

Workforce and Learning Trends

2020



Meet the “New Traditional” Models

January 2020
#FutureofWork
#FutureofLearning

Introduction

Evolving technologies, demographics and digital business models are changing the workplace at a faster pace than ever before. Meanwhile, available technologies — AI, people analytics, AR/VR, everything-as-a-service and more — promise to reshape the way learning is delivered and consumed. Learning and development (L&D) professionals — and the employers that rely on them for a future-ready workforce — are grappling to understand which innovations really matter.



What is the result of these forces and their responses by L&D professionals? CompTIA's *Workforce and Learning Trends 2020* finds that the training industry is mixing a new blend of familiar learning and certification methods with some technological twists. Think of this as the “New Traditional” training model that seeks out scalable tech-savvy improvements to L&D but relies on tried-and-true methods that remain essential to the learner experience.

For example, L&D leaders are often excited about technology that extends their ability to personalize instruction and communication. But some are more lukewarm on the innovative tech that enables mass distribution of learning content, which may reflect their personal experience or lack of exposure to successful, data-backed engagements.

New Traditional training models are also concerned with blending old and new subject matter. On one hand, domain-specific knowledge is critically important in subjects like cybersecurity, cloud computing and emerging technologies. On the other hand, L&D professionals are increasingly sensitive to the importance of “soft skills.” (More on that highly ambiguous term later.)

To develop the *Workforce and Learning Trends 2020* report, CompTIA a) surveyed 400 HR and learning and development professionals to learn how technology and related macro-level workforce developments are reshaping L&D programs; b) spoke with experts in technology workforce development, certifications and education to identify the top trends on the horizon; and c) scanned the most authoritative publications on training trends from other organizations.

An outlook on an expansive topic like workforce learning and development must contain numerous nuances, caveats and exceptions. Pockets of early adopters may provide a glimpse of where the market is headed, or they may hype trends that will never make it past the niche use stage. The analysis in this report attempts to balance that dynamic.



The report presents six major findings and a section on what we didn't find — prospective trends where signals are still mixed and the jury is still out on their mainstream potential.

Trends to Watch 2020



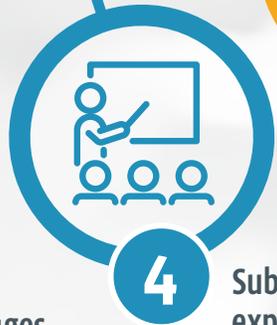
1 The pace of change requires agility on many fronts



2 L&D increasingly shapes strategic direction, but resources don't always follow



3 A soft skills gap is bringing a new focus on challenges and solutions



4 Subject-matter experts remain core to the learning experience



5 Talent shortages push the reskilling and upskilling envelope



6 L&D aspires to create the seamless, blended experiences learners expect

1.9%

Average U.S. unemployment rate for IT occupations during 2019 vs. 3.7 percent nationally.¹

5.0 million

Estimated base of U.S. core IT occupations in 2019.²

12.0 million

Estimated U.S. net tech employment (NTE) in 2019.³ (See CompTIA's Cyberstates for details on NTE and the most up-to-date figures.)

886,000

Average number of quarterly job postings for core IT occupations during the past 12 months in the U.S.⁴

6.7%

Average annual replacement rate for core IT occupations to offset retirements and workforce separations.⁵

1.6X

Core IT occupations are projected to grow 1.6 times faster (or 57%) than the national rate of occupation growth during the 2019-2029 period.⁶

77%

Percentage of U.S. companies that indicate technology is a primary factor in reaching their business objectives vs. 20% calling it a secondary factor.⁷

53%

Percentage of U.S. companies that express mostly a sense of excitement and eagerness for the opportunities associated with emerging technologies vs. 28% equal parts excitement and trepidation.⁸

1 in 2

U.S. companies that do not have formal strategies in place to address skills gaps.⁹

3 in 4

Percentage of U.S. companies that report seeing, hearing, or discussing something about automating technologies and their impact on the future of work.¹⁰

¹ U.S. Bureau of [Labor Statistics, Labor Force Statistics from the Current Population Survey](#), Dec. 6, 2019

² CompTIA, [Cyberstates 2019](#), March 2019

³ Ibid.

⁴ Burning Glass, Technology Labor Insights, December 2019

⁵ CompTIA, [Cyberstates 2019](#), March 2019

⁶ Ibid.

⁷ CompTIA, [International Business of Technology and Workforce Study](#)

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

The Pace of Change Requires Agility On Many Fronts



Rapid-fire technological innovations make talent development highly unpredictable, so agility in L&D is essential. Many L&D and HR leaders think their organizations aren't keeping up.

Nearly half (45%) of people from large organizations in the CompTIA survey rated a lack of agility as their top concern.

To make L&D programs more agile, organizations cannot afford to view training as a one-time event, says Stephanie Morgan, director of education and edtech labs at CompTIA. "The skills you train an employee for today are not the skills they're going to need in five years."

Steve Mallard, a master teacher at Tennessee College of Applied Technology, agrees. "Technology is coming out quicker than you can get people trained," he says. "You have to be very dynamic in the classroom."

L&D providers need to be dynamic in their approach, changing their focus from training for a specific skill at a point in time to helping employees upskill and reskill constantly. Agility requires broadening the tools in use and the skills taught, and fully embracing the "always learning" mindset.

