



# Collaboration between humans and technology is creating a new labor class

## **U.S. Technology Industry CEO Outlook**

September 2016

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# Foreword

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## **The Technology Industry Outlook reflects perspectives from 138 CEOs in the United States about strategic priorities, revenue growth, economic expectations, investments, risk concerns and other industry trends.**

Innovation and the adoption of disruptive technologies remain foundational for U.S. tech industry CEOs, both in bringing new products and services to market and in implementing their company's strategic initiatives.

Their top strategic priorities include the digitization of their business, increased customer focus, implementation of disruptive technologies and talent development – all while minimizing cybersecurity risk.

We also found tech industry CEOs are investing heavily in talent development, workforce automation and machine learning. The majority of CEOs plan to increase their human workforce at least 6 percent over the next three years while adding automation and machine learning to create a new class of digital labor. The way we work will be transformed, changing the nature of most jobs.

Improving product and service offerings is a top imperative guiding the CEO agenda. This constant drive for improvement is followed closely by enhancing interactions with customers — a commitment driving more tech CEOs to devote significant investment and resources in customer acquisition and retention.

Disruptive technologies and new business models are constantly triggering the reevaluation of business value. Tech industry CEOs understand that to capitalize on the benefits of emerging technologies they need to lead a disciplined strategy across functions to identify new revenue streams, manage risk and increase execution agility to gain market share.

As the technology industry landscape evolves, so do their expectations about geographic and market opportunities. Tech industry CEOs remain optimistic about revenue opportunities for their companies in the next three years.

We hope you find the publication insightful, and we welcome feedback about the findings or suggestions for next year's survey.



**Gary Matuszak**  
Global and U.S. Chair, Technology,  
Media and Telecommunications, KPMG



**Richard Hanley**  
Global and U.S. Advisory Sector Leader,  
Technology, KPMG

# Highlights



## Strategic priorities

U.S. tech industry CEOs identify digitization of their business, stronger client focus, implementation of disruptive technologies, minimizing cybersecurity risk, and talent development as their top strategic priorities.



## Innovation acumen

Tech CEOs know market leadership depends not only on innovation, but also on a company's ability to monetize their investment in emerging technologies. Seventy percent of the U.S. tech CEOs describe their approach to innovation as strategic or accelerated, and 80 percent say they use disruptive technologies to improve products and services.



## Talent and digital labor investments

Tech CEOs plan to increase digital and human labor investments as their co-existence can enhance human skills and expertise. About three-fourths of U.S. tech industry CEOs believe automation and machine learning are likely to replace at least 5 percent of their sales, marketing, technology, and manufacturing workforce over the next three years. At the same time, more than half (55 percent) expect their company's headcount to grow at least 6 percent.



## Risk concerns and other issues

Recognizing the importance of information security in protecting their companies and maintaining customer trust, about 4 out of 10 tech CEOs identify cybersecurity as the top risk, followed by regulatory and brand/reputational risk.



## Partnerships and collaboration

Nearly 8 out of 10 tech CEOs see collaboration, joint ventures and partnering as a leading approach to driving shareholder value for the next three years. The fast pace of technology innovation has enabled a portfolio of emerging technologies that is transforming business models. As a result, new collaboration opportunities are emerging with competitors and new business partners.



## Revenue growth

Almost 60 percent of CEOs expect 2 percent to up to 5 percent annual revenue growth for their organizations over the next three years, while 17 percent expect growth between 5 and up to 10 percent.

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***“Emerging technologies are reshaping all industries to the point that most companies will become software companies, blurring the lines between product, service and industry categories. The most successful companies will be those that can most effectively prioritize and monetize emerging technology opportunities as part of their overall company strategy and take advantage of new cross-industry collaboration and partnerships.”***

— Gary Matuszak,  
Global and U.S. Chair, Technology,  
Media and Telecommunications, KPMG

# Tech industry CEO insights

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***“Today’s top business leaders understand that long-term success in this era of fast-paced technological change and global economic shifts requires a new way of thinking and operating. In fact, the corporate playbook is being rewritten and replaced by one that takes business agility to a level we have never seen before.”***

— Lynne Doughtie,  
U.S. Chairman and CEO, KPMG

# Strategic priorities

**What are the top three strategic priorities for your organization over the next three years?**



Source: KPMG Tech industry CEO outlook 2016

**Tech CEOs are addressing constant change with transformation efforts aligned to their vision. The evolution of technology disruptors continues to enable tech companies to change the way we work and live, and to compete with established market leaders in a variety of industries.**

These strategic priorities, while always important for technology companies, are more acute in an era where the pace of innovation continues to accelerate — and where companies are increasingly competing to gain and retain customers.

Tech industry CEOs understand the importance of digitizing their own business to drive operational efficiencies and to transform their organizations to capitalize on new market opportunities. Along with business digitization, true success relies on business model flexibility and agility. The ability to monitor the potential of emerging technologies and the agility to adapt to changing marketplace shifts are critical for Fortune 500 tech companies and pre-IPO start-ups.

As disruptive technologies drive the next wave of innovation, tech companies can gain new insights from their customers. A complete understanding of customer and employee behavior and motivation is essential to discovering opportunities for new or improved services and products.

## The Global View

**For APAC tech CEOs**, the leading strategic priority is fostering innovation (30 percent), M&A (27 percent), and improving the relevance of reporting to investors (24 percent).

The global results came from a separate survey, during the same timeframe, using the same questionnaire, conducted among “core” countries, including 32 CEOs from Europe and 33 CEOs from APAC technology companies, for details see page 25.

**In Europe, tech CEOs** cite becoming more data-driven (28 percent), articulating a vision and talent management (both at 25 percent), and improving client focus, managing brand risk and business digitization (all at 19 percent).

## Strategic priorities (continued)

### How does your organization currently make use of disruptive technologies?



Source: KPMG Tech industry CEO outlook 2016

Technology is playing a key role in enabling companies to capitalize on new business opportunities. In an ever-competitive business environment, tech leaders are focusing on realizing the benefit of new technologies to drive faster innovation cycles and enhance customer loyalty.

The ability of the tech sector to define new business models and to develop, adopt and monetize emerging technologies has boosted industry growth. Innovation and integration of disruptive technologies helps address tech CEOs' top concern – product relevance (93 percent) – three years from now.

With customers shifting their attention continually in search of the next innovative product, tech CEOs believe improving their product/service offerings remains the most important success factor. This constant drive for improvement is followed closely by enhancing interactions with customers, increasing efficiency, boosting sales, and collaborating more closely with supply chain partners.

***“Tech CEOs know client focus is critical to be a market leader. Companies that cannot get ahead of their customers’ changing usage patterns will have a problem delivering their value proposition. The companies able to anticipate client needs and connect the dots to create new customer value and experiences are going to be the market winners and drive the best financial results.”***

– Richard Hanley,  
Global and U.S. Advisory Sector Leader,  
Technology, KPMG

## The Global View

**APAC tech CEOs** cite improved productivity and efficiency (64 percent), better interactions with customers (61 percent), and improved products and services (58 percent) as their primary uses of disruptive technology.

The global results came from a separate survey, see page 25.

