



THE CREATIVE CIO

HARVEY NASH / KPMG
CIO SURVEY 2016

**HARVEY
NASH**

The Power of Talent

KPMG

THE CREATIVE CIO

If there was just one message this year's report accentuates, it would be how the CIO role is fundamentally changing.

Backed by the wave of the digital revolution, and a board increasingly seeing technology as a means of protecting the business and outflanking competitors, we are seeing the CIO role evolving to that of transformational business leader, technology strategist and business model innovator.

At the same time we report that 'old' operational priorities still remain very significant, indeed in areas like security the challenges appear to have intensified. CIOs know that no amount of outward looking is going to help them explain to the board why internally their IT infrastructure is not fit for purpose, or why their organisation's cherished reputation has been damaged by a cyber attack.

But through this balance of old and new a clear message appears. The IT leaders who are succeeding are using their knowledge and skills in ways they never have before. New technologies, new relationships within the business and even new business models are all requiring the CIO to shift away from an 'operational' mindset to a 'creative' mindset.

It is surely an indication of just how influential, and ambitious, IT leaders have become that almost half do not plan to be CIOs in five years' time. They are now setting their sights beyond IT, many expecting to join boards hungry for their digital skills.

It is a very good time to be a CIO, especially a creative one.



Albert Ellis, ACA CA(SA)
*Chief Executive
Harvey Nash Group*



Lisa Heneghan
*Global CIO Advisory
Service Network Lead,
KPMG International*

About the Survey

The 2016 Harvey Nash / KPMG CIO Survey is the largest IT leadership survey in the world in terms of number of respondents. The survey of 3,352 CIOs and technology leaders was conducted between December 12, 2015 and April 10, 2016, across 82 countries.



CONTENTS

The Harvey Nash / KPMG CIO Survey is the world's largest IT leadership survey. For over 18 years it has been covering the issues that matter to technology leaders; from board priorities, to technology strategy, to careers.

www.hnkpmgciosurvey.com

THE CIO SURVEY INFOGRAPHIC

Key data from this year's report.

04

EXECUTIVE SUMMARY

Dr. Jonathan Mitchell, Harvey Nash, gives his perspective on the survey.

06

HOW THE CIO ROLE IS CHANGING

From 'operator' to 'creator', how the IT leader role is evolving.

08

GLOBAL RESULTS

12

CIO operational priorities

This year's CIO Survey reveals seismic shifts in what the CIO is being asked to do by the board. And the CIO role is changing as a result.

18

People, skills and talent

As the CIO role becomes more influential, so does the CIO's team. But challenges are ahead as a talent shortage is growing.

23

Dealing with digital

More organisations have digital strategies than ever before. Where is the disruption coming from, and how are organisations dealing with it?

31

Managing the technology function

From outsourcing to cloud, from innovation to agility, how are technology functions changing?

40

CIO careers

What are the career plans and aspirations from IT leaders across the world? And just how happy are IT leaders?

SPECIAL REPORT: THE CIO IN THE FOURTH INDUSTRIAL REVOLUTION, KPMG



Adam Woodhouse, Director, CIO Advisory, KPMG in the UK, places the changing role of the CIO in the context of wider changes in the world.

29

SPECIAL REPORT: CIOs – A CAREER CHOICE AHEAD? MIT CISR



Stephanie L. Woerner and Peter Weill, from the Massachusetts Institute of Technology Center for Information Systems Research, look at how the CIO role is changing

48

52

REGIONAL LEAGUE TABLES

We compare 26 countries across key data from the CIO Survey. How does your country compare?

CIO PRIORITIES

INFLUENCE OF IT LEADERS IS GROWING

34%

of CIOs **report to the CEO**.
Largest proportion in the Survey's history

57%

of CIOs now **sit on executive board** or senior leadership committee – **up by half over 11 years**

67%

of CIOs expect **the strategic influence of the CIO role to grow** in 2016

Total number of respondents:

3,352

PRIORITIES ARE CHANGING

Old priorities are declining. Nine out of the top ten priorities have decreased in importance

The only priority to increase was better engagement with customers – up 15% since 2013

Long tail of 'other' priorities:
four in ten CIOs now spend at least **one day per week outside IT**

CEO focus:

IT projects that **SAVE** money **37%**



IT projects that **MAKE** money **63%**

PEOPLE, SKILLS AND TALENT

65% report skills shortage holding them back, *up from 59% last year*

44% expect to increase team size next year, compounding the issue

TALENT RETENTION A CONCERN

89% of CIOs are concerned about talent retention

Smaller organisations report their culture gives them a **competitive advantage**

Female representation in IT getting better, but still poor



9%
2016

of senior IT leadership are women, *up from 6% last year*

11% of all survey respondents are women, *compared to 8% last year*

THE CREW

ACTIVE CIO

DEALING WITH DIGITAL

MORE ORGANISATIONS HAVE DIGITAL STRATEGIES

35% have developed an **enterprise-wide digital strategy**, up from 27% last year

SOURCE OF DIGITAL DISRUPTION

27% of disruption is down to new digital innovations in product/service delivery

23% of disruption is down to new forms of customer engagement

CHIEF DIGITAL OFFICER CONTINUES TO GROW, BUT PACE IS SLOWED



One in five organisations (19%) **employ a CDO**

This is up from 17% in 2015, but a much slower growth than witnessed in 2014/15 (7% to 17%)

MANAGING THE TECHNOLOGY FUNCTION

INVESTMENT IN CLOUD GROWING



31% investing significantly in **SaaS** this year

CYBER RISK GROWING



28% of CIOs have had to respond to a **major IT security threat** or cyber attack in past two years

22% are **very confident risks are covered**, down from 29% in 2014. **66%** are **quite confident**

SHAPE OF THE TECHNOLOGY FUNCTION IS CHANGING

IT budgets are increasing for **45%** of CIOs

50% of CIOs will **increase investment in outsourcing** this year, up 9% from 2015

10% of CIOs report **more than half of the IT spend controlled outside IT**, almost double the rate in 2013

CIO CAREERS

CIOs ARE ON THE MOVE

15% of CIOs **moved job last year**, up by a quarter on previous year

31% of CIOs have been in their current role for **less than two years**

But **21%** of CIOs have been in post with their current employers for a **decade or more**

WHERE ARE THE HAPPIEST CIOs?



84% of CIOs report they are **'fulfilled' or 'very fulfilled'** in their role

The **happiest** CIOs can be found in the **Charity and Non-Profit sector** (91% fulfilled)

34% of CIOs benefited from an **increase in base salary** last year, up 10% on 2015

EXECUTIVE SUMMARY



Once again, thousands of CIOs and IT leaders from all over the world have given their valuable time to respond to the Harvey Nash / KPMG CIO Survey. The survey is now firmly established as the largest poll of its kind in the world. It charts trends in the industry as well as providing unrivalled insight into

the thoughts of influential leaders. This year we are delighted that the world-class Center for Information Systems Research at the Massachusetts Institute of Technology has joined Harvey Nash and KPMG.

There is little doubt that our industry is changing rapidly. In the last two years, IT leaders have become newly invigorated. The days of budget cuts and staff losses are well behind us. New challenges such as 'digital' have emerged. Was this yet another technology fad? No, was the resounding response from last year's respondents. Digital is most definitely real and it is changing the way in which everyone thinks about IT. CIOs are experimenting with innovative apps and some are even changing long-established core business models. Everyone it seems is now focused on finding ways to give their organisation an edge in an increasingly challenging business world.

CIOs are becoming more strategic and outward focused

The CIO has never been more relevant or influential. Participation at the most senior level of decision-making is at an all-time high. Many respondents report that they are also spending increasing amounts of time with external stakeholders. Organisations are seeing the role of the CIO change from the 'purveyor of technology' to the 'agent of change' for the enterprise. IT organisations have largely cracked the problem of service quality and reliability, freeing up their leaders to take a wider role.

CIOs are increasingly 'creating' rather than 'operating'

This year we see a marked shift away from operational priorities. Hints of this in previous surveys have now developed into a strong and clear

trend. CIOs tell us that they are exploring ways of creating innovative methods of working. Some now strongly emphasise the importance of nurturing relationships both with their C-level peers and outwards to suppliers and customers.

We believe CIOs are starting to see their value to the organisation differently. Recent 'turf-wars', for example over who 'owns' digital, have largely receded. Respondents report that CMOs, CIOs and new CDOs (Chief Digital Officers) are collaborating more effectively. The creative CIO can now step out of the shadows and lead the changes.

