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MAKING IT WORK

Developing the future IT workforce

DIANA BERSOHN | TIM GOOD | MCCREE LAKE | JOHN SHACKLADY

Organizations have already embraced digital technologies like cloud and mobile. Artificial intelligence is the next in a series of technological advances to take the business world—and the IT workforce—by storm. Accenture Strategy asked business and IT executives across different industries how ready their workforces are for this disruption.

As disruptive as technologies have been in the recent past, the changes that artificial intelligence (AI) and other advances bring to organizations and society are on a new level. Seventy-eight percent of executives surveyed by Accenture Strategy believe that AI will disrupt their industry over the next three years and transform the nature of competition.[1] AI will touch every part of the business, profoundly affecting how work is structured, and who—or what—performs it.

Executives have long recognized that the IT workforce is on the front line of disruption. This is no different today. Eighty percent of executives expect the IT workforce to change dramatically over the next three years. And 82 percent believe that the skills required and how they source talent will evolve too.

Even though they predict massive changes ahead, four out of five executives think their current IT workforce skills are sufficient to meet their company's needs in the coming years. With major tech players scrambling now to land top AI talent, this may be wishful thinking.

Accenture Strategy research shows that the challenge for technology leaders is to recognize and fill skills gaps quickly and effectively to keep pace with the scale, speed and scope of change. By guiding the business, these IT leaders can prepare their organizations to practice what Accenture calls Applied Intelligence. This is the ability to implement technology and human ingenuity across the business to drive new sources of innovation and growth.

Executives expect the IT Workforce to be on the front line of disruption

78%
AI will disrupt their industry

80%
IT workforce will shift dramatically

82%
Skills and talent sourcing will evolve

A DEFINING
MOMENT FOR IT

Against the backdrop of rapid AI adoption, business and technology executives agree on the strategic importance of the IT workforce. Eighty-five percent of IT executives—and 83 percent of business executives—say that their company's IT workforce is a competitive advantage. This C-suite consensus presents IT leaders with an opportunity to act as a catalyst for enterprise-wide transformation.

WARP-SPEED CHANGE

IT leaders are not sitting still. They are redesigning operating models to be more relevant. Take the structure of the IT workforce. Most executives (83 percent) say their technology workforce is now distributed across the business and within the IT department. With the lines between business and IT blurring, 55 percent of all executives say their IT workforce will need business skills to bridge the gap between business needs and IT solutions. Half plan to reorganize their IT workforces, likely continuing to move away from traditional, hierarchical structures toward flat, agile ones.

Executives say that their company's IT workforce is a competitive advantage
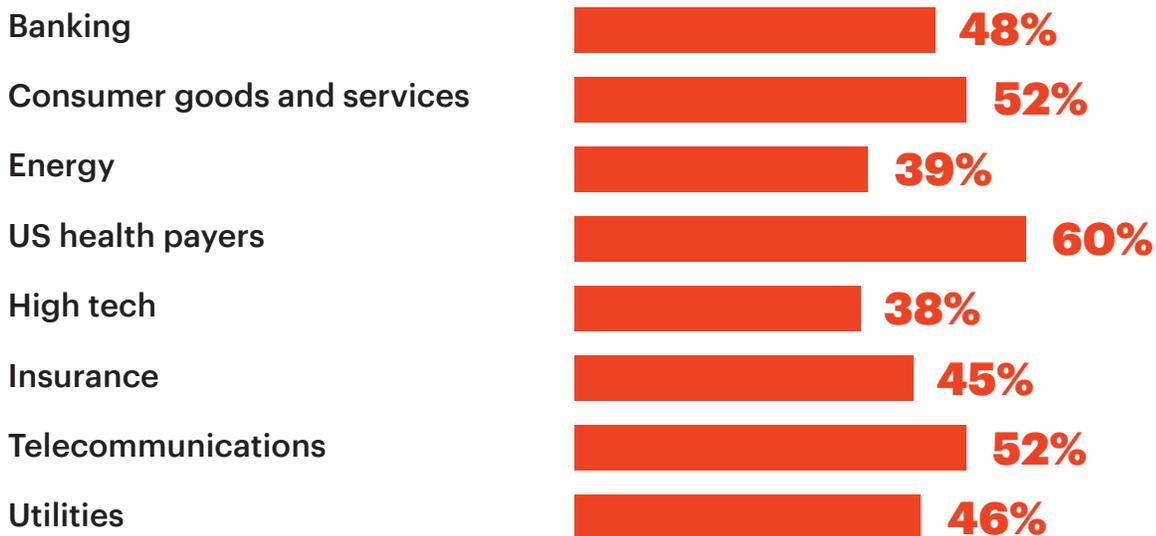
84%
IT executives