**CEOs in Europe** cite improved interaction with partners (56 percent), employee satisfaction (53 percent), and improved productivity (50 percent) as the most compelling benefits of disruptive tech.

## What are the top areas you are devoting significant investment to over the next three years?



Source: KPMG Tech industry CEO outlook 2016

Tech CEOs list regulatory and cyber as their leading investment priorities over the next three years. New regulations and changing government policies around the world, such as increased data privacy or cybersecurity mandates, are potential barriers to tech innovation and commercialization.

Tech industry leaders recognize cybersecurity is a customer experience and revenue opportunity; not just a risk and cost that needs to be managed. They are challenging the C-suite to turn cyber preparedness into a competitive advantage and are also incorporating security at the product and service design stage.

Over the next three years, CEOs will devote significant investment and resources on the customer, focusing on new product development, increasing data analysis capabilities, cognitive computing and artificial intelligence, and taking aim at the measurement and analysis of the customer experience.

Technology CEOs have long worked to go beyond merely meeting customer needs. Success in technology markets requires anticipating customer demands and, for truly innovative products and services, creating that demand.

The product development cycle has shortened significantly for companies of all sizes. If a company develops a point of advantage, the shelf life of that differentiation is much shorter than it was even three years ago. Investments in business model transformation can increase productivity and efficiencies as disruptive technologies enable companies to design, prototype, operate, manufacture and deliver almost anywhere.

## The Global View

APAC and Europe tech CEOs diverge slightly about strategic investments.

**APAC tech CEOs** list new product development and Internet of Things (both at 33 percent), as well as cognitive computing/artificial intelligence and geographic expansion within their home country (both at 27 percent).

**Tech CEOs in Europe** identify Internet of Things (31 percent), cognitive computing/artificial intelligence and measurement/analysis of customer experience (both at 28 percent), and M&A (25 percent).

The global results came from a separate survey, see page 25.

# Innovation acumen

**Innovation and the adoption of disruptive technologies remain foundational for U.S. technology CEOs, both in bringing new products and services to market and in implementing strategic initiatives to achieve market leadership.**

## How important are the following aspects in your organization's ability to drive innovation?

| Level of importance  | Mean |
|--|------|
| Fostering a culture of innovation  | 4.5  |
| Ability to secure investment/<br>resourcing to support innovation                              | 4.4  |
| Having a formal process to progress<br>ideas to commercialization/<br>implementation           | 4.4  |
| Specifically including innovation in<br>business strategy with clear targets<br>and objectives | 4.4  |
| Connecting in a beneficial way with<br>start-ups   | 4.4  |
| Management's innovation acumen   | 4.4  |
| Creating an environment that<br>encourages risk taking   | 4.4  |

Rating scale 1= Not Important and 5=Very Important

Source: KPMG Tech industry CEO outlook 2016

Given the importance of innovation in the tech industry, it's not surprising that fostering a culture of innovation is cited as one of the leading factors driving market success.

U.S. tech CEOs view change as a continuous process and recognize the latest innovation or disruption requires vision and focus to separate good ideas from bad (or merely average). They also understand the importance of building and maintaining a company culture where lessons learned from failure and perseverance are rewarded.

This innovation-first culture must be supported with:

- Formal processes to develop innovation and commercialize the most promising ideas
- Alignment with business strategy
- Effective management
- Investment resources to support innovation initiatives

## The Global View

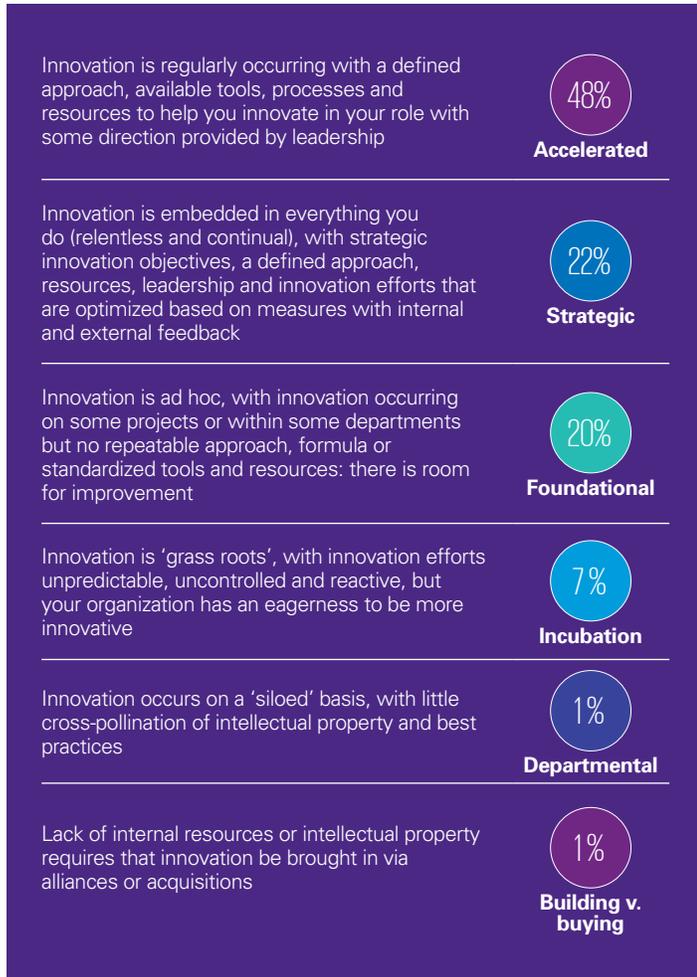
**Among APAC and Europe CEOs**, fostering a culture of innovation is also rated as a top factor in their company's ability to drive innovation:

**APAC.....Mean 4.2**

**Europe.....Mean 4.4**

The global results came from a separate survey, see page 25.

## Which of the following statements best characterizes your organization's approach to innovation?



Source: KPMG Tech industry CEO outlook 2016

Only 22 percent of tech CEOs say their organizations' approach to innovation is strategic; embedded in everything (relentless and continual), with strategic innovation objectives, a defined approach, resources, leadership and innovation efforts that are optimized based on measures with internal and external feedback.

Tech Industry CEO's understand the importance of establishing and maintaining a culture that encourages, rewards and embraces change and innovation. However, it is clear from the responses, that even the most innovative companies find that continuously driving a 'strategic approach' to innovation is challenging. While technology disruption has been a constant in the tech industry, the difference today is speed. A new idea can gain traction and be into its third or fourth iteration in the time it used to take to go through its first cycle. A new product can reach the market quickly, but can also be displaced with startling speed if a competitor commercializes a more innovative, attractive, or cost-effective alternative. As companies grow, they lose the agility to innovate and ability to change; the reward systems become more constrained to factor the risks and benefits associated with disruptive ideas.

The next wave of companies that want to be at the top of the food chain are also elevating their innovation strategy to develop products that have integrated hardware, software, data and some sort of services model. What used to be four or five different technology companies may converge into one company. Many of these companies will drive innovation by using software algorithms, machine learning, data, web, mobile and some hardware elements.

Tech industry innovation leadership is changing at a faster pace. As a result, many of today's technology industry leaders will be displaced by new players developing next-generation breakthroughs that can enhance economic value.