Digital is here to stay and it is changing the way we think about IT

At a number of our launch events last year, some questioned whether the concept of digital was going to turn out to be just another passing fad. This year's results suggest this is emphatically not the case. Indeed we may be on the cusp of a new Information Age. The relentless march of smart-phones and tablets means that 'always on' technology has become ubiquitous all over the world. Much has been written about digital game-changers such as Uber, but leaders are telling us that digital innovation is deeper and more extensive.

We learned that there is a vast infrastructure of projects which are making a myriad of incremental changes to operations and even to core business models. Collectively these pack a massive digital punch. And digital isn't just a private sector phenomenon. Demand from the public who see themselves as consumers will see to that. Last year we explored how companies were responding to the digital challenge. Few organisations thought they were ahead of the curve. However, we discovered that the visionaries who had a clear enterprise-wide strategy seemed to be outperforming their peers. And now the pack is following. Many more organisations are taking a mature, company-wide approach in how they deal with digital challenges.

Big data has become a bigger thing

In the 2014 survey we saw a shift in priorities towards big data, which became a surge in 2015. This year, big data is firmly in the centre of the headlines. At the World Economic Forum at Davos this year, for example, there was a major debate as to how organisations can respond to the big data

challenge. This is clearly creating stresses. Data analytics was the most in-demand technology for the second year running.

Nearly 40 per cent of IT leaders tell us that they suffer from skills shortfalls in this area. We think that big data and digital are closely entwined. As organisations increasingly use digital platforms to reach their customers in new ways, data volumes are rising at a spectacular pace. We think that those who understand what they need to collect and what they should do with this data are going to be the big winners in the years ahead.

Skills and talent retention challenges are once again a thorn in the side of IT leaders

The proportion of CIOs and IT leaders reporting skills shortages has risen to the highest level since the Great Recession. This year, 65 per cent tell us that a lack of talent will prevent them keeping up with the pace of change – 10 per cent more than last year. But the shortfalls are asymmetric in nature. CIOs in Asia-Pacific, for example, are significantly more worried about skills shortages compared to their European and North American counterparts. Unsurprisingly, big data and analytics have moved further ahead as their major areas of concern. Forty per cent of all IT leaders feel pressure in this area.

Meanwhile, long-suffering architects can breathe a sigh of relief. After seeing falling demand for their skill-set in the last couple of years, the balance is shifting back. Architects are now much more sought after with significantly more demand, particularly for technical and security specialists.

Cyber security just isn't going to get any easier

Last year we reported the positive message that many CIOs felt that their boards understood the challenges of cyber attacks. Following feedback from CIOs at the launch events, we asked some further questions this year. The results show that IT leaders see security as an escalating challenge. Nearly a third reported that they had to respond to a major security incident in the last two years. Organised cyber crime is at the top of this list – nearly seven in ten felt that this was their biggest threat. Amateur hackers came a distant second, with malicious insiders an even more distant third. Encouragingly, few CIOs felt that their competitors were out to hack them. However, on the world stage a sinister message has emerged.

Nearly three in ten leaders are very concerned about the actions of foreign powers. The outlook is unsurprisingly one of caution. The proportion of IT leaders who believe that their organisation is very well prepared to identify and respond to cyber attacks continues to fall. Only a fifth felt confident compared to nearly a third in 2014.

Diversity surges past a new milestone

And finally, we are thrilled to be able to report that all the efforts of organisations to address their gender imbalance seems at last to be bearing fruit. For years, the number of female respondents to the survey remained stubbornly low. This year we have seen a powerful surge in numbers. Eleven per cent of the respondents were female, breaching the 10 per cent barrier for the very first time in the survey's 18-year history. This represents an increase of 37 per cent compared to last year. We think that around 200 organisations have appointed more women into senior IT positions in the last two years. While we are starting from a low base, there is a clear direction of travel and hopefully the pace will continue to accelerate. We believe that women are increasingly seeing IT as an attractive career option and that organisations are increasingly recruiting and developing their female professionals.

In summary, the IT landscape bears very little similarity to the barren wastelands of five years ago. The hopeful optimism that returned two years ago has turned out to be well founded. Budgets are growing, and many organisations are expending boundless amounts of energy looking for new ways to embrace the digital revolution enhancing the way they interact with customers, suppliers and all manner of stakeholders. A growing band of CIOs are even taking on a wider remit beyond their traditional role. Digital is exerting a pervasive and refreshing impact on the industry, which threatens to change the whole way we think about technology. And on the people side we are seeing moves towards a better gender balance in the industry. Indeed, the only constant element we have seen over the years in our industry is the relentlessness of change. And that is sure to continue.

Dr Jonathan Mitchell,
Non-Executive Chair, Global CIO Practice,
Harvey Nash

HOW THE CIO ROLE IS CHANGING

NEW RELATIONSHIPS

34% now have the **CEO as their boss**

19% have a **CDO as a colleague**
(most new to their job in last two years)

84% do not fully own digital strategy
and need to work with wide range of
other colleagues

4/10 have at least **10%** of the
organisation's technology **budget**
controlled outside IT

NEW PRIORITIES

CEO now prefers IT projects that **make money (63%)** *rather than save money (37%)*

4/10 CIOs now spend **at least one day per week** on tasks **unrelated to IT**

Biggest priority growth is in **customer engagement**

NEW PROFILE FOR THE CIO

Increasingly IT leaders are seeing themselves as **value drivers**

Two-thirds expect the **strategic influence** of the CIO **to grow**

55% believe their **career** in next five years will be **outside IT**, up from 48% last year





1. GLOBAL RESULTS

1.1 CIO OPERATIONAL PRIORITIES

This year's CIO Survey has two stories to tell on what the board is asking IT leaders to do. Firstly, although three of the top four priorities (operational efficiencies, stable IT and saving costs) have remained top concerns since we started tracking these factors ten years ago, it is these very same factors that have seen some of the biggest drops in importance over the last four years. The priorities that have either grown, or through staying relatively stable become more prominent on our league table, are all outward facing: better engagement with customers, revenue growth and improving business processes. Cyber security was a new option this year.

Fewer CIOs focused on core IT priorities; suggests wider range of responsibility

	2016	2015	2014	2013	Change since 2013
Increasing operational efficiencies	57%	61%	63%	68%	-16%
Improving business processes	56%	58%	60%	60%	-7%
Delivering consistent and stable IT performance to the business	51%	57%	59%	70%	-27%
Saving costs	50%	54%	57%	71%	-30%
Delivering business intelligence/analytics	44%	47%	41%	48%	-8%
Enabling business change	44%	48%	51%	53%	-17%
Developing innovative new products and services	41%	41%	41%	51%	-20%
Cyber security	41%	new in 2016			
Driving revenue growth	40%	42%	45%	42%	-5%
Better engagement with customers/prospects	38%	38%	36%	33%	15%
Managing operational risk and compliance	36%	39%	40%	41%	-12%
Improving time to market	26%	30%	29%	31%	-16%
Improving the success rate of projects	26%	29%	30%	36%	-28%
Outperforming competitors with new business models	23%	24%	23%	26%	-11%
Enabling mobile commerce	19%	22%	24%	33%	-42%
Driving synergies from mergers & acquisitions	12%	15%	17%	17%	-29%
Investing in social media platforms	7%	9%	10%	N/A	-30%
Reputation management via social media technology	7%	9%	8%	14%	-50%
Achieving sustainable/green IT	7%	8%	9%	9%	-22%

Table 1: What are the key priorities the board is looking for you to address?

The second story is more nuanced. Since 2013 every one of the priorities – with the exception of customer engagement – has become less important to the board. For instance, while operational efficiencies remains number one, the 57 per cent of IT leaders who selected this option was significantly less than the 68 per cent who selected it in 2013.

Does this decline in traditional priorities mean then that the CIO can relax a little, safe in the knowledge that the board is asking less of them? Not at all! What we are seeing is the development of a 'long tail' of other priorities. In the free text field of this question respondents listed an even wider range of additional priorities the board is asking them to address, including: automation, counter-terrorism, artificial intelligence, dealing with regulation and improving agility. CIO responsibilities seem to be spilling out of their traditional technology remit.

What keeps you awake at night?



Katie Docherty,
CIO, HSBC Bank
Australia Limited,
Sydney

For me, personally, security is front of mind with the growing threat of cyber attacks. The threats are becoming far more complex and the methods of delivery more targeted, particularly with the rise in spear phishing campaigns.



Steve Homan,
CIO, Daily Mail Group,
London

I lose sleep over the pace at which the business is prepared to change. It's a constant battle between being there to support and make it happen at a pace everyone is comfortable with and wanting to spend my day standing on a desk screaming "faster, faster". I generally go for the former but the mad man does occasionally appear!