83%
Business executives

EXPECT THE UNEXPECTED

Executives plan to use a variety of traditional tactics such as recruiting, training and leveraging contractors to address emerging technology capabilities. But the pressure to compete—along with the accelerating pace of disruption—is causing companies to look for less conventional ways to secure IT skills. For example, 46 percent of executives say that their company is likely to acquire a company to get specialized skills. This "acqui-hire" trend is taking hold across many industries. Will unconventional moves like this be enough to fill impending technology skills gaps?

The "acqui-hire" trend by industries

Industry	Percentage
Banking	48%
Consumer goods and services	52%
Energy	39%
US health payers	60%
High tech	38%
Insurance	45%
Telecommunications	52%
Utilities	46%

THE SKILLS AND TECHNOLOGY
PARADOXX

The first step in filling skills gaps is identifying them. A simple concept on its face, and one that IT leaders know well. But in the era of human-machine collaboration, pinpointing skills gaps is becoming increasingly complex. Not only will IT organizations need new technology skills, but they will also require additional uniquely human skills as IT roles and responsibilities continue to evolve.

CONFIDENCE IS HIGH FOR NOW

Accenture Strategy research reveals that executives across industries, markets and company sizes are confident that the current workforce is ready to meet IT needs over the next three years. Seventy-nine percent say today's IT workforce has sufficient skills—54 percent call them adequate, and 25 percent say they are ample. Over three-quarters (79 percent) are confident that they can secure needed IT skills over the same period, despite 88 percent currently finding it difficult to source new IT talent.

Executives say today's IT workforce has sufficient skills

79%

BUT AI IS KNOCKING

Executives are also confident that the AI revolution is on their doorstep. About one-third view AI as a top strategic priority now, while 33 percent expect it to become one within a year. Seventy-nine percent think that the IT workforce will include both humans and robots in the next three years.

When asked about their current IT workforce's AI skills, 46 percent of executives call them adequate. Yet as companies scale up AI-related initiatives, technology skills that seem adequate now could rapidly become insufficient. Fifty-six percent of executives acknowledge that their company will need expertise in new technologies like AI in the next three years. AI skills are scarce. Even Silicon Valley, the engine of technology innovation globally, has to play hardball with lucrative compensation packages to lure coveted talent.[2] Closing this skills gap with traditional approaches may not be possible. With the unparalleled impact that AI technologies will have on jobs, processes and business models, a deep understanding of a company's operations will become increasingly important for the IT workforce. Businesses will likely struggle to unlock the full value of AI if they rely on managed service providers and contractors.

Executives acknowledge that their company will need expertise in new technologies like AI in the next 3 years

56%

The need for very different skills as AI automates and augments IT jobs and creates new ones will make it even harder to unlock value (See page eight). Human-centered skills like problem solving, judgment, communication and empathy will be critical for IT to succeed at human-machine collaboration. And mastering human-machine collaboration is the key to mastering Applied Intelligence. Yet only about half of executives we surveyed say their IT workforce will need communication and collaboration skills (49 percent) and analytical skills to solve problems (52 percent) in the next three years.

AI IN IT
CHANGING ROLES, CHANGING SKILLS

EVOLUTION OF THE SOFTWARE DEVELOPER

AI is already shifting how developers create new software. With smart machines automating code creation and minimizing bugs, developers can focus on outcomes, ultimately becoming more accountable for meeting business objectives.

New Skills: Business acumen, communication, collaboration

EVOLUTION OF THE PROJECT MANAGER AND SCRUM MASTER

Project managers/scrum masters today have to oversee a wide range of administrative processes. With AI taking over many of these transactional tasks, they can shift their focus to engaging development teams and business stakeholders around the strategic intent and business drivers of the programs/products they manage.

New Skills: Emotional intelligence, creativity, judgement

AN EDGE FROM
ECOSYSTEMS

Technology leaders cannot ignore the human side of the human-machine dynamic. To get ready, companies must move beyond traditional IT workforce models. Filling skills gaps quickly and effectively will mean tapping into flexible talent ecosystems that connect IT organizations to highly skilled, on-demand talent.