## The Global View

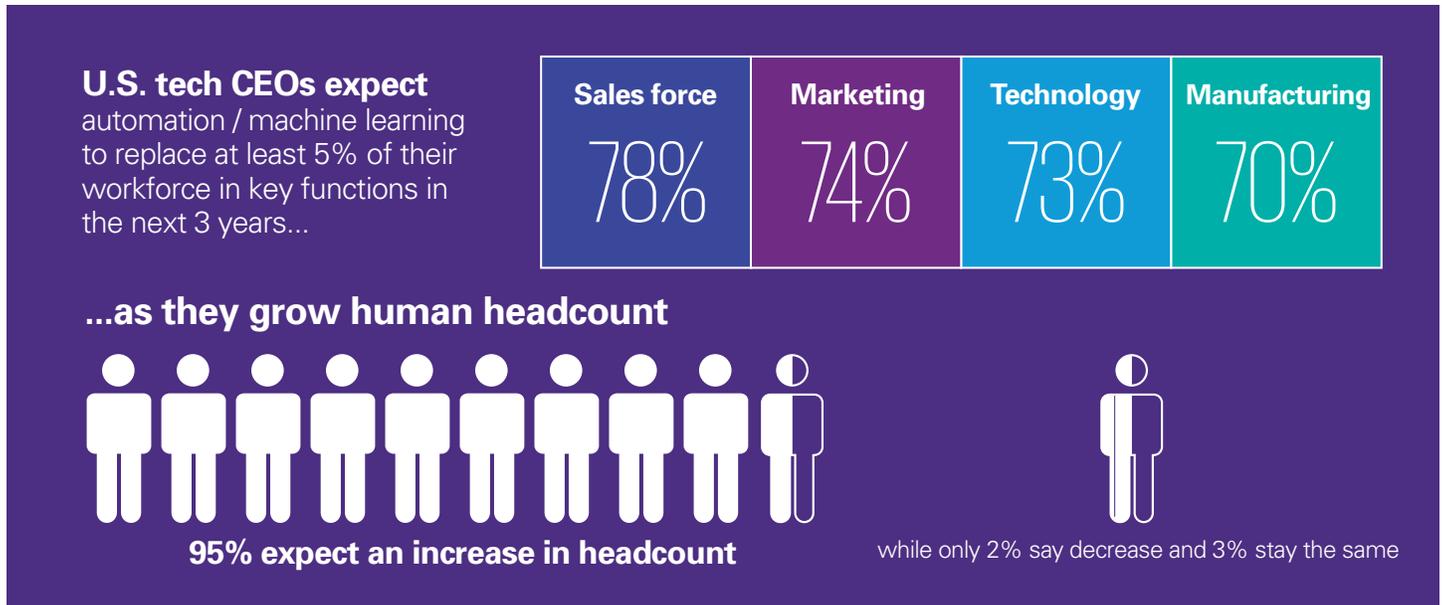
**Among APAC tech CEOs**, 52 percent describe the state of their organizations' approach to innovation as foundational, followed by accelerated (24 percent) and strategic (18 percent).

The global results came from a separate survey, see page 25.

**European tech CEOs** choose accelerated most often, at 38 percent, followed by foundational (25 percent) and strategic (22 percent).

# Talent and digital labor investments

Collaboration between humans and technology is creating a new labor class



Source: KPMG Tech industry CEO outlook 2016

The tech industry is known for applying, and benefiting from, the emerging technologies it develops. The integration of technologies, including Robotic Process Automation (RPA) and cognitive software, with advanced automation, analytics, mobile, and cloud technologies is already playing a key role in facilitating innovation.

Visionary CEOs look at cognitive solutions not just from a cost-saving perspective, but as a means to reduce and eliminate the rudimentary tasks of their workforce, and provide them with tools to think more critically around their most important challenges.

The way we work will be transformed as companies implement their digital labor roadmap. In this new labor ecosystem, cognitive systems are trained to execute judgment-intensive tasks, creating the opportunity for humans to have time to focus on higher-value competencies.

The opportunity to remove 25 to 40 percent of labor cost in the next decade is also a very real opportunity.

## The Global View

**APAC and European tech CEOs** also see the likelihood that automation/machine learning will replace at least 5 percent of their workforce within the next 3 years.

| Functional Area | APAC       | Europe     | Functional Area | APAC | Europe     |
|-----------------|------------|------------|-----------------|------|------------|
| Sales force     | 55%        | 47%        | Finance         | 61%  | 31%        |
| Marketing       | 52%        | <b>53%</b> | Manufacturing   | 58%  | 34%        |
| Engineering     | <b>76%</b> | 34%        | R&D             | 55%  | <b>50%</b> |
| Technology      | <b>70%</b> | 41%        | Strategy        | 58%  | 34%        |

The global results came from a separate survey, see page 25.

# Demystifying digital labor

Excerpt from KPMG publication June 2016

The compelling case for moving from human labor to digital labor is multifaceted and includes several key benefits as follows:

**Productivity/Performance** – Software robots work 24/7 and 365 days a year; do not take vacations, get sick, suffer from work/life balance issues; and perform tasks at digital speeds.

**Employee Satisfaction** – Eliminating mundane repetitive tasks allows employees to focus on strategic initiatives, thereby impacting the business in a more profound way and experiencing more job satisfaction.

**Scalability** – Software robots scale instantaneously at digital speeds to respond to fluctuating workloads. There is also no overtime, no hiring challenges, no training, and no severance.

**Consistency/Predictability** – Software robots do not make inconsistent decisions or elect to “turn right” one day and “left” the next. They are configured to solve a problem the same way every time.

For those who like to take a more pioneering approach within the technology realm, a holistic digital labor strategy is the classic case of big risk/big potential return. This is likely to separate you from the pack; it will enable you to capture knowledge about your markets, your competitors, your customers, and quite possibly about how your product is behaving each day, in ways that are currently unheard of. It enables you to bring together massive amounts of diverse, unstructured data, explore almost limitless alternatives and hypotheses, and quickly form cognitive conclusions that humans cannot accomplish in a hundred lifetimes.

This is not an incremental step—it is the prototypical quantum leap forward. The hype will have you believing that 50 percent of your workforce is going away in the next five years. That is unlikely to happen—certainly in most scenarios. What may happen is that your functional workforce (e.g., your accountants) may evolve into automation/process specialists. This is very likely to mean you get a lot more out of that accountant, and that eventually, the nature of that person’s work evolves far beyond accounting and becomes more analytical in nature, such that there is far more solutioning and far less reporting.

Over time, it is quite possible that the field of accounting itself eventually transforms completely. This is also true for HR, procurement, etc. However, the timing on this is up for debate, with some experts claiming 5 to 10 years and others thinking it will take many decades of evolving digital labor capabilities and knowledge generation.