Rachel Glickman,
Chief Digital Officer,
Playbill Incorporated,
New York City

Working for a 135-year-old company that is rooted in print media and steeped in tradition, the single greatest challenge is navigating the transition to an omnichannel brand marketing organisation.

CIO strategic influence

With responsibilities ranging beyond the core IT organisation for a number of CIOs, especially at smaller organisations, it is perhaps understandable that two-thirds (67 per cent) of respondents expect the strategic influence of the CIO role to grow in 2016. This growing executive relevance is in line with trends seen over recent years as the role has evolved.

The proportion of CIOs now occupying a seat at the executive board or senior leadership committee is up significantly this year and is at its highest level in 11 years of tracking. Now almost six in ten IT leaders (57 per cent) are a member of the senior executive management team, compared to 51 per cent last year.

The CEO continues to be interested in IT projects that make money. Almost two-thirds (63 per cent) indicate this is a priority, compared to approximately one-third (37 per cent) who report that the CEO is more interested in IT predominantly being used as a cost-saving tool. This is virtually unchanged in the past four years. While the CIO is undoubtedly spending more time driving externally facing (and often revenue-generating) projects, it is also clear that much of the role is still rooted in cost management.

CIOs' strategic influence expected to continue growing as executive board participation surges

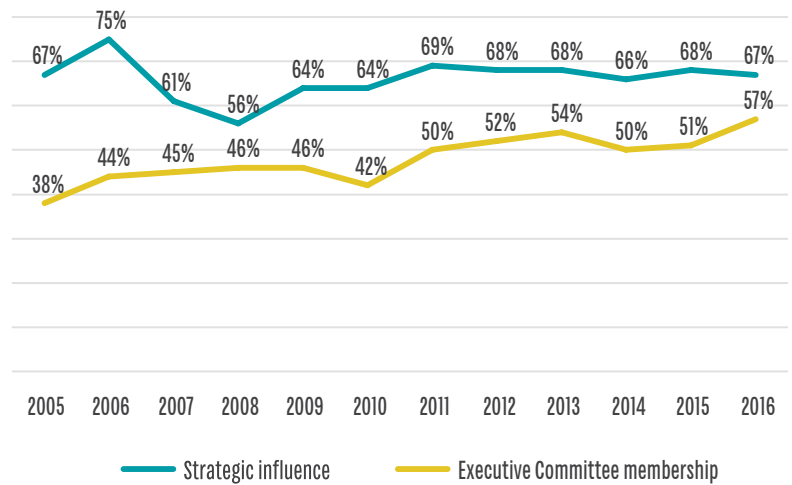


Chart 1: IT leaders who believe the CIO role is becoming more influential / IT leaders who are a member of the executive committee.

CEOs likely to advocate CIOs to spend more time on projects that make money

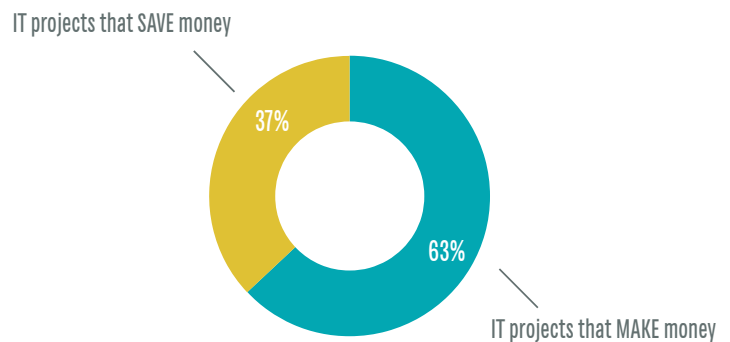


Chart 2: What type of IT project is most appealing to your CEO?

CIO reporting lines

The CIO is more likely to report directly to the CEO in 2016 than at any time in the past. Thirty-four per cent of CIOs report to the top executive, up 10 per cent on last year. Fewer CIOs are now reporting to the CFO (down 20 per cent on previous years).

This closer working relationship between the CEO and CIO is probably a contributor to the growing strategic influence and participation in senior decision-making that the CIO is reporting, as well as a widening portfolio of responsibility both within the core IT organisation and beyond. As we will see throughout the 2016 CIO Survey report, the ability to establish and nurture effective relationships is now becoming centrally important to the ability of the CIO to perform their expanding duties, as well as helping them develop their career.

Women in IT leadership roles

There has been an encouraging increase in the proportion of women in IT who are responding to the survey, as well as the proportion of those women who hold a senior IT leadership position (CIO, CTO, Vice President). Although there remains a long way to go in the pursuit of equal representation of gender in the sector, the response from 2016 is a hopeful indicator of further progress in future.

CIO more likely to report to CEO compared to previous years

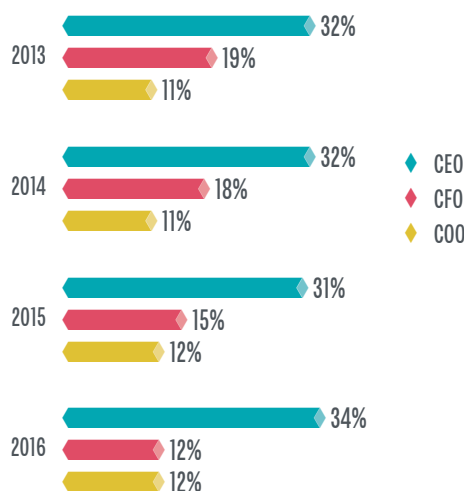


Chart 3: Who do you report to?

More than one in ten respondents were women, for the first time

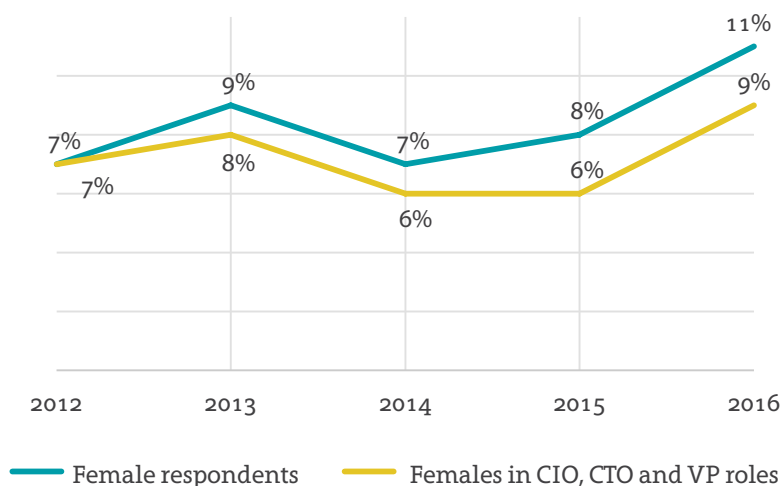


Chart 4: What is your gender? Female.

CIO relationships

The proportion of IT leaders who rate their department's relationship as 'very strong' with other business functions is marginally declining. The operations function is still the IT department's best friend; 61 per cent of IT leaders rate the cooperation with operations highly, down from 64 per cent last year. Less than half of respondents now rate the technology function's relationship with finance as 'very strong'. The connection with the sales team has also cooled, down 12 per cent in two years. IT and marketing relations appear to be in stasis, essentially unchanged this year. It appears difficult for the IT department to be truly loved by colleagues in other departments.

Reporting to the CEO can enhance the CIO's ability to develop 'very strong' relationships for the technology function with other business functions. The relationship that benefits most from the IT leader reporting to the CEO is with marketing, 25 per cent better in fact. Sales rapport also shows a 19 per cent improvement with the influence of the CEO reporting line. The relationships that don't improve with the IT leader reporting to the CEO are with finance and legal/compliance.

