Shifting Skills, Moving Targets, and Remaking the Workforce

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By Matt Sigelman, Bledi Taska,
Layla O'Kane, Julia Nitschke,
Rainer Strack, Jens Baier,
Frank Breitling, and Ádám Kotsis

Our analysis of more
than 15 million job
postings illuminates
the future of work

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Introduction

Discussions about the job market usually focus on jobs created and destroyed. But even in the most tumultuous times, that is not what most workers or most businesses experience. Jobs do come and go, but even more significantly, jobs *change*. For the vast majority of workers, their job is much less likely to go away than to evolve into something new. Day by day, skill by skill, the basic building blocks of a job are repositioned, until the role looks much different than it did just five years ago. Yet the job title—and the worker in the job—may remain the same.

But even company leaders may not realize how profoundly and rapidly the jobs throughout their business and industry are evolving, even in areas that don't seem so susceptible to change. A comprehensive look at job listings from 2016 through 2021 reveals significant changes in requested skills, with new skills appearing, some existing skills disappearing, and other existing skills shifting in importance.

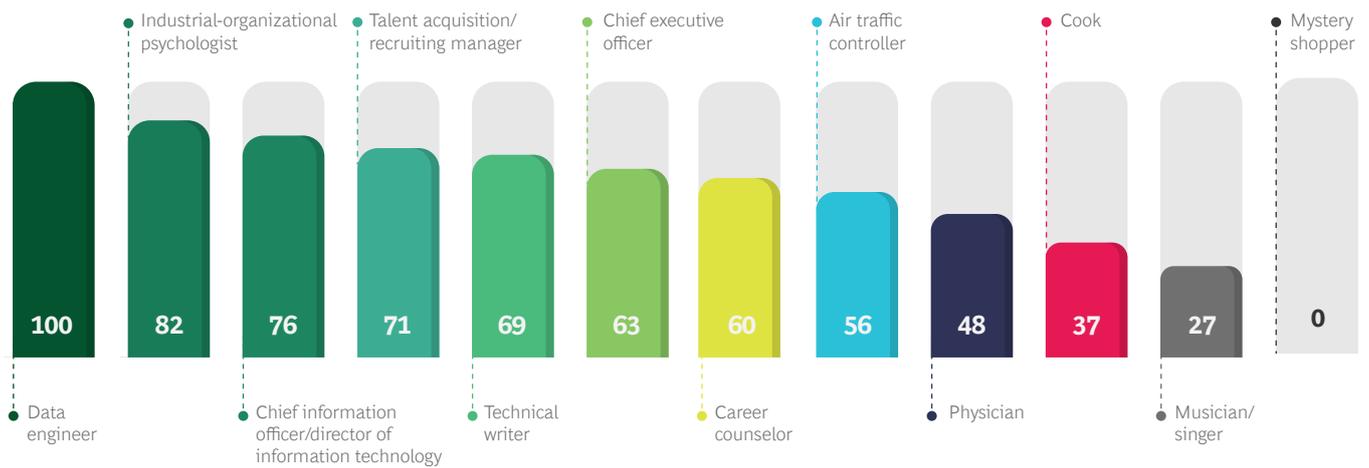The challenge for employers and employees alike is to keep up—or, better yet, to get ahead of the trends.

To meet that challenge, we analyzed millions of online job advertisements posted between 2016 and 2021 and created the Skill Disruption Index. Here's how:

We looked at the skills that employers requested in job postings each year and compared those skills with the ones requested for the same occupation in 2016. We broke down the change in two ways. First, we looked at the skills that were completely new to jobs—the ones that employers didn't ask for at all in 2016. Then, we looked at whether skills became more or less important to a role. Were they requested more or less frequently as time went on? The first way of breaking down skills is like seeing the initial blip on a radar screen; the second is more akin to using the Doppler effect to see if the target is speeding up or slowing down.

From there, we built the Skill Disruption Index. The Index allows us to compare how rapid and significant the changes are in specific roles. It combines the two measures mentioned above: the emergence of new skills and the change in the importance of skills. In addition, it assigns greater weight to skills that carry a salary premium in the job market (Microsoft Word or Excel might be a growing skill across many jobs, for instance, but probably would not result in a salary increase for those jobs, whereas Python might) or that are changing across several occupations (social media is a good example of a skill growing in importance in many occupations). All of this is plotted on a scale of 0 to 100, with 0 being the least amount of disruption (the job in this position: mystery shopper) and 100 being the greatest (data engineer). (See the appendix for the full listing of 680 jobs and their Skill Disruption Index values.)

(For more detail, see the sidebar, "A Look Inside the Emsi Burning Glass Approach.")

Select Occupations and Their Skill Disruption Index Values

	Industrial-organizational psychologist	Talent acquisition/ recruiting manager	Chief executive officer	Air traffic controller	Cook	Mystery shopper
100	82	76	71	69	63	60	56	48	37	27	0

Data engineer • Chief information officer/director of information technology • Technical writer • Career counselor • Physician • Musician/singer

In fact, the pace of change has accelerated such that jobs are more disrupted today than ever before: we consider this period of time to be the Great Disruption, a workforce phenomenon that exists alongside the Great Resignation and the Great Recalibration and likewise demands swift and thoughtful action by employers and other stakeholders. Of course, not every job is getting disrupted uniformly—to the same degree, at the same rate, in the same way. Leaders and decision makers need to understand what skills their organization needs and how to access them. Essentially, they need to capture a moving target.

This report investigates what is actually happening, at both a high level and in detail for select, broadly relevant job categories. It identifies macro trends in the evolution of job skills, and it offers leaders, employees, educators, and the public sector the clarity they need to create strategies that will enable them to get ahead of the Great Disruption. It updates the analysis of job market trends in our 2019 report *What's Trending in Jobs and Skills,* this time focusing on the unprecedented rate of change in requested skills in jobs in all fields.

A Look Inside the Emsi Burning Glass Approach

Emsi Burning Glass scans millions of job postings in the US every day and analyzes them using artificial intelligence technologies. Drawing on data sourced from more than 15 million online job postings between 2016 and 2021, we examined current skill requests as well as their evolution over time. In each year, we looked at the proportion of each job that requires a skill and then tracked that skill to see how the proportion changed over time.

To build the Skill Disruption Index, we calculated the absolute value of the difference in proportions from 2016 through the third quarter of 2021. Specifically, data was collected and included from the first quarter of 2016 through the third quarter of 2021. We then adjusted these differences based on the salary premium for each skill and a measure of the number of occupations the skill affected. These adjustments increase the weight on skills that command a high premium and that are in demand across a wide range of occupations. (To account for a spike in job postings by one employer in either year that may distort the skill demand, we also downweighted the skill change using 1 minus the percent of the skill demand coming from the top employer. For example, if 90% of a skill in an occupation came from the top employer, this skill was weighted as follows [1–0.9] = 0.1.) Next, we summed the changes for each occupation and normalized them to result in an index between 0 and 100.

Our analysis includes 680 occupations based on Emsi Burning Glass's proprietary taxonomy of occupations. It also includes more than 18,000 skills developed by Emsi Burning Glass and tagged in job-posting data.

(Note that we also based our SDI methodology on "Earnings dynamics, changing job skills, and STEM careers" by David J. Deming and Kadeem Noray, published in *The Quarterly Journal of Economics* 135, no. 4 (2020): 1965–2005.)
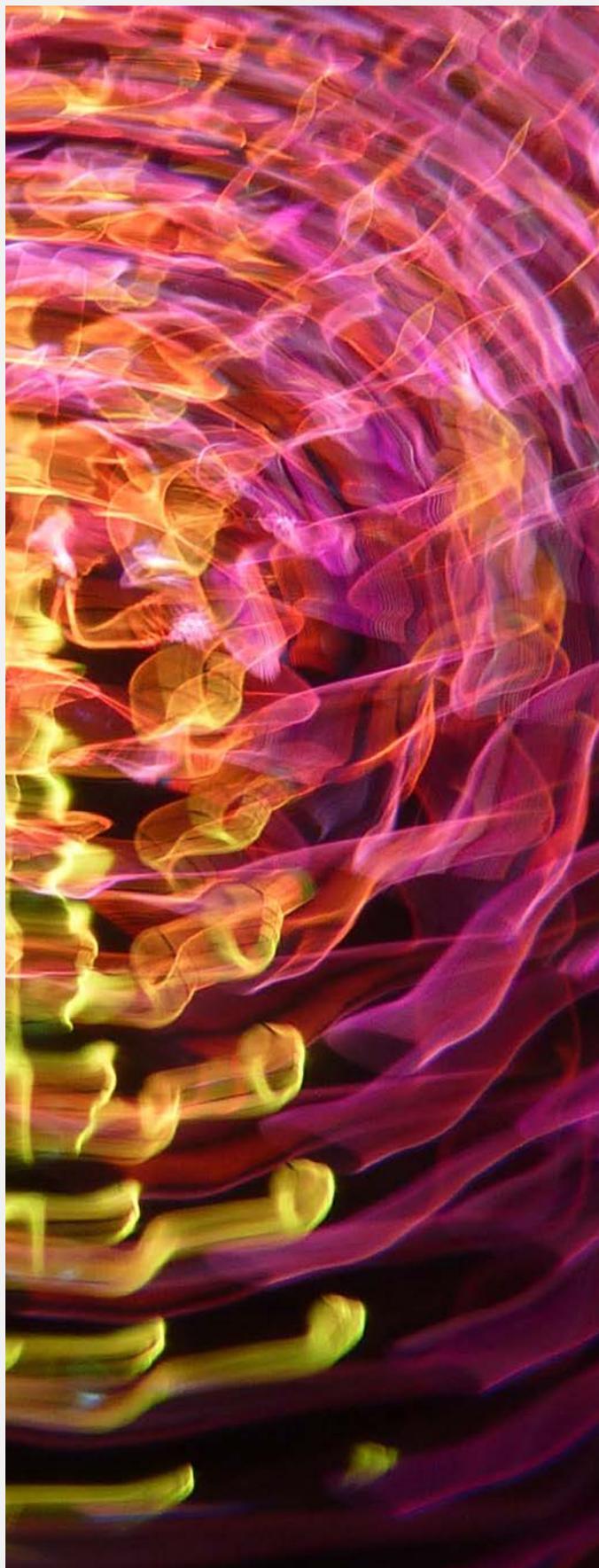
The Great Disruption

To develop a sense of how skills have changed across jobs, we looked at the top 20 skills underlying each job in the Emsi Burning Glass database and how they have evolved since 2016. Overall, 37% of the top 20 skills requested for the average US job have changed since 2016. (We assume the same trend is valid across the developed world.) One in five skills (22%) is entirely new. And certain sectors—finance; design, media, and writing; business management and operations; HR; IT—have changed faster than others.

