

# A CHANGING PERSPECTIVE

# A changing perspective

Where would you say is the 'heart' of technology in your organisation?

Your data centre? Your engineering team? Locked inside your data? Somewhere in the cloud?

There is of course no single answer, but one thing is for sure, responding to this question has become much more complex in recent years.

In this age of the customer, the explosive growth of cloud computing, the advent of business-managed IT spend and incredible leaps in data analytics and automation, have all served to change the landscape of where technology resides and who has access and influence over it.

And in this new environment successful enterprises are realising they need a different

perspective on what IT and technology leadership means to them. Structure is being replaced by fluidity, and control is being swapped for influence as business and technologists are finding new ways to collaborate and deliver business value. All faster, safer, and more cost-effectively than ever before.

It's a time of great change. And also, as you will see from this report, great opportunity.

Welcome to this year's CIO Survey, the world's largest survey on technology leadership. Whether you are a CIO, CTO, CDO or any other executive who cares about business technology, this report shines a bright light on the key issues that affect all of us in the technology sector.



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## 5 THINGS TO DO WITH THIS REPORT



### Benchmark your technology investment

Read what is driving investment on page 6. Visit [hnkpmgciosurvey.com/charts](http://hnkpmgciosurvey.com/charts) for tech investment per sector.



### Hear from your peers

Read how other technology leaders across the world view the results, and the challenges they face. Page 14.



### Compare your sector

Read our sector / location league tables on page 28.



### Learn what makes you great

Read our 6 attributes of a successful technology leader. Page 22.



### Benchmark your salary

Are you getting paid too little (or a little too much!)? Visit [hnkpmgciosurvey.com/charts](http://hnkpmgciosurvey.com/charts).

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# About the survey



**\$1/4 trillion**  
combined IT budget\*

**3 million**  
data points\*\*



**3,645**  
respondents



**108**  
countries



**21**  
years of data

\*Combined IT budget of this year's respondents

\*\*From 21 years

# CIO Survey 2019 – 8 things you need to know

## A time of massive change

Forty-four per cent of organisations expect to change their product/service offering or business model in a fundamental way in the next three years. This is driven by digital disruption and the need to get closer to the consumer, and it's occurring just as much with smaller, younger organisations as with larger, older ones. A sizeable proportion are handling transformation within existing budgets without extra investment. As the average life expectancy of a company decreases, transformation is becoming business as usual as enterprises look to stay ahead of the game.

## Relentless rise of cyber-crime levels out?

We've been tracking for many years how cyber-crime has been growing, and confidence in dealing with the threat declining. This year we see for the first time the incidences level out, and confidence growing. The trend is very subtle, and runs counter to other studies. However the CIO Survey's breadth and size hints this is more than a 'quirk' in the data and suggests the major investment we've been tracking in cyber might be working. At last?

## Biggest budget increases for 15 years

This year we have seen the largest proportion of organisations increase their investment in technology in all the years we have been tracking it. Even with enterprises where the emphasis is on efficiency and saving money, investment in technology is increasing. Whatever the problem, technology seems to be part of the answer. The driving force behind much of this investment is cyber security, data analytics, AI / automation, and transformation.

## The rise of business-managed IT

Almost two-thirds of organisations allow business-managed IT investment, and approximately one in ten actively encourage it. Business-managed IT requires a new relationship between business and IT, and those that get it right are much more likely to be significantly better than competitors in a whole host of factors, from customer experience to time to market. But getting it wrong opens up a back door to problems – organisations where the CIO is not directly involved in business-managed IT investment are twice as likely to have multiple security areas exposed.

## Technology doesn't stop evolving

Organisations are continuing to invest in new and emerging technology. At the far end of the 'emerging' spectrum, one in twenty are making bets on quantum computing. Much closer to home, cloud computing has become prevalent, with over three-quarters of organisations investing in this area and almost half adopting it on a wide scale. At least one-fifth of organisations have at least a small-scale implementation of internet of things, on-demand platforms, robotic process automation and artificial intelligence.

## Up to one in five jobs will go to robots

Typically, respondents believe around 10 per cent of their company's workforce will be replaced within five years by AI / automation, but for a third of respondents that figure goes up to 20 per cent. Those organisations not investing in AI and automation can expect, over time, for their cost base to be relatively higher than their AI-investing competitors. Over two-thirds of CIO Survey respondents believe that new jobs will appear to compensate. AI will allow employees to engage in richer interactions with others and perform work that requires more brainpower. The world is not short of problems to solve.

## A new model of digital leadership

Digital Leaders, those 30 per cent of organisations which are 'very or extremely effective at using digital technology to advance their business strategy', perform better than their peers on a whole host of factors. They distinguish themselves in many ways: the board and CEO prioritise value creation rather than efficiencies; the technology leader / CIO is more likely to sit on the executive team and be collaborative with the business; and there is a relentless focus on speed and agility.

## Ready for disruption: the CIO

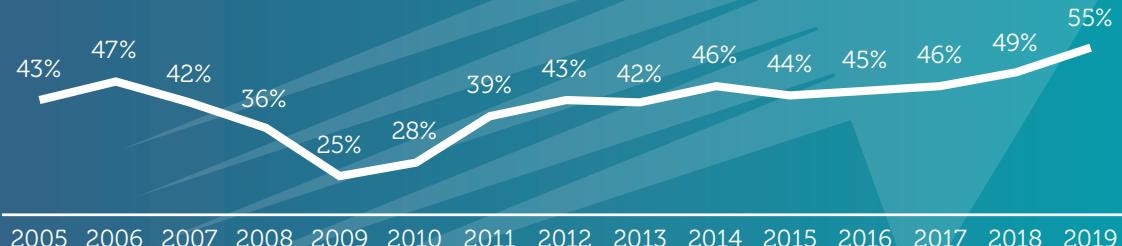
2019 has been a good year to be a technology leader. Job fulfilment is up (slightly), budgets have grown, salaries have been raised. But as technology is disrupting sectors, so too is it disrupting the role of the technology leader. Executive board membership, for instance, is down. And an explosion in new job titles and roles has occurred, from Chief Digital Officer to Chief Data Officer and beyond. Successful leaders are swapping control for influence, and stepping up how they partner with the business. For many organisations the concept of a 'traditional' IT department is anathema to them.



# Findings

# 1. Board Priorities and Investment

More technology leaders are reporting budget increases than ever before\*



More likely to receive a budget increase if...

You work in the following sectors:



You are a Digital Leader\*\*: **63%**

Your organisation is 6-10 years old: **62%**

You report to the CEO: **60%**

What is driving budget increases?

**Cyber Security**



Up **14%** as a board priority this year

**Automation**



Up **17%** as a board priority this year

**Transformation**



**44%** of organisations expect major or radical change

You can download sector splits and other key charts by visiting [www.hnkpmgciosurvey.com/charts](http://www.hnkpmgciosurvey.com/charts)

\*Respondents reporting a technology budget increase in the last 12 months.

\*\*For the purposes of this research we use the term 'Digital Leader' for those organisations that are 'very or extremely effective at using digital technologies to advance their business strategy'.

## Investment in technology is growing

If there is a sense of nervousness in the world economy, it won't be found in technology investment. Over the past year more technology leaders reported budget increases than at any time in the last 15 years. And the jump in those reporting increases (from 49 per cent to 55 per cent) is the largest we've seen, with the one exception of 2010, when organisations were still clawing their way out of the global recession. Even in Europe, where there is ongoing political and economic disruption, 54 per cent of CIOs reported a budget increase, up from 49 per cent last year.

This optimism also extends to the future: 52 per cent of technology leaders are expecting a budget increase next year, and 51 per cent are expecting to grow their headcount.

## Technology for all weathers

We asked respondents a binary question – which type of technology project does your CEO prefer: ones that 'make money' or ones that 'save money'? Even with 'save money' organisations, almost half (45 per cent) had budget increases compared with just 38 per cent last year, suggesting that many CIOs are investing to save, for instance through automation. It seems that whatever the problem, the answer seems to involve technology, and even in uncertain times technology leaders still have the opportunity to be bold and drive significant business change.

## The drivers of growth: transformation, automation, security

### TOP 5 BOARD PRIORITIES



For Digital Leaders, the three in ten organisations that are 'very or extremely effective at using digital technologies to advance their business strategy', the priority is 'developing innovative new products and services'. Digital Leaders distinguish themselves as being more outward-looking, using technology as a means of breaking into new markets, engaging with customers and gaining market share. They also tend to have different operating models that focus on the business owning and leading aspects of technology delivery in collaboration with IT. We look in more detail at digital in the next section, as well as in the section 'Driving Business Performance through Technology'.

Delivering stable and consistent IT is the most recognised priority for the global average, and notably it is still a major priority for Digital Leaders. In previous years, other factors such as improving operational efficiencies or business processes have taken precedence, but as the IT estate becomes more complex, and enterprises become more reliant on technology, maintaining a 'steady ship' becomes more important.

