

Over 75% of surveyed decision makers in the "Reinventing Workflows" report acknowledge that further digital transformation will require a fundamental shift in how work is done.

Intelligent Automation And The Future Of Work

The forces of automation and AI are already altering how companies grow and manage their business. For example, Forrester Analytics Global Business Technographics® Data And Analytics Survey, 2019 found that 53% of surveyed data and analytics decision makers reported that their firms have implemented or are implementing some form of AI. The adaptability provided by intelligent automation will further enhance the investment profile of these technologies in the near future. While firms are poised to deliver new intelligent automation capabilities, they must first understand that business as usual will never be the same: work is being accomplished in a new way, the makeup of the workforce is changing, new skills are required, and humans and machines will need to collaborate.

To understand how firms are preparing for both the future of work and increased human-machine collaboration, Forrester surveyed large companies that have invested in and are scaling a wide array of intelligent automation solutions that span various levels of maturity. Understanding the challenges that these early adopters face, and how they are currently preparing for this change, can enable other firms to take the best path forward in their intelligent automation journey — their views on the impact of the workforce are as follows.

1. TOMORROW'S WORKFORCE LOOKS RADICALLY DIFFERENT THAN TODAYS'

The forces of automation, driven by business efficiency, will, by themselves, dramatically affect the workforce. But global disruptions, e.g., pandemics, climate change, and trade wars, will also accelerate investment in automation, as it demonstrates greater resistance to these macro events. The fear and apprehension of global disruptions will accelerate the transformation of the workforce.
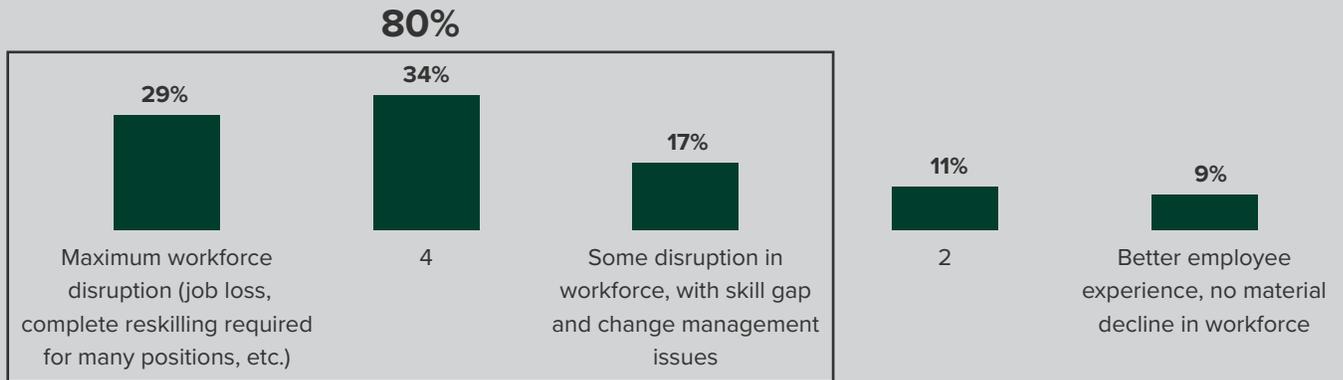
Forrester Research estimates that 85% of all jobs will be transformed in some way by automation, including tasks that will be eliminated.[4] Automation leaders are aware of the changes on the horizon for their workforces, and in many cases, they are already feeling the early effects of change. Our survey shows:

› **Almost all firms project that automation will change their workforce.** Four in five respondents expect at least some disruption, and 63% of survey respondents say they expect significant workforce disruption in the next five years due to automation (see Figure 2). This includes potential job loss, role changes, the creation of new roles, and the need to comprehensively reskill positions.

› **Reskilling and job role changes are already taking place on a faster than yearly basis.** The effects of automation on the workforce are already being felt by the surveyed firms in this study. Eighty-three percent of respondents say that they need to retrain, upskill, or change roles in the workforce due to new automation technologies or initiatives yearly, with the average refresh time being just over 10 months (see Figure 3). This refresh cycle will only continue to get shorter as automation will further accelerate business change over the next five years. This means that more sectors of the workforce will be undergoing more dramatic changes, at a quicker pace.