We also divided the jobs into quartiles to help summarize how intense skill change has been along the whole set of occupations (see Exhibit 1):

Exhibit 1 – In the Top Quartile of Jobs, 76% of Top 20 Requested Skills Have Changed Since 2016
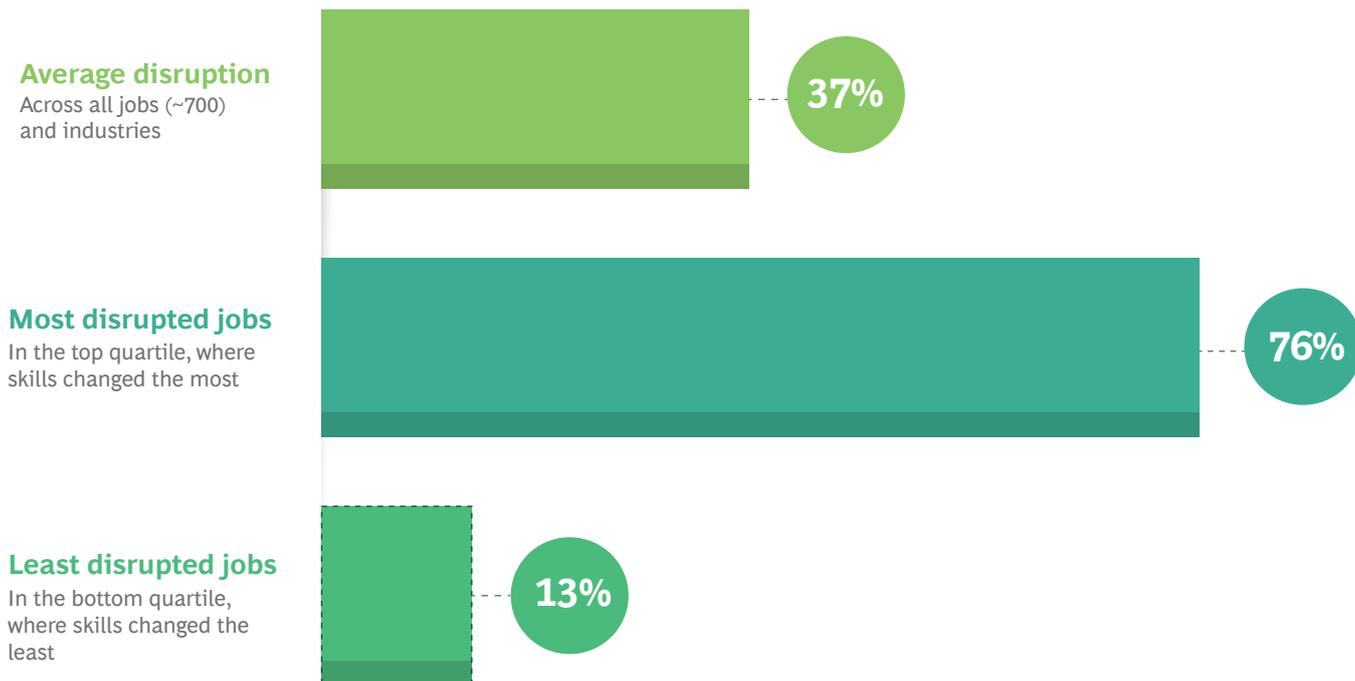
Average disruption
Across all jobs (~700) and industries

37%

Most disrupted jobs
In the top quartile, where skills changed the most

76%

Least disrupted jobs
In the bottom quartile, where skills changed the least

13%

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million. On average, a job posting has 16 skills; we have considered postings with at least 5 skills.

- In the top quartile of occupations—the 25% of jobs with the highest SDIs—we saw the most dramatic change: almost 80% of the top 20 skills are either new or have increased or decreased in importance. Examples of jobs in this category: accounting supervisor, advertising/promotions manager, marketing assistant/associate, software developer/engineer, solar engineer.

- By contrast, jobs in the bottom quartile have changed the least at less than 15%. Many of these are physical occupations. Examples: laborer/warehouse worker, packager, janitor/cleaner, tractor/trailer truck driver, shipping/receiving clerk.

In reviewing the five-year data, we detected an acceleration in the pace of change. Nearly three-quarters of jobs changed more from 2019 through 2021 (during which time the compound annual growth rate was 22%) than they did from 2016 through 2018 (19%).

We attribute this increase during our review period to the pandemic, which forced businesses to rethink operations and people in all kinds of occupations to embrace new ways of working and new skills. The pandemic has shown how quickly organizations can adapt to a crisis—and how quickly that impacts their workforce.

In addition to the pandemic, other forces are driving change—the emphasis on sustainability, for instance.

But the main driver of change in requested skills is technology. Technology is reshaping many, if not most, jobs. Sometimes this is dramatic, as in the explosion of phone apps in e-commerce. Sometimes, it is subtle: the replacement of the clipboard by the tablet in fields from trucking to health care or the price gun by the barcode in the supermarket.

The impact of technology change extends far beyond fields that are intrinsically technical, like IT, engineering, and science and research. Exhibit 2 shows the level of skill change across key job families that exist in almost all companies and industries but are not traditionally considered to comprise tech roles (we've included IT as a benchmark). The proliferation of technologies that can be put to effective use in these roles is changing the understanding of "tech job," however. A marketing specialist, a client support employee, a writer, an HR manager—and many more—must now have technical proficiencies as well as their traditional expertise.
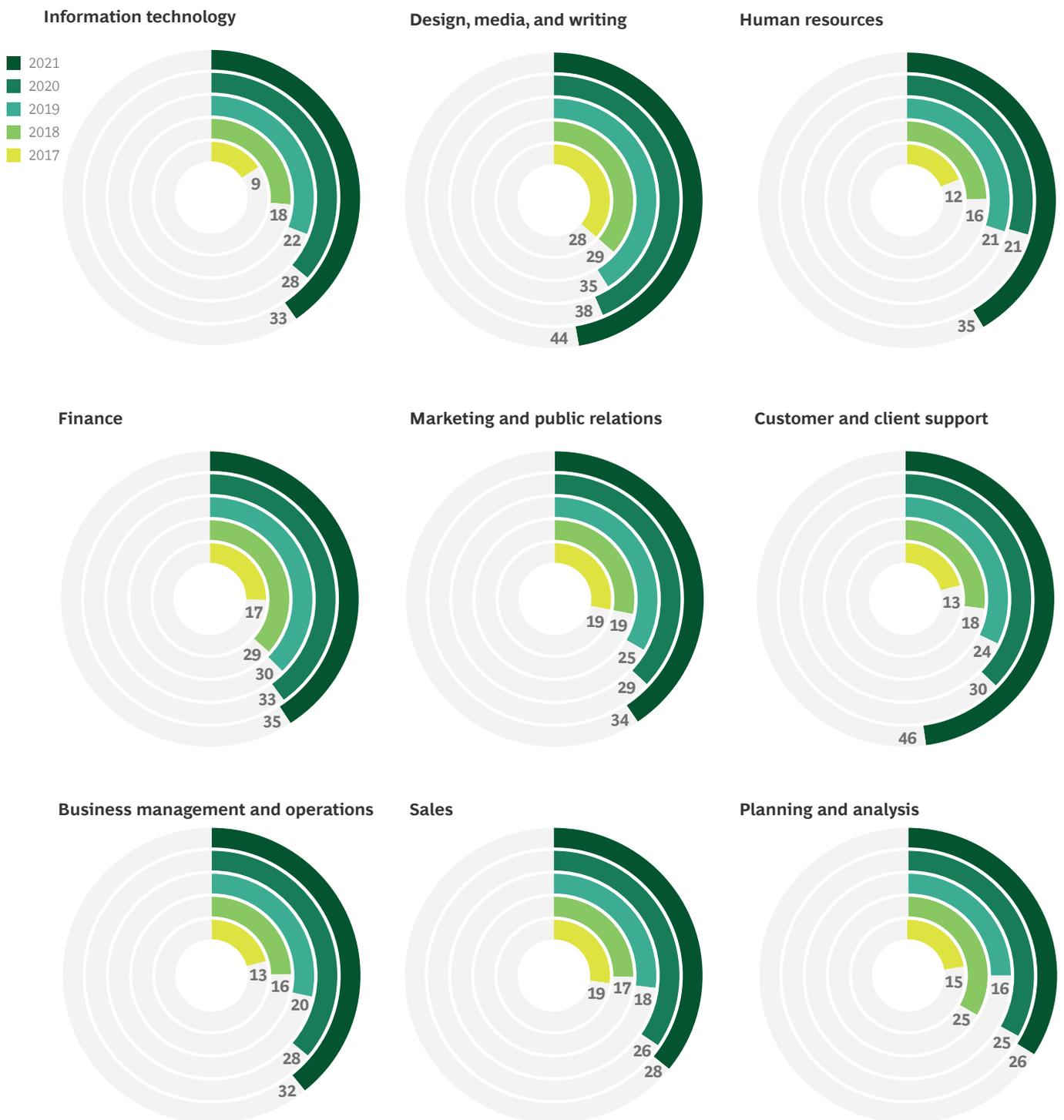
A closer look at the role of marketing specialist provides a good example of the shift to tech. (See Exhibit 3.) It's a common role (15% of postings for marketing jobs are for marketing specialists) that exists in many companies and industries, and requested skills changed significantly over the past five years. Thus, a deeper look at the skills requested of a marketing specialist provides a good approximation of the skill changes across the entirety of the job family.

Some notable changes in this representative role:

- Twenty percent of the skills in demand today for marketing specialists are new since 2016.

- Another 40% have changed significantly in terms of their importance.

- Digital marketing and data skills drive the skill evolution in this role. New skills include social media platforms like Facebook and software like Salesforce and Google Analytics.

- As new skills emerge, others fall away. Skills that disappeared from the top 20 list for marketing specialists since 2016 include traditional marketing skills like market research, customer contact, retail industry knowledge, and marketing communications.