***“Tech industry CEOs see the benefits of digital labor augmenting workforce capabilities and enabling new ways of doing business to add customer value, improve efficiencies and reduce cost. They see the combination of digital and human labor as an effective way to execute their strategy.”***

Gary Matuszak,  
Global and U.S. Chair, Technology,  
Media and Telecommunications,  
KPMG

*“Aligning technology and people investments to allow the redeployment of a workforce to its highest and best use, and to solve previously unsolvable problems more rapidly and accurately, is key for companies to succeed in the future.”*

Richard Hanley,  
Global and U.S. Advisory  
Sector Leader, Technology,  
KPMG

## Talent and digital labor investments (continued)

Although CEOs expect machine learning to replace some skills in specific organizational functions, the human abilities required in disciplines such as engineering and business development will stimulate continued investment in human talent. More than half (55 percent) of the tech leaders surveyed expect their company’s headcount to grow at least 6 percent over the next three years, with another 40 percent projecting less than 5 percent growth.

### How do you expect your organization’s headcount to change in the next three years?



Source: KPMG Tech industry CEO outlook 2016

## The Global View

**Over the next three years, 45 percent of APAC CEOs** see their headcount increasing less than 5 percent and 36 percent envision a headcount increase between 6 and 10 percent.

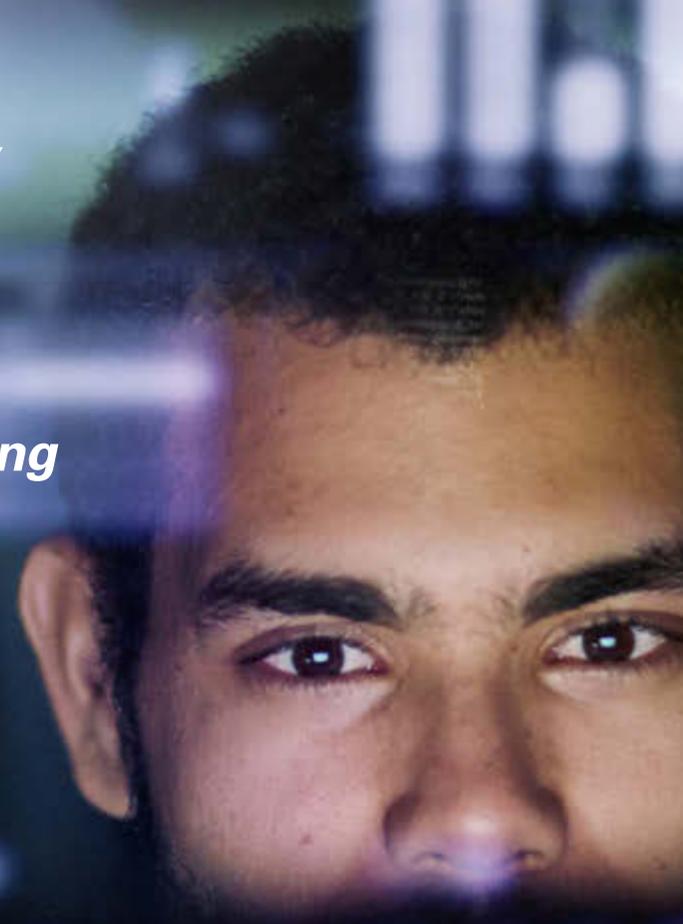
**Sixteen percent of Europe’s CEOs** forecast headcount growth to increase less than 5 percent, 53 percent expect an increase between 6 and 10 percent, and 28 percent expect an increase between 11 and 25 percent.

The global results came from a separate survey, see page 25.

# Risk concerns and other issues

***“Trust is non-negotiable for technology companies to attract and retain customers. Technology industry market leaders are constantly balancing their investments, evaluating their governance protocols and assessing collaboration opportunities inside and outside their companies to reduce risk.”***

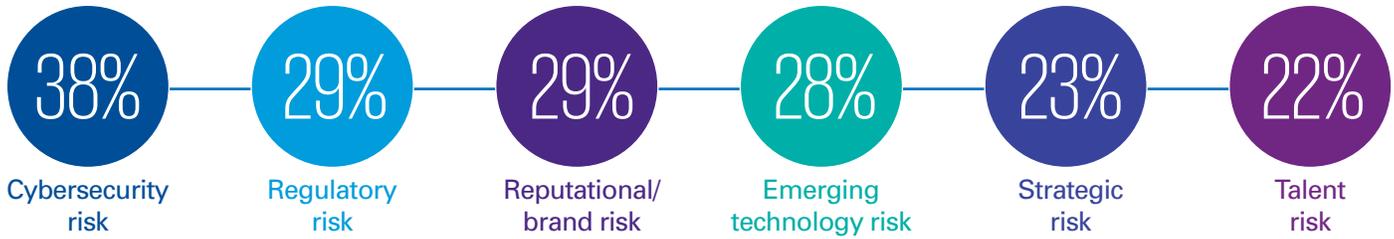
– Vijay Jajoo,  
U.S. Principal,  
Advisory Information Protection  
and Cybersecurity, KPMG



# Risk concerns and other issues (continued)

**Tech CEOs continue to be concerned about the increasing threat posed by cyber attacks. The technology companies that innovate continuously to help customers adopt effective security measures will enjoy a competitive advantage.**

## What are the risks that you are most concerned about?



Source: KPMG Tech industry CEO outlook 2016

With cyber risks and security threats expanding constantly, so is the pressure on CEOs of technology companies to develop new solutions and maintain effective security — not only on their own systems, but also in providing their customers with solutions to improve and maintain information security and privacy.

Tech industry CEOs recognize the importance of building security into new products and services at the design stage and realize that cybersecurity is not an IT issue: it stands as a top C-suite strategy and requires cross-functional investment and execution. Leading tech CEOs are working with their COOs, CFOs, CIOs, and CSOs to find the right balance of people, investments and technology. Cybersecurity is a risk and, like any other risk, it needs to be measured, understood and managed.

Tech CEOs are also adding regulation to their top risk concerns. They are carefully considering the impact regulation—industry-, tax-, or finance-related—could have on their strategy and growth prospects in the coming years.

For instance, as tax and regulatory reform progresses in the United States and internationally, the value companies may gain from their strategic decisions will need to be evaluated through a new lens.

## The Global View

**APAC tech CEOs** cite emerging technology risk as their top concern.



**In Europe,** tech CEOs cite cybersecurity and supply chain risks as their top concerns.



The global results came from a separate survey, see page 25.

## Top U.S. tech CEO concerns

### I worry about...



the relevance of our products/  
services 3 years from now



the impact of global economic  
forces on our business



how millennials and their differing  
wants/needs will change our business  
and the relevance of our  
products/services 3 years from now

Source: KPMG Tech industry CEO outlook 2016

Tech CEOs worry, among other things, about being able to maintain product relevance in the face of changing consumer demands and a global demographic shift to younger consumer bases less likely to be awed by technological advances than their parents. Millennials and younger consumers have higher expectations about their products and services, and are likely to shift providers and products quickly if their needs are not met.