Forrester Research estimates that 85% of all jobs will be transformed in some way by automation.

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Figure 2

"On a disruption scale of 1 to 5, what is your projection on how automation will affect your workforce in the next 5 years?"

80%

|				
29%	34%	17%	11%	9%
Maximum workforce disruption (job loss, complete reskilling required for many positions, etc.)	4	Some disruption in workforce, with skill gap and change management issues	2	Better employee experience, no material decline in workforce

This study was conducted prior to the COVID-19 pandemic and resulting economic impact. We would expect to see an even greater impact projected if surveyed in the current economic climate.

Base: 269 business and technology decision makers and influencers (director+) responsible for automation and AI initiatives or centers of excellence at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

Figure 3

"How often do you find you need to retrain/upskill or change roles in your workforce due to new automation initiatives/technologies?"
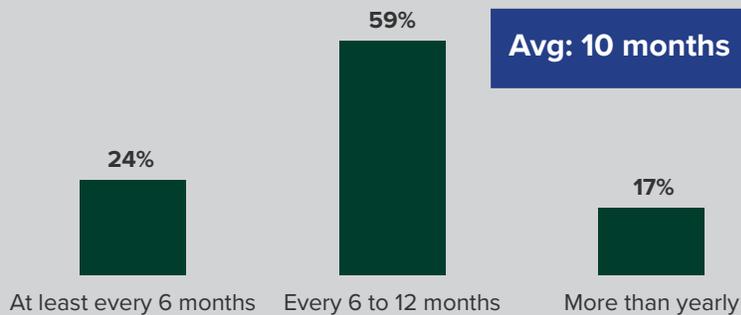
24%	59%	17%
At least every 6 months	Every 6 to 12 months	More than yearly

Avg: 10 months

This refresh cycle will only continue to get shorter as automation will further accelerate business change over the next five years.

Base: 269 business and technology decision makers and influencers (director+) responsible for automation and AI initiatives or centers of excellence at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

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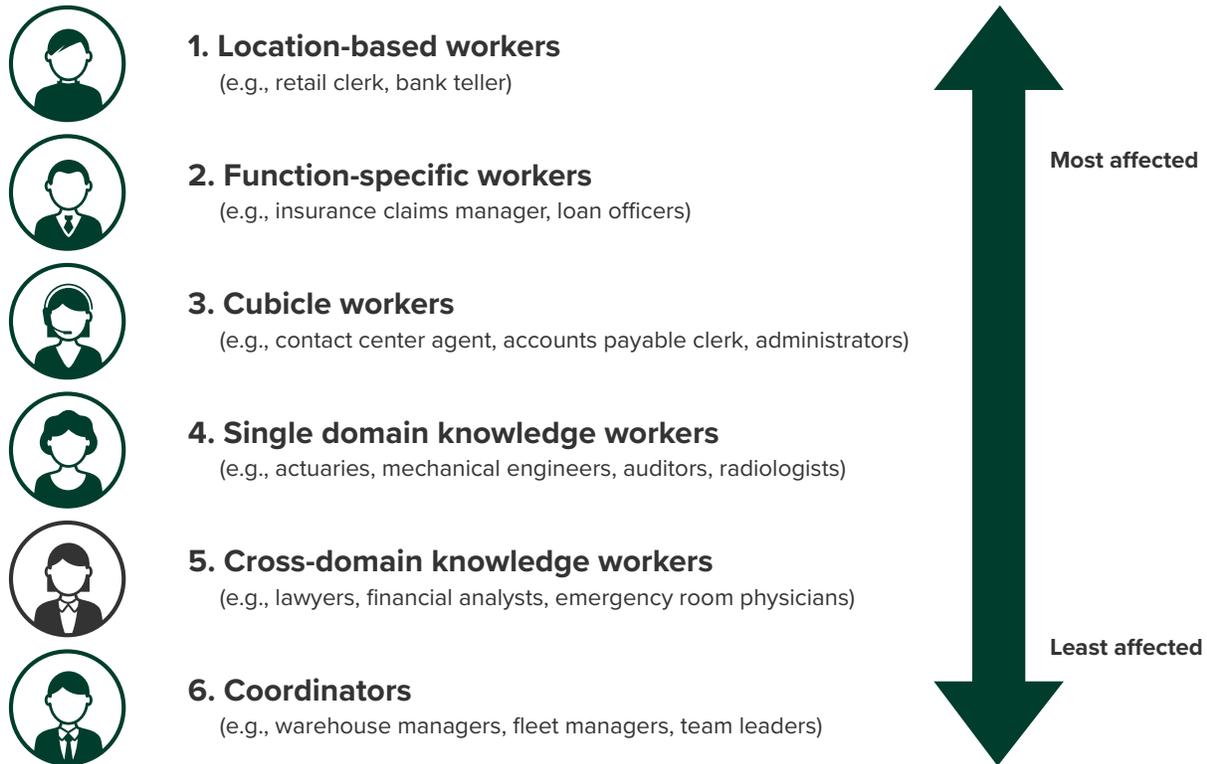## 2. AUTOMATION IMPACTS DIFFERENT WORKERS IN DIFFERENT WAYS