Exhibit 2 – Technology Drives Skill Change, in Tech and Nontech Jobs Alike

Share of top 20 requested skills that changed, 2016–2021 (%)

Information technology

- 2021
- 2020
- 2019
- 2018
- 2017

9
18
22
28
33

Design, media, and writing

28
29
35
38
44

Human resources

12
16
21
21
35

Finance

17
29
30
33
35

Marketing and public relations

19
19
25
29
34

Customer and client support

13
18
24
30
46

Business management and operations

13
16
20
28
32

Sales

19
17
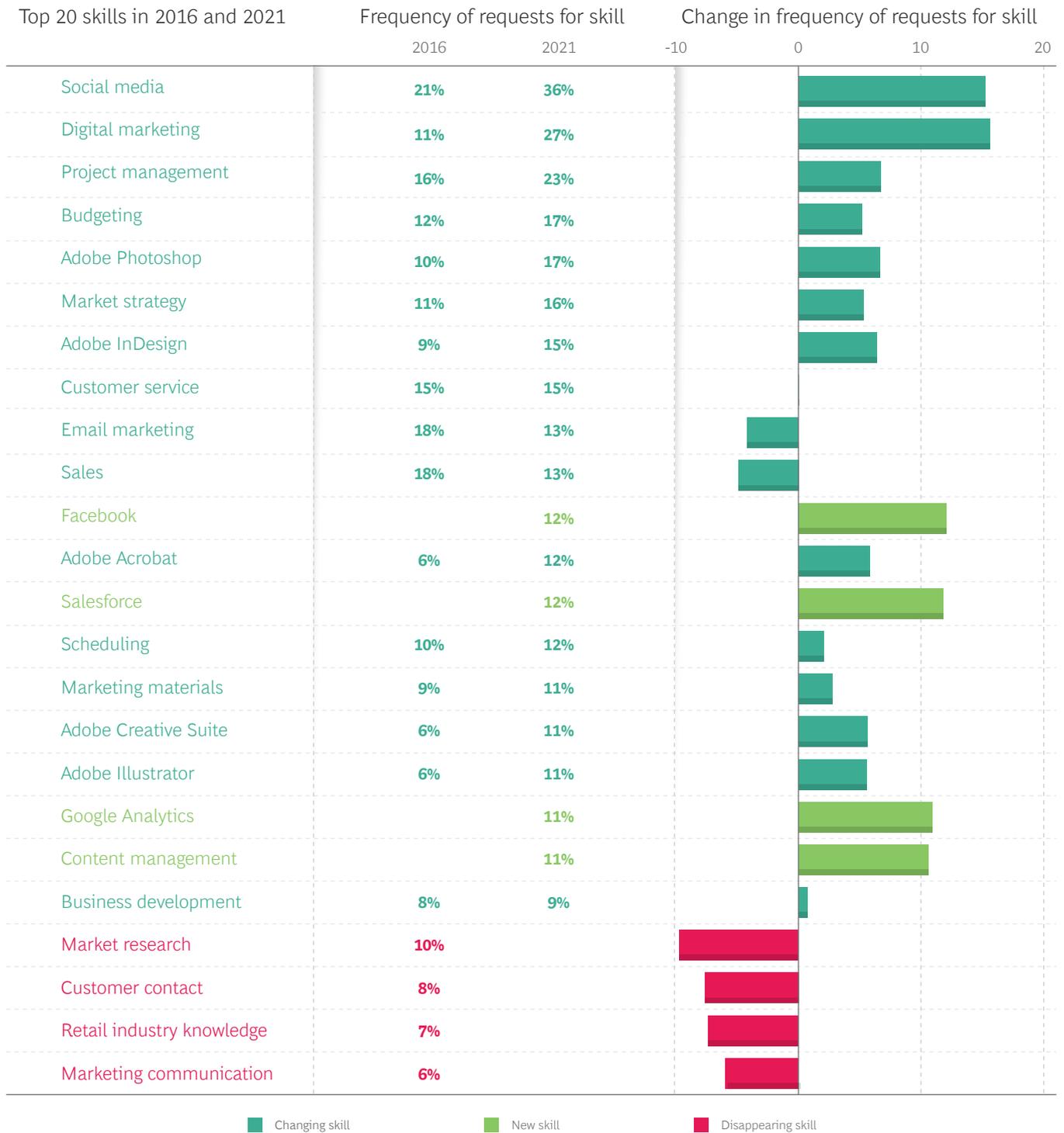18
26
28

Planning and analysis

15
16
25
25
26

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million. The baseline is 0% in 2016 for all job functions.
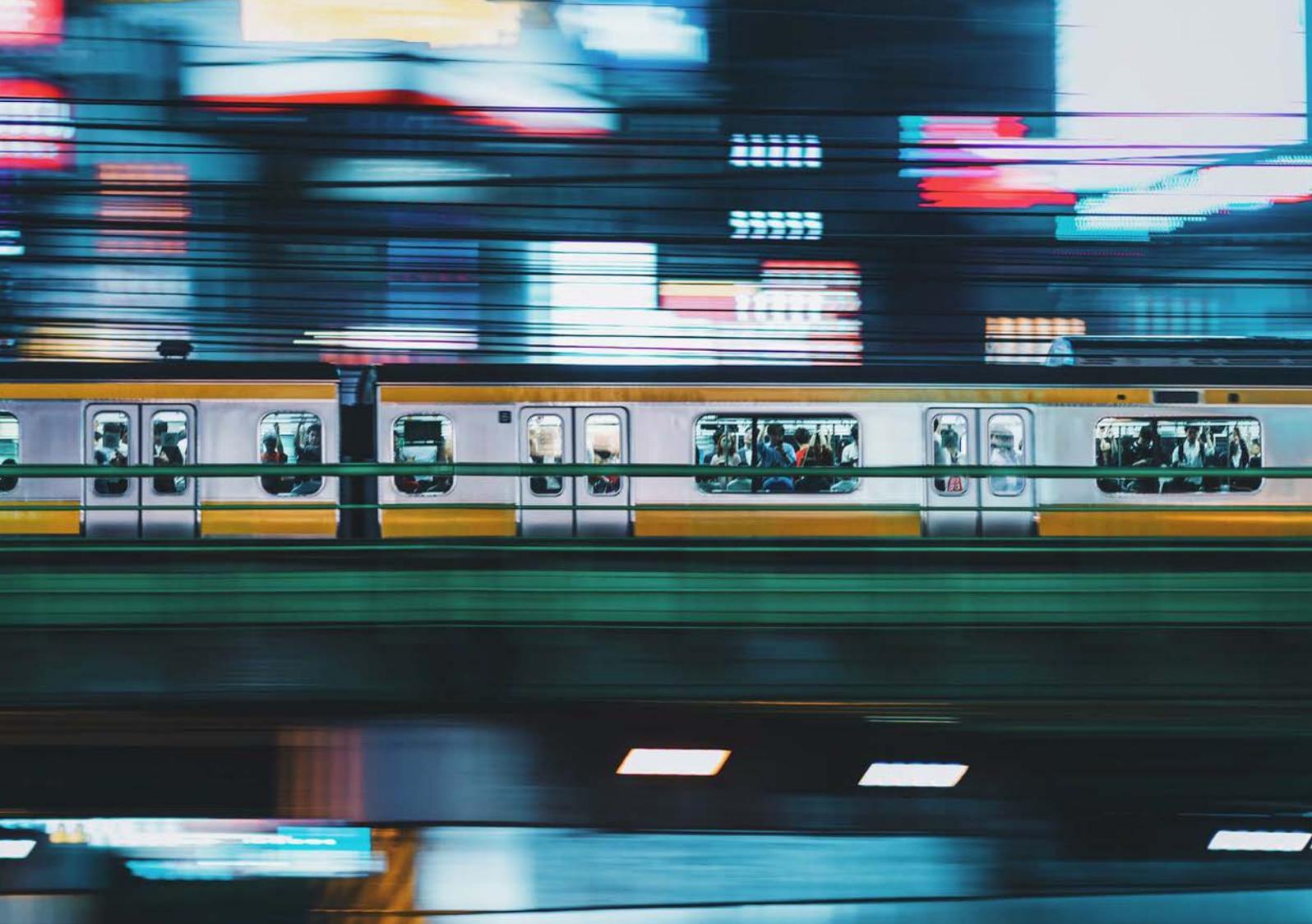
Exhibit 3 – How the Skills Requested for Marketing Specialists Have Changed

Top 20 skills of marketing specialists (2016 and 2021): How often the given skill is requested in a marketing specialist job posting (%)

Top 20 skills in 2016 and 2021	Frequency of requests for skill		Change in frequency of requests for skill
	2016	2021	
Social media	21%	36%	
Digital marketing	11%	27%	
Project management	16%	23%	
Budgeting	12%	17%	
Adobe Photoshop	10%	17%	
Market strategy	11%	16%	
Adobe InDesign	9%	15%	
Customer service	15%	15%	
Email marketing	18%	13%	
Sales	18%	13%	
Facebook		12%	
Adobe Acrobat	6%	12%	
Salesforce		12%	
Scheduling	10%	12%	
Marketing materials	9%	11%	
Adobe Creative Suite	6%	11%	
Adobe Illustrator	6%	11%	
Google Analytics		11%	
Content management		11%	
Business development	8%	9%	
Market research	10%		
Customer contact	8%		
Retail industry knowledge	7%		
Marketing communication	6%		

Legend: ■ Changing skill ■ New skill ■ Disappearing skill

Four Big Trends

Looking at the data across job families reveals four big trends in skill change

- Digital skills in nondigital occupations
- Soft skills in digital occupations
- Visual communication
- Social media skills

We've already talked about two major drivers of change across jobs: technology and the pandemic. These are the main forces behind these four trends as well: Digital technologies are changing even traditionally nondigital jobs. And digital and other technologies enable new ways of working: teams of employees are more connected and collaborative, emphasizing the need for soft skills, visual communications, and social media skills. Of course, technologies are making visual communications and social media more widely available, accessible, and flexible all the time.

And during the pandemic, companies and workers everywhere were forced to rely all the more on digital technologies and to draw upon their soft skills, visual communications, and social media skills to collaborate effectively while working remotely.

These trends, like many others that have emerged from tech- and pandemic-driven change, are likely to accelerate and proliferate.

Digital skills in nondigital occupations

The growth of digital skills isn't limited to jobs in IT. Roles across industries increasingly demand technical fluency and abilities. These skills include data analysis, digital marketing, networking, and digital skills in manufacturing (e.g., AutoCAD, 3D modeling).

Examples of occupations and the skills they require:

Advertising sales representative

- Digital advertising
- Salesforce
- CRM software

Merchandiser/ad set associate

- Data collection
- SAS
- Digital photography

Financial services sales agent

- .NET
- Salesforce
- CRM

Insurance sales agent

- Technical support
- Software customizations
- CRM

Marketing assistant/associate

- Digital marketing
- Adobe Acrobat
- Adobe Creative Suite

In these roles, the need for digital skills is **2x higher** than it was in 2016

Soft skills in digital occupations

Digital jobs don't just demand programming skills. These technical jobs now demand a balance of soft skills as well. These include skills involving organization, time management, verbal communication, leadership, positive thinking, listening, critical thinking, and building effective relationships.