KEY TERMS

- **Learning and Development (L&D)** is a comprehensive and multi-dimensional approach to cultivating a workforce aligned with organizational goals. It is usually responsible for attracting, retaining, engaging and motivating employees and developing employee capabilities. It often encompasses onboarding, training, education, certification and other professional development activities.
- **Synchronous learning** refers to learning when the student or students work at the same time with the instructor, though not necessarily in the same place. A traditional classroom environment is naturally synchronous. An online class is synchronous if the students and instructor meet in the virtual environment at the same time.
- **Asynchronous learning (a.k.a. self-paced learning)** refers to models where the student or students work independently. Instead of meeting at the same time with an instructor, students access lessons and feedback from the instructor on their own schedule and make progress at different rates.
- **Blended learning (a.k.a. hybrid learning)** blends elements from in-person and online instruction. The lines between synchronous and asynchronous learning are blurring as a given program might, for example, use self-paced progress through recorded lectures, followed by instructor-led training (ILT) for guided practice in a virtual instructor-led (VILT) environment, supported by in-person one-on-one mentoring sessions, which are informed by preliminary coaching from chatbots.

Broader tool sets: Distributed learning

More corporations are shifting away from a centralized L&D system — increasingly referred to as a human capital management (HCM) system — to subscription-based, specialized and on-demand programs purchased by individual departments.

According to a survey of the workforce education technology marketplace from LearnLaunch Institute, an edtech accelerator in Boston, corporations are loosening control of “legacy monolithic Learning & Development systems” so that individual departments can provide more contextualized training.¹¹

Cost-effective SaaS edtech allows control of training to spread through an organization and also allows smaller businesses to access it.

¹¹ LearnLaunch Institute, [The State of Workforce EdTech](#), September 2018

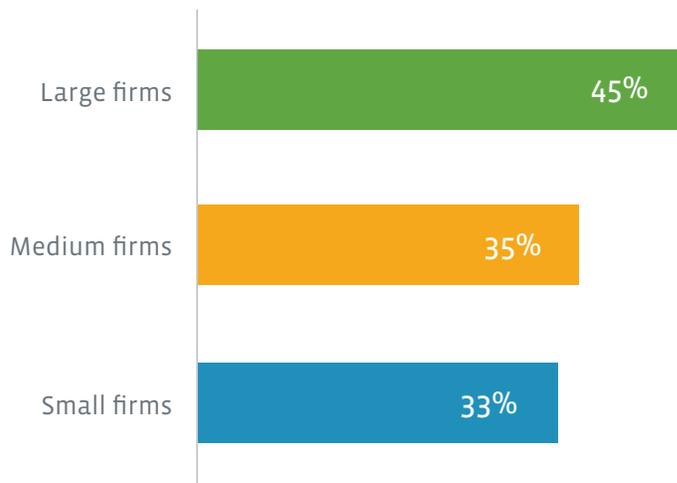
Broader skill sets: Adjacency learning

Previously siloed jobs are bleeding into each other, meaning employees need broader skill sets and are seeking out learning in multiple areas.

A 2019 technology skills report from SkillSoft, a corporate learning course publisher, found that the command-and-control structure in L&D is diminishing. As a result, learners are using edtech to access learning for adjacent skills.¹²

A 2018 CompTIA survey on the multi-generational workforce corroborates this point: Younger workers (Gen Y and Z) rank cross-training and contextual training near the top of their training wish list.¹³

Degree to which lack of agility and ‘training not keeping up with pace of change’ cited as L&D challenges



¹² SkillSoft, [Tech Learning Consumption Trends: A Skillsoft Signals Research Report](#), July 2019

¹³ CompTIA, [Managing the Multigenerational Workforce](#), June 2018

DIGITAL BADGES ARE STILL A WORK IN PROGRESS

Announcements from notable employers such as Apple and Google, as well as data from Burning Glass Technologies Labor Insights, confirm that employers are increasingly re-evaluating their thinking on the traditional 4-year degree as a career gateway.

According to the CompTIA survey, 8 in 10 HR professionals rate certifications from recognized certifying bodies as valuable or very valuable in the hiring and evaluation process. Certifications that closely align to employer job requirements play a vital role in agility in talent development efforts.

Mallard says certifications are used both for hiring and reskilling. Learners and L&D professionals increasingly seek out special industry classes for accelerated training in a new technology or a refresher course on fundamentals.

However, while more companies are using certifications to assess and validate the skills of new hires, experts are taking a wait-and-see approach with digital badging.

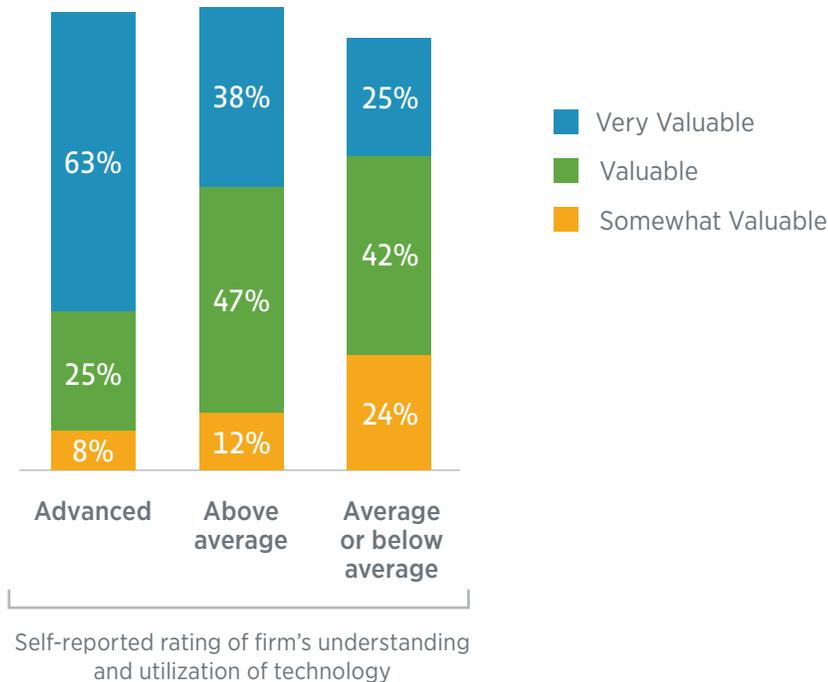
Fifty percent of survey respondents predicted badges would have moderate “situational” growth over the next two years. One-third of HR professionals indicate digital badges currently carry some weight in the hiring process, but nearly an equal number are unsure and fall into the “wait and see” camp.