Those industries which need the ability to scale up or down rapidly in response to market demand will prioritize different use cases than those that are looking to permanently reduce operating costs. Although automation's impact varies by industry, assessing that impact on different skill sets allows us to identify cross-industry implications for the workforce.

Nearly all jobs will be impacted by automation, but the form of that change will vary significantly depending on their line of work (see Figure 4). Survey respondents see workers who routinely handle less complex tasks as more susceptible to the impact of automation, but all the worker personas were relatively close by rank and overall percentage. A deeper dive into the personas can highlight some of the differences that firms will need to prepare for across their organization.

› **Less complex tasks will be replaced or elevated by intelligent automation.** The following worker personas are considered the most at risk for automation disruption: cubicle workers (those performing repetitive and structured tasks in front- or back-office positions, such as contact center agents or accounts payable clerks); location-based workers (work is defined by the physical location of the worker, such as retail clerks or bank tellers); and function-specific workers (work is structured and organized around a discrete function, such as insurance claims managers or loan officers). Cubicle workers will be prime targets for replacement or transformation by technologies like task automation, RPA, and conversational intelligence.[5] Location-based workers, on the other hand, will be impacted most by the convergence of the physical and digital world, with digital sensors in physical locations transforming how they do their jobs.[6] In all these cases, while jobs will be lost to automation, more will be transformed into direct customer support positions or more technical roles.

› **Automation will have less of an impact on more unstructured and complex tasks, which are performed by cross-domain knowledge workers.** Certainly, task automation and RPA will not be as applicable to these less repetitive roles (e.g., lawyers, financial analysts, and emergency room physicians), and ML models today cannot cope with the intuitive connections that drive many of their decisions. However, there will be transformation around the edges of their work, with innovations in cognitive search to help create and uncover connections that support decisions, sometimes known as augmented intelligence. Knowledge workers will also benefit from the rise of digital assistants that manage calendars and logistics.[7]

Figure 4

"In terms of change to employee experience, what workers will be most affected by automation in the next 5 years?"

(Ranked as top 3 shown)

1. Location-based workers
(e.g., retail clerk, bank teller)

2. Function-specific workers
(e.g., insurance claims manager, loan officers)

3. Cubicle workers
(e.g., contact center agent, accounts payable clerk, administrators)

4. Single domain knowledge workers
(e.g., actuaries, mechanical engineers, auditors, radiologists)

5. Cross-domain knowledge workers
(e.g., lawyers, financial analysts, emergency room physicians)

6. Coordinators
(e.g., warehouse managers, fleet managers, team leaders)

Most affected

Least affected

Base: 269 business and technology decision makers and influencers (director+) responsible for automation and AI initiatives or centers of excellence at their organizations
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

3. ORGANIZATIONS MUST PREPARE FOR THE FUTURE OF WORK AND KEEP UP WITH AUTOMATION ACCELERATION

With reskilling and job transformation already taking place today, the future of work is closer than most think. External drivers such as global disruption, a rapidly changing economic climate, the acceleration of technology refresh cycles, and the fact that automation speeds up how work is done, all come together to create a constantly shifting landscape. Even firms that think they are prepared today may quickly fall behind in the future. Cultural and organizational change needs to start now (see Figure 5). Firms in our survey are most concerned with:

› **Changing operational models to keep pace with the future of work.** Most of the surveyed automation leaders (61%) are concerned that they will fail to evolve their operational models to accommodate a more automated world. This is a major red flag that says firms are not currently prepared for the future of work. And, troublingly, 57% are concerned about their ability to put the right change management practices in place for the culture, organizational structure, and working practices that will be needed. Maintaining outdated operational models and not culturally preparing for the necessary change management will be devastating to companies that cannot keep pace with the acceleration of automation and the changes that come with it.