More work needed to maintain 'Very Strong' relationships

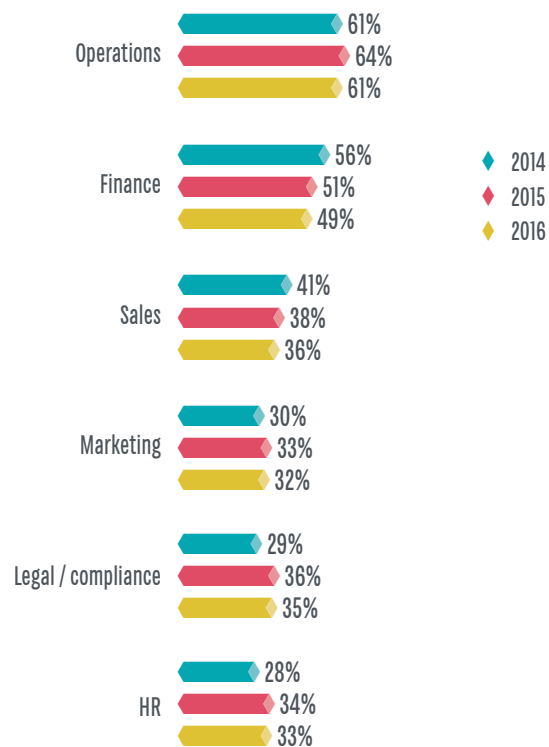


Chart 5: How strong would you rate your department's relationship with the following business functions: 'Very Strong'

CIO becomes more effective at relationship building with CEO reporting

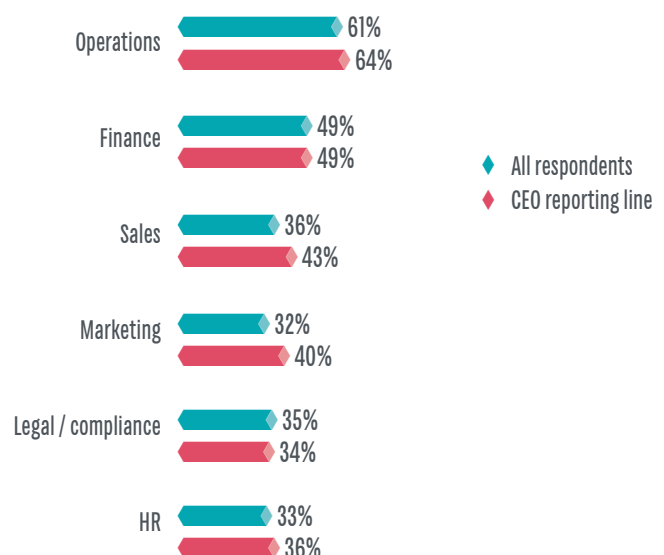


Chart 6: Rate your department's relationship 'very strong' with the following business functions. CEO reporting line.

When asked to estimate what proportion of their time they dedicated to core IT activities, a majority of IT leaders said they would spend between 30 and 50 per cent of their time managing the IT organisation and its people (see red cells in table below for the highest concentration; red/yellow indicates where over half of respondents are clustered). Asked how much time they invested in working with non-IT colleagues on issues such as business strategy the majority indicated it was 20–30 per cent of their time.

CIOs more likely to be focused on wider range of internal priorities than external

% IT leaders	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Managing the IT organisation and its people	1.9	8.6	15	19.2	18.6	15.3	11.9	6.6	1.7	1	0.3
Working with non-IT colleagues to address business strategy	0.9	13	30.1	30.8	15	6.8	2.4	1	0.2	0.1	0.1
Meeting with the company's external customers	11	46	25.9	10.1	3.3	2.1	1	0.7	0.2	0.1	0.1
Managing areas not traditionally in IT	9.9	45	27.8	11	3.6	1.7	0.6	0.3	0.2	0.2	0.1

Table 2: Over the last 12 months, estimate the percentage of time you dedicated to the following activities.

CIOs from smaller organisations are more likely to spend an above-average proportion of their time meeting external stakeholders.

CIOs at smaller organisations more evenly split between internal and external

% IT leaders	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Managing the IT organisation and its people	3.7	20	18.9	19.6	13.2	11	6.7	5.7	1	0.2	0.2
Working with non-IT colleagues to address business strategy	2.5	16	35.5	23.9	11.5	6	3	1	0.2	0.2	0
Meeting with the company's external customers	5.3	33	26.8	16.5	7.3	5	3	2	0.5	0.2	0
Managing areas not traditionally in IT	6.1	41	30.9	11.8	6.7	2	1	0.2	0.2	0.2	0

Table 3: Over the last 12 months, estimate the percentage of time you dedicated to the following activities. Organisation <100 employees.

IT leaders at larger organisations will likely spend up to 50 per cent of their time operating internally, managing the IT organisation, and less time looking out beyond the organisation meeting external stakeholders.

CIOs at larger organisations more focused on managing core IT function

% IT leaders	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Managing the IT organisation and its people	1.7	5.5	15	18.4	16.4	16.9	14.7	7.8	1.2	1.7	0.7
Working with non-IT colleagues to address business strategy	0.6	12	26.6	33	15.4	7.3	3.6	0.7	0.2	0.1	0.1
Meeting with the company's external customers	35	37	18.4	6.2	2.5	0.9	0.5	0.3	0	0	0
Managing areas not traditionally in IT	13	46	26.7	9.2	3.1	1.3	0.4	0.1	0.1	0	0

Table 4: Over the last 12 months, estimate the percentage of time you dedicated to the following activities. Organisation >5000 employees.

Project performance

Compared to previous years, project success rates are declining, although infrastructure projects continue to be a bright spot. Last year seven in ten IT leaders (70 per cent) reported successful outcomes with infrastructure projects. External and customer-facing projects such as website and mobile app design are seeing strong success rates for approximately six in ten. However, offshoring remains challenging, with only 42 per cent of respondents reporting success outsourcing functions overseas.

Even with projects where IT leaders are most confident – infrastructure roll-outs – there has been a 12.5 per cent drop in successful outcomes during the past three years. The biggest one-year drop is for digital marketing systems, with 11 per cent fewer CIOs reporting success in the past 12 months. Projects are never easy and it seems that the new demands on the IT function are exacerbating an already fragile situation.

Infrastructure projects most successful; offshoring remains most challenging

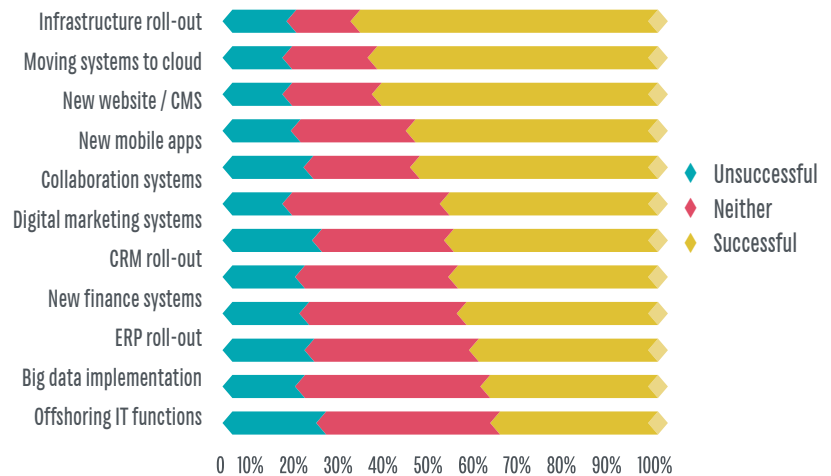


Chart 7: For those projects completed during the last TWO YEARS, indicate how successful you feel the project was.

Successful project outcomes falling in past 12 months

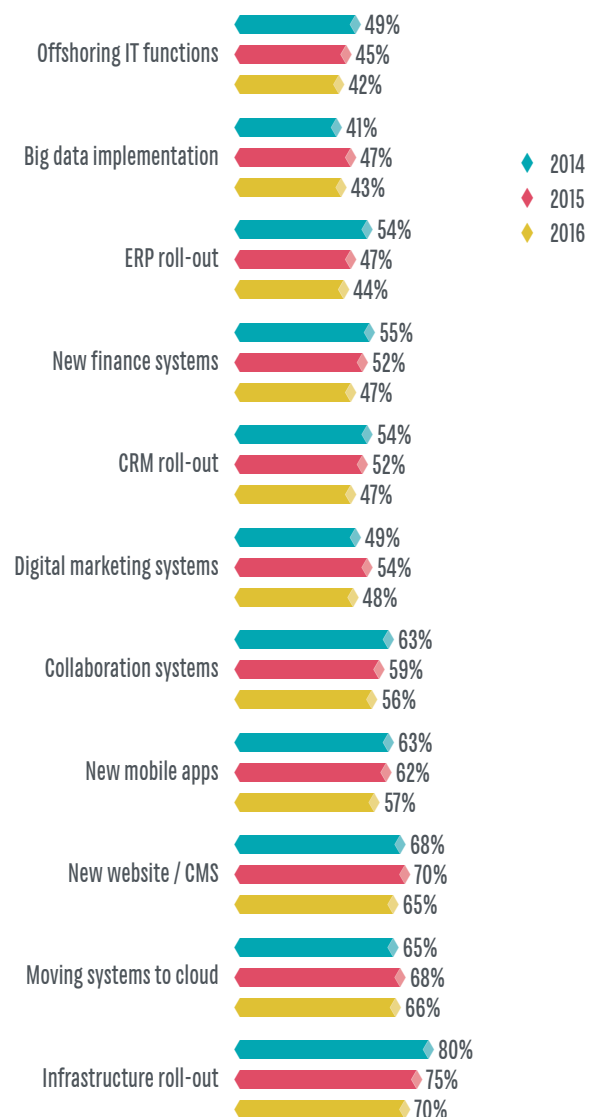


Chart 8: 2014–2016 'Successful' project outcomes completed during the last two years.