Examples of occupations and the skills they require:

Mobile application developer

- Teamwork/collaboration
- Communication skills
- Problem solving

Web developer
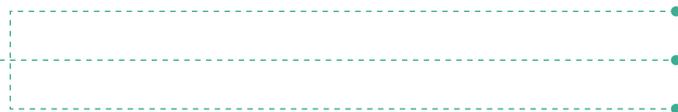
- Communication skills
- Teamwork/collaboration
- Problem solving

Computer programmer

- Communication skills
- Problem solving
- Teamwork/collaboration

UI/UX designer/ developer

- Teamwork/collaboration
- Communication skills
- Creativity

Computer support specialist

- Troubleshooting
- Communication skills
- Problem solving

In these roles, the need for soft skills is **up 22%** since 2016

Visual communication

The use of data visualization has increased across occupations, becoming increasingly important even outside of traditional data occupations. In addition to the skills listed in the occupations below, D3.js, Canva, Adobe Analytics, MS Visio, and Alteryx are in demand.

Examples of occupations and the skills they require:

Actuary

- Python
- Business intelligence
- Tableau

Tax analyst/specialist

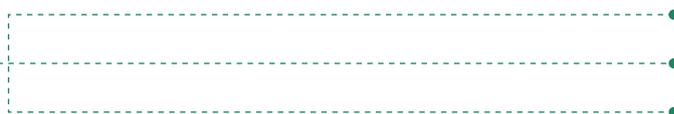- Data visualization
- Business intelligence
- Tableau

Compensation and benefits manager

- MS Power BI
- Business intelligence
- Tableau

Financial analyst

- MS Power BI
- Business intelligence
- Tableau

Talent acquisition/recruiting manager

- MS Power BI
- Business intelligence
- Tableau

In these roles, the need for visual communication skills is **11x higher** than it was in 2016

Social media skills

Careers are evolving to the current media climate. This means that many jobs now demand social media knowledge to keep pace. Adobe InDesign and YouTube are in-demand skills, in addition to those listed below.

Examples of occupations and the skills they require:

Receptionist
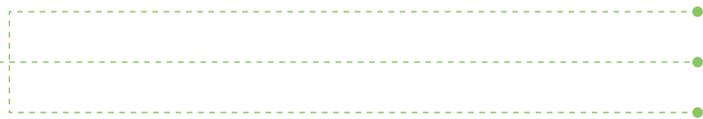
- Social media
- Facebook
- Instagram

HR assistant

- Social media
- Facebook
- LinkedIn

Marketing assistant/associate
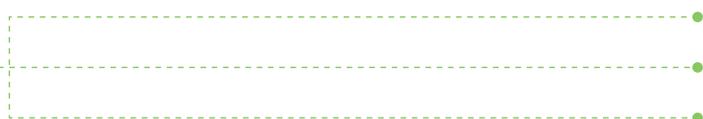
- Social media
- Adobe Photoshop
- Facebook

HR manager

- Social media
- LinkedIn
- Facebook

Business development/sales manager

- Social media
- Facebook
- Adobe Photoshop

In these roles, the need for visual communication skills is **4x higher** than it was in 2016

Disruptive Skills Across the Labor Market

From AI to supply chain disruption, from connectivity to climate change, the global trends shaping business decisions are becoming ever more complex. Over the past two years, the pandemic has accelerated these changes. Companies must adjust what they do and how they do it.

New initiatives, new technologies, and new strategies are all required, but if the company's workforce doesn't have the right skills, it is extremely hard to succeed. If a company launches new digital tools, for instance, but its employees are not able to use them, the new tools will hardly live up to their desired impact. Investments in recruitment, upskilling, and reskilling must accompany technology investments.

Even when it's clear that new approaches are required—and even when they are underway—it's hard to gauge the true degree and pace of change across job roles, within a company and across an industry or job family. For employers, it's critical to understand shifting requirements for the roles important to their business. With that insight, they can adapt their recruitment and development practices and thereby keep their workforce and their organization competitive.

Here is where our analyses can help provide those insights. We looked at all jobs, across the labor market, and grouped them into the following job families:

- Agriculture, horticulture, and the outdoors
- Business management and operations
- Clerical and administrative
- Community and social services
- Construction, extraction, and architecture
- Customer and client support
- Design, media, and writing
- Education and training
- Engineering
- Finance
- Health care including nursing
- Hospitality, food, and tourism
- Human resources
- Information technology
- Law, compliance, and public safety
- Maintenance, repair, and installation
- Manufacturing and production
- Marketing and public relations
- Performing arts
- Personal services
- Planning and analysis
- Sales
- Science and research
- Transportation

To provide data and insights with broad value, we've focused on four job families that are also core functional areas common across businesses and industries. These are also job families with relatively high average Skill Disruption Index values.

Four Common Job Families Across Businesses and Industries with Relatively High Skill Disruption Index Values

Job family	Skill Disruption Index
Information technology	78
Marketing and public relations	73
Human resources	64
Sales	58
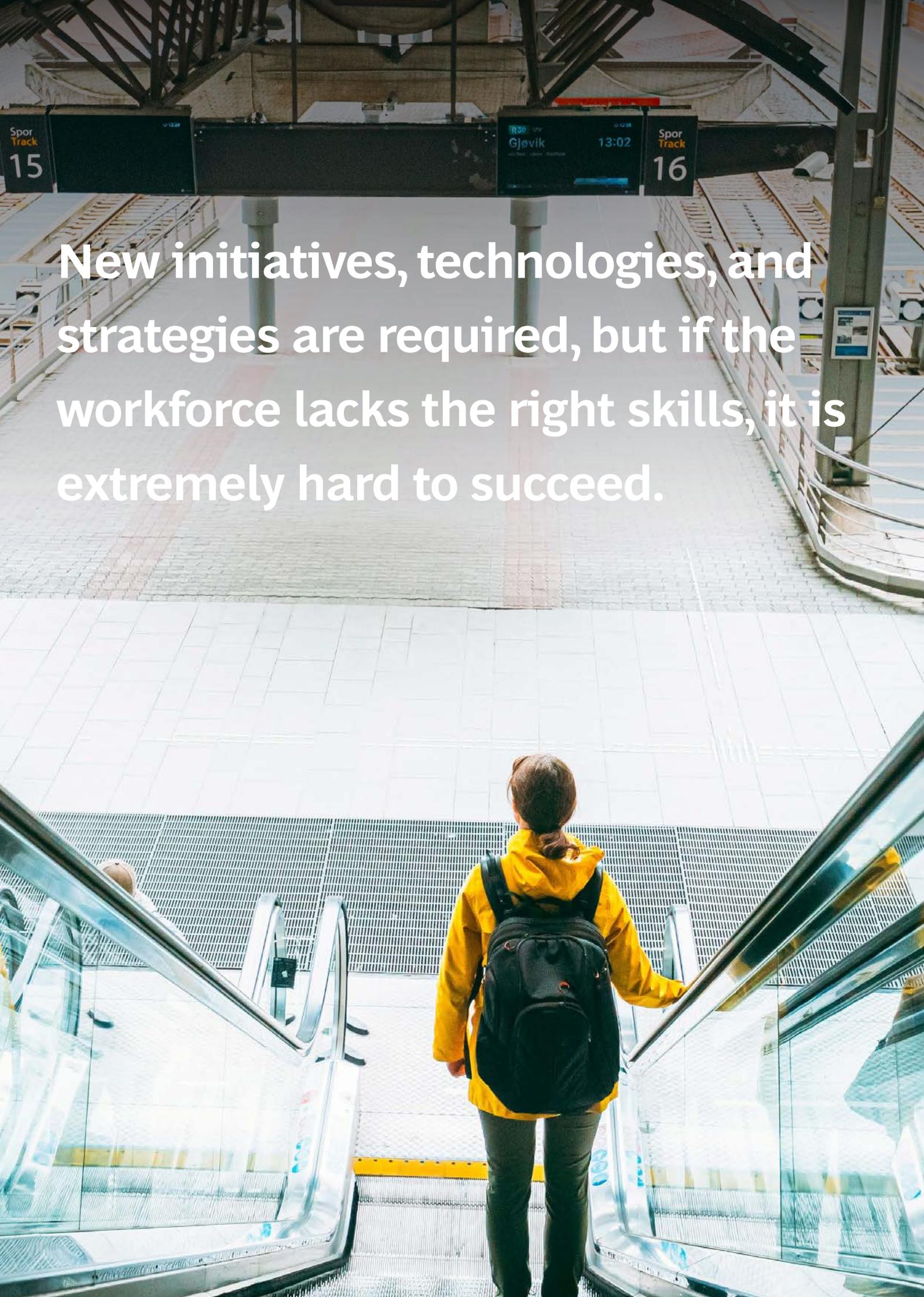
New initiatives, technologies, and strategies are required, but if the workforce lacks the right skills, it is extremely hard to succeed.

Within each job family, we examined the specific jobs with the highest Skill Disruption Index numbers (meaning that they are highly disrupted jobs) and then took a deeper look into the top disrupted job to see how skills changed from 2016 through 2021; looking at the top job gives a sense of changes across the family. This analysis helps us to understand the depth of the skill disruption in these key functions and the function-specific drivers involved in the disruption.
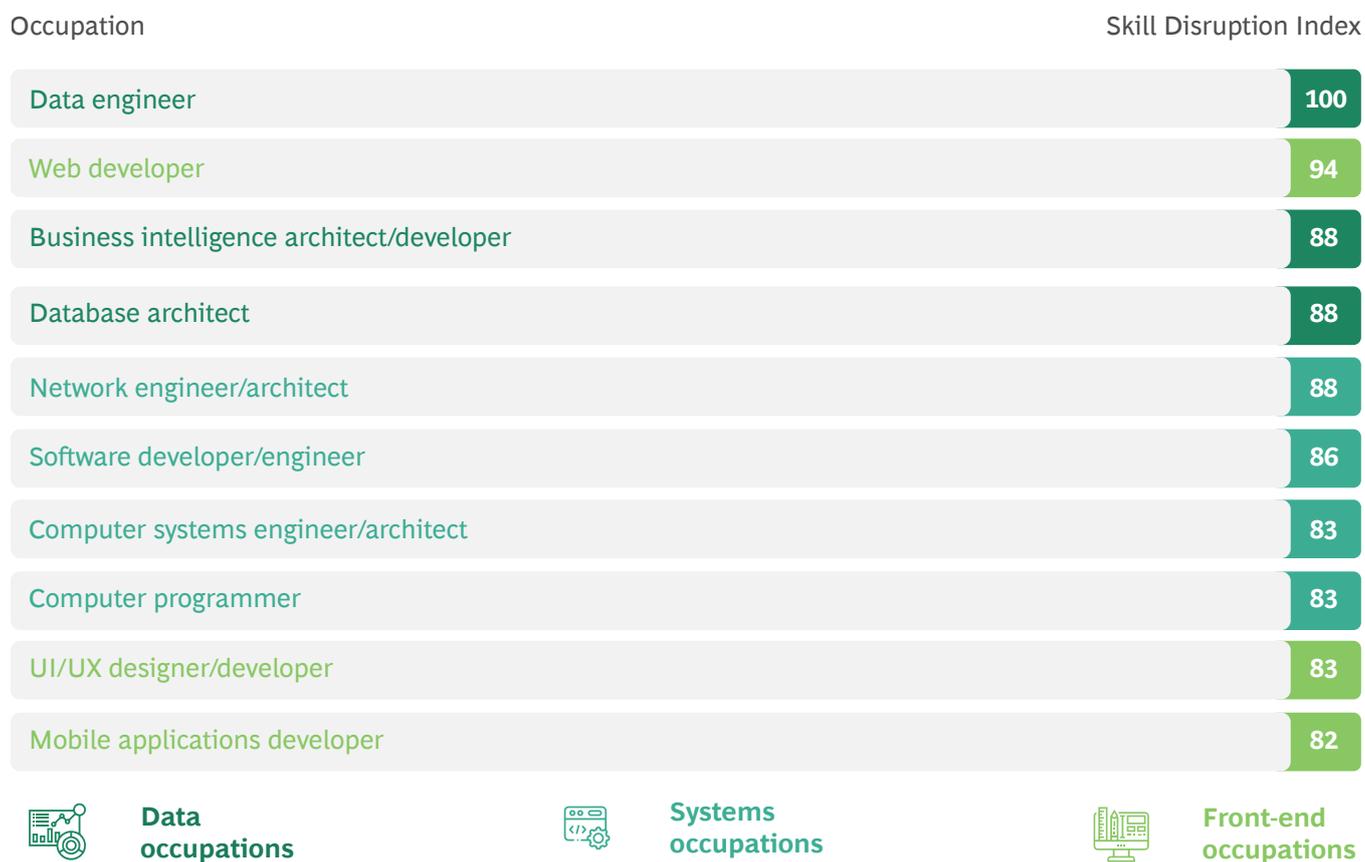
Information Technology