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› **Recruiting and retaining skilled workers for the future of work.** Job transformation will happen across all worker personas. Skills must be found to not only build and train, but also collaborate with and complement digital workers. Expect hot competition for data scientists, developers, business and data architects, process consultants, as well as new positions curating knowledge sets and controlling automation. Soon that will extend to skills needed to support new forms of human and machine collaboration, such as change management, explainability, and bias assessment. Sixty percent of survey respondents are worried about recruiting and retaining automation development talent, and 59% of survey respondents are worried about recruiting and retaining skilled human workers to complement digital workers.

How can firms successfully navigate impact of automation in the current climate of change and uncertainty? In the third paper in this series, Forrester will compare the practices and challenges of automation leaders using our future of work readiness model to gain insights into the best practices, key challenges, and priorities for firms preparing for the future of work.

Figure 5

Top Company Concerns From A More Automated World

(Very concerned + concerned, top 6 responses shown)

#1) Maintaining outdated operating models and failing to transform

#2) Ability to recruit and retain automation talent

#3) Ability to recruit, reskill, and retain skilled human workers to complement digital workers

#4) Disruption from new cloud native cognitive-based competitors

#5) Pace of work being accelerated due to automation

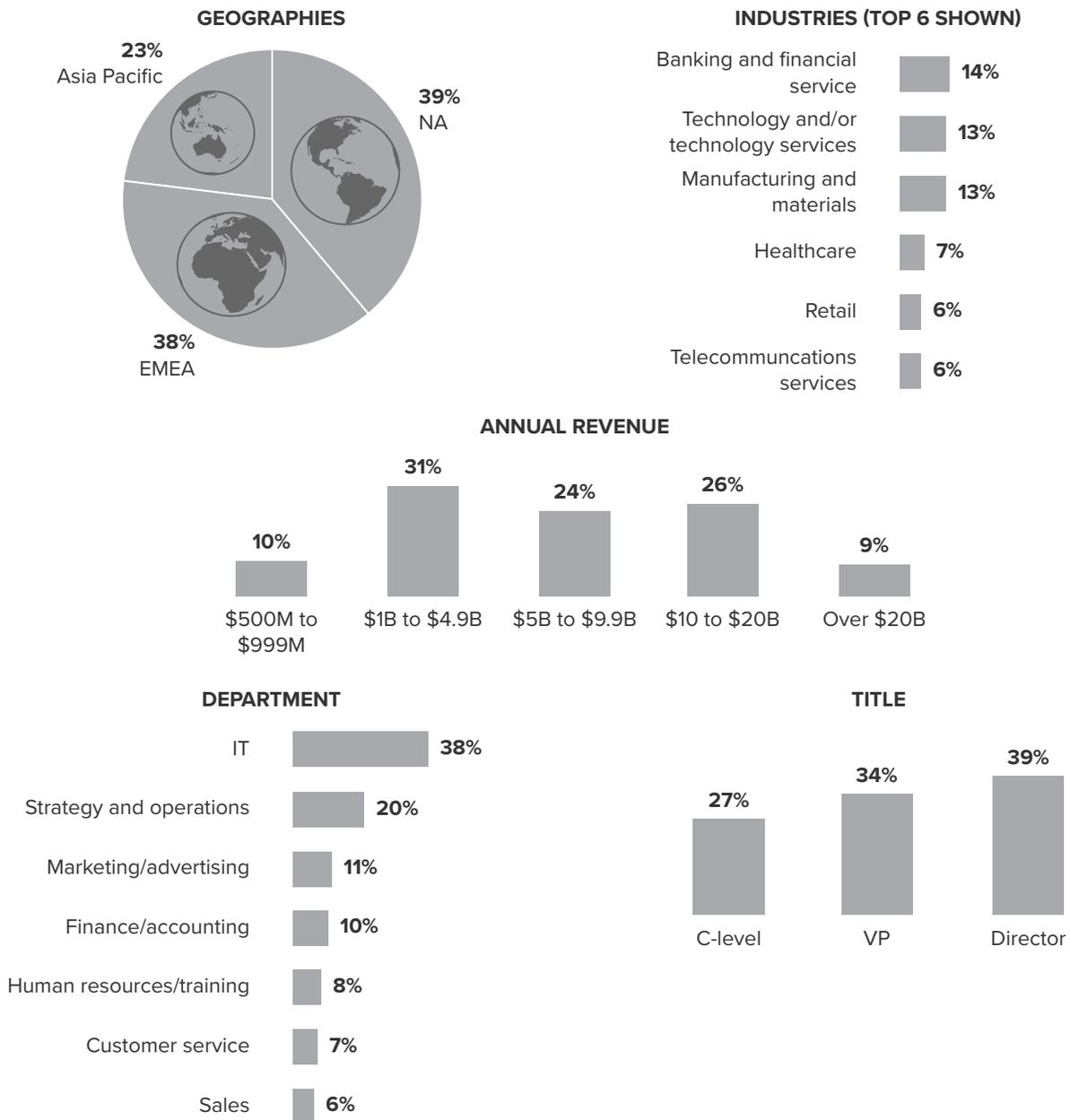**#6)** Ability to manage change for culture, organizational structure, and working practices