Technology stability tends to only be a talking point at board level when it is not stable, and most technology leaders would consider it one of their more operational

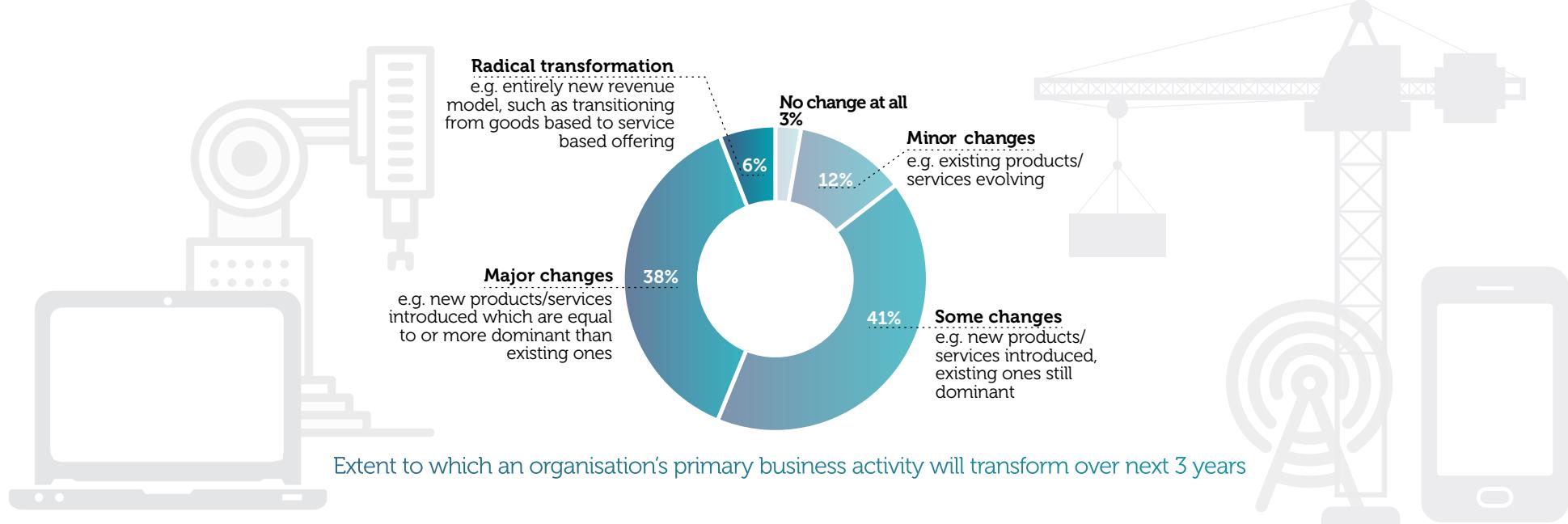
and, some might say, thankless tasks – separate from activities that make a strategic difference. Finding the balance is so important: no board will listen to a strategic visionary who can't get the basics right, but basics alone won't get you in front of the board.

Cyber security continues its stellar rise in importance, with 56 per cent of respondents listing it as a board priority this year compared with 49 per cent last year. As boards and CEOs place customer trust at the centre of their strategy, protecting data and systems from cyber threats is paramount.

Perhaps most notably, an equally fast-growing priority for boards is improving efficiencies through automation: up to 52 per cent this year from 45 per cent in 2018. We examine this in more detail later in this report.

Underpinning all of these priorities lies the power of data. Digital Leaders are more than twice as likely to maximise the value of the data they hold. They do this by hunting, harvesting and curating data that can be used to teach machine-learning models, advance AI adoption, and monetise new assets.

## An age of innovation in products and services?



Our research reveals that almost half (44 per cent) of organisations are undergoing some kind of major digital change that will fundamentally impact their organisation. This is either through introducing new products and services that will be equal to or more dominant than existing ones (38 per cent) or – more radically – fundamentally changing their business model, for instance moving from selling products to selling services (6 per cent). A further 41 per cent of organisations will be introducing new products and services to supplement existing ones.

Our research paints a picture of great change, and this should be no surprise. It is well documented how the average life expectancy of organisations has more than halved in the past century, and enterprises are recognising that transformation, sometimes constant transformation, is the key to staying ahead of the game. As businesses

transform they need to develop better sensory and analytical functions to continually adapt to the changing needs of their employees and customers. With such an incredible proliferation of technology-enabled products and services, it is critical that every company become world-class at harvesting and drawing actionable insights from their data.

The organisations most affected by transformation are ones where their product is most easily digitised; more than half of technology leaders in the Telecommunications (57 per cent), Broadcast / Media (57 per cent) and Technology (56 per cent) sectors are reporting either 'major' or 'radical' transformation. But even in more traditional sectors, such as Manufacturing, there is a recognition that now is the time to drive a step change in their business performance through transformation of products and services.

Organisations transforming their products or services are more likely to have had a technology budget increase than their non-transforming peers, but the difference is not that great (58 per cent of organisations expecting major transformation versus 54 per cent on average). It suggests that, for many enterprises, transformation is being achieved by rearranging much of what they already have, without extra investment. Many are delivering operational efficiencies in one area, enabling them to deliver additional investment in growth areas, within the same budget.

Transformation appears to be occurring regardless of the size or age of organisations. Small, young enterprises are just as likely to be transforming as older, larger ones. However, those organisations that report having a shorter time to market for products than their competitors are more than twice as likely to be expecting radical transformation (13 per cent compared with 6 per cent on average).

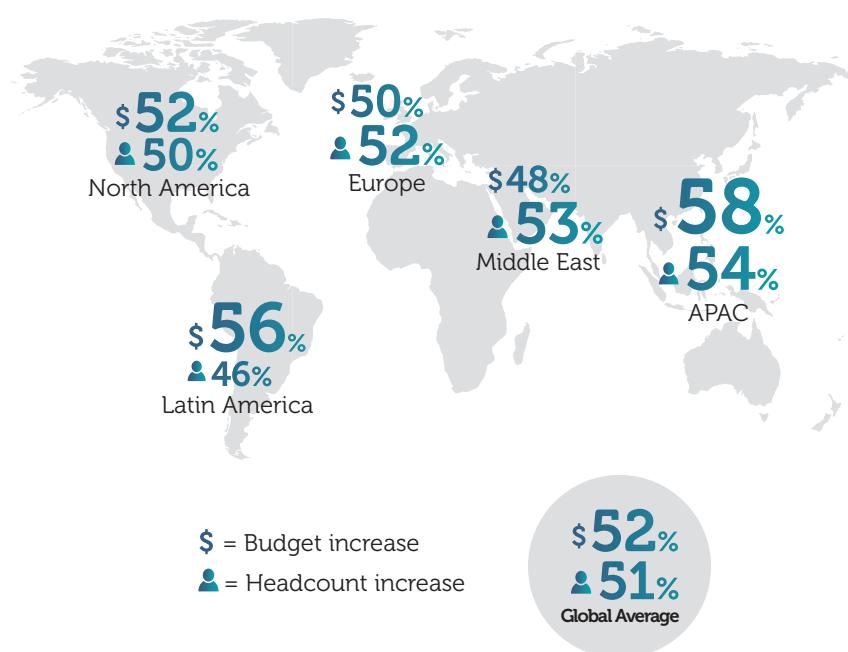
## APAC is a driver of growth

Looking forward a year, organisations in APAC are a significant contributor to the global growth in technology investment. Technology leaders in this region are 12 per cent more likely to be expecting budget increases and 6 per cent more likely to report headcount increases than their peers from other regions.

APAC budget growth is accompanied by organisations prioritising revenue generation over cost saving. Fewer APAC respondents report saving costs as a priority for their boards (50 per cent compared with 54 per cent on average) and more prioritise driving revenue growth (45 per cent compared with 40 per cent on average). The APAC region is the fastest-growing regional economy in the world, and many organisations are capitalising on this.

APAC technology leaders still have an eye on efficiencies, though, as more than four in ten (44 per cent) expect at least one-fifth of their workforce to be automated, compared with the 33 per cent global average. APAC is also a major centre for outsourcing, and as salaries grow, many organisations are looking to invest in keeping their competitive cost edge.

Technology leaders expecting headcount and budget increases in next year

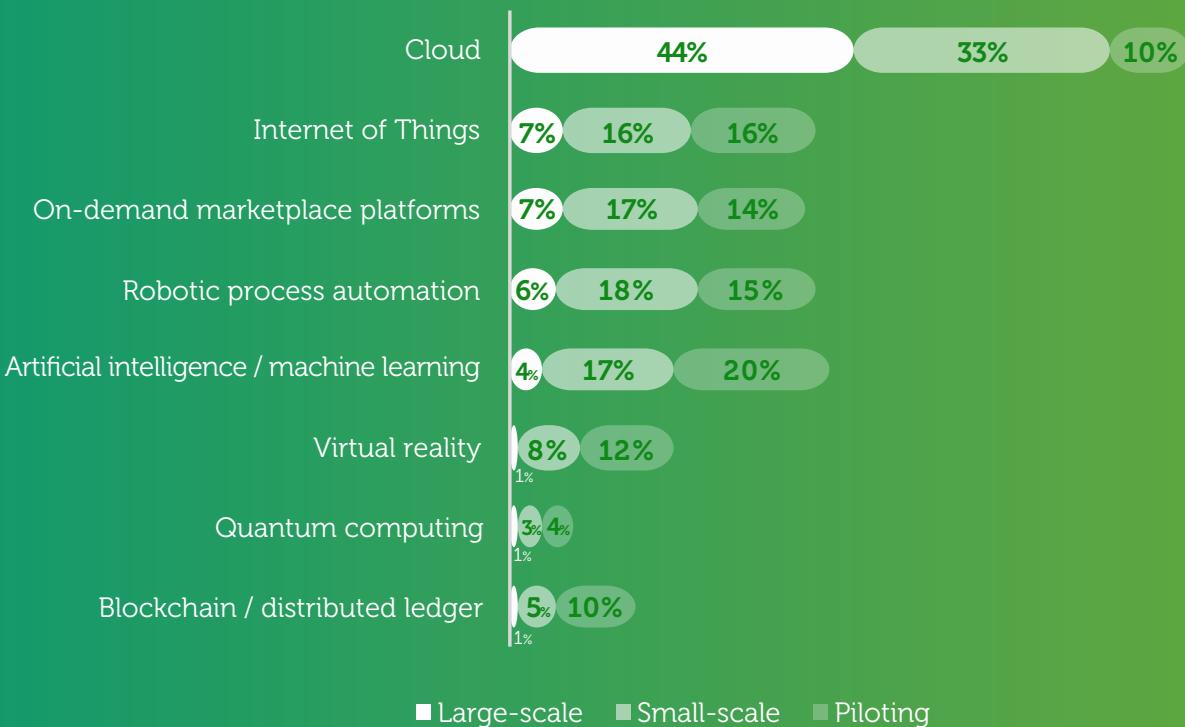


## 5 things to consider when budgeting for tech spend

- 1 Investments that can improve products and services, and ultimately revenue, attract the most investment. However, strong technology leaders also drive cost savings, often reinvesting savings in growth areas.
- 2 Boards and CEOs are prioritising investments in cyber security, automation and product / service transformation. How does your enterprise compare?
- 3 Technology leaders who deploy a 'think like a venture capitalist' investment approach will be able to drive dynamic and continuous funding of technology investments.
- 4 The 'rented' charging model of cloud introduces more complexity when budgeting and valuing technology. Strong technology leaders will understand this, working closely with finance.
- 5 Be bold and seize the opportunity – our results suggest that organisations see technology investment as driving a step change in business performance.