Badges can be effective at demonstrating specialized skills, says Morgan, but when companies offer digital badges for attending a one-hour webinar, it dilutes the impact of digital badging overall.

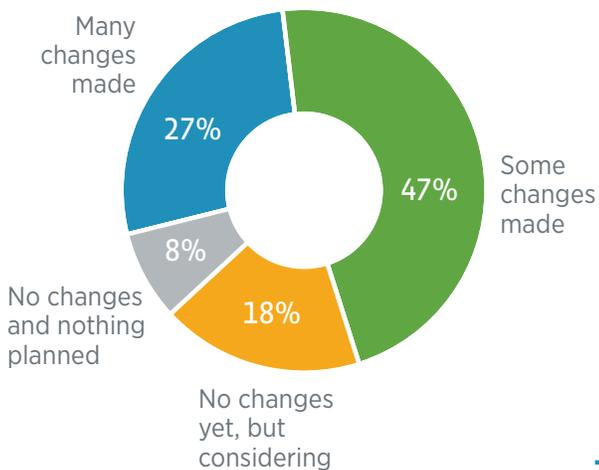
The survey results support this assertion. The top two factors cited by HR professionals as potentially inhibiting further adoption of digital badges are: 1) challenges in verification, and 2) lack of standards in how badges are awarded. These are known issues that may be resolved over time as the digital badging market matures.

Tech-savvy firms value certifications

Rating of value of IT certifications to firm for validating skills and supporting hiring process



Degree of changes made to hiring approaches due to tight labor market



New hiring tactics utilized in response to tight labor market

- #1 Utilized new recruiting tools or platforms
- #2 Added or increased perks, e.g. flex schedule
- #3 Reevaluated hiring criteria, e.g. 4-year degree requirement
- #4 Increased spending on job boards, job fairs, recruiters, etc.
- #5 Explored ways to build our own talent pipeline
- #6 Focused on overlooked or underutilized talent pools
- #7 Increased employee referral bonuses
- #8 Added or increased signing bonus

L&D Increasingly Shapes Strategic Direction, But Resources Don't Always Follow

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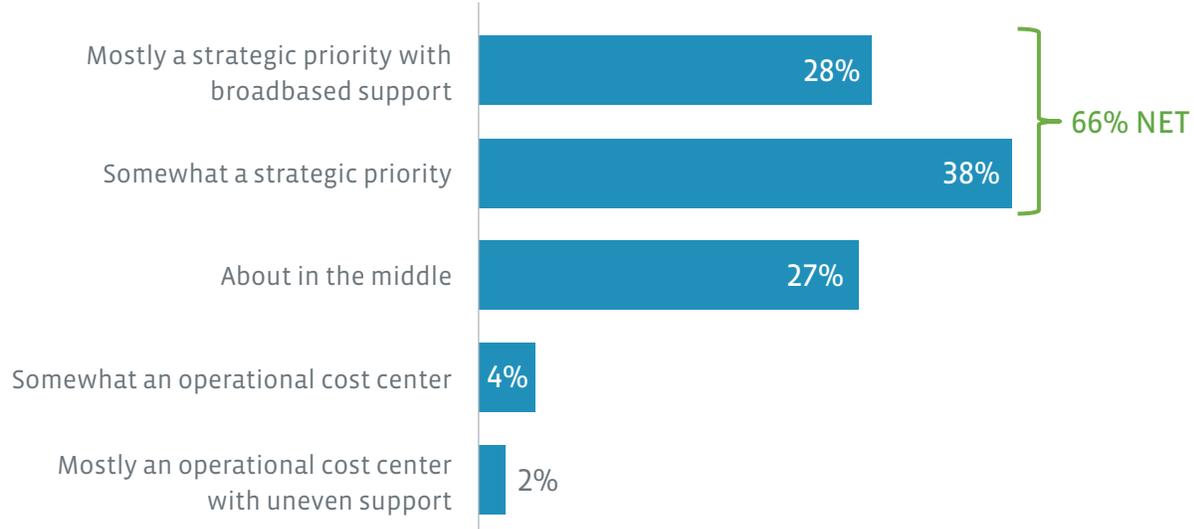
L&D is maturing as a field and becoming more professionalized. Most L&D leaders believe they can contribute to the strategic direction of their organizations. Some, but not all, feel their organizations are open to that strategic contribution. A significant minority feel a lack of support from the C-suite and frontline managers.

The good news is that when HR leaders were asked if L&D is treated or viewed as a strategic priority in their organization rather than an operational cost center, the great majority said “about in the middle” or better.

The bad news is that it depends on who is answering the question. Senior HR staff were more likely to say L&D was a mostly strategic priority than their junior colleagues, 35% to 22%. Junior HR staff were five times as likely as senior HR staff to say L&D is an operational cost center, 10% to 2%.

However, a lack of leadership buy-in was not the leading reason cited for uneven support for L&D. Instead, the reason most commonly given was insufficient staff resources (41%).