Given the significance of technology as a driver of change, it comes as no surprise that skill disruption is higher in IT than in any other job family. (This finding is based on examination of all jobs and skills within IT, not just on a look at the top 20 skills across job families, as shown earlier.)

Data, the web, software, online experiences, and more are changing occupations across the board; these skills are ensconced in IT, of course, so here we see great skill disruption across front-end, systems, and data occupations. (See Exhibit 4.)

The most disrupted occupation in IT is also the occupation at the top of our Skill Disruption Index: data engineer. New skills requested in this role since 2016 are Microsoft Power BI and artificial intelligence. Most skills that increased in importance for this role are technical in nature; skills that declined in importance were also specific technology capabilities, such as Ruby and the PERL scripting language.

Exhibit 4 – Select Highly Disrupted IT Occupations

Occupation	Skill Disruption Index
Data engineer	100
Web developer	94
Business intelligence architect/developer	88
Database architect	88
Network engineer/architect	88
Software developer/engineer	86
Computer systems engineer/architect	83
Computer programmer	83
UI/UX designer/developer	83
Mobile applications developer	82

Data occupations   **Systems occupations**   **Front-end occupations**

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million. The Skill Disruption Index measures the amount of skill change in an occupation on a scale from 1 to 100, with 100 representing the occupation that has changed the most out of all occupations in the database. That occupation is data engineer, and close to 75% of the top skills sought for that occupation have changed over the five-year review period.

When we look at the most disrupted IT jobs, we see particular trends in the pattern of change:

- **Designing in a Modular Fashion.** Client-server-based approaches are being replaced by modular, app-based, and service-focused solutions that can interface with third-party systems. With this move comes the need for expertise in new software programs and languages, including Vue.js and Kubernetes.

- **Relying on the Cloud.** Data centers once hosted on site are migrating to the cloud, requiring orchestration of private, public, and on-premise IT systems. This again brings a need for skills with new programs and languages, among them TensorFlow and Azure.

- **Emphasizing Data and Advanced Analytics.** Inconsistent silos of structured databases have become harmonized collections of unstructured data, enabling process automation and personalized customer journeys, among other things. Expertise in concepts like artificial intelligence and deep learning are becoming key skills here.

- **Using Multiple Channels.** Monolithic, siloed systems are giving way to loosely coupled components reused across multiple channels. Making that happen requires IT professionals with skills in server configuration as well as a variety of programs and languages, like Typescript and AWS Redshift.

- **Working in Agile Ways.** Moving from a single-speed, waterfall-style delivery process to a multispeed, scaled project management approach puts an emphasis on skills like agile ways of working and workflow management.

Exhibit 5 shows how these trends in IT are changing requested skills across IT occupations.

Exhibit 5 – Key Trends in IT and How They Relate to Skill Change
Rapidly Evolving Tech and Architecture Are Driving New Skill Requirements

	Examples of trending skills
Designing in a modular fashion	Vue.js, Kubernetes, Docker software, Spring Boot, Flask
Relying on the cloud	TensorFlow, Azure, Salesforce, Journey Builder, AWS Redshift
Emphasizing data and advanced analytics	Artificial intelligence, Microsoft Power BI, Robotics, Microsoft Azure, deep learning
Using multiple channels	Vue.js, TypeScript, AWS Redshift, Docker software, OpenShift, server configuration
Working in agile ways	Agile, Confluence, workflow management, design thinking

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million.

Marketing and Public Relations

Highly disrupted occupations in the marketing and public relations job family span very different fields. Some are related to the tech side of marketing and PR, others are involved in managerial functions, and still others focus on specialist roles. (See Exhibit 6.)

A deeper look at the most disrupted occupation in this category—advertising/promotions manager—certainly illustrates the role of technology in driving skill change. New requested skills for this job (skills that were not mentioned in postings in 2016 but were requested in 2021) include Microsoft Power BI, API management, scalability design, and data visualization. Among the skills that declined in emphasis: team building, sales management, administrative functions, and journalism.

More and more, marketing and PR is about testing products and tactics quickly, measuring results, and adjusting accordingly:

- **Testing and Measuring.** People in these roles need to understand which investments provide the best returns; to do this, they must experiment with new solutions and use increasingly specific measurement tools and solutions to assess the results—hence many of the new skills requested for these marketing roles.

- **Driving Consequent Change.** Another relevant trend driving skill change: the emergence of new, more sophisticated digital channels (such as Instagram and podcasting) and the need for new types of content designed explicitly to be transmitted through those new channels.

- **Adjusting Ways of Working.** Given the focus on more experimentational, data-centric marketing and PR efforts directed toward new channels and content, ways of working are also changing. Consequently, design thinking, project management, and proficiency with knowledge-sharing software, like Confluence are among the rising requested skills for marketers.

Exhibit 7 shows how key trends shaping marketing and PR are reflected in the change in requested skills.

Exhibit 6 – Select Highly Disrupted Marketing and PR Occupations

Occupation	Skill Disruption Index
Advertising/promotions manager	83
Marketing specialist	79
Marketing assistant/associate	76
Product manager	75
Marketing research analyst	74
E-commerce analyst	73
Marketing manager	72
Public relations/communications specialist	71
Search engine optimization specialist	71
Media planner/buyer	70

Managerial occupations   **Specialist occupations**   **Technology-related occupations**

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n> 15 million. The Skill Disruption Index measures the amount of skill change in an occupation on a scale from 1 to 100, with 100 representing the occupation that has changed the most out of all occupations in the database. That occupation is data engineer, and close to 75% of the top skills sought for that occupation have changed over the five-year review period.

Exhibit 7 – Key Trends in Marketing and PR and How They Relate to Skill Change

Test, Learn, and Adapt Is the New Mantra for Marketing

	Examples of trending skills
Testing ideas	Experiments, test development
Measuring results	Adobe analytics, AI, data science, data visualization, KPIs
Driving consequent change in marketing channels	Affiliate marketing, API, Instagram, MailChimp, podcasting, social media
Driving consequent change in marketing content	Business writing, content curation, copyediting, video editing, videography
Adjusting ways of working	Design thinking, DevOps, Atlassian JIRA (project software), Confluence (knowledge-sharing software), HubSpot (CRM software)

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million.

Understanding the details of this skill disruption and ensuring that the right skills are available for the company is a key responsibility for both marketing management and HR support. Having the right skills in place is one of the four key pillars of accelerating digital marketing maturity, and companies that successfully accelerate their marketing function are twice as likely to increase their market share as those that don't—proving the value of being ahead of the skills curve.

Human Resources

Among the job families discussed in this report (and throughout our underlying research), HR holds a unique position. The skill and job changes in every job function require the attention of HR—even as the HR function itself is being transformed. It's no surprise—given the overall skill shift and the current competition for talent—that the most disrupted job on our list of highly disrupted HR roles is that of talent acquisition/recruiting manager. (See Exhibit 8.)

The talent acquisition/recruiting manager is now expected to have three skills that were not requested at all or in many postings in 2016: people development, benchmarking, and employer branding. Other skills on the increase are team building and stakeholder management. On the decline: cold calling and staffing services industry knowledge, among others.

We see three key trends in HR that have an impact on the skills required of HR practitioners (see Exhibit 9):

- **Sourcing Talent in New Ways.** Talent acquisition is transforming, and companies need to be even more proactive in going after people with critical skills. As the talent demand and supply landscape is becoming more complex and technical, HR professionals need to partially mirror the specialization.

- **Leading and Engaging Stakeholders.** New ways of working, such as agile, have presented leaders with new challenges in recent years. And we've all seen how the pandemic—and the resulting pivot to novel "smart work" practices—has brought even more leadership challenges. HR leaders are doubly impacted: even as they manage their own changing job function and personnel, they must help all other leaders in the organization build new leadership skills and engage employees in novel ways.

Exhibit 8 – Select Highly Disrupted HR Occupations

Occupation	Skill Disruption Index
Talent acquisition/recruiting manager	71
Compensation/benefits analyst	70
Human resources manager	66
Compensation and benefits manager	63
Recruiter	63
Training and development manager	63
Human resources/labor relations specialist	61
Human resources assistant	58
Training and development specialist	58

Talent acquisition occupations

Managerial occupations

Engagement occupations

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million. The Skill Disruption Index measures the amount of skill change in an occupation on a scale from 1 to 100, with 100 representing the occupation that has changed the most out of all occupations in the database. That occupation is data engineer, and close to 75% of the top skills sought for that occupation have changed over the five-year review period.

Exhibit 9 – Key Trends in HR and How They Relate to Skill Change
Data, Talent Acquisition, and Engagement Skills Are on the Rise

	Examples of trending skills
Emphasizing data and digital	Microsoft Power BI, Tableau, ADP Workforce, KPIs, information systems
Sourcing talent in new ways	Social media platforms, needs assessment, talent acquisition, candidate sourcing, Facebook
Leading and engaging stakeholders	Conflict management, employee recognition, thought leadership, team building, stakeholder management

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million.