# 2. Managing Technology

## Extent of technology adoption in your organisation



You can download sector splits and other key charts by visiting [www.hnkpmgciosurvey.com/charts](http://www.hnkpmgciosurvey.com/charts).

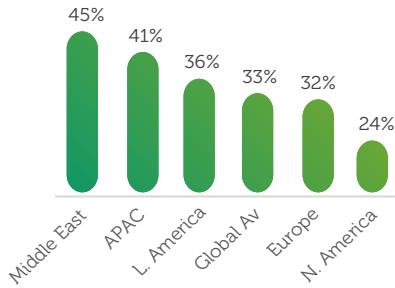
## Emerging technologies

When it comes to investing in technologies, be they emerging or well-established, CIOs are not short of options. But with so many being positioned as the 'next big thing', it's easy to see how making choices becomes difficult. Some organisations are driven by a desire to lead, others driven to be fast followers, and the rest – quite possibly – driven to madness. The CIO Survey asked respondents to quantify their adoption in different areas, and the results make fascinating reading.

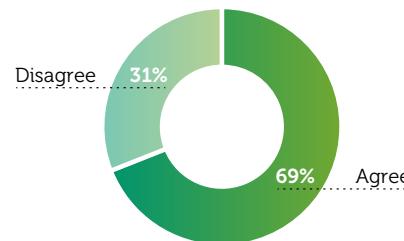
The latest waves of technology investment include: the internet of things, on-demand platforms, robotic process automation, and artificial intelligence (AI) / machine learning (ML). At least one-fifth of organisations have at least a small-scale implementation of these technologies. Over time we can expect these to grow and we expect much of this to be driven by business-led investment.

It is interesting to see that 4 per cent of organisations have implemented quantum computing to at least some degree. This technology is so early stage that some commentators don't even believe it will have a commercial application, so this figure feels surprisingly high. That said, we are seeing technology companies race to release the potential of quantum in industries like pharmaceuticals, financial services and energy.

Quantum computing uses the unique (and what Albert Einstein considered 'spooky') ability of sub-atomic particles to be in two states at once. By using these particles as computing 'bits' (or 'qubits'), computer instructions can occur concurrently, more quickly and using less energy. It's early days, but if quantum computing does become more widely proven and available it may change the shape of computing for ever, including rendering current cryptography techniques redundant.



Organisations that expect at least one-fifth of roles will be replaced by AI/automation within 5 years



Agree or disagree: New job roles will compensate for those lost through AI/automation

## The rise of AI and automation

While there have been many reports predicting the long-term impact of AI and automation on the workforce, there are few that have asked the very technology leaders who are putting these systems in place. This year's CIO Survey shines a light on this increasingly important area.

Typically, respondents believe around 10 per cent of their workforce will be replaced within five years, but for a third of respondents that figure goes up to 20 per cent. Either way these figures are significant. Those organisations not investing in AI and automation can expect, over time, for their cost base to be relatively higher than their AI-investing competitors. For those organisations that are investing, there is a need to realise the investment by freeing up their human resources for other, higher-level roles. There is also another challenge: even for those jobs not replaced by AI, the roles may change because up to one in five of their co-workers will be software.

It will require an organisation to focus on how to shape and integrate a collaborative future workforce that combines human and digital labour.

While much has been made of how AI will replace humans, the majority of CIO Survey respondents (69 per cent) believe that new jobs will appear to compensate. AI will allow employees to engage in richer interactions with others and perform work that requires more brainpower. The world is not short of problems to solve.

Looking forward, we can only expect more. While AI right now is in the domain of high investment and highly skilled people, those barriers are quickly lowering, and cloud-based AI will quickly take it further still. In a relatively new and rapidly changing field, cloud-based AI providers have accrued broad and valuable experience. Most of these providers are also selling the building blocks of those services, allowing customised hybrid solutions to be delivered faster than starting from scratch.

## Almost complete cloud cover

It is probably now a misnomer to consider cloud as an 'emerging' technology, but it is easy to forget that as recently as five years ago many organisations were sceptical about its value and concerned about security implications. This year's CIO Survey reveals that the scope of cloud, and its range of application areas, continues to grow, and there is no indication that it will stop. Eighty-eight per cent of organisations feel more confident about their use of cloud technologies than at any point in the last three years.

There is very little difference in cyber attacks between organisations with large-scale cloud implementations (35 per cent reported an attack in the last two years) compared with the global average (32 per cent); indeed 'cloud' organisations actually feel better protected against future attack. Cloud is not perfect – moving technology expenditure from capital to operational expenditure is both a technical feat, and a financial one – but many technology leaders are making a success of it.

## 'Business-managed IT' takes the limelight from 'shadow IT'

Over the years, the CIO Survey has been tracking the inexorable rise of technology expenditure controlled outside the IT department. The proliferation of easy-to-use, and easy-to-establish, cloud-based services has taken the running of an IT system within easy reach of any technology-savvy business leader (or indeed unsavvy one). Business leaders have become increasingly prescriptive about what they want their technology to do. Perhaps frustrated by what they perceive as an unresponsive IT team, they have taken matters into their own hands. This apparent eroding of power and influence was not something IT traditionally supported. The dark name given to this phenomenon – 'shadow IT' – says it all. But things are changing. Almost two-thirds of organisations (64 per cent) at least allow it, and approximately one in ten actively encourage it. Younger, perhaps more digitally native, organisations are almost twice as likely to encourage business-managed IT as the global average.

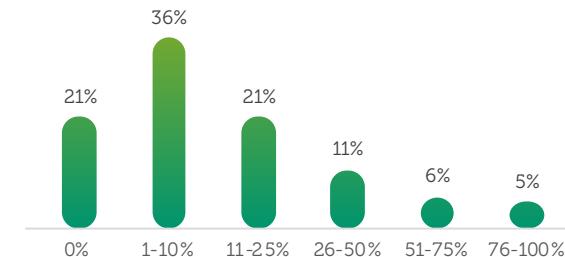
For many organisations there has been a radical rethink in their approach, increasingly seeing it as a useful tool for empowering the business, removing bureaucracy and getting closer to the customer. The supporting evidence is quite clear – organisations that actively encourage business-managed IT are much more likely to be significantly better than competitors in a whole host of factors, including customer experience and time to

market for new products (52 per cent more likely), and employee experience (38 per cent more likely).

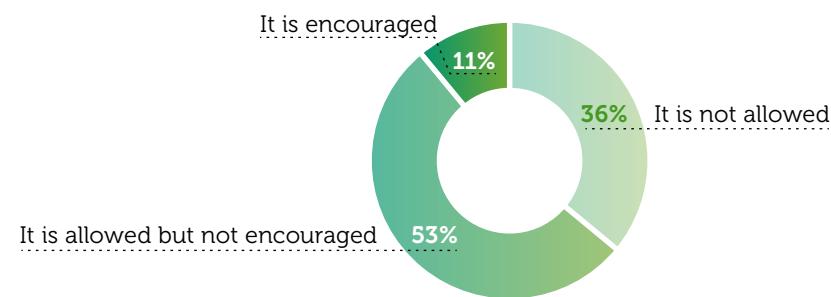
However, four in ten (43 per cent) companies are not formally involving IT in those business-managed IT decisions. These organisations are twice as likely to have multiple security areas exposed than those who consult IT, 23 per cent less likely to be 'very or extremely effective' at building customer trust with technology and 9 per cent more likely to have been targeted by a major cyber-attack in the last two years. Those organisations that do formally involve IT are similar to the global average on all these factors.

Whilst our research suggests business-managed IT spend is levelling out this year, we believe it's actually increasing. What we are probably seeing here is a redefinition of what 'spend outside IT' means. Technology leaders are increasingly collaborating with their business peers and, despite the budget sitting outside IT, they don't consider it an 'outside' project.

Business-managed IT isn't going away. Even for those organisations that completely disallow it, 62 per cent report it still exists. It requires the business and technology team to collaborate and, at least for the technology leader, it needs a supportive CEO who understands that budget and influence are increasingly two different things.



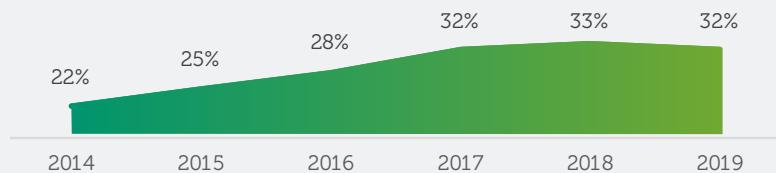
Proportion of tech spend managed outside the IT department



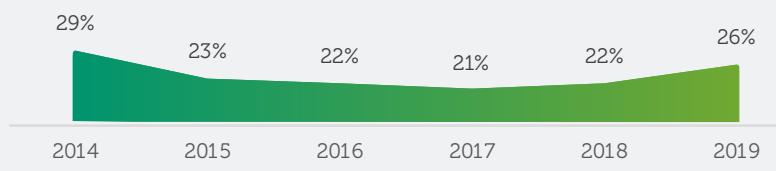
Approach to business-managed technology spend

## Organisations are getting in control of cyber risk

We have already illustrated the phenomenal rise of cyber security up the boardroom agenda, but has this increasing focus had an impact? Our research suggests that major cyber attacks are flattening out year on year and technology leaders feel better able to deal with cyber onslaughts than before. This stands out from other research in this area that suggests cyber crime actually continues to grow, so we'll need more years of data to pick out an overall trend.