Rating of L&D as a strategic priority vs. an operational cost center



Reports from other organizations also identify the readiness of L&D providers as a concern. For example, a 2019 white paper from *Training Industry* magazine argues that, “All too often, the skills of learning professionals take a back seat to serving the greater organization. Training and development professionals must take a hard look at their own skill set to gauge whether they are adequately prepared to support the business as it evolves.”¹⁴

The survey results confirm implementing new or better approaches to training and professional development is a top priority.

Top HR and talent management priorities over the next 12 months



¹⁴ *Training Industry* magazine, [Trends 2019: Adapting the Training Function to the Complexity of Today's Business Environment](#), November/December 2018

Yet budget limitations continue to be a concern; 39% of organizations cited insufficient budget as a barrier to an effective learning program.

Overall, there doesn't seem to be a strong trend in increasing or decreasing L&D budgets. LinkedIn found that spending was up among their respondents,¹⁵ but *Training* magazine found that spending was down.¹⁶

One factor affecting budgets may be that organizations are becoming increasingly data driven. Over one-third (37%) of our respondents expressed a desire for training to help them become more data driven overall, which likely reflects a desire to better measure the impact of L&D programs. That may be due to uncertainty about the ROI of reskilling and upskilling as compared to hiring for skills, as well as uncertainty about economic prospects in 2020.

But a lack of leadership buy-in was still a significant concern: 26% of respondents to the CompTIA survey cited it as a reason for uneven support for L&D. Among organizations that said they had a significant skills gap, leadership buy-in was an even larger factor (32%).

An even bigger drag comes from “manager opposition to employees missing work to participate in training,” with 35% of respondents citing that as a factor. This highlights one source of friction surrounding skills gap discussions. Some employers bemoan skills gaps, while simultaneously contributing to them by failing to support staff training efforts.

Other studies and publications have found a mixed record on L&D's strategic influence. For example, a survey by Deloitte found a similar emphasis on the need to improve L&D programs, with 86% of respondents rating the issue as important or very important. However, that same survey found that only 10% of respondents felt “very ready” to address that need.¹⁷

“As long as the need for training is there, people are willing to spend. If there's no budget, they find another way to budget for it. If there's no time, they make time by consuming it differently.”

— Mike Kilgore, Director of Products and Programs,
New Horizons Computer Learning Centers

¹⁵ LinkedIn, [LinkedIn Learning's 2019 Workplace Learning Report](#), 2019

¹⁶ Training magazine, [2018 TRAINING INDUSTRY REPORT](#), 2018

¹⁷ Deloitte, [2019 Global Human Capital Trends](#), April 2019

A Soft Skills Gap Is Bringing a New Focus On Challenges and Solutions



Experts across the board agree that soft skills are essential and in short supply. When you listen closely, they are talking about a range of characteristics that include disposition, professional deportment, interpersonal interactions, emotional intelligence, cognitive skills and leadership skills.

Hiring and maintaining a robust tech workforce is a goal complicated by multiple challenges. Among a variety of workforce gaps, soft skills gaps ranked as a top concern. Furthermore, nearly two-thirds (62%) of respondents ranked soft skills with equal importance to hard skills when it came to hiring and professional development.

This echoes findings in other studies too numerous to count. Leaving aside how “soft” the concept of “soft skills” is, employers have confirmed over and over again how challenged they are to find them, perhaps because the concept is so poorly defined. In general, thought leaders are making a distinction between specific technical skills on one hand and a range of foundational, higher order and broadly applicable cognitive skills on the other.

Examples* of the many ways “soft skills” are depicted in L&D reports, surveys and job posts

 Agility	 Curiosity	 Persuasion
 Adaptability	 Decision making	 Relationship building
 Analysis	 Emotional intelligence	 Self-motivation
 Business acumen	 Flexibility	 Self-regulation
 Cognitive flexibility	 Foreign language	 Service orientation
 Collaboration	 Innovation	 Teamwork
 Communication	 Integrity	 Time management
 Complex problem solving	 Judgment	 Writing
 Confidence	 Math	 Work ethic
 Creativity	 People management	
 Critical thinking	 Persistence	

*Intended as representative examples and not a definitive list of soft skills

Charles Eaton, executive vice president of social innovation for CompTIA, says that even though many companies are looking to hire someone based on their technical skills, more tech jobs than ever have some customer-facing or teamwork aspect to them. “While job descriptions may all emphasize the technical pieces,” he says, “what we know from the people who hire is attitude and fit are going to be paramount.”

According to a McKinsey Global Institute analysis, the majority of jobs are estimated to see 30% or more of their core activities automated,¹⁸ and the skills required to do them will shift from structured manual tasks and basic informational recall to higher-level creative and cognitive skills applied to unstructured work objectives. The New Traditional model seeks ways to build technical domain skills simultaneously with these higher-order skills.

¹⁸ McKinsey Global Institute, [Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation](#), December 2017

Zeshan Sattar, director of learning and skills certification (UK) for CompTIA, says we are no longer in the knowledge economy; we're in the intelligence economy. "We need to train our people to understand that you can have that intelligent system helping you," he says, "but it's up to you as the human to make that decision of what to do with that data. You have to think about how to leverage intelligence to make a difference."

Jennifer Blackwell, senior manager of product marketing for CompTIA, says the IT managers she talks with are looking for technically proficient employees with project management skills such as understanding the business impact of their work, setting realistic schedules and staying on budget.

"A lot of it, whether it be an implementation or a migration or their portion of a larger project, is just the ability to communicate from that project perspective," she says. "What is it that you are working on on a day-to-day basis? If you need more time, can you explain why and not just assume everyone understands how long something takes?"

"We're seeing a huge demand for emotional intelligence training. People think of those skills as separate from technical skills, and we're finding that's not true at all. They interweave very well, and people are interested in both."