The integration of technologies like IOT, cloud, mobile and prescriptive analytics are creating opportunities to make new products and services more relevant by focusing on people:

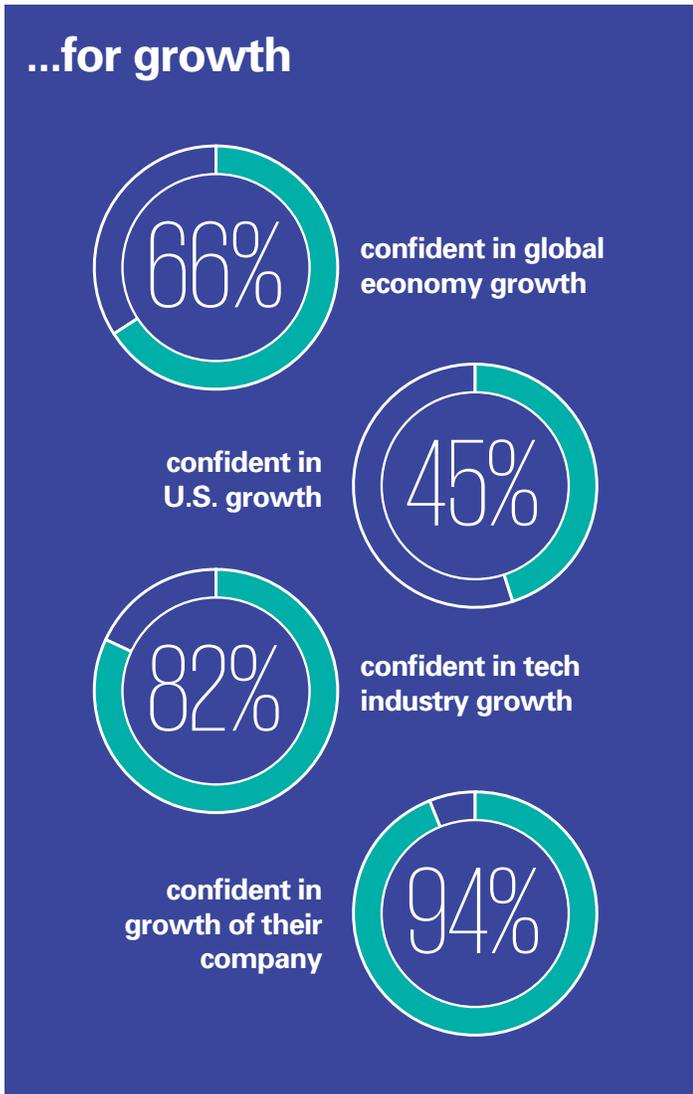
- There will be an unprecedented ability to understand consumer behaviors and needs better than ever before.
- This will be important for consumer products, and also for enhancing security.
- Motivational design could play a key role in adoption, particularly as it relates to ease of use and simplicity.

***“Through smart, connected products, companies will get to see the whole picture of how people buy, use and discard these products. This provides an unprecedented level of insight into the entire behavioral landscape of people, and it will give companies the opportunity to truly understand what people want.”***

– Dave Wolf,  
U.S. Managing Director, Digital and Mobile  
Solutions, KPMG

# Confidence and future growth

## Prospects over the next 12 months



Source: KPMG Tech industry CEO outlook 2016

Economists are concerned global growth is insufficient to escape the current and expected burdens of government and private sector debt, and that businesses are not investing at levels consistent with previous economic recoveries. Major central banks have responded with more aggressive monetary policies such as negative interest rates and bond purchase programs known as quantitative easing. “We’re in one of the most significant monetary experiments in history with negative interest rates in Europe and Japan,” says Constance Hunter, Chief Economist at KPMG LLP. “Additionally we are at a tipping point with the convergence of declining working age population growth and an aging of the global population. It is critical for CEOs to make decisions and investments that will support future growth,” she adds.

Technology industry leaders are confident in their company growth. Due to current global and U.S. macroeconomic factors and the U.S. political landscape, they are less confident on the global and U.S growth in the next 12 months.

**“U.S. tech CEOs remain optimistic about their company growth, for some at a slower pace than in recent years. Mature tech giants are focused on driving better returns on capital in a slower growth environment as a result of their business model transformation and with investment in new technologies,”** said Richard Hanley, Global and U.S. Advisory Sector Leader, Technology, KPMG. **“Leading tech companies continue to innovate and drive increasing interdependence between their products and services to maintain their growth and platform leadership. They are also expanding their innovation and investments in other industries.”**

## Prospects over the next 3 years

The technology industry's traditional high expectations for revenue growth over the next three years remain consistent in this year's findings, with 95 percent expressing confidence about their company's growth and about 9 in 10 sharing confidence about the industry's revenue expansion. U.S. CEOs anticipate their companies and the tech industry to continue to be an engine of growth, profitability and innovation.

CEOs are similarly optimistic about broader economic growth, with 97 percent saying the U.S. economy will improve over the next three years, and 86 percent expressing favorable views about global economic growth.

Almost 60 percent expect 2 percent to less than 5 percent annual revenue growth for their organizations over the next three years, while 17 percent expect growth between 5 and less than 10 percent.

## The Global View

**Among APAC tech CEOs,** 76 percent are confident/very confident about global economic growth over the next 3 years.

**In Europe,** 78 percent are confident/very confident about global economic growth in the next 3 years.

The global results came from a separate survey, see page 25.

***“The United States has long been the most important market for the tech sector, with demand remaining strong for products and services developed by U.S. tech companies. As India and China have a focus to develop domestic innovation, the U.S. tech companies are realigning their strategies and increasing their partnerships with companies in high growth markets.”***

– Gary Matuszak,  
Global and U.S. Chair, Technology,  
Media and Telecommunications, KPMG

### ...for growth



confident in global economy growth



confident in U.S. growth



confident in tech industry growth



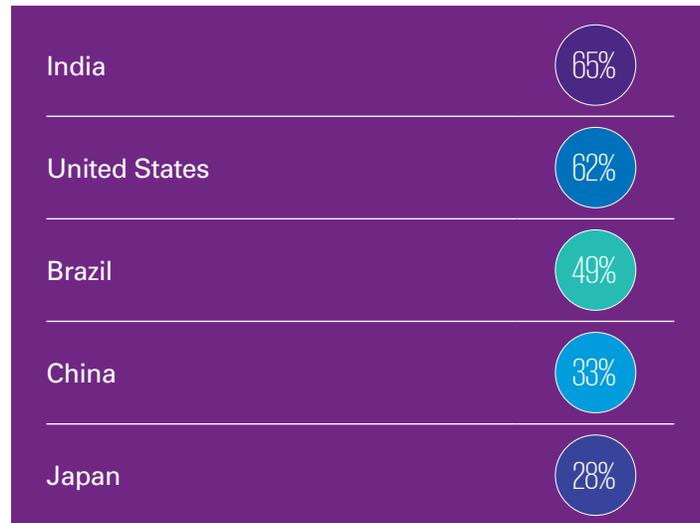
confident in growth of their company

Source: KPMG Tech industry CEO outlook 2016

***“India aims to be a front runner in the new world order, which demands economies to be resilient and have strong business fundamentals. The digital India program aligns the country with the fourth industrial revolution, focusing on building robust digital capabilities creating meaningful prospects for Indo-U.S. business possibilities.”***

Richard Rekhy,  
Chairman of KPMG, India

### **In which regions do you see the greatest potential for new growth over three years?**



Source: KPMG Tech industry CEO outlook 2016

India and the United States are the markets expected to have the highest revenue growth over the next three years. India is appealing because it is the fastest-growing large economy in GDP percentage, and it enjoys the demographic dividend of a young population as well as a second round of significant economic reforms designed to promote international investment.

