



The flexible IT workforce

**How the nexus of talent, skills, and leadership
is forging the future of IT**

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Autonomous robots are working in stores to answer customer questions, spot holes in inventory, and identify safety hazards. 3D printers are replicating functional living tissues. The Internet of Things is connecting thousands of fitness trackers, alarm systems, dishwashers, and other electronics every day, as well as reshaping the business world.

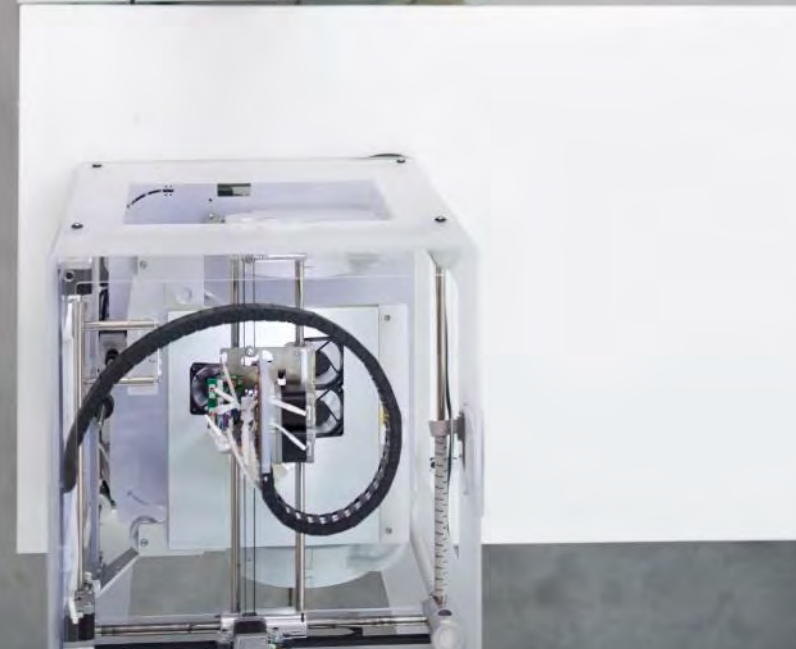
We are quickly approaching the point where every company will be a technology company at its core. Technology is no longer contained in one department, but rather, widely dispersed and embedded across the organization. What does this mean for the IT function and workforce?

IT innovations are driving the IT workforce from 'doer' to 'enabler'

The view that technology and business strategies are separate is rapidly being replaced by the realization that technology enables almost every business function. Going forward, IT leadership will be charged with putting the customer at the heart of strategy, linking technology investment to the profitability of transformation goals, and effectively integrating technology into the business. They will also be charged with collaborating with business and operations partners, and evangelizing the potential of new technologies.

The perception is shifting of what IT can do and how it can enable businesses to serve customers. A number of IT trends are forcing companies to rethink how they use and manage IT. These include the growing customer-centricity of products and services, the rapid proliferation of SaaS and cloud-based IT solutions, the increasing use of intelligent automation, and the growing commoditization of technology as a service. Given the rate and breadth of change, IT functions should already be shifting dramatically away from cumbersome "technology implementations" and toward driving business results through effective use of technology across all functions.

In this era of change, the CIO has an opportunity to help create an ecosystem of technology talent throughout the enterprise. By embracing the role of IT as the enterprise technology champion and modern architect they can ensure that the capabilities necessary to deliver technology transformation are available when needed in the years ahead. Further, CIOs can break down the silos of central control and help everyone across the enterprise leverage technology systems and expertise to deliver omni-channel experiences. They can also be at the forefront of changing the way we work, introducing technologies to support the remote professional, and enabling collaboration across the enterprise and with outside stakeholders. In the future, CIOs will become comfortable with the democratization of technology, working collaboratively with and among business units in leveraging technology to the organization's advantage.



Advancing the IT workforce

Perhaps the greatest shift in the future will be the recognition that IT's biggest asset and biggest risk is not technology, but people. In order to adapt and thrive in the digital economy, leading organizations are looking beyond just building an IT workforce. Instead of working only within the IT function, people with technology skills are mapped more closely to business problems and measured on their ability to drive business value. CIOs are in a unique position to help drive this cultural change, but only if they adopt modern delivery practices, help tear down functional divides, and facilitate collaboration and constant experimentation.