— Mike Kilgore, Director of Products and Programs,
New Horizons Computer Learning Centers

Subject-Matter Experts Remain Core to the Learning Experience



While most organizations are excited about the possibility of using new technologies in L&D programs, it's clear that robots and software aren't replacing expert instructors any time soon.

The HR and training leaders we spoke with were united in the continued value of instructor-led training (ILT), whether it was in a classroom, instructor-led i.e. virtual instructor-led training or on-the-job training.

For example, Brad Puckett, global product director of IT training company Global Knowledge, says when it comes to technical fields, it's paradoxically extremely difficult to use technology to replicate the experience a student has with an expert in the field.

"We're still trying to capture the best way to immerse the student with some sort of expert support," he says. His organization augments live training with digital and on-demand training videos, high-tech whiteboarding, office hours and on-call interactions.

This is an example of the New Traditional model — a hybrid, best-of-both-worlds approach that appeals to many organizations. *Training* magazine found in the 2018 edition of their annual industry report that both online only and "stand-and-deliver" classroom training were down from the year before, while blended or hybrid training had doubled (from 35% to 69%).¹⁹

¹⁹ *Training* magazine, [2018 TRAINING INDUSTRY REPORT](#), 2018

This is reflected in the landscape of the vendor marketplace. HR industry analyst Josh Bersin recently noted a shift from static learning management systems (LMS) to “learning experience platforms” that provide a personalized, multimedia micro-learning experience.²⁰

Asynchronous learning is gaining ground in training for discrete skills and questions. In those cases, mobile apps, content libraries, chatbots and other asynchronous tools support personalized just-in-time learning.

Mike Kilgore, director of products and programs at New Horizons Computer Learning Centers, says there is a value in “appetizer eLearning” that allows learners to access content in snippets. But the more comprehensive a topic learners must tackle, the more they are drawn to blended models that involve experts.

Emerging technologies and new approaches that L&D professionals are most excited for



“Sitting physically in a classroom is going to slowly drift away for technology training. There’s going to be no reason to build a college campus 10 years from now, because you’re going to be able to train anybody, anywhere on the Earth.”

— Michael McNelis, EVP of Enterprise Services at Training Camp

²⁰ Josh Bersin, “[HR Technology 2020: Disruption Ahead](#),” September 2019

Talent Shortages Push the Reskilling and Upskilling Envelope



5

In the year ahead, all signs point to employers continuing to face talent shortages, particularly in tech jobs. There aren't enough people in the pipeline, so employers need to be strategic in how they hire and train for unfilled positions. This issue is becoming more pressing as more "non-technical" businesses need to hire for technical roles.

Half of all survey respondents (52%) rely on an even mix of hiring and upskilling to meet skills gaps. But the more highly an organization rated their understanding of training technology, the more likely they were to rely on upskilling rather than hiring. The New Traditional model deploys its L&D operation to address skills gaps.

This echoes a recent study from the strategy and consulting firm Whiteboard Advisors that shows that growing rather than hiring talent is a characteristic of high-performing organizations. The report's author, Josh Bersin, argues that "in today's world of low unemployment and rapid digital transformation, companies that can rapidly develop new skills internally will far outperform their peers. It's no longer possible to 'hire' your way to success: Your most powerful strategy for business growth is to build skills from within."²¹

²¹ Josh Bersin, [Build vs. Buy: The Days of Hiring Scarce Technical Skills Are Over](#), October 24, 2019

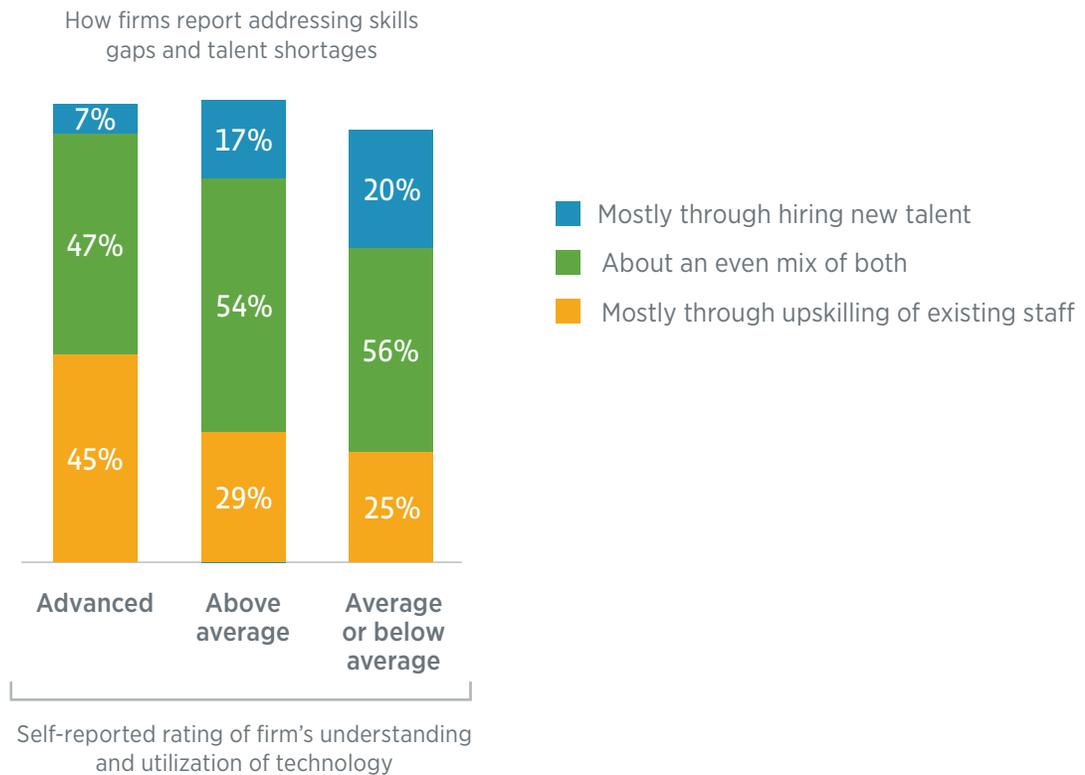
Companies that have an advanced technological understanding were also almost twice as likely to say they were very prepared to identify and respond to skills gaps than the average company (45% versus 23%). This isn't surprising, given the worsening pipeline problem when it comes to tech jobs.