Organisations experiencing major cyber attacks in the last 2 years



IT leaders feeling 'very well' prepared for attacks

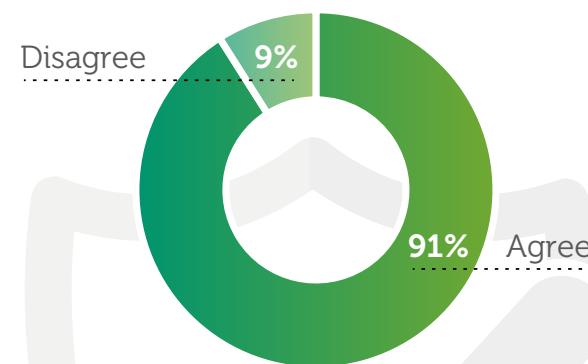


Technology leaders that are 'very well' prepared for cyber attacks

## It's all about privacy and trust

Separate but connected to cyber security, we also looked in more detail at customer trust in data. Almost all technology leaders (91 per cent) agree that data privacy and trust will be as important as their product/service offering in customer attraction. Marketeers often talk about the four 'P's that drive customer purchases – product, price, promotion and place; does this add one further 'P' to the mix – privacy?

In an increasingly complex world of data and security, technology leaders need to consider how to place trust and security at the heart of their development and design. For many, factoring this in may actually help progress innovation and improve speed to market. Technology leaders tell us that involving cyber and data specialists early enough helps create 'trust by design' and saves the costs associated with retrofitting these factors at a later stage.



Agree or disagree: Data privacy and trust will be as important as product/service offering in customer attraction.

## Technology Leader Viewpoints



**Cris Ghetti**  
VP Transformation,  
Coca-Cola European  
Partners

Capturing the potential of digital depends on cultivating talent – both within technology functions and the business. This research shows the value of innovative, forward-looking work to inspire this capability shift. But this doesn't just happen in isolation in the IT department – close convergence with the business is needed to exploit the potential of digital. This results in quicker delivery of products which are closer to the customer need. The more transformative the programme, the more important this becomes.



**Bob Hennessy**  
Group Chief Information  
Officer, Lendlease

I've seen a few hype cycles in my time and this report is challenging ... are we seeing another hype cycle or is something new and different really happening in this new wave of digital? The fact that the report shows a 15 year high in those projecting increased investment levels suggests that many of us are making new bets with the conviction that there is new business value to be delivered. The report allows us to go deeper on some of these key questions and helps us realise we are not alone in trying to determine the right response to this generation of Industry 4.0 forces on our businesses. Cloud, security and privacy are givens now but the power of AI to unlock fundamental value shifts as opportunity (or threat!) to our businesses is clearly being contemplated by many of us.



**Jeff Reihl**  
Chief Technology Officer,  
LexisNexis

Artificial intelligence drives everything today. This year's survey reveals AI is a common thread in digital transformation, across industries and technologies. It also shares how AI is creating yet another disturbance in the talent pipeline. The challenge for us in maintaining AI leadership is the constant struggle to find and retain talent in this high-demand tech space. One way we're tackling that skills shortage is the continuous recruitment of data scientists and data engineers. We've also begun cultivating our own AI talent by creating a custom AI training curriculum working with North Carolina State University as another strategy to develop the talent we need. In fact, all of our technologists are being trained in AI technologies including natural language processing, machine learning and data science because it's behind everything we do. New roles are being created, like our Chief Automation Officer, a role that until recently didn't exist in the industry. As a technology leader, I see the way the world does business changing immensely as AI not only extends across all parts of the organisation but impacts everyone who touches the business from internal audiences to external customers.

## Technology Leader Viewpoints



Dr Ralf Schneider  
Group CIO, Allianz SE

“To drive transformation in today’s hypercomplex environment, trust and security become more important than ever. Leaders need to develop and apply capabilities far beyond analytical thinking: intuition, mindfulness and cybernetic action.”



Susan Doniz  
Group Chief Information Officer, Qantas Airways Limited

“I am really excited to see that this survey is showing with data that every company is now a technology company and it’s not just hype through increased investments in technology. CEOs, executive teams and boards are confident that the approach and investments are driving real top and bottom line benefit – the shifting nature of technology investments and ROI is no longer a question – companies are doubling down on these investments as a fundamental strategic choice for the sustainability of their futures.”



Adam Banks  
Chief Technology & Information Officer, Maersk

“I’m a firm believer that the skills shortage for emergent technologies, such as AI, is secondary to an exploding crisis associated with real digital experience. There is a power balance shift necessitated by moving from being a product centric business to becoming a fully digitally native organisation. Today the universally accepted need for digital transformation is driving a massive need for leaders who can change organisational culture both globally and at scale. How do we create leaders that are as digitally savvy as they are skilled at business change when the majority of the talent pool specialise in only one of these areas? We need leaders who can get a ten-tonne culture ball rolling by using skills associated with both the business flair of a CEO and the in-depth technical knowledge of a CIO. A rare breed indeed.”



Dan Marsh  
CIO UK & Europe, AIG

“Shining a light on shadow IT can reveal potentially advantageous and effective technology solutions. Whilst it is vital to minimise the risk that un-vetted solutions may bring from a security perspective, greater alignment and collaboration between IT and Business teams can help drive business performance improvements.”

# 3. Driving Business Performance through Technology

Better or significantly better than their competitors



You can download sector splits and other key charts by visiting [www.hnkpmgciosurvey.com/charts](http://www.hnkpmgciosurvey.com/charts).

Organisations are complex; and, for many, new technology investments often take a very long bumpy journey before they even have a chance of having a measurable impact on business performance.

And yet some organisations are making a success of it. As you can see from the chart, Digital Leaders – the 30 per cent of organisations that are 'very or extremely effective at using digital technology to advance their business strategy' – are significantly more likely to be better than their competitors on a whole host of business performance factors, including time to market, customer experience and – most importantly, and CEO-pleasing – profit growth.

But what are the 'levers', the special factors, that make Digital Leaders stand out from the crowd?

Here we look at some of the organisational and cultural factors that drive Digital Leadership. This is then picked up in more detail in KPMG's special report on page 24, which using this research, as well as other insights, looks in more detail at how this translates into technology strategy.

## Digital Leadership starts from the top

**The board prioritises value creation**

**Outward looking**

The No.1 issue a Digital Leader's board wants IT to address is 'new products and services', compared with 'IT consistency and stability' for the rest.

**Making money is the priority**

76% of their CEOs want their technology projects to 'make' rather than 'save' money, compared with 58% for the rest.

### Technology leader profile is high

#### Report to CEO

Digital Leaders are more likely to have the top technology leader report to the CEO (44% versus 38%).

#### Sit on the executive team

They are more likely to be on the executive team (66% versus 57%).

### External factors make technology important

#### Expecting transformation

Digital Leaders are more likely to be introducing 'major new changes to products and services' in the next 3 years (55% versus 39% for the rest).

Technology touches every part of an organisation and the priorities list of a technology leader is as long as it is varied. But what distinguishes Digital Leaders, our research tells us, is their strong cultural focus on creating visible value for their organisation, strongly supported by the board. Outward-facing initiatives such as new products and services, customer engagement and entering new markets are favoured over inward-facing operational IT.

Digital Leadership doesn't just spontaneously burst into existence; many factors need to align, and it starts from the very top. The CIO Survey shows that Digital Leader organisations are much more likely to have the technology leader as a member of the top team, where they can influence and be influenced by their executive peers. It also helps that Digital Leaders are more likely to think their sector is undergoing transformation, and as a result investing in new products, services or business models. This belief gives important momentum, and – some may say – also a little positive paranoia, to driving change.

Technology leaders working for Digital Leader companies enjoy board access and influence, and a willingness to invest in outward-facing projects. There is a 'chicken and egg' question – is the technology leader influential in these enterprises because the board supports them, or does the board support them because they are influential in their own right? The truth is, it's probably a mixture of both.



## Digital Leaders view technology delivery differently

### Partner with the business



#### Collaborate

Digital Leaders are more likely to ensure that business leaders **work collaboratively** to deliver technology change (54% versus 18%\*).

#### Give up control of budgets

They are more likely to **promote business-managed IT** (16% versus 11%\*).

They are more likely to have **significant influence in sign-off of business-managed IT** (67% versus 57%\*).

### Need speed



#### Fail fast

Digital Leaders are more likely to ensure that **experiments are scaled up quickly if successful or stopped** (44% versus 14%\*).

#### Speed up projects

They use methodologies that **speed up project delivery like agile and DevOps** enterprise-wide (49% versus 15%\*).

### Have an 'expansive' mindset



#### Think product, not project

Digital Leaders bring a **long-term 'product' rather than short-term 'project'** mindset to technology implementation (50% versus 16%\*).

#### See the whole organisation as their team

They use **cross-functional teams** (IT and business staff) (56% versus 23%\*).

### Fanatical about data



#### Maximise value

Digital Leaders are more likely to **maximise the value** of the data they hold (35% vs 9%\*).

#### Think strategically

They are more likely to maintain an **enterprise-wide data management strategy** (36% vs 10%\*).

The success of Digital Leaders has not come through 'pedalling harder' in their traditional IT function; in fact, for many organisations the concept of a traditional IT department is anathema to them.