India is followed closely by the United States as a top growth market. Overall, tech chief executives are confident going forward. Although high-growth markets like India remain important for U.S. tech companies, slowing economic conditions in some parts of the world, currency volatility and other factors are prompting U.S. tech firms to be more bullish in the opportunities closer to home.

Brazil is also seen as a key market. The International Monetary Fund is forecasting a return to modest economic growth in Brazil in 2017 after several years of economic recession. The tech sector is optimistic this growth will restore demand for mobile products and data-driven services and other emerging technologies.

## **Growth through collaboration**

CEOs can no longer rely solely on their organic strategies to optimize corporate growth. They recognize that the opportunities to grow are greater through partnerships and collaboration than what they can achieve on their own.

**Which of the following describes your development plans to drive shareholder value for the next three years?**



Source: KPMG Tech industry CEO outlook 2016

To drive shareholder value in the next three years, 79 percent of tech CEOs say they will pursue a collaborative growth strategy that includes partnerships and alliances with other companies to achieve growth or expansion in geographies/capabilities.

With customer demands and expectations changing at a rapid pace, tech companies need to deliver highly differentiated services and experiences to stand out. Building and nurturing a robust partner ecosystem is critical for companies looking to expand market share and scale their operations more rapidly and effectively.

Tech companies are also collaborating to address adoption barriers resulting from technology disruption. They are joining forces to educate regulators on the challenges and opportunities of emerging technologies and the need to redefine existing policies. On the customer front, tech companies are also joining forces to develop new standards so customers don't have to worry about potential adoption challenges such as technology compatibility and complexity.

The best partnerships begin with a common definition of the value proposition and have these essential characteristics:

- Mutual agreement on strategies with clear definitions of success.
- Strong alignment of culture and values; common view on joint customer success, how to measure success and the value of the partnership.
- Agreement in structure and responsibilities, timing, target markets, commitment to the value proposition for joint customers, and defining success.

## The Global View

Development plans to drive shareholder value in the next three years



The global results came from a separate survey, see page 25.

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***“M&A has been a key characteristic of the tech sector for the past couple of years, with many large deals being completed. Now tech CEOs are looking at a period in which they focus on integrating recent acquisitions and exploring collaborative efforts to build value.”***

Richard Hanley,  
Global and U.S. Advisory  
Sector Leader, Technology,  
KPMG

# Conclusion

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**Market leadership will be achieved by CEOs who can anticipate opportunities and lead their companies to invest in talent and technologies that enable the development and monetization of market leading products while enhancing operational efficiency and reducing risk.**

U.S. tech CEOs realize the promise of disruptive technologies requires a disciplined strategy for faster decision-making, identifying new revenue streams, and risk management. The alignment of technology and people investments to allow the redeployment of a workforce to its highest and best use is key for companies to succeed in the future. Combining automation/ machine learning with human capital investments to gain the most from the efficiencies of digital labor will become a competitive advantage. The opportunity to remove 25 to 40 percent of labor cost in the next decade is very real. Companies that fail to prepare their digital labor roadmap risk being left behind.

The accelerating pace of change is also prompting more tech companies, concerned about being able to keep pace in dynamic global markets, to partner with other companies. Collaboration opportunities range from partnerships to address previously unsolvable problems to cross-industry collaboration to commercialization and monetization of innovations and expansion into new markets. At the same time, tech industry companies are increasing their collaboration in critical areas such as cyber. CEOs recognize cybersecurity is a competitive differentiator and, in many instances, collaboration with other tech companies is essential to outsmart the hacker innovation engine.

U.S. tech companies have become the innovation role model for the world. Tech companies constantly apply creativity to solve problems and disrupt business models to create new economic value. As a result, we expect the brisk pace of technology innovation and adoption will continue to redefine existing business models, products, services and industries.

Tech CEOs know the importance of creating and maintaining a culture where innovation acumen and business agility are rewarded. To succeed in this market, tech companies need to continuously outpace existing and new competitors.

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***“The U.S. tech industry ecosystem is unique and difficult to replicate given its solid foundation on industry CEOs and entrepreneurs who take risks, learn from failure, and disrupt the status quo. Top business leaders need to keep up and outpace multiple market forces to a much higher degree than in the past. Ultimately, it’s critical to develop a roadmap to drive incremental value, monetize new business models and identify the global and local partnerships to succeed.”***

— Gary Matuszak,  
Global and U.S. Chair, Technology,  
Media and Telecommunications, KPMG

# The business implications of disruptive technologies for the tech sector

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**The disruptive technologies trending as game-changers in consumer and enterprise markets have already made a huge impact across the technology sector ecosystem and will continue to do so in the foreseeable future. Whether it is in creating new ways to serve and derive value from customers, driving operational innovations to lower cost and improve agility, or transforming entire industries and business models, the pace of change is only going to accelerate with each wave of new disruptive technologies.**

Tremendous opportunities exist for companies that can successfully integrate these disruptive technologies to create unique customer value propositions and new ways to compete. For technology companies, whether they are creators of these disruptive technologies, solution providers who use these technologies, or suppliers to companies who create or integrate these technologies, innovation and business agility are key. Profit pools and competitive advantages that exist now are going to be short-lived if boards and C-suites do not address – with increasing speed and agility – disruptive trends that both threaten their existing business models and provide sources of opportunity.

Taking action to harness the opportunity and minimize the threat will be essential to be a high-performing market leader. **Forward-thinking executives are leading their companies to have a framework to constantly optimize their business — are you:**

**Revisiting the company strategy** to understand how disruptive technologies are impacting your suppliers, partners and customers, their value propositions, and how you can monetize incremental value.

**Rethinking your innovation and business models** to harness these disruptive technologies and the ecosystems around them for new value propositions and competitive advantage.