As noted previously, the U.S. core IT workforce is projected to grow at 1.6 times the national labor growth rate over the next decade, which translates to a projected need for 800,000 new IT workers. This understates the true workforce need, though, because annual retirements and career changers require backfilling, pushing the total IT workforce need into the millions over the next decade.

Tight talent markets are already forcing more organizations to rethink their talent pipeline, Eaton says. However, organizations still are expecting "last mile" training to come through higher ed, self-study and specialized training programs. "More companies are getting engaged in managing their internal talent pipelines," he says, "but not necessarily the complete newbies to the industry."

The pipeline problem means it's more difficult to find leadership with qualified experience. Sattar says that in the UK, companies are challenged by a lack of higher-level security architects. "You need a mentorship program to grow the next generation of leaders," he says. "It impacts the entire pipeline from getting more people in, getting them trained for the specialized role, and helping them grow to the next level."

Hiring and upskilling to meet talent shortages



WHEN IT COMES TO SKILLS, EVERY INDUSTRY IS A DIGITAL INDUSTRY ON SOME LEVEL

An individual company may not be selling technology products to its customers, but companies in every industry need both specialized high-tech skills and broad-based digital skills in its workforce. The notion that there is no such thing as a non-technology industry is increasingly becoming a reality.

In CompTIA's IT Industry Outlook 2019, we identified one trend as "High Tech Increasingly Transforms Low Tech." Formerly low-tech businesses from roofing and farming to restaurants and building management are being transformed by digital innovation.²²

Along with that transformation comes specific subsets of skills that are growing in demand in three major areas: big data, cloud computing and networking, and cybersecurity. The emerging skills gaps in these areas remain ill defined, but you can bet that every industry will require these skills, if they don't already.

Depending on the size of the organization, they may need leaders in every corner of the operation to have a baseline understanding of these skills, as well as dedicated technical staff with a high degree of competency. For example, a head of marketing may need to understand how big data will affect product development and market positioning, and a CFO may oversee junior-level data scientists. The training path for each of those will be unique.

Big data and analytics

Businesses in every industry seek to leverage traditional data streams, such as customer transactions, while pursuing new untapped data sources. Reflecting this need, U.S. job postings for data and analytics skills jumped 42% year over year in 2018, according to Burning Glass Technologies Labor Insights.²³ While the rate of growth did slow in 2019, there were still over 175,000 job postings for these skills.

Cloud computing and networking

It used to be any business with more than a few dozen employees had one who managed a closet full of servers. As more services and software products move to the cloud, companies are searching for employees that have cloud engineering skills and experience. Job listings related to cloud engineering and networking have been steadily on the rise,²⁴ and LinkedIn found that cloud computing was the most in-demand "hard" skill of 2019.²⁵

Cybersecurity

Any company can be vulnerable to data breaches now. Cybersecurity training can't be limited to an organization's IT department. Social engineering, email phishing and other attacks can happen at all levels of the organization, says Jennifer Blackwell, senior manager of product marketing at CompTIA. Overall, she has seen cybersecurity budgets increase substantially year over year, yet many companies are still reactive rather than proactive about their cybersecurity training.

"A lot of C-level personnel are attacked on a daily basis. The filters usually pick this up, but the IT department needs to be over-reporting what they see to executives so they are constantly aware of how often they're being targeted."

— Jennifer Blackwell, Senior Manager of Product Marketing at CompTIA

²² CompTIA, [IT Industry Outlook 2019](#), January 2019

²³ Burning Glass Technologies Labor Insights, December 2019

²⁴ Boston Consulting Group, "[What's Trending in Jobs and Skills](#)," September 2019

²⁵ LinkedIn, [LinkedIn Learning's 2019 Workplace Learning Report](#), 2019

L&D Aspires to Create the Seamless, Blended Experiences Learners Expect



In the New Traditional model, L&D leaders are looking for the technology that creates seamless, blended experiences across platforms. The best innovation is one that allows learners to meet their need for a particular training task at a particular time.

Nearly half of respondents in our survey of HR and training leaders say their programs (44%) are using mobile apps, while 39% are actively exploring them.

But just how effective these apps are at delivering training remains to be seen. Mobile devices have been touted as a way workers can learn from anywhere, but are organizations actually finding them to be effective tools for delivering training? For synchronous instructor-led elearning, students still prefer bigger screens and keyboards, says Kilgore.