- **Emphasizing Data and Digital.** People analytics is becoming more and more integral to HR professionals, as better data are available inside and outside the company on current and prospective employees, skill levels, career paths, and the results of new ways of working. Thus, data skills are increasingly requested across many HR roles. But BCG research, conducted in partnership with the World Federation of People Management Associations, shows that digital capabilities are frequently lacking in HR, signaling a significant upskilling need within the function.

Companies see the increasing importance of these topics and are actively looking for HR colleagues who possess the relevant skill sets.
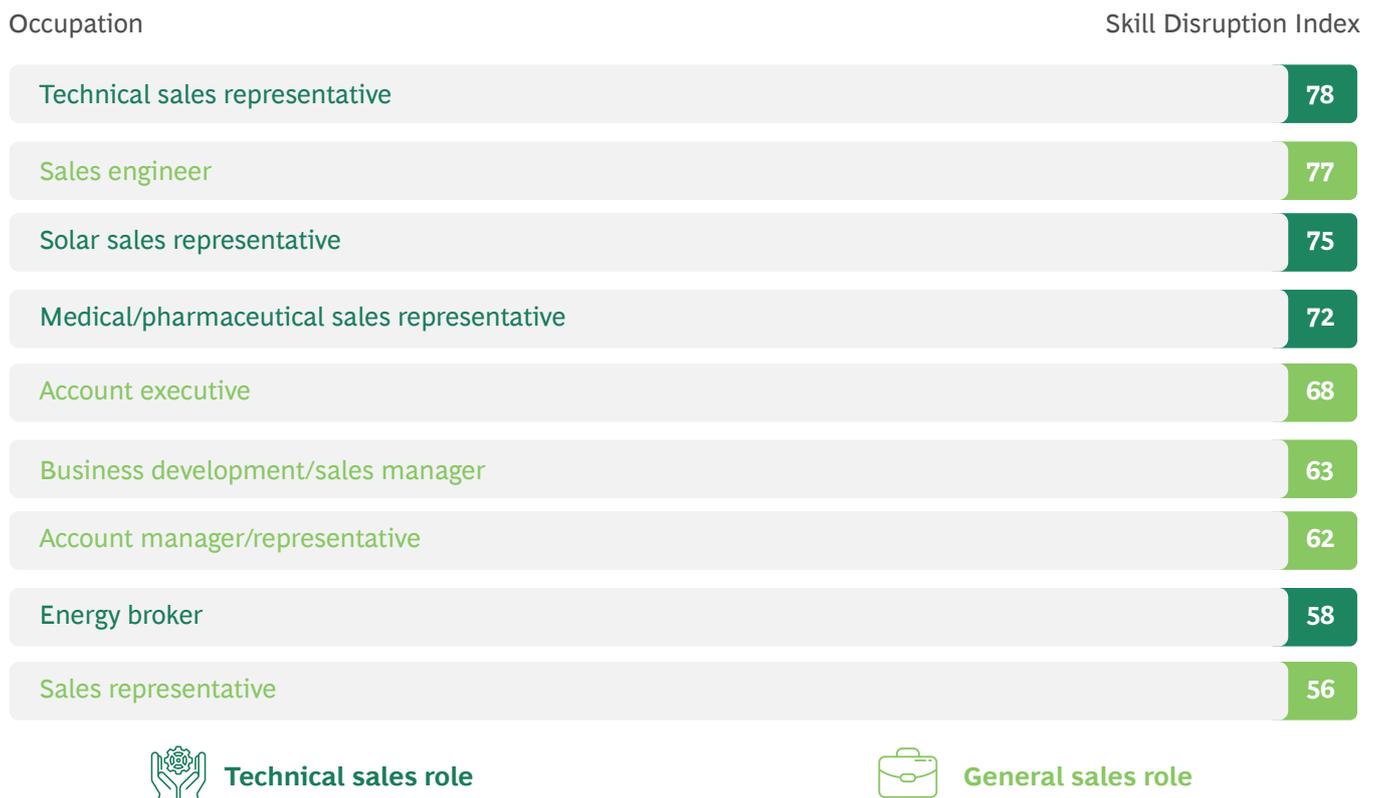
B2B Sales

In the world of sales, B2B relationships and transactions are in a particularly dynamic state, influencing the skill requests for many different roles. Exhibit 10 shows the most disrupted B2B sales occupations.

Topping the list is the role of technical sales representative. Some of the skills that have increased in importance for this role since 2016 are technical (telecommunications, technical demonstrations) but others are soft skills: critical thinking, sales development, and thought leadership. Among the skills that decreased in importance: description and demonstration of products.

Indeed, B2B customers today are seeking comprehensive solutions, not just products or services. For B2B salespeople, then, the trends in requested skills are largely customer focused (see Exhibit 11):

- **Creating Customer Value.** B2B customers expect their interactions with sales to go beyond just understanding product features and to focus instead on codesigning detailed solutions.

- **Improving the Customer Experience.** Customer data and advanced analytics make it possible for salespeople to anticipate their customers' emerging needs and come up with solutions proactively.

- **Emphasizing Digital Skills.** To create customer value and improve the customer experience, B2B salespeople must be able to understand and work with data—specifically, they need to be able to use programs like CRM software and concepts like data visualization. B2B sales are increasingly data driven and digital. One reason is that the pandemic forced B2B sales reps to interact with customers remotely; now, some 50% of sales reps expect to continue to work in a remote or hybrid sales model, making digital skills imperative.

Exhibit 10 – Select Highly Disrupted B2B Sales Occupations

Occupation	Skill Disruption Index
Technical sales representative	78
Sales engineer	77
Solar sales representative	75
Medical/pharmaceutical sales representative	72
Account executive	68
Business development/sales manager	63
Account manager/representative	62
Energy broker	58
Sales representative	56

Technical sales role   **General sales role**

Sources: Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million. The Skill Disruption Index measures the amount of skill change in an occupation on a scale from 1 to 100, with 100 representing the occupation that has changed the most out of all occupations in the database. That occupation is data engineer, and close to 75% of the top skills sought for that occupation have changed over the five-year review period.

Exhibit 11 – Key Trends in B2B Sales and How They Relate to Skill Change
The Shift Toward Solution Sales Is a Key Driver of Change

	Examples of trending skills
Creating customer value	Critical thinking, thought leadership, enterprise sales, investment management
Improving the customer experience	Virtual sales, customer experience improvement
Emphasizing digital skills	CRM software, data analytics (DataDog software), data visualization (Docker software)

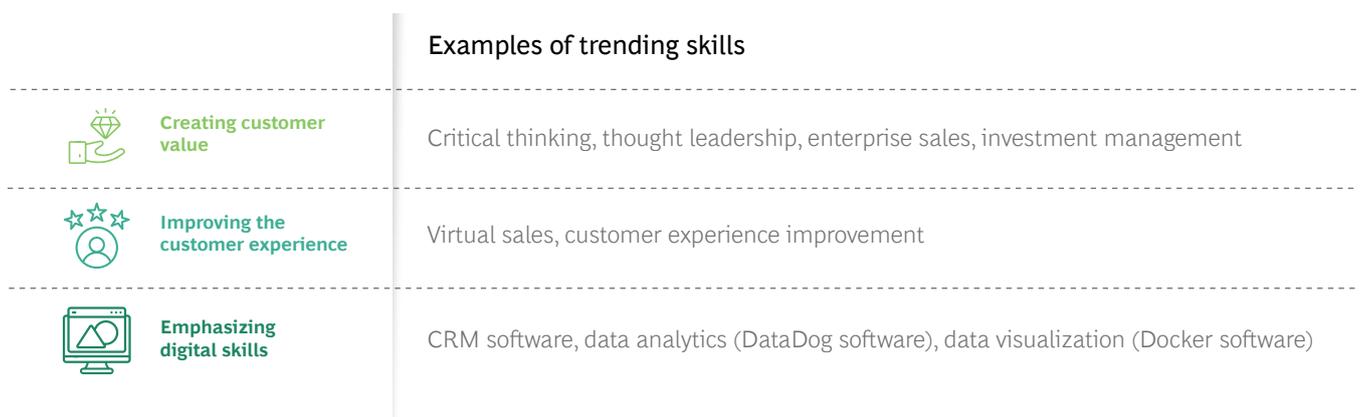**Sources:** Emsi Burning Glass job posting analytics; BCG.

Note: The analysis covered 2016 through the third quarter of 2021; n>15 million.

Finding and developing talent must happen while skill profiles continue to morph—it's a moving target.

Implications

Over just five years, skill change has been rapid and wide ranging. In some occupations, it has been overwhelming. The consequent impact on companies, individuals, and societies is profound. There's a need to seek talent with new skills, to reskill and upskill employees, and to train and develop those in search of jobs. And all of this must happen while the skill profiles of many jobs continue to morph—it's a moving target.

The good news is that with the help of big data and analytics—tools that underpin this very report—we can understand the nature and details of the changes. Job families and specific jobs can be examined in detail, as we have shown with our examples, to understand which new skills are emerging, which are becoming more important, and which are losing relevance over time.

Managing such changes is complex. It requires strong C-suite and HR leadership capabilities, clarity on the strategic direction of the enterprise, understanding of the dynamics of each industry sector and the talent within those sectors, foresight regarding new trends, talent planning on multiple time horizons, and strong capabilities in leaders and HR functions. It also requires a fair amount of agility to react to ongoing change and unanticipated disruptions in trends.

Organization leaders, HR teams, educators, public-sector agents, and individuals must contribute time and effort to address skill challenges and opportunities:

- **Organization Leaders.** Many organization leaders across industries are working to define the future of their core business and support functions—from technological change to new ways of working. These organizations need to clarify their strategic direction and then assess how roles need to evolve, in skills and capacity and at what speed, to support that strategic direction. Frequently, organization leaders will need to shake their teams out of status quo thinking and timid incrementalism to prepare for the substantial shifts that are going on across sectors and roles and to get ahead of the curve instead of falling behind.

- **HR Teams.** HR teams must partner with organization leaders to define the talent-sourcing strategies (from among the buy-build-borrow-automate options) that will supply needed skills at the capacity and pace required by the organization's strategic objectives. Learning and development functions will play a critical role, equipping workers at all levels and at scale with the rapidly advancing skills required to succeed, but those internal efforts likely won't be enough to satisfy all talent and skill needs. L&D, recruiting, talent management, and people analytics functions will have to work together via holistic, integrated approaches. Strong HR business partners (HRBPs) must serve as powerful connection points between the business and the HR capabilities, to support customization, agile experimentation, and fit-for-purpose solutions.