**Reconsidering capital allocation** to optimize and balance your funding on current vs. new.

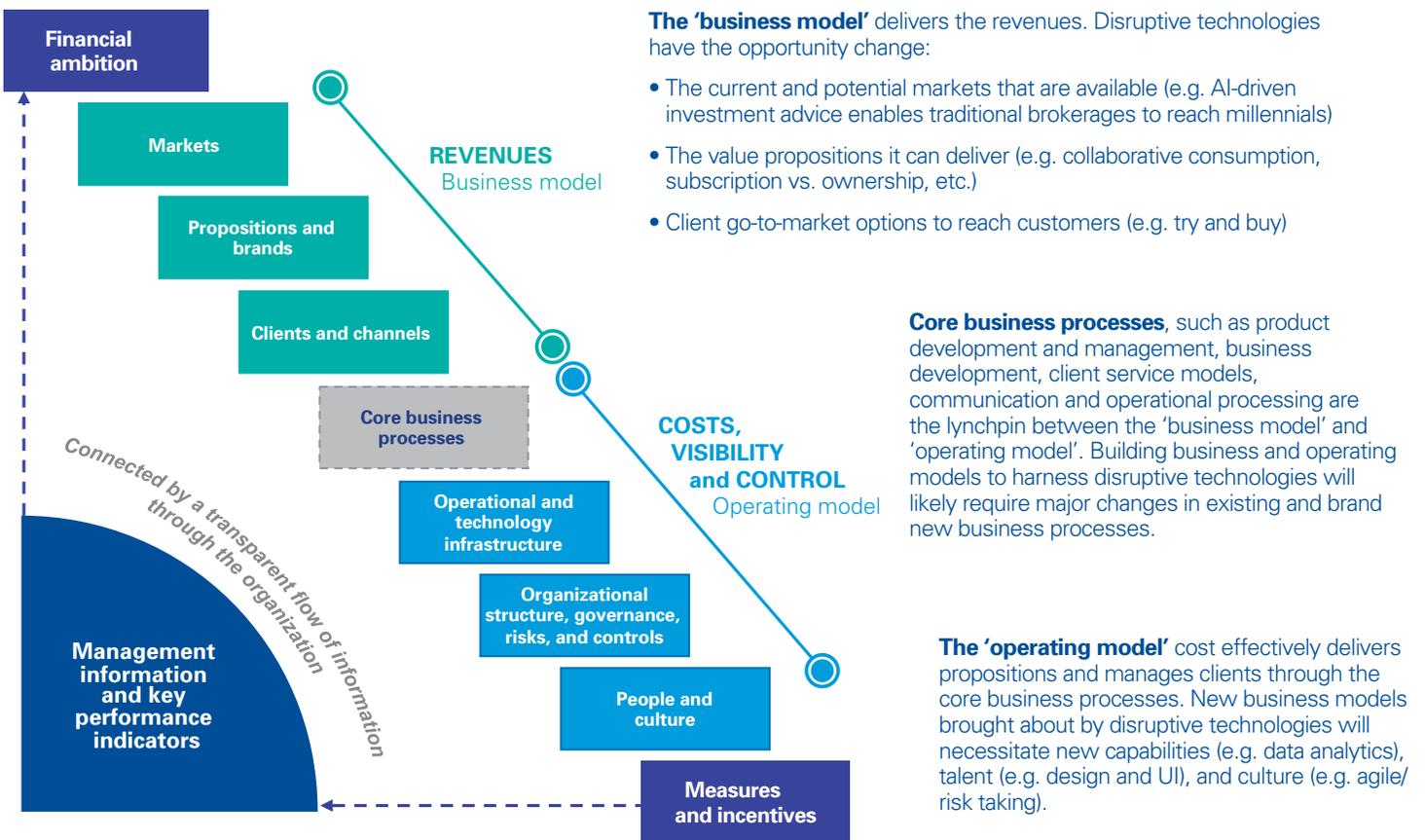
**Revising your M&A strategy** to take advantage of disruptive technology opportunities, fill technology and capability gaps, and accelerate time-to-value.

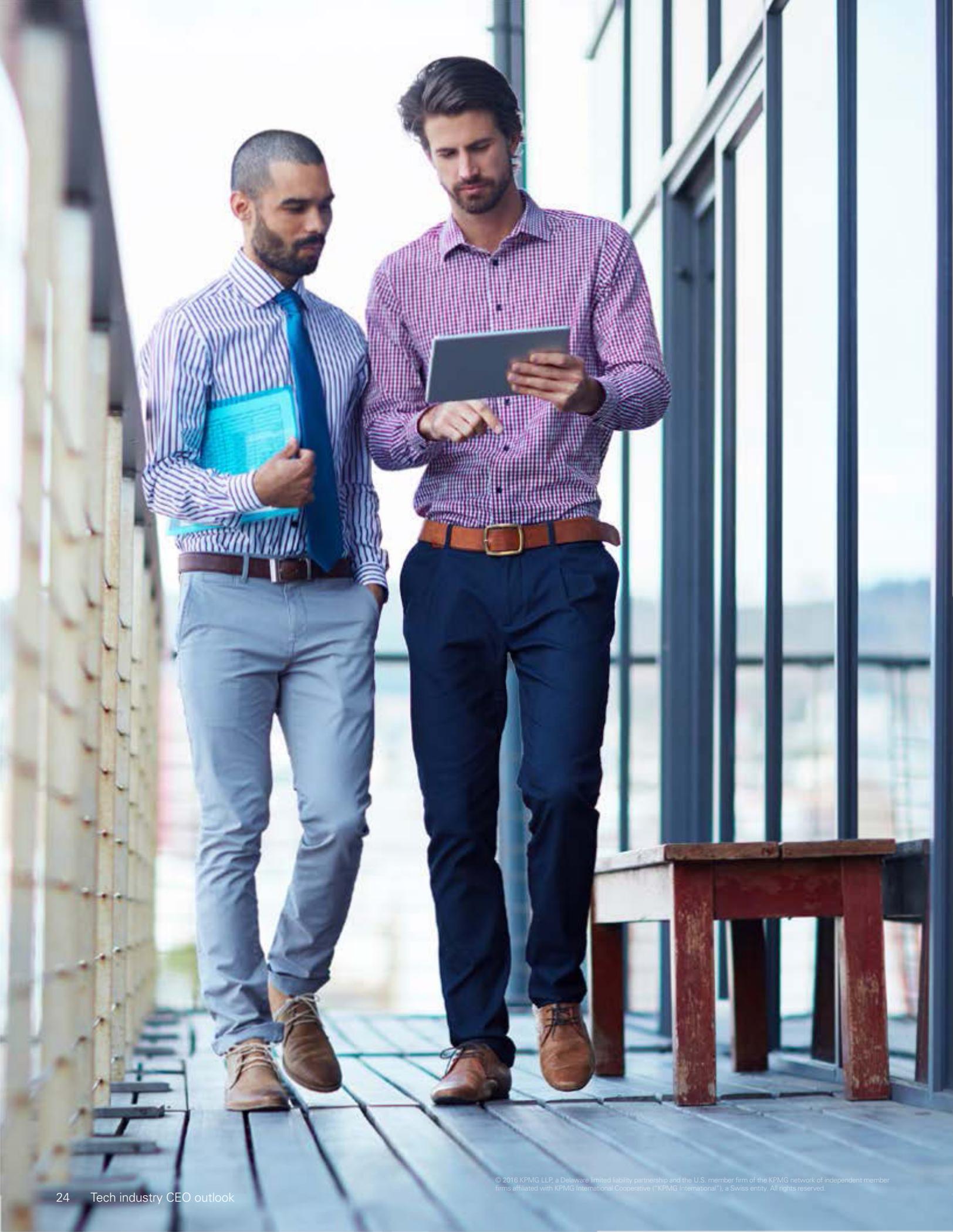
**Reinvigorating and transforming your operating model** to capture incremental profits to fund the change, and to improve organization agility to capture new opportunities.

# How KPMG can help

KPMG’s proprietary 9 Levers of Value framework provides a methodical way for companies to think through and respond to the impact of disruptive technologies at an enterprise-wide level that connects strategy with execution.

## KPMG 9 Levers of Value Framework







## How to disrupt yourself with digital labor

The convergence of RPA, machine learning, cognitive computing, and advanced analytics is driving unparalleled business model transformation. In this uncharted territory, enterprises need a collaborator that can help them smoothly integrate people and machines, while simultaneously harnessing the technological disruption into competitive advantage.