GOING WHERE THE TALENT IS

Companies are straddling the old and the new in sourcing technology talent. As they have in the past, companies plan on hiring full-time employees (55 percent) and using managed service providers and external partners (51 percent) and contractors (42 percent) to meet their IT capability needs over the next five years. Different industries take different approaches to acquire talent. Retailers (64 percent) are the most likely to hire full-time staff. Healthcare providers prefer managed service and external partner options (58 percent), and healthcare payers will look to contractors (50 percent) most often.

To meet IT capability needs, companies plan to use
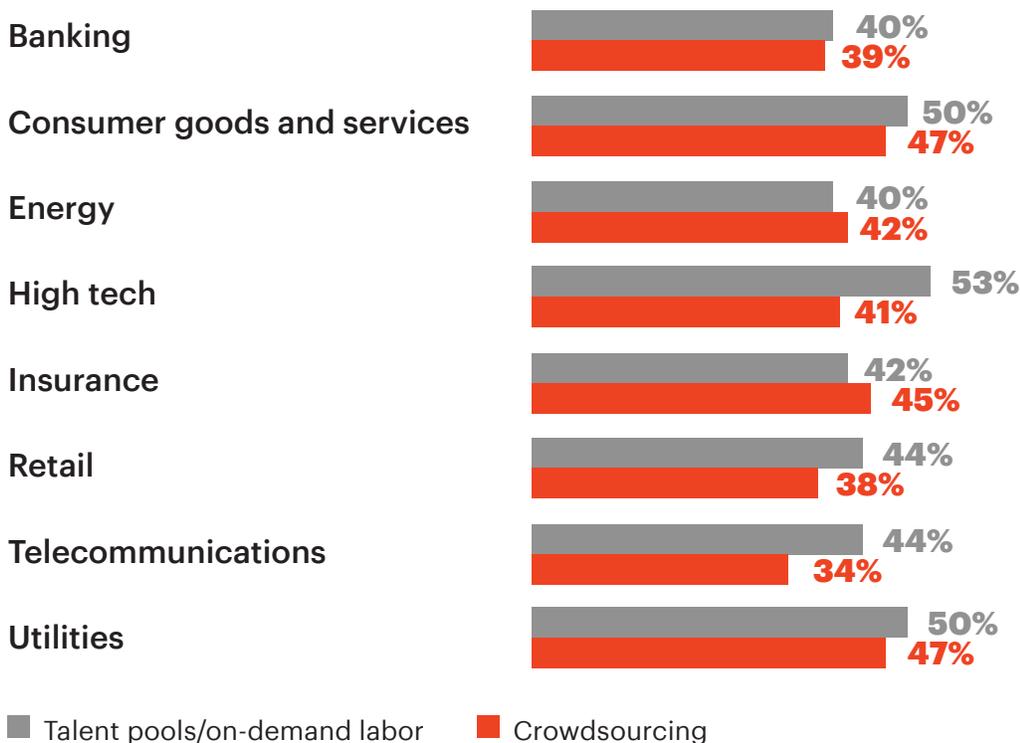
55%
Full-time hires/ internal employees

51%
Managed service providers and external partners

As for what's new, talent sourcing partnerships are changing. A partnership does not have to be a one-to-one relationship with an IT staffing firm. Boundaries are disappearing as multiple organizations join together to create new talent ecosystems.

Accenture, for example, is collaborating with Stevens Institute of Technology on a graduate certification program in financial services analytics and machine learning. The curriculum aligns academic thinking to industry skills needs to address the supply-demand imbalance for financial services analytics expertise. Qualified students can put what they learn into practice through internships with Accenture and other firms.[3]

The research reveals that companies are also interested in sourcing emerging technology capabilities through crowdsourcing (42 percent), as well as talent pools and on-demand labor (45 percent). These approaches connect organizations to vast talent ecosystems so they get the technology skills they need now and when they need them.

Industry interest in crowdsourcing and talent pools/on-demand labor

	Talent pools/on-demand labor	Crowdsourcing
Banking	40%	39%
Consumer goods and services	50%	47%
Energy	40%	42%
High tech	53%	41%
Insurance	42%	45%
Retail	44%	38%
Telecommunications	44%	34%
Utilities	50%	47%

■ Talent pools/on-demand labor   ■ Crowdsourcing

By dialing up capability, IT can provide services to the busines at scale without investing the time and money to land full-time, in-house hires. Technology titans are doing this. Google worked with Kaggle, an online community of data scientists that hosts machine learning and data science competitions, to run a video classification challenge[4] and later bought the company to secure access to this talent.[5]

Organizations that are not known as technology powerhouses are exploring crowdsourcing too. The World Bank held a competition with a data science platform Driven Data to explore ways to predict households' poverty status using readily available information and machine learning algorithms.[6]

It is a good sign that companies are willing to step out of their comfort zone and explore new ways to source talent.