Digital Leaders are swapping control for influence and investing time in business relationships. They are three times more likely to collaborate strongly with business leaders, and three times more likely to be investing time in upskilling non-IT people in IT skills; they see their 'technology team' as broader than the people they directly manage.

Digital Leaders view IT success through the lens of business performance, often tied to measures like customer or employee

experience, lifetime value, loyalty, uptake, and time to market. Data is at the heart of their organisation; they are significantly more likely than their peers to maximise the value of their data, and have an enterprise-wide data strategy in place.

The CIO Survey suggests that Digital Leaders are more likely to be working with the business managing their own IT spend. That said, it is still currently a relatively small proportion in absolute terms (16 per cent) although we can expect this to grow over time; as we covered earlier, organisations that actively encourage business-managed IT perform better on a whole host of factors.

Digital Leaders' attitude to agility is also different – projects move quickly and fail fast. They are almost 50 per cent more

likely to be scaling up or stopping experiments when they reach their conclusion and over three times as likely to be employing methodologies that speed up project delivery. The Digital Leaders we speak to often depict 'failure' as a success – a very different attitude to large-scale project failures reported in the past.

Digital Leaders are expansive in their mindset. They see the whole enterprise as their remit, and, working collaboratively, their resource. They view their value through the lens of the overall product or service that the enterprise provides, and see projects merely as a stepping stone to strong value creation.

For further analysis around Digital Leadership, see KPMG's special report on page 24.

\*'very' or 'extremely' effective

# 4. Resourcing the Technology Team

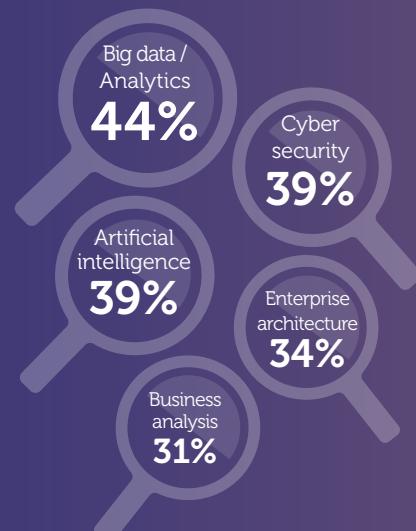
## All-time high for skills shortages\*



## Organisations facing a critical\* skills shortage



## Top 5 most scarce skills



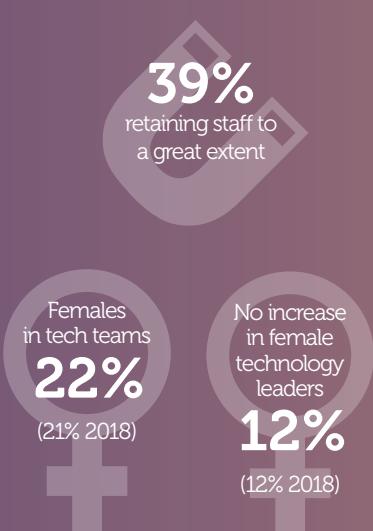
## Largest YoY rise in demand



## Largest YoY fall in demand



## Gender & retention



You can download sector splits and other key charts by visiting [www.hkpmgciosurvey.com/charts](http://www.hkpmgciosurvey.com/charts).

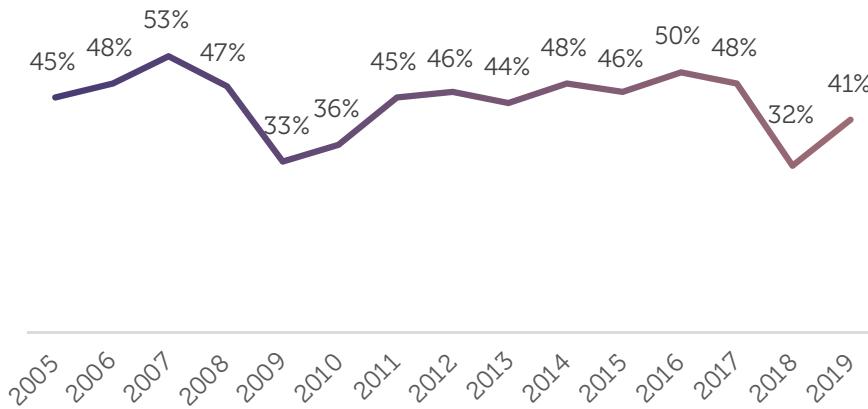
\*Organisations where a skills shortage is preventing keeping up with the pace of change

This year's research shows that skills shortages are at an all-time high since 2008 and that these shortages can't fail to act as a bottleneck to growth. Earlier we reported on how data analytics, cyber security, AI and transformation are driving technology investment; here we see how that demand is affecting the employment market. Skills in these areas are becoming scarce.

The CIO Survey suggests that the skills shortage is a tale of two types of organisation. Younger and smaller organisations are less likely to have a skills shortage, older and larger ones more likely. Larger organisations, ones with budgets over \$250m, also appear to be the least able to retain their staff for the duration that they would like: only 26 per cent retain key staff within their technology talent compared with 44 per cent of smaller organisations with budgets of under \$50m. This poses a particular problem when large organisations are most likely to benefit from transformation and do not have the skills to support their plans.

Our research tells us that technology professionals value innovative projects and learning new skills above anything else (including salary and job security), and smaller organisations seem to offer this better. This is despite larger, more established enterprises often having the advantage of a well-known brand and international career opportunities. As the average life span of an organisation declines as markets rapidly evolve, the advantage of heritage and scale for large organisations appears to be declining.

## Outsourcing is having a bumpy ride



### Organisations expecting to increase outsourcing spend in the next year

Last year saw the biggest decline in outsourcing intent that we have seen in the CIO Survey; this year the intent jumps up, but still leaves us with an overall downward long-term trend. When organisations are deciding what intellectual property they wish to retain, what to develop and what to automate, there is no doubt outsourcing has a major role to play in the resourcing mix of technology teams. However, its role is changing. Outsourcing strategies are being blended with wider sourcing strategies including the use of the gig economy and near sourcing. The single biggest reason technology leaders outsource is to 'provide access to skills not available in-house' (45 per cent selected this, compared with 36 per cent who used it to 'save money').

## Little progress in the participation of women

Twenty-six per cent of respondents feel very successful with the promotion of diversity and inclusion within their teams, up significantly from 19 per cent last year. However, there has been only minimal growth in the percentage of women on the tech team – 22 per cent this year compared with 21 per cent last year – and no change in the percentage of female technology leaders at 12 per cent. If initiatives aren't working for gender diversity, why do the majority of respondents (85 per cent) still feel at least moderately successful about this?

The issue is, of course, one of both demand and supply. Part of the challenge is that women are not entering careers in technology or taking related qualifications in the quantities that will make a difference. It is a paradox: few careers offer as much scope for creativity, financial reward and the ability to really change the world. Clearly the message is not getting out.

One might expect younger organisations to be more broad-minded and creative about diversity, but the responses show that they are no more satisfied than others with their diversity initiatives. Organisations with budgets over \$250m report slightly better than average success. Almost twice as many young organisations compared with the global average (11 per cent) have no female members on their tech teams. If start-ups are getting it wrong from the beginning, what hope is there for the future?

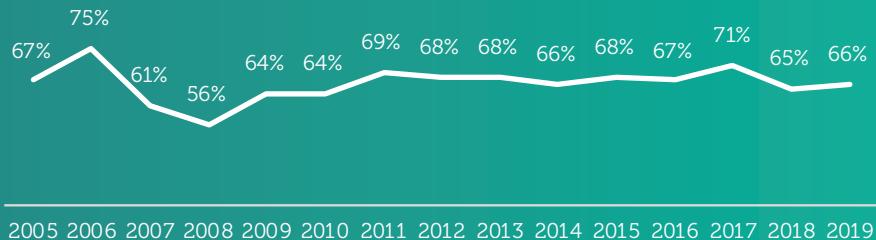
One thing is for certain – more needs to be done in this area.

# 5. Being a Technology Leader

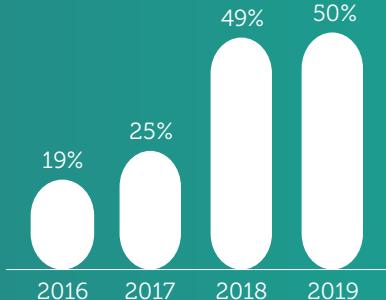
Executive team membership for technology leaders



Respondents indicating the CIO role gaining influence



Organisations with a Chief Digital Officer or someone working in that capacity



You can download sector splits and other key charts by visiting [www.hnkpmgciosurvey.com/charts](http://www.hnkpmgciosurvey.com/charts).

## Influence, not status

There are few senior roles within organisations today where the direction of travel is as uncharted as that of the CIO. While most executive roles will have different challenges now than ten years ago, it is the role of the technology leader that appears to be uniquely disrupted. And like all disruption, it can have positive and negative results, sometimes at the same time.

It's no surprise then that this year's survey reveals a mixed message around the profile of the CIO. Last year we tracked how influence had dropped, and we asked: is this a blip or the beginning of a long-term trend? This year we see influence step up a little, but at the same time membership of the executive team continues its marked decline since 2017. Many technology leaders are very relaxed about whether they sit on the board. What they care more about is having the appropriate access and influence, and a supportive CEO to help them see their vision through.