Base: 269 business and technology decision makers and influencers (director+) responsible for automation, AI, and ML initiatives or centers of excellence at their organizations
Source: a commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

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Appendix A: Methodology

In this study, Forrester conducted an online survey of 269 firms in Canada, China, France, Germany, Japan, the UK, and the US with annual revenues of $500M or more to evaluate how these firms view the future of work with regards to intelligent automation. Survey participants included IT and business decision makers in C-level, vice president, or director positions responsible for AI and ML strategy development and technology selection at their organizations. The study was completed in January 2020.

Appendix B: Demographics/Data

GEOGRAPHIES

23% Asia Pacific

39% NA

38% EMEA

INDUSTRIES (TOP 6 SHOWN)

Banking and financial service	**14%**
Technology and/or technology services	**13%**
Manufacturing and materials	**13%**
Healthcare	**7%**
Retail	**6%**
Telecommuncations services	**6%**

ANNUAL REVENUE

10%	**31%**	**24%**	**26%**	**9%**
$500M to $999M	$1B to $4.9B	$5B to $9.9B	$10 to $20B	Over $20B

DEPARTMENT

IT	**38%**
Strategy and operations	**20%**
Marketing/advertising	**11%**
Finance/accounting	**10%**
Human resources/training	**8%**
Customer service	**7%**
Sales	**6%**

TITLE

27%	**34%**	**39%**
C-level	VP	Director

Base: 269 business and technology decision makers and influencers (director+) responsible for automation, AI, and ML initiatives or centers of excellence at their organizations
Source: a commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020

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Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

"Intelligent Automation (RPA Plus AI) Will Release $134 Billion In Labor Value In 2022," Forrester Research, Inc., February 21, 2020.

"Future Jobs: Plan Your Workforce For Automation Dividends And Deficits," Forrester Research, Inc., April 30, 2019.

"Reinventing Work In The Era Of Automation," Forrester Research, Inc., August 24, 2018.

Appendix D: Endnotes

[1] Our study was conducted in January 2020, before the COVID-19 pandemic. Automation can provide businesses with resilience and continuity, and as a result, may be a greater priority for the surveyed companies in the current environment as of publication.

[2] Source: "Reinventing Work In The Era Of Automation," Forrester Research, Inc., August 24, 2018.

[3] Source: "Reinventing Workflows," a commissioned study conducted by Forrester Consulting on behalf of IBM, January 2020.

[4] Ibid.

[5] Source: "Intelligent Automation (RPA Plus AI) Will Release $134 Billion In Labor Value In 2022," Forrester Research, Inc., February 21, 2020.

[6] Source: "Future Jobs: Plan Your Workforce For Automation Dividends And Deficits," Forrester Research, Inc., April 30, 2019.

[7] Source: "Intelligent Automation (RPA Plus AI) Will Release $134 Billion In Labor Value In 2022," Forrester Research, Inc., February 21, 2020.

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