However, the key is to have a strategy that optimizes the right kind of work to the right kind of talent sources at the right scale to maximize the business value that companies get from AI and other horizon technologies.

GETTING IT DONE

AI is already a catalyst for significant change for IT organizations, for entire companies, and for society as a whole. It is the Model T of this century, ready to usher in a new age of economic growth and social change that we cannot yet even fully imagine.[7] To address something so transformative, companies need to transform as well. Here's where they should start:

REIMAGINE THE IT ORGANIZATION —AND WAYS OF WORKING

IT organizations should examine work at a task-based level to understand what machines and humans can do most effectively. The mindset has to be "task-based," not "job-based." The design of the IT organization will follow. As an example, this could mean using AI for security, operations and service desk, while engaging people on customer-focused and creative tasks.

IT organizations can also drive outcomes and speed-to-market by reorganizing technical and business roles into product-focused teams. Companies are doing this now with small, cross-functional teams or "domains" that develop product, service or customer journeys, pooling resources from across business and technology.[8] With design thinking and rapid prototyping, IT can explore the viability of ideas and rapidly scale the best ones.

To make these changes stick, IT leaders must cultivate an IT culture focused on business outcomes and agility and encourage a new leadership DNA where people at all levels are empowered to make decisions.

SCALE UP
NEW SKILLING

Addressing skills gaps will be an ongoing exercise for technology leaders. One way to do this is by embarking on pilots with select emerging technologies and periodically reviewing and prioritizing the skills required to fully scale them. This is a practical way to stay on top of technology changes and continually define the skills mix.

To build new skills—both technical and human-centered—companies can take advantage of modern interventions like learning boards. These digital platforms have evolved beyond top-down, one-size-fits-all training. People customize their own experiences based on their tasks and desired career paths. Ideally, the learning experience mimics the social experience. People can like, recommend and comment on content and follow relevant trends among peer groups and communities.

Accenture used learning boards to reskill more than 180,000 people globally in the latest digital technologies in just over 20 months.[9]

BE CREATIVE IN BUILDING
TALENT ECOSYSTEMS

IT organizations can make the most of talent ecosystems by taking a sky's-the-limit approach to how they think about them, and how they create them. To tap in-house talent, IT should create an internal company-wide ecosystem, using digital platforms and crowdsourcing to solve problems collectively.

When it comes to external talent ecosystems, the guiding principle should be to think big and act boldly. IT leaders should develop relationships that help broaden their network so they have a bigger talent pool from which to source scarce talent. Academic partnerships, apprenticeship programs—and even gaming conventions—can be rich sources for both technical and human-centered skills.

IT leaders should develop relationships that help broaden their network so they have a bigger talent pool from which to source scarce talent.

NOW
IS THE TIME

AI has set a new standard for relentless technology change that will only accelerate. To position themselves and their organizations as business partners in growth and innovation, IT leaders must get comfortable with intense change— anticipating and acting on it just as relentlessly. This starts with developing the future IT workforce. Now.

JOIN THE CONVERSATION

CONTACT THE AUTHORS

Diana Bersohn
San Francisco, CA, United States
diana.bersohn@accenture.com

Tim Good
Heidelberg, Germany
tim.p.good@accenture.com

McCree Lake
Atlanta, GA, United States
mccree.lake@accenture.com

John Shacklady
London, United Kingdom
john.shacklady@accenture.com

NOTES

1. All data is sourced from the Accenture Strategy 2017 study, "Tech-Led Change and the IT Workforce," unless otherwise noted.

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ABOUT ACCENTURE

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions—underpinned by the world's largest delivery network—Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 442,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at **www.accenture.com**.

ABOUT ACCENTURE STRATEGY

Accenture Strategy operates at the intersection of business and technology. We bring together our capabilities in business, technology, operations and function strategy to help our clients envision and execute industry-specific strategies that support enterprise wide transformation. Our focus on issues related to digital disruption, competitiveness, global operating models, talent and leadership help drive both efficiencies and growth. For more information, follow **@AccentureStrat** or visit **www.accenture.com/strategy**.

ABOUT THE RESEARCH

In mid-2017, Accenture Strategy surveyed 1,100 C-Suite executives representing 13 industries in seven countries. We explored strategic areas and opportunities where companies are harnessing technology to increase business value and assessing its impact on the future IT workforce.

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