## CDO appointments flatten out

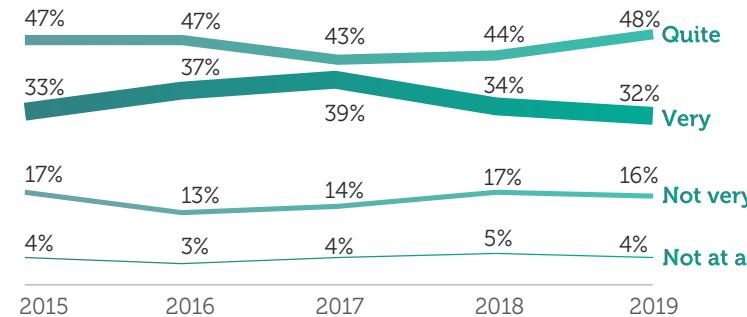
In many ways the fortune of the Chief Digital Officer (CDO) role has been entangled with the fortune of the CIO. For some organisations the CDO role was created to fulfil a need that was not being met by the executive team, and in particular the CIO. In 2015, an incredible one in ten organisations appointed a CDO; we have never seen a new job role adopted more quickly than this. However, we are now seeing CDO role adoption level out. This is certainly not through dissatisfaction with the role. Organisations with dedicated CDOs are more likely to be Digital Leaders than organisations that do not have CDOs (13 per cent versus 11 per cent). But what we are seeing are more CIOs taking responsibility for the CDO remit. This combined role doesn't tend to be exactly the same as a 'pure' CDO, but organisations are adopting whichever approach works for them: appointing a CDO where they need new external skills, or integrating it into an existing role where it's appropriate. CIOs who are also CDOs tend to be different from their CIO peers – for instance, they are more encouraging of business-managed IT and more likely to be on the executive team.

## 6 attributes of successful technology leaders

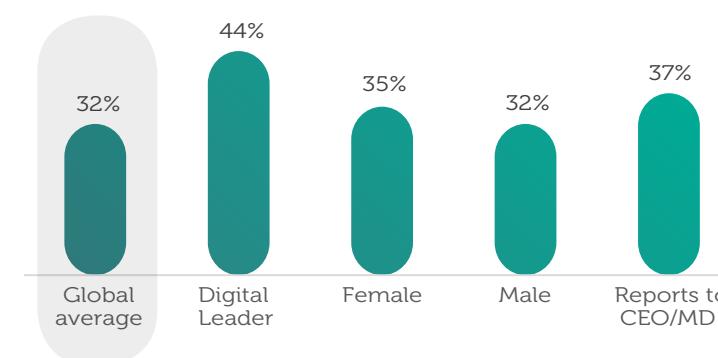
- 1 Value creation:** they are fanatical about creating technology that makes a measurable difference to the bottom line.
- 2 Influence:** the real measure of their importance is influence, not budget or team size. They are comfortable with budgets being owned elsewhere and are able to exert just enough control to make projects a success.
- 3 Collaboration:** often seen as 'servant-leaders', their value is derived from the trust and partnership they have with the business.
- 4 Technology expertise:** they understand that their USP is their deep understanding of the possibilities of technology, and work hard to keep abreast of technology developments both internally and externally.
- 5 Uncertainty (dealing with it):** they are happy to start on journeys where the end point is not 100% certain. They can live with change and they embrace ambiguity.
- 6 Cultivate culture:** they create a culture that empowers teams, encourages experimentation, incentivises collaboration, and measures performance of the team against business outcomes, not IT metrics.



Salary changes for technology leaders



Level of job fulfilment for technology leaders



Technology leaders who feel 'very fulfilled' in their role

## Salaries and bonuses continue to rise

Alongside investment in technology, organisations are also investing in their leaders, with almost half (47 per cent) having had a salary increase. Just under half (45 per cent) of technology leaders are getting bonuses of 10 per cent or more and 4 per cent are more than doubling their salaries with this incentive. Fewer technology leaders are feeling unfulfilled in their roles compared with last year but their enthusiasm has only increased to a sense of feeling 'quite' fulfilled. Overall the absolute level of job satisfaction is very high and, coupled with increased salaries and bonuses, there has never been a better time to be a technology leader.

## Events

Find out about our launch events across the world

## Data

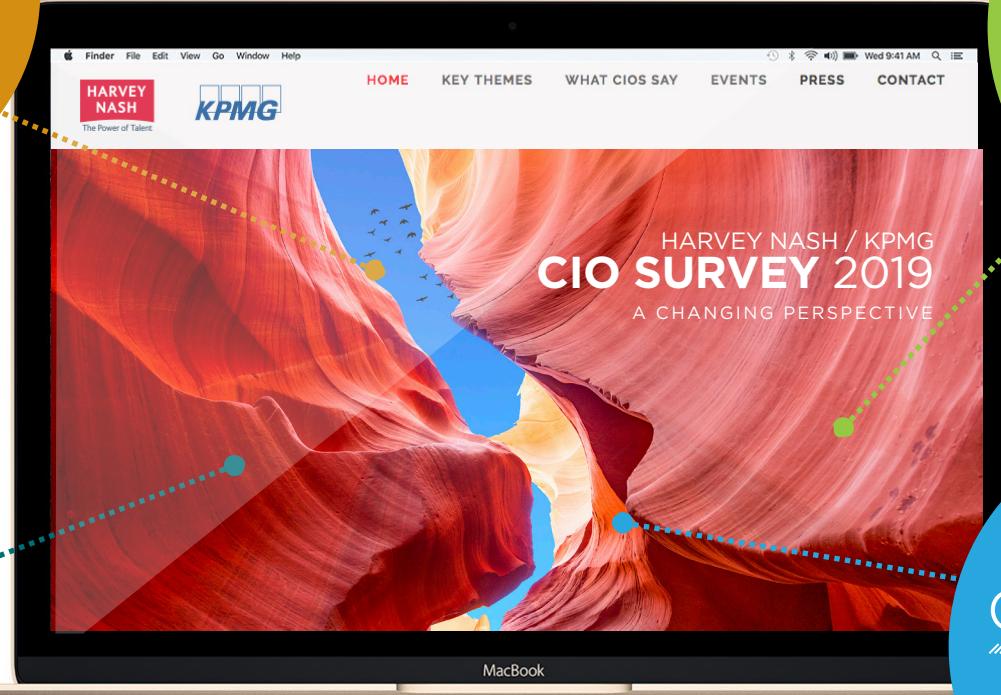
Play with interactive charts

## Download

Get hold of the digital version of the report

## CIO viewpoints

Read the opinions of CIOs across the world



# KPMG Special Report

## Becoming a future-ready Digital Leader

In the digital age, all organisations are striving to harness IT to transform the business and drive better performance.

But there is no doubt that some are faring better than others. The Digital Leaders identified in this year's report are putting clear water between themselves and their competitors. On average, their time to market is better, their customer experience is superior and their operational efficiency is higher. As a result, both revenue growth and profitability are higher too.

But what are Digital Leaders doing differently and what might lie behind their success? In KPMG's view, it begins with a fully integrated front, middle and back office, creating what KPMG calls the 'Connected Enterprise' – all laser-focused on the customer.

Steve Bates, Global Lead, CIO Advisory Centre of Excellence at KPMG, says: 'There are eight key capabilities that Connected Enterprises focus on and that make them twice as likely to be successful in meeting customer expectations, delivering ROI and achieving their business objectives.'<sup>1</sup>

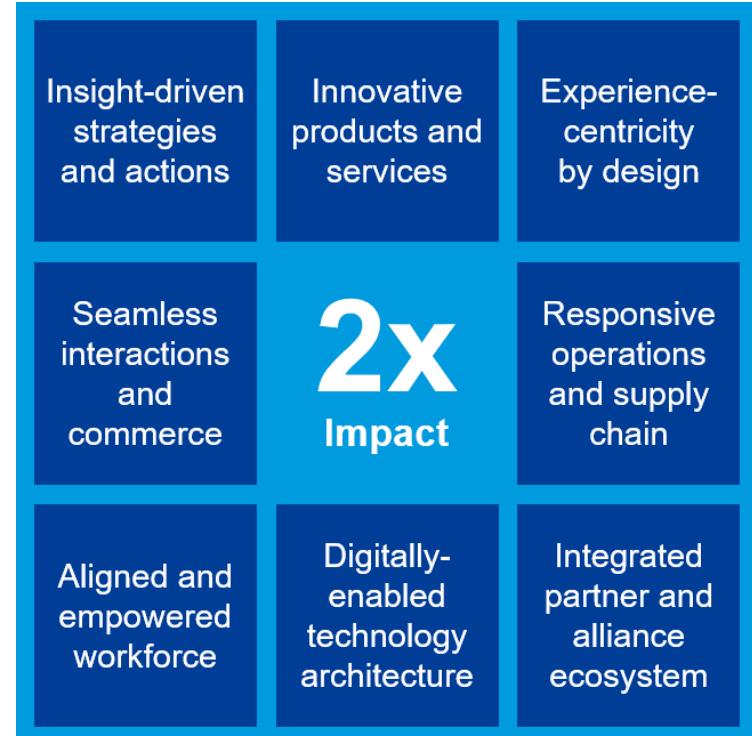
Today, there is no longer business strategy and technology strategy. There is just

strategy, and technology is driving it. The opportunity for IT is to enable the Connected Enterprise and drive the benefits.

It is encouraging that investment in IT is as high as it's ever been, with more technology leaders (55 per cent) reporting budget increases than at any time over the last 15 years. Unsurprisingly, this was especially the case for Digital Leaders (63 per cent). This is a clear sign that leadership in businesses across sectors recognise IT's pivotal role, not just in keeping the business functioning, but in enabling business change. Moreover, business-managed IT – where technology is managed by business departments themselves – is growing, especially in Digital Leaders.

'The companies that are winning in the market are not asking IT to keep the lights on,' Steve Bates comments. 'The importance of technology in driving growth and reducing risk is fully recognised in the boardroom. But technology also needs to be in the hands of the people that create value so the growth of business-managed IT is an important development – although clearly there needs to be a strong governance system to ensure that activity remains coordinated and controlled.'