1.2 PEOPLE, SKILLS AND TALENT

Technology skill shortages

The proportion of IT leaders reporting a technology skills shortage has risen to the highest level since the Great Recession almost a decade ago. Almost two-thirds (65 per cent) believe a lack of talent will prevent their organisation from keeping up with the pace of change, up 10 per cent in 12 months.

The technology skills shortage is felt most by IT leaders in Asia-Pacific (APAC), with almost seven in ten (69 per cent) reporting insufficient talent to achieve their objectives. For both Europe and the US, the proportion reporting a skills shortage is 64 per cent, marginally below the global average.

Growth organisations – where CIOs are operating with an increased IT budget compared to last year – are more likely to be impacted by the technology skills shortage; 67 per cent of these IT leaders report a talent gap compared to the average (65 per cent).

Skills shortage at highest level since Great Recession

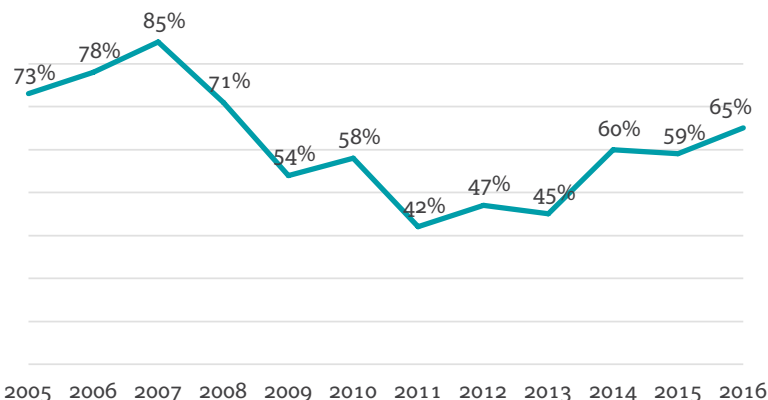


Chart 9: 2005-2016 proportion of IT leaders reporting technology skills shortage

APAC is most affected region for technology skills shortage



Chart 10: Does a skills shortage prevent your organisation from keeping up with the pace of change?

What makes someone in your team 'great' rather than just 'good'?



Craig Cuyar,
Global CIO, Omnicom,
New York City

I always tell people you need to have aptitude and desire. I've seen a number of people who have the desire needed to be something different, but don't have the aptitude. And I've seen people with the aptitude, but they have become complacent. They don't have desire. These individuals are 'good' at what they do but will never achieve greatness without both qualities.



Rachel Glickman,
Chief Digital Officer,
Playbill Incorporated,
New York City

The nature of the technology landscape presents varied and complex challenges. The great employee is biased toward and actively engages in problem solving regardless of whether all of the assets required to resolve the issues are directly within their control. In fact, by going beyond the strict borders of their area of responsibility to engage a diverse set of stakeholders they can not only bring the issue to a swift, mutually beneficial resolution, but build a collaborative highly productive culture.



Hans Fabian,
CIO, SCHUFA Holding
AG, Wiesbaden

I have a wonderful team. They all are good, some are great. Great people challenge me a lot. They break rules – wisely. They act rather than ask – wisely. But they know when it's showtime. They are not scared to make mistakes, because they see them as input for new ideas. They make IT and hence the company successful.

Technology skill demands

The most in-demand technology skill for the second year running is data analytics. Four in ten IT leaders (39 per cent) believe their organisation is suffering a skills shortage in this area. The next most in-demand technology skill remains project management (32 per cent), however, this is down compared to 2015. Security and resilience skills are also in greater demand in 2016 – one in four IT leaders (27 per cent) are experiencing a skills shortage – as well as technical architects (also 27 per cent). IT strategy skills (24 per cent) and digital skills (23 per cent) are being sought by a quarter of respondents and demand is growing.

IT leaders at larger organisations are more likely to be seeking data analytic, digital and enterprise architecture skills, whereas their peers at smaller firms are less likely to feel those skills are in short supply.

Data analysis remain most in-demand skill for second year in a row

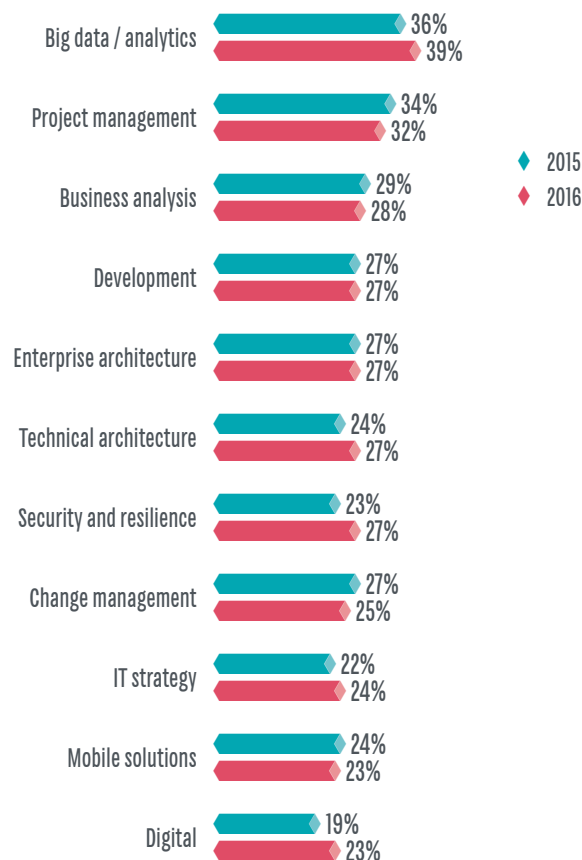


Chart 11: Which functions do you feel suffer from a skills shortage?

Larger organisations show greater demand for data analytics and digital skills

	2016 Av	Larger Org	Smaller Org
Big data/analytics	39%	46%	34%
Project management	32%	33%	29%
Business analysis	28%	27%	27%
Development	27%	23%	32%
Enterprise architecture	27%	33%	21%
Technical architecture	27%	30%	25%
Security and resilience	27%	28%	24%
Change management	25%	27%	21%
IT strategy	24%	27%	22%
Mobile solutions	23%	24%	20%
Digital	23%	29%	17%
Business relationship management	18%	20%	16%
Testing	17%	13%	21%
Infrastructure/operations	17%	17%	17%
ERP	13%	12%	10%
Service management	12%	15%	10%
Social media	12%	12%	13%
Compliance	9%	8%	9%
Outsourcing	8%	10%	7%

Table 5: Which functions do you feel suffer from a skills shortage? By org. size where smaller <500 and larger >5000 employees. Highlighted = 3%+/- av.

Headcount

The proportion of IT leaders who plan to increase their technology headcount remains at its previous high mark; 44 per cent intend to grow their teams in 2016. This continues the positive trend identified during the past half-decade.

However, despite the positive growth plans, for many CIOs the retention of talent remains a concern. As in previous years, nearly nine in ten IT leaders (89 per cent) have 'some' or 'great' concern about holding onto their best staff.

We asked CIOs whether they felt the culture of their organisation made it easier or harder to attract and retain the best talent. It seems that small is beautiful, at least when it comes to retaining staff. IT leaders in smaller companies and ones with growing technology budgets were more likely than average to feel it was easier (46 per cent and 48 per cent respectively).

Organisations with no formal diversity programme are less likely (36 per cent) than the global average (39 per cent) to benefit from a culture that retains talent. Larger organisations also have a below-average (36 per cent) likelihood of retaining staff.

CIOs continue to grow their teams

	2011	2012	2013	2014	2015	2016
Increase	41%	40%	41%	43%	44%	44%
Decrease	16%	19%	19%	20%	17%	17%
Stay the same	43%	41%	39%	37%	38%	39%

Table 6: 2011–2016: Over the next year how do you expect your IT/technology headcount to change?