- **Educators and Public-Sector Leaders.** Educators, training providers, and governments need to prepare for their role in this challenge. Not only does the lifelong learning challenge change the focus in education, but the pace of skill change also requires educators to rethink both the curriculum and the process by which they review and adapt curriculum, to make learning more agile and responsive to changing circumstances and available to learners in productive, easily accessed formats. They must also guide individuals to the right kind of learning. Workers also need actionable information about how their jobs are changing. Failing to acquire new skills is bad, but so is acquiring the wrong skills—those that don't provide a return on investment in pay or advancement. Both employers and educators should provide clear guidance on how skills link to career pathways.

- **Individuals.** The job you've been showing up to faithfully for years is, most likely, no longer the one you signed up for—and that's okay in the context of career longevity. Workers and job seekers need to embrace lifelong learning. People should look for employers and programs that help to build the skills needed to stay relevant.

Skill change is a constant evolution—and a source of ongoing disruption across the economy. The pandemic has accelerated the process, but facing the fact that jobs are always evolving, even when not in the midst of a crisis, is a major shift in how the world thinks about the nature of work. Staying informed and rethinking processes to get ahead of trends will be the key to flourishing in an increasingly dynamic talent landscape.

Appendix

How much is *your* job changing? See where specific occupations fit, relative to each other, along our Skill Disruption Index, from 100 (data engineer) to 0 (mystery shopper).

The Skill Disruption Index by Occupation

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Data engineer	100	Biomedical engineer	78
Data scientist	95	Director of rehabilitation	78
Web developer	94	Accounting supervisor	78
Validation engineer	90	Sustainability specialist	78
Network engineer/architect	88	Medical transcriptionist	78
Business tntelligence architect/developer	88	Business intelligence analyst	78
Database architect	88	IT project manager	78
Industrial designer	87	Sales engineer	77
Software developer/engineer	86	Interior designer	77
Computer systems engineer/architect	83	Mechatronics engineer	77
Advertising/promotions manager	83	Chief information officer/director of information technology	76
Computer programmer	83	Marketing assistant/associate	76
Robotics engineer	83	Quality inspector/technician	76
UI/UX designer/developer	83	Web designer	76
Mobile applications developer	82	Customer service manager	75
Industrial-organizational psychologist	82	Product manager	75
Database administrator	82	Test technician	75
Financial quantitative analyst	82	Mathematician	75
Data/data mining analyst	81	Aerospace engineer	75
Computer scientist	81	Technology consultant	75
Webmaster/administrator	81	Solar sales representative	75
Data warehousing specialist	80	Community health worker	74
Printer/copier/scanner operator	79	Fitness/wellness manager	74
Cyber/information security engineer/analyst	79	Product development engineer	74
Biostatistician	79	Multimedia designer/animator	74
Statistician	79	Market research analyst	74
Engineering manager	79	Network/systems support specialist	74
Marketing specialist	79	Network/systems administrator	74
Solar engineer	79	Ergonomist	73
Technical sales representative	78	E-commerce analyst	73

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Systems analyst	73	Alternative energy manager	71
Food and agricultural scientist/technologist	73	Energy analyst/suditor	71
Epidemiologist	73	Geographer/GIS specialist	70
Business continuity planner/analyst	73	Compensation/benefits analyst	70
Security manager	72	Investment underwriter	70
Securities/commodities trader	72	Corporate development analyst/manager	70
Advertising sales representative	72	Medical coder	70
Clinical data systems specialist/manager	72	Energy engineer	70
Marketing manager	72	Audio/visual technician	70
Night auditor	72	RF engineer	70
Risk manager/analyst	72	Security/defense intelligence analyst	70
Pricing analyst	72	Medical office/practice manager	70
Medical/pharmaceutical sales representative	72	Media planner/buyer	70
Talent acquisition/recruiting manager	71	EKG technician	70
Software QA engineer/tester	71	Operations and maintenance specialist	70
Physicist	71	Nuclear engineer	70
Reservoir/petroleum engineer	71	Mining engineer	69
Public relations/communications specialist	71	Natural science research manager	69
Product demonstrator	71	Medical records/coding supervisor	69
Actuary	71	Telecommunications engineering specialist	69
Treasurer/controller	71	Technical writer	69
Operations analyst	71	General engineering technician/technologist	69
Social science researcher	71	Banking branch manager	69
Document control/management specialist	71	Hydrologist	69
Intensive/critical care nurse	71	Hardware engineer	69
Forest/conservation technician	71	Art director	69
Search engine optimization specialist	71	Health information manager/director	68
Telemarketer	71	Social media strategist/specialist	68
Economist	71	Veterinary assistant	68

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Account executive	68	Geologist	66
Clinical analyst/clinical documentation and improvement specialist	68	Sales assistant	66
Energy efficiency specialist	67	Merchandising manager	65
Communications/public relations manager	67	Logistics/supply chain analyst	65
Soil/plant scientist	67	Copywriter	65
Electronics engineer	67	Electrical/electronic designer	65
Graphic designer/desktop publisher	67	Accountant	65
Water/wastewater engineer	67	Travel agent	65
Financial services sales agent	67	Office manager	65
Biological technician	67	Vocational rehabilitation counselor	65
Physical/geoscience technician	67	Environmental engineer	65
Artist/illustrator	67	Automotive electronics installer	65
Satellite/broadband technician	67	Financial manager	65
Payroll manager	67	Lawn care/pesticide technician	65
Event planner	67	Geophysicist	65
Nursing home/home health administrator	66	Legal support specialist	65
Veterinary technician/technologist	66	Solar installer	65
Financial analyst	66	Sound engineering technician	65
Financial reporting manager	66	Fundraising manager	65
Personal rinancial advisor	66	Behavior analyst	65
Emergency management director	66	Grants manager/administrator	65
Optical/laser engineer	66	Wind turbine technician	64
Business/management analyst	66	Supply chain/logistics manager	64
Cytogenetic technologist/cytotechnologist	66	Conservation scientist/park ranger	64
Wildlife biologist	66	Biomedical equipment technician	64
Environmental engineering technician	66	Personal banker/banking sales staff	64
Materials engineer	66	Controls/valve technician	64
Computer support specialist	66	Telemetry technician	64
Human resources manager	66	Patient advocate/navigator	64
		Radio technician	64
		Crime scene/forensic science technician	64
		Fish hatchery manager/technician	64
		Fire chief/marshal	**64**

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Robotics technician	64	Brokerage clerk	63
Loss prevention/asset protection specialist	64	Video game designer	63
Enrollment/eligibility specialist	64	Contract administrator	63
Program manager	64	Curriculum and instructional designer/developer	63
Marine engineer/architect	64	Budget analyst	63
Fraud examiner/analyst	64	Industrial engineer	63
Probation officer/correctional treatment specialist	64	Financial examiner	63
Physical scientist	64	Recruiter	63
Auditor	64	Training and development manager	63
Administrative manager	64	Food/agricultural inspector	63
Hearing screener/technician	64	Regulatory affairs specialist	63
Power distributor/plant operator	64	Architect	63
Policy analyst	64	Survey researcher	62
Acupuncturist	64	Chemical/process engineer	62
Transportation security officer	63	Biochemist	62
Health and safety engineer	63	Physical therapy aide	62
Forester	63	Meteorologist	62
Chief executive officer	63	Clinical auditor/utilization reviewer	62
Legal secretary	63	Security management specialist	62
Biologist	63	Compliance manager	62
Archeologist	63	Curator/museum director	62
Business development/sales manager	63	Account manager/representative	62
Manufacturing engineer	63	Physician assistant	61
Call center manager	63	Occupational therapy assistant	62
Accounts payable/receivable manager	63	Writer	62
Etcher/engraver	63	Medical records clerk/technician	62
Nursery/greenhouse manager	63	General manager	62
Tower climber/technician	63	Field service technician	62
Cable technician/installer	63	Surveillance officer/investigator	61
Financial operations specialist	63	Fashion designer	61
Compensation and benefits manager	63	Fish/game warden	61
		Auto damage appraiser	61

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Teller	61	Safety manager	60
Credit analyst/authorizer	61	Medical director	60
Immigration/customs inspector	61	Operations manager/supervisor	60
Laboratory manager	61	Landscape architect	60
Dental assistant	61	Midwife/nurse midwife	60
Administrative supervisor	61	Data entry clerk	60
Clinical research coordinator/manager	61	Medical biller	60
Payroll specialist	61	Career counselor	60
Transportation engineer	61	Quality control systems manager	60
Mechanical engineer	61	Tax analyst/specialist	60
Electrical engineer	61	Judge	60
Sales supervisor	61	Medical secretary	60
Human resources/labor relations specialist	61	Clinical nurse educator	60
Health information technician/ cancer registrar	61	Refrigeration technician	60
		Underwriting assistant	60
Recycling coordinator	61	Director of instruction/curriculum specialist	59
Water resource specialist	61	Oil/Gas field service technician	59
Fundraising/development specialist	61	Nurse practitioner	59
Public administrator	61	Bookkeeper/accounting clerk	59
Civil engineering technician	61	Floral designer	59
Collections manager	61	Producer	59
Radio/television announcer	61	Procurement/sourcing manager	59
Environmental compliance specialist	60	Estimator	59
Ophthalmic technician	60	Dialysis technician	59
Editor	60	Proofreader	59
Customs broker	60	Credit/loan counselor	59
Childcare/preschool director	60	Logistician/supply chain specialist	59
Surveyor	60	Dietitian/nutritionist	59
Purchasing assistant	60	Genetic counselor	59
Project manager	60	Quality control analyst	59
Computer operator	60	Executive assistant	59
Microbiologist	60	Youth counselor/worker	59

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Dental hygienist	59	Civil engineer	57
Paralegal/legal assistant	59	Credit checker/clerk	57
Mental health/psychiatric technician	59	Avionics technician	57
Loan officer	59	Facilities manager	57
Health educator/coach	59	Alarm/security system technician	57
Compliance officer/analyst	58	Researcher/research associate	57
Production plant manager	58	Weatherization installer	57
Orthoptist	58	Billing clerk/specialist	57
Energy broker	58	Millwright	57
Inventory/supply specialist	58	Tutor	57
Mental health assistant	58	Health care administrator	57
Mechanical/electrical drafter	58	Social/human service assistant	57
Video editor	58	Chemical technician	57
Hotel manager	58	Electrical substation/relay repairer	56
Vocational education instructor	58	Nurse anesthetist	56
Tax manager	58	Nursing instructor/professor	56
Archivist	58	Quarry worker/blaster	56
Substance abuse counselor	58	Landfill gas technician	56
Transportation inspector	58	Chemist	56
Physical therapist	58	Civil/architectural designer/drafter	56
Property appraiser/assessor	58	Membership sales representative	56
Urban/transportation planner	58	Licensed practical/vocational nurse	56
Human resources assistant	58	Buyer/purchasing agent	56
Safety specialist/coordinator	58	Air traffic controller	56
Clinical case manager	58	CAD designer/drafter	56
Training and development specialist	58	Medical/clinical social worker	56
Criminal investigator	58	Stage manager	56
Transportation manager	58	Municipal/license/court clerk	56
Sheriff	58	Law clerk	56
Parts specialist/salesperson	58	Medical scientist	56
Case worker	57	Sales representative	56
		Residential assistant/advisor	56