### Eight capabilities of the KPMG Connected Enterprise



<sup>1</sup> Research commissioned by KPMG International, 2016 & 2018

But simply investing more in IT is not enough on its own. Along with it, a significant shift is needed in the way the IT function operates in and with the business. KPMG's 'Future of IT' series identifies six key elements that the IT function must get right to deliver business value, and in this year's survey we see Digital Leaders outpacing their rivals in these important areas:

**1. Market speed operating model** – realigning capabilities, people, architectures and ways of working to enable the delivery of new products and services across a broad spectrum of speeds and scale.

*From the survey:* Digital Leaders are more effective in implementing new technologies end-to-end across functions and geographies and changing ways of working to maximise the value from technology. They use cross-functional teams (IT and business staff) and ensure business leaders work collaboratively to deliver technology change.

**2. Dynamic investment** – deploying a 'think like a VC' portfolio investment approach and leveraging lean financial processes to drive dynamic and continuous funding of technology and investments.

*From the survey:* Digital Leaders are more effective in reporting business outcome-based metrics for

technology projects, and scaling up projects quickly if successful or stopping quickly if not.

**3. Modern delivery** – integrating business, engineering, testing and operations into full-stack teams, automating large portions of the value chain.

*From the survey:* Digital Leaders are better at integrating core business systems with newer digital solutions and bring a long-term 'product' rather than a short-term 'project' mindset to technology implementation. They employ automation in software development and maintenance and use methodologies such as agile and DevOps to speed up project delivery.

**4. Flexible IT workforce** – developing a 360 degree view of the IT workforce, including business, technical and virtual skills, to create a flexible ecosystem of talent.

*From the survey:* Digital Leaders are better at ensuring that non-IT staff have the right technology skills, and at using both internal and external resources to access the right skills.

**5. Data as an asset** – evolving foundational data assets to fuel demand for actionable customer insights, transparency to risk and opportunity, and operational efficiency.

*From the survey:* Digital Leaders are more effective at maximising value from the data they hold and maintaining an enterprise-wide data management strategy.

**6. Customer trust** – instilling technical trust throughout the organisation, delivering intrinsically safe products and services, to influence perceived trust for customer value.

*From the survey:* Digital Leaders are better at identifying and managing the key security and privacy issues across technology development and operations, and in building customer trust through the service delivered to customers and end users.

'Digital solutions are the oxygen that allow a business to breathe and run at market speed. This year's survey provides compelling evidence of the transformational progress Digital Leaders are making. It is up to the rest to catch up and join them,' Steve Bates says.

For more insights around KPMG's vision of the 'Future of IT', visit [kpmg.com/Future-IT](http://kpmg.com/Future-IT).

# Achieving top performance in the digital era requires table stakes and a clear transformation choice



**Stephanie L. Woerner**

Research Scientist, MIT Sloan School of Management's Center for Information Systems Research



**Peter Weill**

Chairman and Senior Research Scientist, MIT Sloan School of Management's Center for Information Systems Research



Over 3,645 respondents to the Harvey Nash / KPMG CIO Survey provided additional information, including company name, to take part in further analysis by Massachusetts Institute of Technology Center for Information Systems Research. MIT CISR is one of the world's leading IT research organisations.

Every firm needs to take advantage of digital technologies to achieve superior performance. To understand how to outperform we looked at the company capabilities that contributed to performance, both self-reported revenue growth and profit margin relative to competitors. Working with Harvey Nash, we analysed data from over 3,600 companies and we found some important – and unexpected – results. All the results described below are statistically significant.

All companies with superior performance had six foundational capabilities – we call these table stakes.

With those table stakes in place, companies could then choose one of two transformation paths. One path to top performance, what we call 'industrialisation', involves steady incremental change over time, evolving existing products and services and gradually introducing new products and services. The other path to top performance is 'radical' transformation, which

involves moving to new 'digitally enabled' products and services and experimenting with new revenue models. Intriguingly, and somewhat controversially given the recent focus on digital transformation, both approaches produce similar performance results, with the radical approach having a 5 per cent higher performance.

Transformation like we documented at BBVA, DBS, KPN and Schneider Electric is designed to be disruptive – radically changing the ways of working and the use of technology to achieve superior results – as described in our recent book, *What's Your Digital Business Model?* These companies typically significantly change the decision rights and radically reorganise to get different outcomes.

The companies that follow more of an industrialisation approach like Tetra Pak, UPS and Oerlikon focus on significantly improving in smaller increments every day over many years.

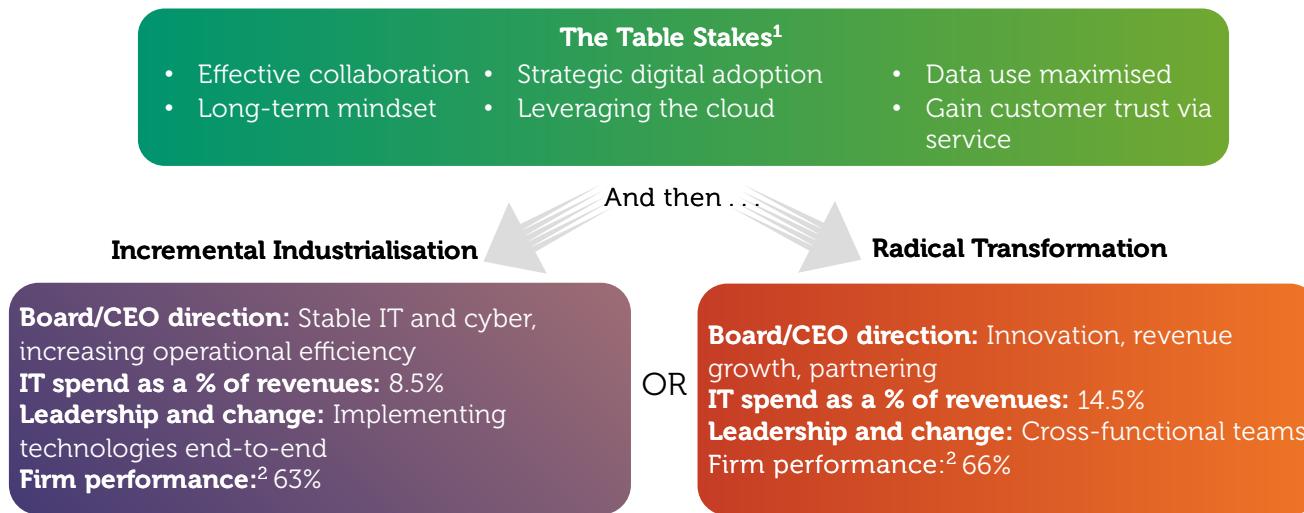
## Table stakes

Top performers had stronger capabilities in six foundational capabilities needed for success in the digital economy. These table stakes are:

- Collaboration that delivers business change
- Long-term mindset to technology implementation
- Digital technology that advances business strategy
- Effectively leveraging cloud technologies
- Maximising data use throughout the enterprise
- Customer trust built through superior service.

Just becoming strong in these foundational capabilities will involve some sweeping culture changes (helping people collaborate more effectively, make evidence-based decisions and develop a customer service passion) and fostering an understanding of how technologies like cloud can help your company.

## Top performers develop table stakes and choose a path



Source: Harvey Nash/KPMG CIO Survey 2019 (N=3,645)

1 Significant in a regression at the p<.06 level, DV is a combination of revenue growth and profitability compared to industry.

2 Performance is a combination of profitability and revenue growth compared to industry

### Industrialisation versus transformation

Building upon the table stakes, top-performing companies choose between the more incremental industrialisation or a more radical transformation. The driver of the choice was what the board and CEO expect. With industrialisation, it's stable and steady performance, continuous improvement, and careful management of cyber threats and other down-side risks. Radical transformation results from expectations by the board and CEO of faster revenue growth, more value-generating innovation and changing business models, all enabled in part with stronger partnering – perhaps driven by a stronger perceived threat or opportunity from digitisation.

And the pathways to success are very different, particularly around technology spending and the major change mechanism. The firms on the radical transformation pathway invested heavily in technology as a mechanism for change, spending 70 per cent more on technology than industrialising companies as a percentage of revenue. The major change mechanism

top performers used was cross-functional teams, adopting agile or similar approaches. Companies on this pathway must make it easy for people to find each other and collaborate, and to support that behaviour through tools, coaching and communication by leaders. And the leadership is different too. The CIO is more strategic (more revenue-focused than order-taking) and is part of the executive committee. Prioritisation is also different, with the CEO prioritising projects that grow revenue rather than cut cost.

Top-performing companies following industrialisation spend much less on technology, with a mindset of automation rather than new customer offerings. The key change mechanism was incrementally standardising and automating processes across the company, reducing cost and risk. Integrated silos, reusable modular components and consolidated data that can be extracted for decision-making are the results. Change management involves identifying the one best way to do something and then governing to move everyone towards leveraging that one best way.

Enterprises have a choice about industrialisation versus transformation and it comes down to competitive positioning, strategic goals and appetite for risk. Top-performing companies undertaking transformation had 5 per cent better financial performance (revenue growth and profitability) and had better time-to-market, customer experience and business agility. But beware, both pathways have significant risk of poor performance. Transformation and industrialisation companies had a 54 per cent and 60 per cent, respectively, chance of lower performance than peers right now. Whichever path you follow requires commitment and perseverance.

As you think about achieving above-industry average performance, we have two questions for you. 1) Are you very effective at the six table stakes? And 2) Which path are you on – incremental industrialisation or radical transformation? Your job as a leader is to make sure you pick the right path and the path is well understood and consistently followed across the company. The worst case is not making a decision, flip-flopping from one path to the other, and never making much progress.