CIOs at smaller organisations and growing technology spend most

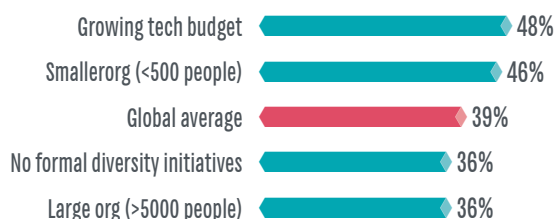


Chart 12: Does the culture of your organisation make it easier or harder to attract and retain the right talent? Easier.

Talent retention

Technology companies are best positioned to take advantage of their organisation's culture as part of their talent retention strategy; 50 per cent of IT leaders at tech firms believe their culture makes it easier to retain talent. More than four in ten IT leaders in the professional services, pharmaceuticals, broadcast media, advertising and financial services sectors consider their organisational culture a contributor to staff retention. However, respondents in government are half as likely to recognise the value of their organisational culture in retaining talent compared to IT leaders at firms near the top end of the range.

Technology companies most likely to have a culture that attracts top talent

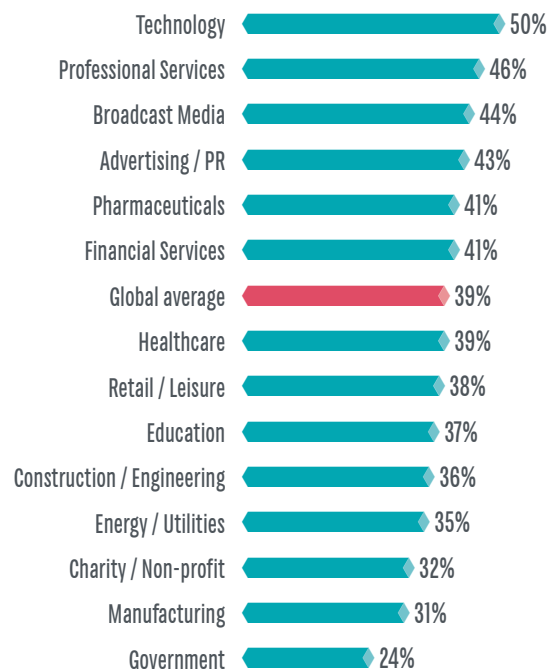


Chart 13: Does the culture of your organisation make it easier or harder to attract and retain the right talent? Easier.

A third of IT leaders (33 per cent) have a formal diversity initiative in operation, and a further 23 per cent have plans for formal initiatives in future.

More than four in ten IT leaders have no plans to formally advance diversity initiatives

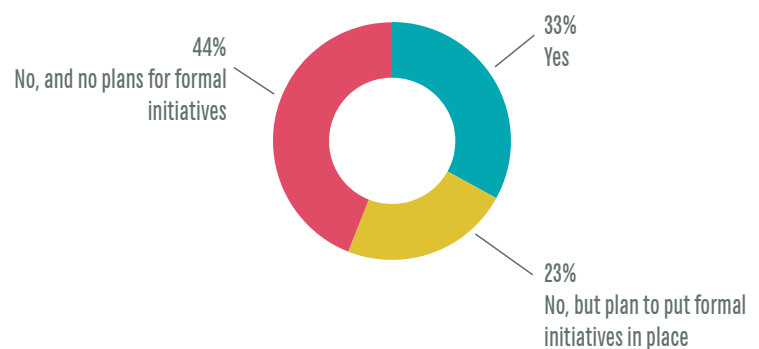


Chart 14: Are you formally promoting a more diverse team?

Full-time versus contingent labour

A significant majority of IT leaders continue to staff their technology teams predominantly with full-time employees on permanent contracts. Only one in ten (12 per cent) sourced half or more of their staff from flexible or contingent contracts.

However, there does appear to be a small but steady growth in the number of IT leaders using flexible contingent labour for more than half of their technology team. Since 2011 this highly contingent-orientated community has grown by 33 per cent. IT leaders have been increasingly looking at outsourcing as a means of accessing skills and capability compared to the more traditional view of outsourcing to save costs. As project demands grow, the contingent labour force is probably the fastest way to train people on board.

Seven per cent of IT leaders at smaller organisations will rely on contingent staff for more than three-quarters of their team, more than triple the rate for ones at larger organisations. However, peers at larger organisations are more likely to have a mixed team overall, with a higher propensity to use contingent labour to supply between 11 per cent and 75 per cent of their hires.

IT leaders in construction and engineering organisations, government agencies and healthcare companies are most likely to have increased their dependence on contingent technology labour during the past two years. Charity and non-profit, energy and utility, manufacturing and, to a lesser extent, tech sector respondents appear to be reducing their reliance on contingent staff between 2014 and 2016.

Large majority of IT leaders continue to prefer hiring full-time employees on permanent contracts

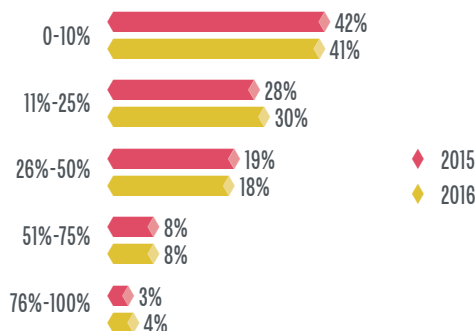


Chart 15: What proportion of your IT department is flexible/contingent labour?

Continued growth in proportion of CIOs dependent on flexible contingent labour

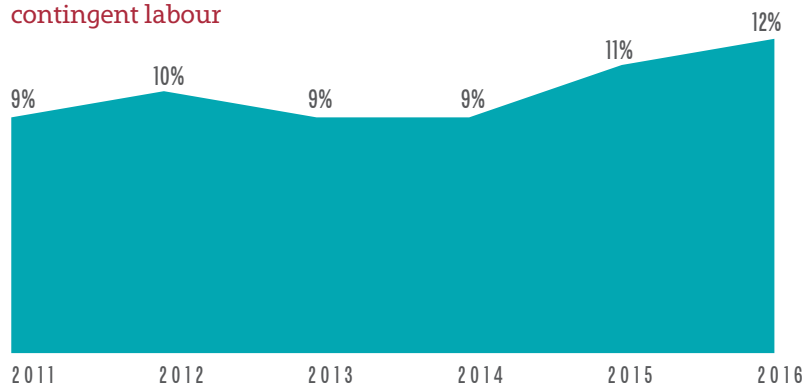


Chart 16: Proportion of IT leaders where more than 50% of IT department is flexible/contingent labour.

IT leaders at smaller organisations most reliant on contingent staff for more than 75% of team

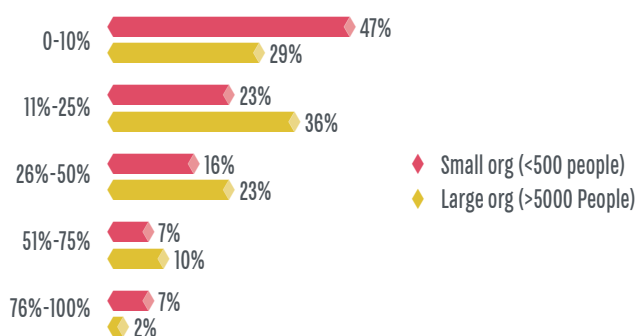


Chart 17: What proportion of your IT department is flexible/contingent labour?

1.3 DEALING WITH DIGITAL

Rapid growth in IT leaders deploying digital strategies enterprise-wide in 2016

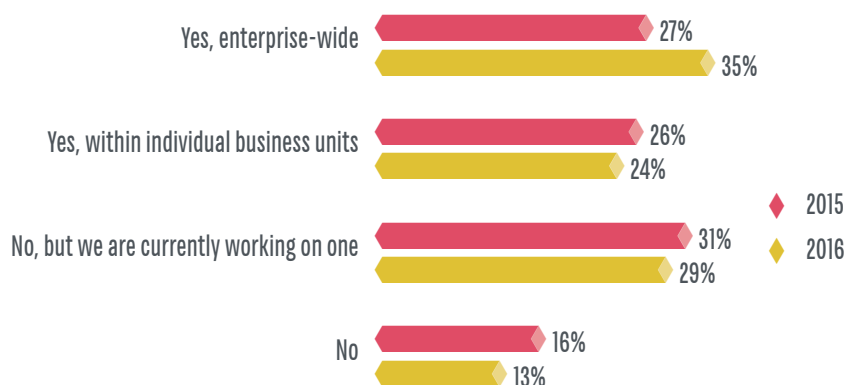


Chart 18: Do you have a formalised digital business strategy, which is actively being pursued?