Consider a few key numbers: organizations are investing heavily in technology, particularly in cloud and mobile technologies, but also increasingly in artificial intelligence. Forty-nine percent of CIOs report their IT budgets have increased over the past year, while 47 percent said they have increased IT headcount. This trend is expected to continue, with 48 percent of CIOs planning to increase their IT budget over the coming year.¹ This investment in technology is concurrent with growth in business-led IT hardware and software not supported by an organization's central IT function.

Customer expectations are rising and technology is driving the experiences behind it

Investment in customer facing technologies is growing even faster.² With mega-technology giants driving customer expectations higher, other businesses and industries are being forced to respond. In order to respond to these major changes, IT's role is transforming from that of a supplier within the organization to a facilitator, able to create new business models, capture new markets, and adapt to disruption.

¹ Harvey Nash/KPMG CIO Survey 2018 (Harvey Nash and KPMG International, 2018)

² MIT Sloan Management Review Vol 59, No 3. Spring 2018.



Defining the IT function of the future

The days of a monolithic IT function and mega-technology modernization programs are drawing to a close. Leading organizations will need to create a flexible, nimble and innovative IT workforce as innovative technologies permeate the enterprise.

The IT function of the future will serve as the foundation of a frictionless, integrated, and connected enterprise and the supporting IT workforce will be distributed rather than centralized. Rather than control technology, the function will serve as a guide, enabling internal stakeholders to leverage technology effectively. Moreover, IT will serve as the connective tissue, as seen, felt and experienced by workers across the organization, whether they sit within the IT function or outside it. As such, IT will be dedicated to ensuring that technology services are working to scale and that workers are taking advantage of all tools available.

Many roles will be disrupted as technology frees up human workers to take on more challenging, high value work while automation takes on repetitive, transactional tasks. Technology that enables virtual communication and supports professionals working remotely will change how we work. In many cases, the CIO and IT function will lead these evolutions.

The group will guide the organization's overarching digital transformation: bring business leaders together to collaborate on digital decision-making, align technology activities across the organization, and foster an innovation culture and the skillsets needed for its realization.

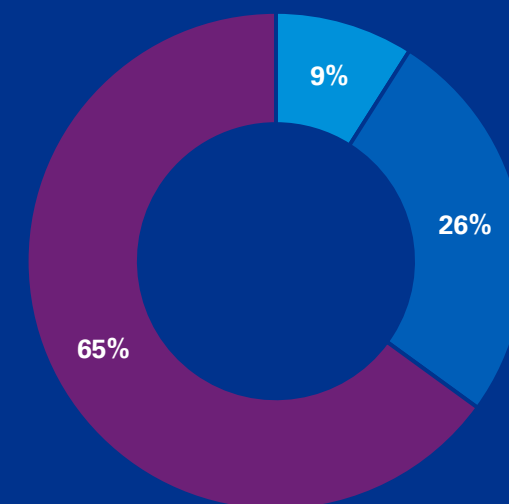


Whilst no other executive role is undergoing as much change as the Chief Information Officer, no other executive role has the opportunity to be truly transformational, both for the organization, and for the person occupying it."

Harvey Nash/KPMG CIO Survey 2018

In effect, IT will establish a **technology talent ecosystem**, one that is accessible and flexible in meeting the demands of rapidly evolving technology. Accessibility and flexibility are particularly important in today's gig and short-term contract economy where the talent available is always in flux. The successful IT function will have the capacity to scale IT skills and modern development capabilities up and down the organization and source both permanent and contract IT talent quickly.

The majority of IT leaders report that the role of CIO is becoming more strategic within the organization



■ Less strategic
■ Same
■ More strategic

Harvey Nash/KPMG CIO Survey 2018

How can CIOs encourage employees to be IT enablers?

Lead digital transformation

Focus on creating a new business model that facilitates collaboration and innovation in order to drive business results. For example, digital channels and collaboration platforms can be used to encourage the crowdsourcing of ideas and provide channels for leaders to listen and respond to both full-time and contract workers.