# By country

## Top IT priority for the board

Country	Top IT priority for the board
Australia	Enhancing the customer experience
Belgium	Delivering consistent and stable IT performance to the business
Brazil	Improving business processes
Canada	Improving cyber security
China*	Developing innovative new products and services / Improving business processes / Enhancing the customer experience
Finland	Increasing operational efficiencies
France	Delivering consistent and stable IT performance to the business
Germany	Delivering consistent and stable IT performance to the business
India	Improving business processes
Italy	Saving costs
Japan	Improving cyber security
Mexico	Enhancing the customer experience
Netherlands	Delivering consistent and stable IT performance to the business
New Zealand	Delivering consistent and stable IT performance to the business / Enhancing the customer experience
Norway	Delivering consistent and stable IT performance to the business
Panama	Developing innovative new products and services / Improving business processes / Enhancing the customer experience
Poland	Delivering consistent and stable IT performance to the business
Republic of Ireland	Delivering consistent and stable IT performance to the business
Sweden	Delivering consistent and stable IT performance to the business
Switzerland	Delivering consistent and stable IT performance to the business
Turkey	Delivering consistent and stable IT performance to the business
United Arab Emirates	Increasing operational efficiencies
United Kingdom	Delivering consistent and stable IT performance to the business
United States	Improving business processes
Vietnam	Improving business processes
Global average	Delivering consistent and stable IT performance to the business

## 10%+ tech budget controlled outside IT

Country	10%+ tech budget controlled outside IT
Republic of Ireland	65%
India	62%
Germany	56%
Switzerland	55%
Vietnam	54%
Japan	50%
New Zealand	50%
Sweden	50%
China*	49%
France	47%
Poland	47%
Australia	46%
Italy	46%
Canada	44%
Netherlands	44%
Norway	44%
Global average	43%
United Arab Emirates	41%
Belgium	40%
United Kingdom	40%
United States	38%
Finland	36%
Turkey	36%
Mexico	35%
Brazil	30%
Panama	24%

## Increased IT budget in last year

Country	Increased IT budget in last year
Belgium	74%
Netherlands	69%
New Zealand	69%
Vietnam	68%
China*	68%
Panama	63%
France	61%
India	59%
Italy	59%
Canada	58%
Germany	58%
Norway	58%
Brazil	57%
Mexico	57%
Australia	56%
Japan	56%
United States	56%
United Arab Emirates	55%
Global average	55%
United Kingdom	54%
Sweden	52%
Poland	51%
Turkey	50%
Republic of Ireland	45%
Finland	43%
Switzerland	41%

China: \* China mainland, Hong Kong (SAR) and Macau (SAR)

## Transformation – radical or major change in next 3 yrs

Country	Percentage
Mexico	64%
Vietnam	62%
Panama	61%
France	59%
India	59%
Norway	51%
Sweden	51%
Germany	49%
United Arab Emirates	49%
China*	48%
Republic of Ireland	48%
Belgium	46%
Brazil	46%
Australia	44%
Switzerland	44%
Global average	44%
United Kingdom	43%
United States	43%
Netherlands	42%
Poland	42%
Italy	40%
Turkey	37%
Canada	32%
Finland	31%
Japan	23%
New Zealand	22%

## Base salary increase in last year

Country	Percentage
Mexico	79%
India	63%
New Zealand	62%
Netherlands	59%
Sweden	59%
Poland	57%
China*	55%
Vietnam	53%
Norway	52%
United States	52%
Panama	50%
Australia	49%
Brazil	49%
France	48%
Global average	47%
United Kingdom	45%
Canada	44%
United Arab Emirates	44%
Republic of Ireland	43%
Belgium	39%
Turkey	36%
Japan	26%
Finland	25%
Italy	25%

## 10%+ of workforce automated in next 5 years

Country	Percentage
Japan	73%
India	65%
Vietnam	61%
United Arab Emirates	58%
Mexico	57%
Poland	57%
China*	55%
Netherlands	55%
Turkey	55%
France	53%
Sweden	50%
Brazil	49%
Norway	48%
Germany	47%
Australia	46%
Italy	46%
Global average	43%
Republic of Ireland	42%
Switzerland	41%
Belgium	40%
United Kingdom	37%
United States	36%
Finland	33%
Panama	32%
New Zealand	31%
Canada	27%
New Zealand	27%
Panama	26%
Sweden	26%
Japan	25%
Canada	19%

## Time to market – better than competitors

Country	Percentage
India	48%
Switzerland	44%
Mexico	39%
Netherlands	39%
Republic of Ireland	37%
Australia	36%
France	36%
Turkey	36%
Vietnam	36%
United States	35%
Global average	34%
Norway	33%
China*	33%
New Zealand	33%
United Kingdom	32%
United Arab Emirates	33%
United Kingdom	33%
Brazil	32%
Finland	32%
Italy	32%
Germany	31%
Poland	31%
Belgium	29%
India	28%
Panama	27%
Republic of Ireland	27%
Norway	26%
Turkey	26%
Brazil	25%
Canada	19%
United Arab Emirates	14%

## Major cyber attack in last 2 years

Country	Percentage
Japan	56%
Mexico	50%
France	44%
Poland	43%
Germany	38%
Sweden	38%
Vietnam	38%
Finland	36%
Australia	34%
Switzerland	34%
China*	33%
New Zealand	33%
United Kingdom	32%
Global average	32%
Netherlands	31%
United States	31%
Belgium	30%
Italy	29%
India	28%
Panama	27%
Republic of Ireland	27%
Norway	26%
Turkey	26%
Brazil	25%
Canada	19%
United Arab Emirates	14%

# By sector

## Top IT priority for the board

Sector	
Broadcast / Media	Delivering consistent and stable IT performance to the business
Business / Professional Services	Improving business processes
Charity / Non profit	Delivering consistent and stable IT performance to the business
Construction / Engineering	Improving business processes
Education	Enhancing the customer experience
Financial Services	Delivering consistent and stable IT performance to the business
Government	Delivering consistent and stable IT performance to the business / Increasing operational efficiencies
Healthcare	Delivering consistent and stable IT performance to the business
Leisure	Increasing operational efficiencies
Manufacturing / Automotive	Improving business processes
Oil & Gas	Increasing operational efficiencies
Pharmaceuticals	Improving business processes / Increasing operational efficiencies
Power & Utilities	Increasing operational efficiencies
Retail / Consumer Goods	Enhancing the customer experience
Technology	Enhancing the customer experience
Telecommunications	Enhancing the customer experience
Transport / Logistics	Delivering consistent and stable IT performance to the business
Global average	Delivering consistent and stable IT performance to the business

## 10%+ tech budget controlled outside IT

Sector	
Technology	53%
Telecommunications	51%
Broadcast / Media	50%
Education	50%
Oil & Gas	47%
Charity / Non profit	44%
Construction / Engineering	44%
Financial Services	44%
Global average	43%
Business / Professional Services	42%
Healthcare	41%
Pharmaceuticals	40%
Power & Utilities	39%
Government	38%
Transport / Logistics	38%
Retail / Consumer Goods	37%
Leisure	36%
Manufacturing / Automotive	36%

## Increased IT budget in last year

Sector	
Leisure	68%
Broadcast / Media	62%
Transport / Logistics	59%
Financial Services	58%
Technology	56%
Global average	55%
Business / Professional Services	54%
Construction / Engineering	54%
Retail / Consumer Goods	54%
Charity / Non profit	52%
Healthcare	52%
Manufacturing / Automotive	52%
Pharmaceuticals	52%
Oil & Gas	51%
Education	47%
Government	47%
Telecommunications	47%
Power & Utilities	44%

## Transformation – radical or major change in next 3 yrs

Sector	
Broadcast / Media	57%
Telecommunications	57%
Technology	56%
Pharmaceuticals	51%
Business / Professional Services	48%
Financial Services	47%
Leisure	46%
Retail / Consumer Goods	44%
Global average	44%
Transport / Logistics	43%
Oil & Gas	42%
Healthcare	40%
Power & Utilities	37%
Government	35%
Charity / Non profit	34%
Construction / Engineering	34%
Manufacturing / Automotive	31%
Education	26%

## Base salary increase in last year

Sector	
Pharmaceuticals	60%
Telecommunications	60%
Broadcast / Media	53%
Business / Professional Services	52%
Power & Utilities	52%
Construction / Engineering	51%
Education	51%
Healthcare	50%
Transport / Logistics	50%
Retail / Consumer Goods	47%
Global average	47%
Leisure	46%
Manufacturing / Automotive	46%
Technology	46%
Financial Services	45%
Oil & Gas	45%
Charity / Non profit	38%
Government	35%

## 10%+ of workforce automated in next 5 years

Sector	
Oil & Gas	59%
Telecommunications	55%
Financial Services	53%
Broadcast / Media	48%
Transport / Logistics	45%
Technology	44%
Global average	43%
Retail / Consumer Goods	42%
Business / Professional Services	41%
Government	41%
Manufacturing / Automotive	41%
Power & Utilities	38%
Charity / Non profit	36%
Construction / Engineering	36%
Education	36%
Leisure	36%
Healthcare	31%
Pharmaceuticals	26%

## Time to market – better than competitors

Sector	
Technology	43%
Leisure	39%
Manufacturing / Automotive	39%
Telecommunications	39%
Broadcast / Media	36%
Business / Professional Services	35%
Pharmaceuticals	34%
Global average	34%
Financial Services	32%
Oil & Gas	32%
Power & Utilities	32%
Retail / Consumer Goods	32%
Global average	32%
Construction / Engineering	30%
Transport / Logistics	30%
Education	28%
Healthcare	27%
Charity / Non profit	24%
Government	22%

## Major cyber attack in last 2 years

Sector	
Telecommunications	44%
Transport / Logistics	40%
Leisure	39%
Broadcast / Media	38%
Construction / Engineering	38%
Education	37%
Manufacturing / Automotive	35%
Pharmaceuticals	35%
Government	34%
Healthcare	33%
Retail / Consumer Goods	33%
Global average	32%
Oil & Gas	31%
Power & Utilities	31%
Financial Services	30%
Business / Professional Services	27%
Technology	26%
Charity / Non profit	21%



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