In this section of the report we have segmented the survey population into three groups, each of which has displayed a distinctive approach to digital. These groups are: IT budgets of below \$100 million, IT budgets between \$100 and \$250 million, and IT budgets more than \$250 million.

Digital strategy

Over the past few years digital disruption has had a profound impact on the role that information technology plays in almost every type of organisation. New, entrepreneurial businesses without the baggage of existing information systems have been able to disrupt entire industries, including hospitality, taxi and entertainment with innovative business models, products and services. However, our recent surveys clearly demonstrate that organisations are seeking to

get a better handle on digital disruption. The number of IT leaders reporting an enterprise-wide digital business vision and strategy increased to 35 per cent, a 28 per cent jump from last year. An additional one in four (24 per cent) have digital strategies for individual business units. As digital increasingly becomes critical to businesses, only 13 per cent of respondents have no digital strategy and no plans for one.

If we look at the data based on IT budget size, IT leaders at organisations with IT budgets more than \$250 million are more likely to have implemented an enterprise-wide digital strategy – 43 per cent have already done so – compared to their peers with IT budgets between \$100 and \$250 million and below \$100 million, where only one third have done so.

What's the biggest barrier to innovation in your organisation?



John Brisco,
CIO & COO, Manulife
Asia, Hong Kong

Unleashing the potential of our staff in an environment where they can openly contribute, be encouraged to take risks and even 'fail fast', will be the genuine catalyst to evolving disruption and new innovations that our company can create.



Paul Tuxford,
CIO, The Global Fund,
Geneva

Innovations abound, however the challenge remains adoption and more specifically adoption at enterprise scale. It's relatively straightforward to get the technologies in place and stable, particularly with the advent of SaaS and PaaS, however mashing these into services that people love to use is much more difficult.



Steve Homan,
CIO, Daily Mail Group,
London

Passive resistance to change. Saying one thing and then not really doing anything about it and getting selective memory loss when asked about it. It holds back organisations more than anything else I have ever seen and is really based on fear. You just have to tempt and tease people to tell you their fears – when they are ready!

The sectors most likely to have embraced digital solutions are – perhaps unsurprisingly – advertising, broadcast media and technology firms. However, four in ten government IT leaders are also managing digital with an enterprise-wide strategy, 14 per cent above the global average.

What is perhaps most concerning is the lack of adoption of digital within the education sector, likely to be the source of the next generation of digital and technology innovators. Only 18 per cent of IT leaders in education organisations have an enterprise-wide approach to digital. Much of the current digital innovation around education is coming from the private sector.

Ownership of digital

As more organisations gain experience with digital and understand its strategic impact, ownership is migrating from a functional domain and tactical perspective to the executive level and a strategic perspective. Where in the past, digital ownership often resided within IT, marketing or shared by both, it is now firmly in the hands of senior executives.

C-suite executives now own digital strategy in 21 per cent of companies and if you combine it with ones where the board of directors is in control it swells to 37 per cent.

Education CIOs least likely to embrace digital strategy enterprise-wide

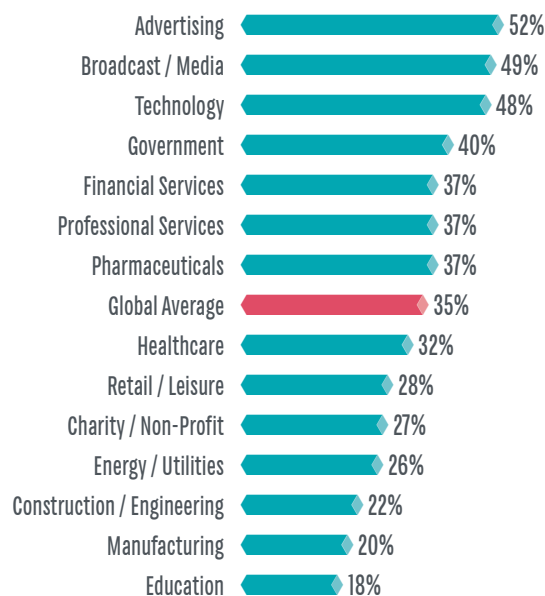


Chart 19: Do you have a formalised digital business strategy, which is actively being pursued? Yes, enterprise-wide.

Control of digital moves from tactical to strategic

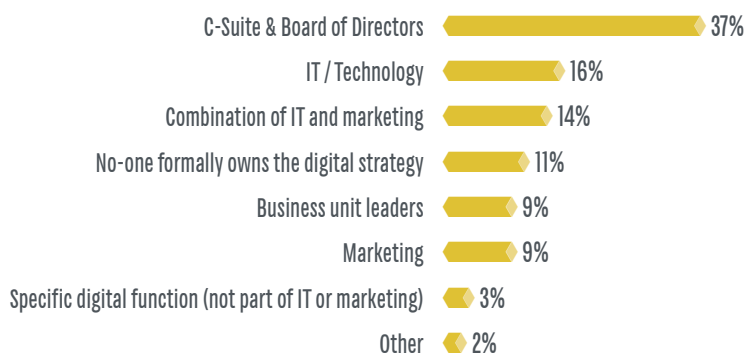


Chart 20: Which function 'owns' the digital strategy in your company?

The next most likely owner of digital is the IT/technology function (16 per cent) which is now almost twice as likely to 'own' digital as their marketing peers (9 per cent), while for 14 per cent of organisations there is combined IT and marketing ownership of digital. The exception is very large organisations (IT budgets above \$250 million) where business unit leaders are more likely to own digital strategy (16 per cent) versus IT (13 per cent).

What is really surprising is that more than one in ten IT leaders (11 per cent) reported that no-one formally owns the digital strategy where one exists.

Ownership of the digital strategy has been a contentious issue for CIOs in recent years, especially where technology is customer facing and the CMO is involved. Moreover, the emergence of the Chief Digital Officer has added complexity to digital influence and in many organisations the strategic reach of digital is viewed as bigger than either technology or marketing. As we reported in last year's survey, the most successful strategies often involve a great degree of collaboration across multiple functions.

The Chief Digital Officer

The emergence of the Chief Digital Officer as a distinct C-level executive has received a lot of media attention. This year's survey suggests that whilst the role continues to grow, it has not maintained the pace we reported last year, where it grew by almost 150 per cent from 2014. The existence of the CDO role is closely linked to IT budget size. Companies with IT budgets above \$100 million are twice as likely to have a CDO as those with IT budgets below \$100 million.

Likewise, when it comes to reporting relationships there is a big difference based on IT budget size. In highest spending organisations CDOs are slightly more likely to report to the CIO (32 per cent) than they are to the CEO (29 per cent). For the other firms the picture is quite different with almost half (49 per cent) of CDOs reporting directly to the CEO.

The sectors that have most aggressively embraced the Chief Digital Officer role are similar to those that have deployed enterprise-wide digital strategies. Almost half (43 per cent) of advertising organisations have a CDO in place, more than twice the global average, and three in ten broadcast and media organisations (30 per cent) employ a CDO.

However, whilst technology organisations were as likely as these sectors to have developed enterprise-wide digital strategies they lag their peers in employing a CDO. Only one in five (19 per cent) have done so to date, fewer than pharmaceuticals, financial services and government organisations. This is surprising, although may be a result of technology companies having a deeper bench of technical and digital talent employed in other roles that can undertake some duties a CDO would be asked to perform.

Chief Digital Officers now employed by one in five organisations

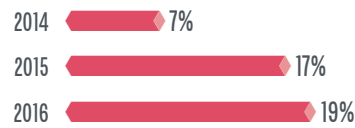


Chart 21: Does your organisation have a Chief Digital Officer or someone serving in that capacity? Yes.

CDO reporting is different based on IT budget size

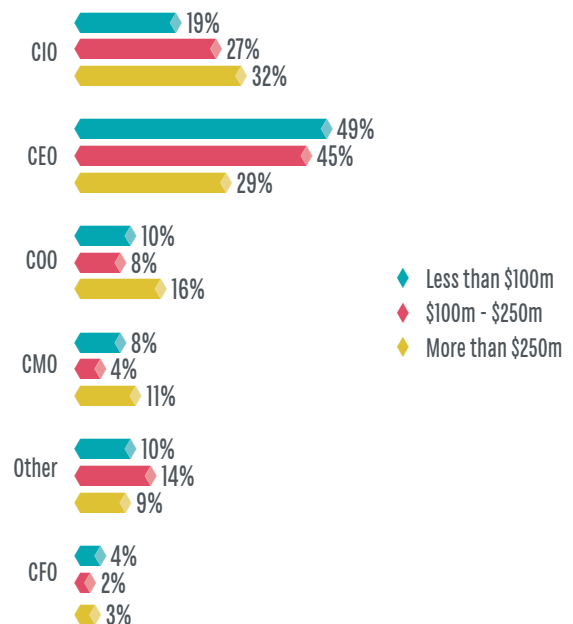


Chart 22: Who does the Chief Digital Officer report to?