Encourage workers to think beyond the platform

Technologists should move beyond the role of 'platform evangelists' in their organization. Instead, they should focus on helping their counterparts understand how the technology landscape is evolving and what opportunities and limitations exist.

Be the connective tissue

IT should not act as a function in silo-ing or gatekeeping technology. Whether the IT workforce sits within an IT function or is embedded across the organization, the CIO should ensure that end users are properly enabled to deliver value to customers.

Implement right-sized governance

Promote flexibility within the IT workforce to engage the appropriate stakeholders and innovate with new technology, while ensuring that consistent technology standards and practices are applied across the business.

Create targeted and flexible training programs

Embrace different training models that speak to the unique needs of employees, such as gamifying content already developed by learning and development teams, offering training on external learning platforms, and providing on-demand content that learners can access when they need it.

Prioritize security as a business imperative

Ensure secure, resilient service delivery by ensuring standards and legislated requirements are being met and data is secure.

IT as a technology talent ecosystem



IT is becoming ever more customer-centric, focused on improving the customer experience in order to build loyalty and drive competitive advantage. IT leaders are being called on to link technology skill-sets to meet customer needs. They are helping to source top talent and embed technology skills throughout the enterprise. IT is beginning to champion technological training and the awareness of innovation across functions. Increasingly, CIOs are being measured on how successfully they enable technology development teams, facilitate collaboration, integrate solutions, and manage data to drive organizational performance and create value.

The emergence of IT as a champion and enabler of a technology talent ecosystem will be supported by a convergence of development engineering and operations (DevOps) through automation, tool integration, cloud leverage, micro-services infrastructure and other advancements. Going forward, IT will become more engaged than ever across an organization as businesses continue on the path to digital transformation. This evolution will require a complementary shift in operating model, skills, methods, tools, architecture, and processes.



Today, IT operations consume upwards of 60% of the function's time. In the coming years, this is likely to fall to 20% as a result of automation, cloud saturation in the market, advanced operational tools, and other forces. As a result, IT time devoted to solution development work is expected to increase from the current 25% to 50%. Related skills will be embedded within business functions to help drive and enable these teams - all under the stewardship of IT leaders."

Jeoung Oh, Principal - CIO Advisory,
KPMG in the US

IT skills embedded throughout the enterprise: New roles requiring new skills

Skills requirements will shift as IT's structure and role evolve to focus on strategy and digital alignment. Multi-functional project teams will increasingly meet the demand for ongoing improvement and customer-focused solutions. For example, companies are focusing more and more on developing dynamic pricing models. As part of this effort a product team develops and iterates a pricing methodology and incorporates market data. IT, for its part, provides guidance on sources of relevant data, while ensuring that appropriate access and security measures are in place.

Creating new IT roles to leverage new technologies

The shift of the IT function from traditional supplier to provider of scaled capabilities, leveraging multidisciplinary teams to continuously develop and implement products, means an evolution to the boundaryless organization. The business will be more agile as a result, which, in turn, will enable rapid innovation and a greater focus on customers' needs.

While IT leaders become more strategic, there will also be changes to roles, both within the IT function and across the business. Traditional roles might fall by the wayside as new roles become more critical.

Rising roles

These roles may be brand new or may already be an integral part of the structure, but they are likely to grow in importance as IT turns its attention to new technological advancements.

The following roles listed are examples and not intended to be an exhaustive list.

Automation architect -

Harmonizes the enterprise's automation environment by designing, developing, and maintaining enterprise automation and performance testing framework.

Automation compliance lead -

Delivers decision integrity by assessing bot-related data.

Automated testing leads (QA) -

Ensures automation is performing as expected by developing and performing end-to-end automation tests.

API lead (integration specialist) -

Organizes around business problems and products; understands back-end to assist front-end.

Bot master -

Optimizes bot performance by managing a team of bots, handling escalations, and training the bots to improve.

Capability broker -

Ensures skills and services are available when needed.

Product reliability engineer -

Tackles operations issues by creating scalable and highly reliable software systems with a software engineering approach.

Scrum master -

Speeds up systems development lifecycle by facilitating an agile development team.