Training magazine found that even early interest in mobile for training delivery has waned, with 1.7% of training hours delivered via mobile devices in 2018, down from 3.6% in 2017.²⁶

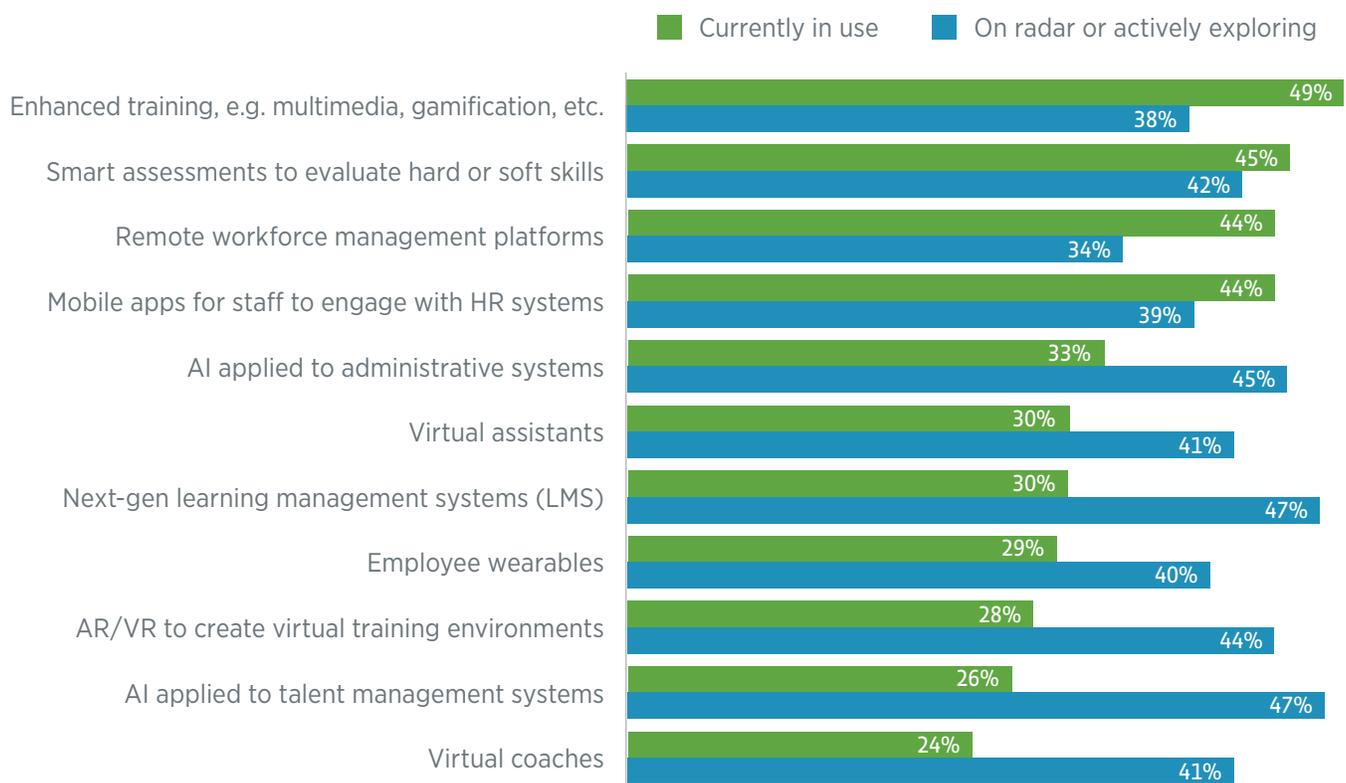
However, chatbots and voice assistants on mobile devices are showing promise in coaching and just-in-time learning, especially as more people get familiar with them in consumer applications.

²⁶ *Training* magazine, [2018 TRAINING INDUSTRY REPORT](#), 2018

Not keeping up here could be a problem, as real-world consumers of learning content increasingly expect to jump between platforms and modes. They may start on YouTube, try free mobile apps and move on to paid in-class programs. And they expect those jumps to be seamless.

Training and certification provider Training Camp saw success during a pilot program using experimental knowledge-based chatbots in live, online classes so students could ask quick questions in the middle of class, says Michael McNelis, EVP of enterprise services. They discovered that students would use the chatbot after class hours during self-study, too. “It definitely enhances their self-study attention span,” he says.

Firms test the waters with emerging technologies and new approaches to learning



Mixed Signals: The Jury Is Still Out On These L&D Trends

Innovations in how training can be delivered are coming at a rapid pace as edtech companies push out products using technologies like AR/VR, digital badges and gamification. But signals are still mixed as to whether organizations are actually adopting these new tools.



AR/VR

While experts agree that augmented reality (AR) and virtual reality (VR) have potential in L&D, there are still kinks to be ironed out before these approaches are ready for mainstream adoption. The most promise may be in training scenarios involving complicated, expensive machinery, equipment or processes. VR training programs may make it less cost prohibitive to train people than owning the machinery/equipment or transporting a trainee to a different location to work on the machinery/equipment in person.

For example, flight simulators have long been used to train pilots. AR/VR may extend that model to other professions and roles, such as preparing IT professionals to manage a data center or troubleshoot an autonomous vehicle operating in a smart cities environment.

While a “virtual classroom” seems like a good way to engage learners and remove distraction, McNelis says Training Camp found through VR classroom experiments that people have difficulty wearing VR goggles or headsets for long enough periods of time. AR/VR and other immersive technologies will inevitably get faster, smaller and better, so this will be a trend to revisit.

Gamification

Gamification has been discussed in L&D circles for years, but for many it is still considered in the experimental stage as a learning tool. LearnLaunch Institute noted that elements of gamification are increasingly being used in eLearning as part of video content.²⁷

Brad Puckett at Global Knowledge believes there is a place for gamification, particularly among the younger generation of learners. But he cautioned L&D leaders to pair gamification with challenge-based growth assessment and to follow up with coaching and expert guidance.

Automation’s impact on skill requirements

Even though 77% of survey respondents were very or somewhat concerned that automation would mean fewer jobs, several experts suggested that the effects of automation are likely to happen much more gradually than people fear.