KPMG's holistic approach—from strategy through execution—can assist you on each step of your cognitive automation journey by:

- Identifying priority areas for technological transformation
- Developing a multifaceted strategy and road map for your workforce of the future
- Selecting the right providers and partners for your unique needs
- Establishing a governance strategy and program to help you realize and maintain the expected value and benefits from your cognitive automation initiative

### KPMG cyber services

KPMG Information Protection and Cybersecurity services help leading organizations worldwide effectively manage and protect their most valuable data across a broad spectrum of evolving threats and scenarios. We approach cybersecurity as an adaptive solution to business goals with data protection and response, which focuses on delivering long-term value for your business. We help organizations:

- Increase Customer, Board, and Enterprise stakeholders' confidence in IT systems
- Control and govern enterprise access to sensitive information, with intuitive and simple user experience
- Preserve the privacy and confidentiality of customer and corporate data, while deriving intelligence from usage patterns
- Ensure the integrity and reliability of information stored on corporate systems
- Reduce the high financial and reputation costs of cyber breaches and provide effective incident response and forensic investigation
- Deliver innovation through the effective use of Data & Analytics and other technologies

## U.S. demographics

This survey, conducted from April to May 2016, reflects the viewpoints of 138 technology industry CEOs in the United States from internet, hardware, software, cloud and IT services companies. Seventy-two percent of respondents reported revenue of US\$1 billion or more. Sixty-one percent of the companies are public, and 39 percent are private.

More than half of the respondents (54 percent) have served in their current CEO role for six or more years. Nearly 70 percent have been employed by their current organization for six years or more, including 30 percent who have worked for their employer for 15 or more years.

## Global demographics

The Global Technology industry CEO results are taken from KPMG International's 2016 Global CEO Outlook survey. One hundred and three Technology CEOs responded to this survey from 10 key markets (Australia, China, France, Germany, India, Italy, Japan, Spain, UK and U.S.). There were 33 respondents from the APAC region and 32 from Europe. All respondents had revenues of over US\$500 million.

KPMG International's 2016 Global CEO Outlook overall surveyed nearly 1,400 CEOs in 10 markets and 11 industry sectors (automotive, banking, infrastructure, insurance, investment management, life sciences, manufacturing, retail/consumer markets, technology, energy/utilities and telecom). A third of the companies surveyed have more than US\$10B in annual revenue, with no responses from companies under US\$500M. The survey was conducted between March and April 2016.

Note: some figures may not add up to 100 percent due to rounding.

To view KPMG International's Global CEO Outlook please visit [www.kpmg.com/ceooutlook](http://www.kpmg.com/ceooutlook).

## About KPMG

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KPMG's professionals combine industry knowledge with technical experience to provide insights that help technology industry leaders take advantage of emerging business opportunities and proactively manage business challenges. Our network of professionals in 155 countries have extensive experience working with global technology companies ranging from the Fortune 500 to pre-IPO startups. We aim to anticipate the short-and long-term opportunities of shifting business, technology and financial strategies.

KPMG operates as a global network of independent member firms offering audit, tax and advisory services. Collectively we employ more than 174,000 people across a range of disciplines. Sustaining and enhancing the quality of this professional workforce is KPMG's primary objective. Wherever we operate, we want our firms to be no less than the professional employers of choice.

KPMG is consistently named one of the country's "100 Best Companies to Work For" by *Fortune Magazine*. Our people share a sense of purpose in the work we do, and a strong commitment to community service, diversity and inclusion, and eradicating childhood illiteracy. Learn more at [www.kpmg.com/about](http://www.kpmg.com/about)

## **Gary Matuszak, Global and U.S. Chair, Technology, Media and Telecommunications, KPMG**

Gary is the global chair of KPMG's Technology, Media and Telecommunications (TMT) industries and chair of KPMG's global Technology Innovation Center. Gary has been the tech sector leader for most of his career and has extensive experience working with global technology companies ranging from the Fortune 500 to pre-IPO startups. During the course of his leadership, he has led the firm's technology industry on a path of tremendous growth that has established the tech sector as one of the firm's fastest growing industries. Gary represents KPMG in a number of organizations affecting the industry and has influenced the development of key positions on several issues that impact the technology sector. Gary is part of the Selection Committee in the World Economic Forum Technology Pioneers Program. He is a frequent speaker on global technology industry trends, emerging technology business strategies, and C-suite industry outlooks. Gary's speaking engagements include the Stanford Directors College annual conference and CNBC's Squawk On The Street. Before joining KPMG in 2002, he was the Silicon Valley office managing partner for Andersen, where he led the U.S. Software Practice.

## **Richard Hanley, Global and U.S. Advisory Sector Leader, Technology, KPMG**

Richard is the KPMG and U.S. Advisory Industry Leader for Technology, Media and Telecommunications and the Global Advisory Industry Leader for the Technology industry. Richard has over 25 years of advisory experience working with leading TMT companies, private equity funds, and sovereign wealth funds. His responsibilities include setting TMT industry strategy for Management Consulting, Risk Consulting, Strategy and Deal Advisory services. Based in Silicon Valley, Richard works with U.S. and global clients. He provides advice on domestic and cross-border mergers, acquisitions, due diligence and disposals to leading technology companies as well as serving as lead partner for some technology companies. His previous responsibilities at KPMG include Advisory Practice leader for the Bay Area and Pacific Northwest and National Technology Industry Leader for Transaction Services. Richard has been based in the Silicon Valley, San Francisco, New York and London offices.

## **Patricia Rios, Director of KPMG's Technology Innovation Center**

Patricia leads a global network of technology industry visionaries created to identify and evaluate the impact of disruptive technologies that enable business transformation. She also is the U.S. Marketing Director for the TMT industries. Before joining KPMG, Patricia held global marketing and business development leadership roles at Oracle Corp. and Sun Microsystems from 1997 to 2007. She has more than 15 years of experience in capitalizing on global opportunities resulting from technology innovation, as well as extensive sales expertise managing multimillion-dollar sales portfolios in the technology and financial services industries. Patricia has served as Selection Committee Member in the World Economic Forum Technology Pioneers Program since 2012, and has been an adviser to startup companies and nonprofit organizations.

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### **Now or never – U.S. CEO Cross-industry Outlook**

KPMG also surveyed 400 U.S. CEOs from 11 key industries. CEOs say that rapidly evolving technology, and the speed of transformation it unleashes, are making the next three years more critical for their industry than the previous 50.

### **The Changing Landscape of Disruptive Technologies.**

In this segment, *Innovation Convergence Unlocks New Paradigms*, we examine the emerging technologies with the most potential to disrupt industries and transform business models. We also assess the monetization opportunities of these disruptors by region and industry.

### **Embracing the Cognitive Era**

Using automation to break transformation barriers — and make every employee an innovator.

### **Demystifying Digital Labor**

The layman's guide to the spectrum of robotics and automation.

### **What markets are poised to lead technology innovations and develop the next “big thing”?**

KPMG answers this question in the *Global technology innovation hubs* edition. Find out how countries and cities are competing to commercialize innovation and become the key hubs of the technology industry.

# Contact us

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