Release / solution train engineer -

Optimizes continuous flow of value through the agile release train and solution train.

UX/UI engineer -

Transforms product requirements into customer-experience-oriented solutions.

Virtual roles -

Remote working allows access to a wider talent pool and cost savings. Enabled by collaboration tools, roles such as service agents and digital operations engineers can be done anywhere.

Evolving roles

Many of these roles are already embedded in an IT function, but are likely to change to meet market demands.

The following roles listed are examples and not intended to be an exhaustive list.

Business analyst - Requires deep understanding of process mapping, process mining, understanding the effectiveness of AI and RPA, and decisions on new areas within an organization where these technologies can be deployed.

Enterprise architect - A role growing in demand and importance. He or she will need to stay closely aligned with the business to deliver a strategic roadmap for enterprise-wide technologies. They also will need to understand both the opportunities and limitations of platforms.

Product owner/manager - Prioritizes and evaluates work generated for a product to meet customer expectations. Leads short-term sprints and becomes the product coach for the rest of the organization.

Project manager - Traditional project management of lengthy and burdensome waterfall projects are giving way to agile methodologies. Project managers will become coaches to guide the rest of the organization to a future of targeted, short-term sprints.

Security specialist - Even as data breaches continue to be a top concern, both business and end customers are demanding access to data. This role will transform into being a broker for risk management between these competing needs.

Technology leaders - As traditional business leaders are learning the language of technology, technology executives will need to educate their business peers and become the connective tissue of the organization.

Disrupted roles

Any roles not aligned to a strategic business goal are likely to continue to be heavily disrupted as many organizations take advantage of opportunities to automate manual activities and those offered as a service.

The following roles listed are examples and not intended to be an exhaustive list.

Help desk specialist - Help desks, especially for first line support, will be agentless. They will be enabled by intelligent automation and artificial intelligence.

Incident/problem specialist - This in-house role will set strategy and manage the service level agreements accordingly and work hand-in-hand with the IT service management team.

Infrastructure/technology change management support - Outsourced change management support teams will work with the service delivery teams to ensure changes are approved and implemented in accordance with service level agreements. However, change managers will likely remain "in-house" and continue to maintain relationships with both vendors and full time employees. As established business rules in ITSM solutions allow for controls to be automated, the change manager will be responsible for understanding and implementing ongoing changes to business needs.

IT operations focused roles - These roles will no longer be needed "in-house", as much of the core operations work within IT becomes automated or done by managed services.

Technical architect - As organizations move towards component and software as a service-based solutions and distributed (serverless) computing, and away from legacy systems, the need for full time architects who offer 'institutional knowledge' will diminish.

Adaptable and flexible talent base: Targeting skills, not roles

With technology evolution and change becoming the new normal, IT leaders will be charged with strategically creating a flexible workforce that can scale up or down and operate at market speed.

This new world will require organizations to constantly review and identify the IT skills, capabilities, competencies and roles needed to drive their business forward – a challenge made more complex given that 65% of CIOs report a skills shortage.³ In the future, effective IT talent strategies will be agile and able to keep pace as the business pivots to face new challenges and opportunities.

Maintaining an organization that has the right talent



Buy

- Foster relationships with key universities and other online/external learning platforms
- Redesign talent acquisition strategy for more innovative search
- Redefine employee value proposition to retain millennial generation



Build

- Invest in career path design, learning and development to reskill workforce to deliver more business-centric services
- Redefine role definitions and core competencies
- Develop succession plan to address the retiring and incoming workforce



Borrow/partner

- Incorporate a flexible workforce into the organizational structure
- Develop a multi-faceted workplace ecosystem (e.g., onshore, nearshore, managed service)
- Partner to build capabilities that feed into an environment of high-performing talent
- Define mobility opportunities to leverage talent in different parts of the organization