In CompTIA’s IT Industry Outlook 2019, we identified one trend as “Digital-Human Models Begin to Shape the Workplace of Tomorrow.” While the dire warnings of robots coming for our jobs get media attention, the reality of the situation is far more nuanced.

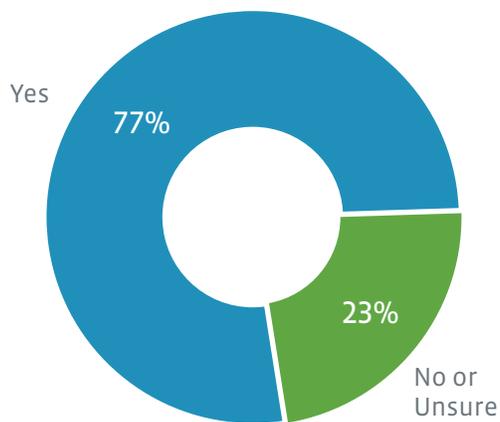
Hybrid models will emerge whereby humans leverage and act on technology; and intelligent technology proactively does the same to workers. The underlying assumption is that humans and intelligent technologies will always have strengths and weaknesses, much like any team. In practice, these digital-human models may take many forms.

“I think the tipping point for automation is maybe not as close as everybody’s scared of because two things have to happen: Robotics and artificial intelligence both have to get a lot better.”

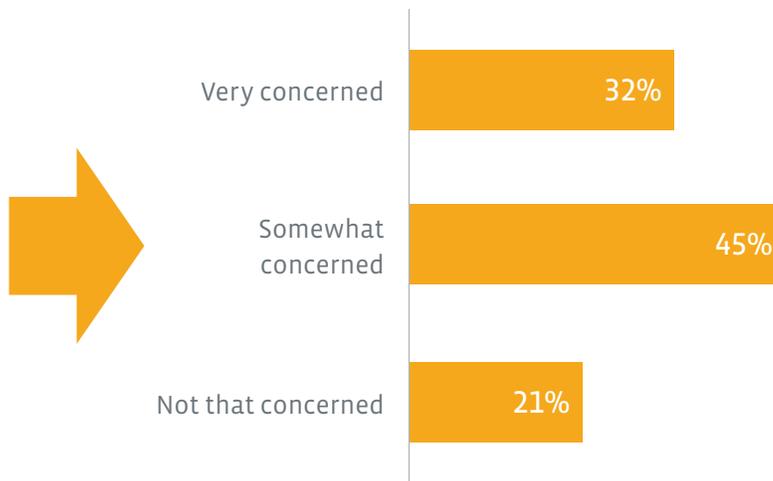
— Stephanie Morgan, Director of Education & Edtech Labs at CompTIA.

²⁷ LearnLaunch Institute, [The State of Workforce EdTech](#), September 2018

Awareness of stories / discussions about automating technologies and impact on workforce



Degree of concern over automating technologies displacing jobs



Automation's impact on training

Automation could also change how that training is delivered, though we didn't find strong evidence for it. L&D leaders are watching for coaching apps that can help salespeople practice presentations and for machine learning that can customize learning pathways. Puckett suggests that automation could be used to design and optimize curriculum that is specialized for each individual depending on their role and a company's goals.

WHAT IS ALGORITHMIC ACCOUNTABILITY?

Algorithmic accountability is the ability to audit the data and code used in an algorithm.

An algorithm — a computer program's problem-solving process — is often the secret sauce that makes an application uniquely effective. But what happens when an algorithm makes decisions that are questionable or flat-out wrong? This question is more urgent as more algorithms are infused with powerful AI that make important decisions for many people.

Algorithmic bias is when a computer application produces unfair results for some users, often because it relies on biased inputs. Algorithmic bias shows up in systems for hiring or screening that scour

a candidate's data footprint and then draw conclusions about a person's attitude and disposition.

For example, *The Washington Post* reported recently on a face-scanning algorithm that “decides whether you deserve the job.” Critics warn that the algorithm will reinforce bias against groups that don't “look right” for certain jobs.

As AI-based systems become more ubiquitous, industry, government and society will face thorny questions over the tradeoffs between innovation and the issues of transparency, explainability and accountability.

But, as we noted in sections 4 and 6, L&D leaders value technology that allows them to personalize instructions or support instructor-led experiences. Generally, they aren't seeing automation tools that do that. The New Traditional model of L&D still has a lot of “traditional” in it.

Methodology

CompTIA's *Workforce and Learning Trends 2020* report leveraged a number of inputs to produce the final output. The quantitative component of the study consisted of an online survey fielded to U.S. HR and L&D professionals across a range of industry sectors and company sizes. A total of 400 respondents participated in the survey, yielding an approximated overall margin of sampling error at 95% confidence of +/- 5.0 percentage points. Sampling error is larger for subgroups of the data. Data was collected during August 2019.

As with any survey, sampling error is only one source of possible error. While non-sampling error cannot be accurately calculated, precautionary steps were taken in all phases of the survey design, collection and processing of the data to minimize its influence.

The qualitative component of the study consisted of 1:1 interviews with experts spanning the fields of learning and development, certifications, edtech, and more.

CompTIA is a member of the market research industry's Insights Association and adheres to its internationally respected Code of Standards. Any questions regarding the study should be directed to CompTIA Research and Market Intelligence staff at research@comptia.org.

Credits

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About CompTIA

The Computing Technology Industry Association (CompTIA) is a leading voice and advocate for the \$5.2 trillion global information technology ecosystem; and the approximately 75 million industry and tech professionals who design, implement, manage, and safeguard the technology that powers the world's economy. Through education, training, certifications, advocacy, philanthropy, and market research, CompTIA is the hub for advancing the tech industry and its workforce.

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