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Salon/spa manager	56	Veterinarian	54
Registrar/patient service representative	56	Home appliance repairer	54
Medical assistant	56	Pilot instructor	54
Office technician/typist	56	Scheduler/operations coordinator	54
Concierge	55	Industrial/mechanical engineering technician	54
Chef	55	Maintenance/service supervisor	54
Physical therapy assistant	55	Clinical nurse specialist	54
Attorney	55	Flight attendant	54
Set/exhibit designer	55	Surveying/mapping technician	54
Occupational therapy aide	55	Pipeline worker/operator	54
Emergency room/department technician	55	College professor/instructor	54
Construction manager	55	Actor	54
Director of nursing	55	Food production worker	54
Health technician/technologist (other)	55	Family/behavioral therapist	54
Title examiner/clerk	55	Pharmacist/pharmacy director	53
Chiropractor	55	Librarian	53
Property/real estate/community manager	55	Construction foreman	53
Fire inspector/investigator	55	Optician	53
Occupational therapist	55	Home health aide	53
Phlebotomist	55	Environmental technician	53
Environmental planner/scientist	55	Aviation/aircraft inspector	53
Exercise physiologist/specialist	55	Elementary and secondary school administrator	53
Real estate agent/broker	55	Customer service representative	53
Hotel desk clerk	55	Nondestructive testing specialist	53
Broadcast technician	55	Police chief/sergeant	53
Office/administrative assistant	55	Orthotist/prosthetist	53
Social/human services manager	54	Food/agricultural technician	53
Art/music/recreational therapist	54	Bailiff	53
Audiologist	54	Prepress technician	53
Funeral director/embalmer	54	Patient transporter	53
		Insurance sales agent	53
		Automotive glass installer	53

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Transportation supervisor	53	Landscaping/grounds supervisor	51
Director of religious education	53	Claims specialist/adjuster/examiner	51
Housekeeping/environmental services supervisor	53	Stationary engineer/boiler operator	51
Reporter	52	Umpire/referee	51
Repair/service technician	52	Travel/tour guide	51
Cargo coordinator/freight forwarder	52	Plumber	51
Dental laboratory technician	52	Tailor/seamstress	51
Heat-treating technician	52	Academic/guidance counselor	51
Aircraft/A&P mechanic	52	EMT/paramedic	51
Pest control technician	52	File clerk	51
Retail store manager/supervisor	52	Merchandiser/ad set associate	51
Locksmith	52	Production supervisor	51
Athletic trainer	52	Electrician	51
Insurance claims/policy clerk	52	Driller/drill operator	51
Boilermaker	52	Maintenance helper/assistant	51
Farm/ranch manager	52	Security officer	50
Makeup artist	52	Loan processor/assistant	50
Enrollment/admission counselor	52	Tire changer/technician	50
Animal control officer	52	Retail sales associate	50
Small engine mechanic	52	Jeweler	50
Endoscopy technician	52	Pharmacy technician	50
College/university administrator	52	Pilot	50
Fuel service attendant	52	Butcher/meat cutter	50
Mental health/behavioral counselor	52	Financial aid counselor/specialist	50
Railroad conductor	52	Interpreter/translator	50
Electrical and electronics technician	52	Videographer	50
Hazardous materials worker	52	Chemical operator	50
Storage/distribution manager	52	Family/school/general social worker	49
Nursing manager/supervisor	51	Inventory associate	49
CNC programmer	51	Restaurant/food service manager	49
Pharmacy aide	51	Insurance underwriter	49
Receptionist	51	Water treatment specialist/wastewater operator	49

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Bill and account collector	49	Self-enrichment teacher	48
Gaming supervisor	49	Optometrist	48
Registered nurse	49	Tool and die maker	48
Warehouse/distribution supervisor	49	Pipe fitter	48
Counter/rental clerk	49	Postal service/mail room worker	48
Laboratory technologist	49	Glazier	48
Manufacturing/production technician	49	Radiologic technician/technologist	47
Neurodiagnostic technician/technologist	49	Respiratory therapist	47
		Entertainment/recreation attendant	47
Construction/building inspector	49	Meat and seafood processor/packager	47
Carpenter	49	Chaplain/pastor/priest	47
Speech language pathologist	49	Anesthesia technician	47
Tax preparer	49	Personal trainer/fitness instructor	47
Railroad service worker	49	Television/satellite television installer	47
Firefighter	49	Radiation therapist	47
Beautician	49	Oilfield/rig worker	47
Diesel mechanic	49	Medication aide/technician	47
Pump worker/operator	48	Massage therapist	47
Pet care worker/manager	48	Electrician's assistant	47
Surgical technician/technologist	48	Plasterer/stucco mason	47
Medical assembler	48	Dispatcher	47
Switchboard/telephone operator	48	Sheet metal fabricator/mechanic	47
Electronic/electrical assembler	48	Construction helper/worker	47
Physician	48	Preschool/childcare teacher	47
Restaurant/food service supervisor	48	Miner/mining worker	47
Automotive service technician/mechanic	48	Caregiver/personal care aide	46
Psychologist	48	Dentist/orthodontist/prosthodontist	46
Correctional officer/jailer	48	Upholsterer	46
Plant operator	48	Barista	46
HVAC mechanic/installer	48	Door-to-door sales worker	46
Parking enforcement officer	48	Photographer	46
Bike technician	48	Histotechnologist/histotechnician	46

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Order processor/order entry clerk	46	Sales delivery driver	44
Meter reader	46	Reservation/ticket agent	44
Rigger	46	Costume/wardrobe attendant	44
Cardiovascular technician/technologist	46	Stocking clerk/sales floor support	44
Laboratory technician	46	Food service team member	44
Ship/boat captain	46	Farm/nursery/greenhouse worker	43
Nursing assistant	46	Recycling/sanitation worker	43
Pet trainer	46	English/language arts teacher	43
Nuclear medicine technologist	46	Light-truck delivery driver	43
Iron/steel worker	46	Molding/casting worker	43
MRI/CT technician/technologist	45	Sewing machine operator	43
Recreation/activities worker	45	Print bindery/finishing worker	43
Building and general maintenance technician	45	Transportation maintenance worker	43
Utility line locator/technician	45	Insulation worker	43
Nutrition/dietetic technician	45	Cashier	43
Heavy equipment mechanic	45	Bilingual/ESL/foreign language teacher	42
Coach	45	Arborist/faller	42
Printing press operator	45	Dance teacher	42
Sterile processing technician	45	Industrial mechanic	42
Crane operator	45	Library assistant/technician	42
Baker	45	Waiter/waitress	41
Tattoo artist	44	Gaming worker	41
Manicurist/pedicurist	44	Golf course worker	41
CNC operator	44	Reading teacher	41
Sailor/deckhand/marine oiler	44	Laundry worker	41
Adult basic education/literacy instructor	44	Music director	41
Finisher/polisher/buffer	44	Auto body technician	41
Shipping/receiving clerk	44	Dietary aide	41
Tile/granite worker	44	Host/hostess	40
Ultrasound technologist/sonographer	44	Physical education teacher	40
Roofing/siding worker	44	Valet/parking lot attendant	40
		Special education teacher	40

Occupation	Skill Disruption Index	Occupation	Skill Disruption Index
Speech language pathology assistant	40	Brick/stone mason	37
Bartender	40	Cook	37
Kitchen staff	40	Bell person/baggage attendant	37
Motor vehicle operator/transporter	40	Barber/hair stylist/cosmetologist	37
Composer	40	Busser/banquet worker/cafeteria attendant	37
History/social studies teacher	40	Detailer	36
Courier/messenger	40	DJ/announcer	36
Police officer	39	Production worker	36
Manufacturing machine operator	39	Landscaping/groundskeeping worker	36
Teacher assistant	39	Nanny/babysitter	36
Flooring installer	39	Carpet installer	36
Maid/housekeeping staff	39	Welder/solderer	35
Coating/industrial painter	39	Janitor/cleaner	35
Math teacher	39	Casino dealer	34
Science teacher	39	Tree climber/trimmer	34
Logging worker/supervisor	39	Dishwasher	34
Drywall installer/finisher	39	Lifeguard	33
Tractor-trailer truck driver	39	Substitute teacher	33
Cabinetmaker	39	Packager	33
Asphalt/screed worker/paver	38	Laborer/warehouse worker	33
Choreographer	38	Painter	32
Drama teacher	38	Forklift/pallet jack operator	32
Music teacher	38	Concrete finisher	31
Press/press brake operator	38	Musician/singer	27
Art teacher	38	Bus driver	24
Van/taxi/shuttle driver	38	Mystery shopper	0
Grinder/sharpener	38		
Elementary school teacher	38		
Operating engineer/heavy equipment operator	38		
Furniture finisher	38		
Machinist	38		
Middle/high school teacher	37		

About the Authors

Matt Sigelman is the president of the Burning Glass Institute and the chairman of Emsi Burning Glass, a leading labor markets analytics firm. You may contact him by email at msigelman@burningglassinstitute.org.

Bledi Taska is the chief economist and executive vice president at Emsi Burning Glass, specializing in the application of econometrics and statistics to real-time labor market data. He and his team focus on the future of skills, estimated supply-demand gaps, the impact of automation, and skills mismatching. You may contact him by email at bledi.taska@emsibg.com.

Layla O'Kane is a research manager at Emsi Burning Glass. You may contact her by email at layla.okane@emsibg.com.

Julia Nitschke is a senior research analyst at Emsi Burning Glass. You may contact her by email at julia.nitschke@emsibg.com.

Rainer Strack is a Boston Consulting Group senior partner emeritus and senior advisor. You may contact him by email at strack.rainer@bcg-emeritus.com.

Jens Baier is a managing director and senior partner in BCG's Düsseldorf office. You may contact him by email at baier.jens@bcg.com..

Frank Breitling is a managing director and partner in BCG's New York office. He leads BCG's people analytics, innovation, and insights capability. You may contact him by email at breitling.frank@bcg.com.

Ádám Kotsis is an associate director in BCG's Budapest office. You may contact him by email at kotsis.adam@bcg.com.

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For Further Contact

If you would like to discuss this report, please contact the authors.