Save

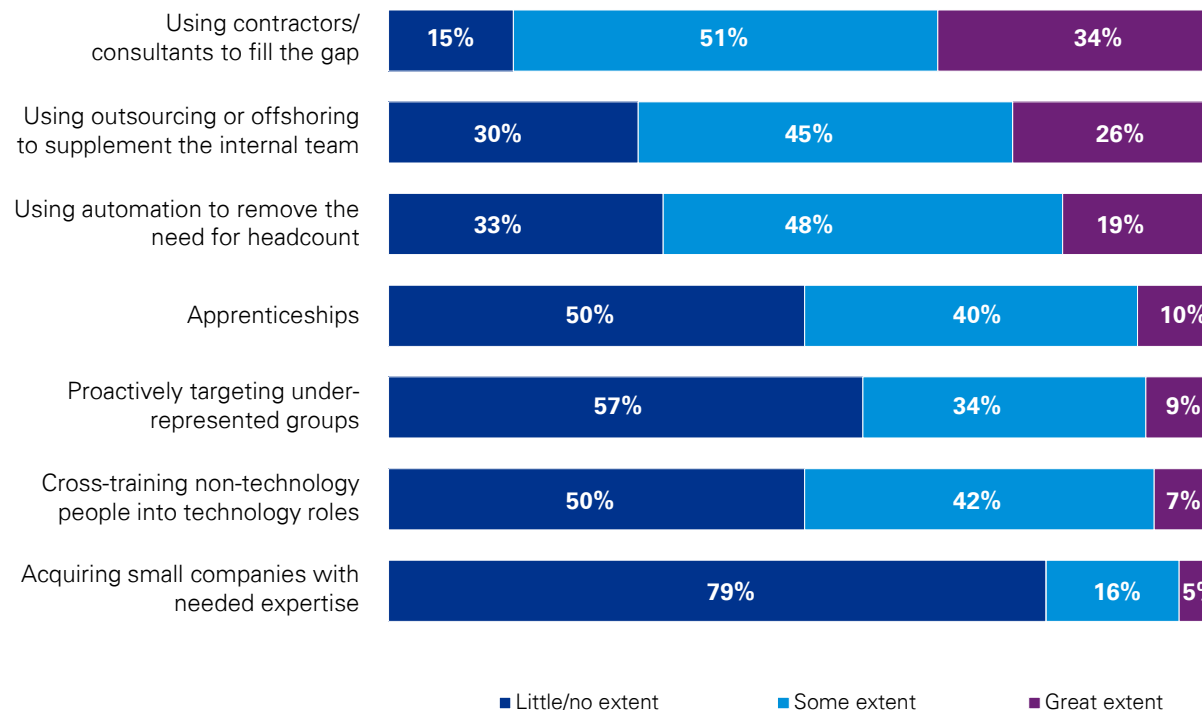
- Develop rotational programs to retain and develop high performers and future leaders
- Understand critical roles and single-source dependency of institutional knowledge

³ Harvey Nash / KPMG CIO Survey 2018 (Harvey Nash and KPMG International 2018)

To be both more flexible and respond to skills shortages, organizations will source skills for products or programs rather than place people in jobs. An organization, for example, might look to scale up skills related to specific programming languages when needed, and scale them down once relevant tasks are complete, rather than hiring a specific programming language expert full-time.

IT leaders are already using contractors and consultants to fill the skills gap, with 85 percent indicating they are leveraged to some or a great extent.⁴ In the future, the ongoing shift to the gig economy (i.e. short-term contracts as opposed to permanent jobs) and the use of contingent workers and freelancers will help redefine the very nature of the IT employee. Organizations will be able to source competencies internally, externally, or virtually. Companies are already making names for themselves as platforms to facilitate competency-based sourcing. The CIO will act as a global skills broker – a role that will include part sourcing, part talent management, and part innovative leadership.

In order to maintain knowledge and skill-sets in-house, larger organizations might look to develop their own contingent worker platforms. Partnerships with universities and technology incubators could also provide access to in-demand skills in the future.



Harvey Nash/KPMG CIO Survey 2018

⁴ Harvey Nash / KPMG CIO Survey 2018 (Harvey Nash and KPMG International 2018)



Maintaining flexibility and governance

As organizations continue to adapt to the gig economy and rapid technological disruption by taking a more agile approach to managing key skills, they will also be challenged to ensure they are in control of their data and decision-making. Leading organizations will think iteratively about their vendor relationships. For areas of work that are changing rapidly, organizations should consider avoiding contracts or agreements that force long-term relationships, as this could limit their ability to remain technologically nimble.

Decision-making roles will likely remain standard full-time roles. Specialist roles, however, might convert to task-based part-time roles across different functions, business units, or even companies.

Regardless of the balance between full-time, part-time and contract workers, companies will place increasing emphasis on offering the attributes of employment that gig economy workers value while also highlighting the benefits of working with a company. Workers expect to progress through their career with experience-based learning. In-demand skills training, certifications and practical experience will be critical to developing skilled IT workers and attracting and retaining all talent - not just full-time employees.

How to enable the flexible IT workforce of the future?

Too much of today's IT leaders' time is focused on cost-cutting, increasing operational efficiencies, and maintaining IT performance. The next-generation of IT leaders, however, will think differently. They will have a laser focus on the customer and driving value. They will take a holistic view of the business and work to ensure the enterprise is fully digitally integrated and connected and that everyone can leverage technology.

The next-generation IT leadership must become digital disruptors, turning big data into business assets, transforming the customer experience, and building the IT capability model with a view to ensuring the business moves at market speed.

The next-gen CIOs must have characteristics such as empathy, curiosity, and resilience to build and motivate their teams. They must drive agility, pace implementation, create an enabling environment, manage political dynamics, and challenge viewpoints. Knowledge of the technologies, architectures, workforce skill-sets and sourcing avenues will be critical, but they will also need to:

- 1. Understand the impact of emerging technologies and how to combine them and available data to enable future business and operating models**
- 2. Guide the "democratization of technology" and assist other organizational leaders in establishing and managing IT capabilities that are core to their business success**
- 3. Lead via influence (higher impact) and not control (less impact)**
- 4. Know and focus on their customer, whether internal, external, or both.**

Building for the future, today

Technology is everywhere, proliferating quickly, and becoming more pervasive across industries and business functions. Artificial intelligence, machine learning, business intelligence and big data - these and other innovative technologies are already reshaping the business world. Over the next few years, adoption of these technologies will drive new capabilities, enhance responsiveness, and deepen customer awareness.

In this environment IT leaders must:

Work to be technology enablers

IT will act, not as a gatekeeper to technology, but rather as a guide to help ensure technology is being used effectively and is aligned appropriately across functions. IT management will be distributed across an organization to enhance decision making, relevance, and implementation speed. They will work with business leaders in order to better align technology across the organization.

Establish IT as a technology talent ecosystem

The right people, whether IT specialists or business experts, have the skill-sets necessary to make effective use of technologies and their related outputs. The IT talent pool of the future will be accessible, flexible and able to respond to the rapidly evolving nature of technology.



Why KPMG?

KPMG member firms recognize that CIOs and IT leaders face increasingly complex demands and challenges. Today, IT must advance the business, not just support it, with boards increasingly expecting returns on digital investments and the implementation of successful digital transformation strategies that will drive up agility, responsiveness and enhance the customer experience.

KPMG professionals can help CIOs, technology leaders and business executives to harness new technology and improve the strategic value of their technology investments. If your business is seeking ways to leverage technology as a source of innovation and competitive growth, KPMG member firms can help.

Related reading

This paper is part of KPMG's Future of IT series, exploring the six most important things that market leaders will do in IT over the next five years. For more on the Future of IT and to read other papers in the series, please visit kpmg.com/Future-IT.



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French contacts



Thomas Schaumburg

Associé, Technology Transformation / Digital
KPMG en France
T: +33 1 55 68 33 92
E: tschaumburg1@kpmg.fr



Laurent Gobbi

Associé, Responsable Risk Consulting
KPMG en France
T: +33 1 55 68 74 41
E: lgobbi@kpmg.fr



Yann Camenen

Associé, CIO Advisory Financial Services
KPMG en France
T: +33 1 55 68 85 03
E: ycamenen@kpmg.fr

Global contacts



Jeoung Oh

Principal, CIO Advisory
KPMG in the US
T: +1 408 367 4717
E: jeoungoh@kpmg.com



Steve Bates

Global Lead, CIO Advisory
Center of Excellence,
KPMG International
T: +1 303 295 5524
E: sjbates@kpmg.com

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