Advertisers hire more CDOs than education, manufacturing and energy sectors combined

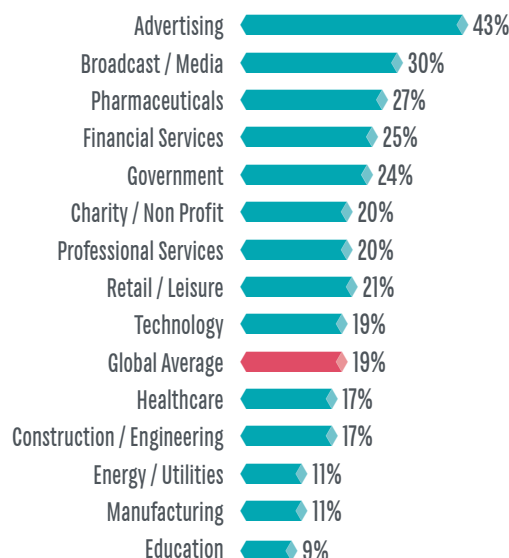


Chart 23: Does your organisation have a Chief Digital Officer or someone serving in that capacity? Yes.

Digital disruption

Digital disruption is seen as both a threat and an opportunity by many IT leaders. Three in ten CIOs (27 per cent) report that the primary source of disruption is currently by new digital innovations in product or service delivery within their sector. A quarter (23 per cent) indicate that digital disruption is driving new forms of customer engagement through mobile and social media channels as well as personalised marketing using data and analytics. However, 17 per cent of IT leaders admit to not knowing where digital disruption is coming from in their industries.

An even bigger threat to established organisations is disruption from new business models that can challenge them to their core and are much harder to overcome than new digital products or customer engagement channels. The survey indicates that 16 per cent of IT leaders report this type of disruption is already occurring.

CIOs are generally taking a broad approach to addressing demand for new digital capabilities. Approximately a quarter of IT leaders acquire digital skills by either hiring, developing those skills in-house, or partnering with other companies. A slightly smaller percentage of organisations (21 per cent) use contract labour with digital skills to augment their teams. Only a small number of organisations are acquiring digital companies for their skills and experience although companies with IT budgets between \$100 and \$250 million and above \$250 million are more than twice as likely (4 and 5 per cent respectively) to use this approach.

The source of disruption is unknown to 17 per cent of IT leaders

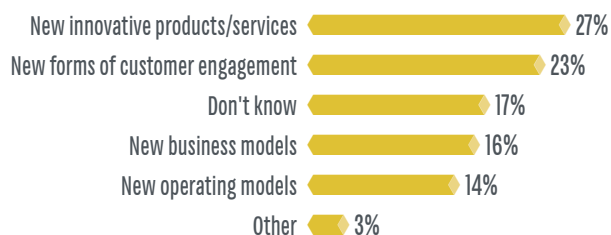


Chart 24: If you are currently experiencing digital disruption, what is the primary source of disruption?

Very few IT leaders (2 per cent) plan to acquire companies to enhance their digital capability

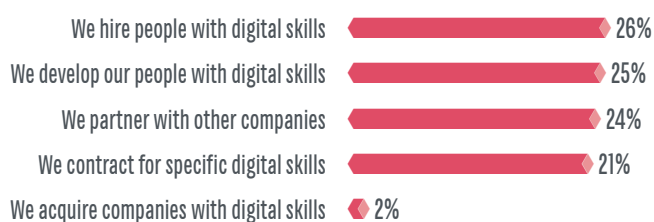


Chart 25: What is the primary method you use for coping with digital disruption?

Where is digital disruption happening?

While digital disruption is occurring in all sizes of organisation there is some variability in the source based on the size of IT budgets. Approximately three in ten CIOs in the largest organisations report new products and services as the leading source of disruption while ones with IT budgets of \$100m to \$250m are more impacted by new forms of customer engagement. Larger firms are also more likely to be impacted by disruption caused by new business models than smaller firms.

Digital engagement channels are harder for large organisations to respond to

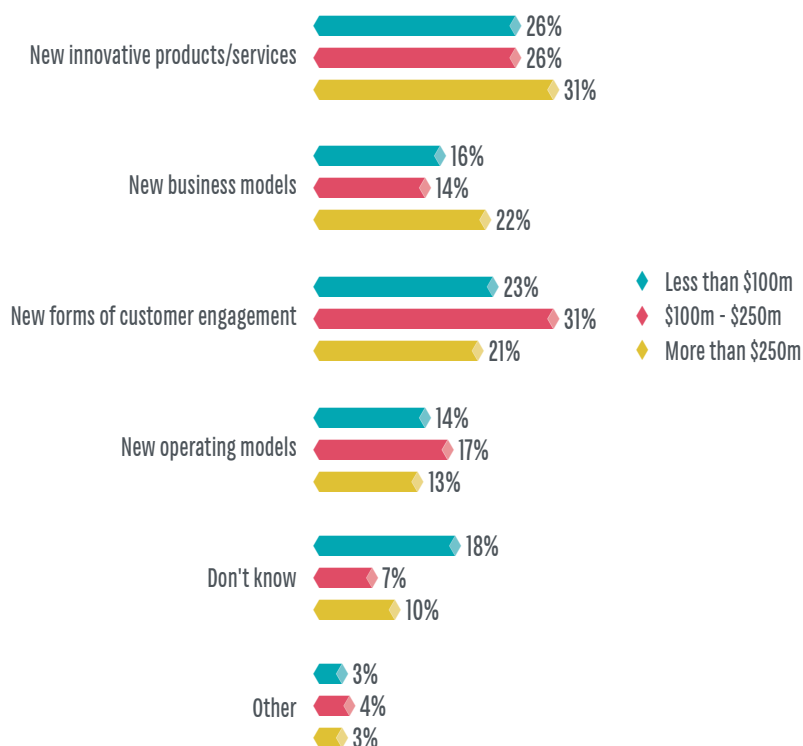


Chart 26: If you are currently experiencing digital disruption, what is the primary source of disruption? IT budget size.

IT leaders in the broadcast and media sector are more than twice as likely to be responding to the disruption of their entire business model as a result of digital as the global average. Over a third of IT leaders in this sector (35 per cent) report disruption of their business model, compared to 16 per cent globally.

A fifth of IT leaders in advertising (20 per cent) and technology organisations (21 per cent), professional services (19 per cent) and energy and utilities (18 per cent) are also having to adapt to disruption of their business models due to digital. IT leaders in non-profit organisations are, by far, the least likely to be experiencing digital disruption to their business model; only 5 per cent identified it as a challenge, three times lower than the global average.

CIOs in broadcast/media most likely by far to face digital disruption to their business model

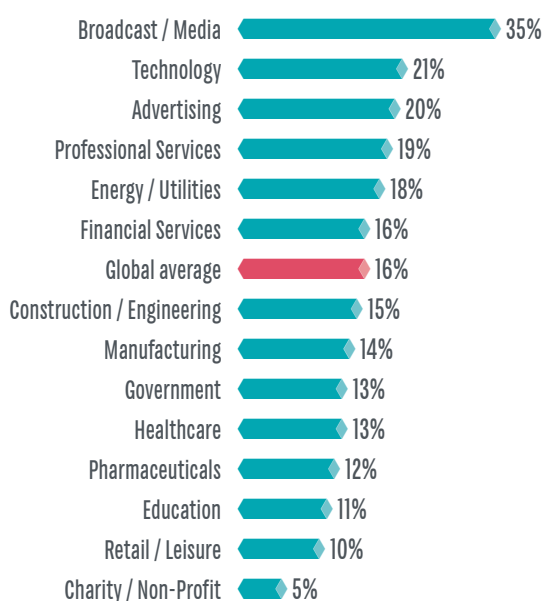


Chart 27: If you are currently experiencing digital disruption, what is the primary source of disruption? New business models.

www.hnkpmgciosurvey.com

The online home of the Harvey Nash / KPMG CIO Survey

EVENTS

Find out about our launch events across the world

DOWNLOAD

Get hold of the digital version of the report



DATA

Play with interactive charts

CIO VIEWPOINTS

Read the opinions of CIOs across the world

SPECIAL REPORT: THE CIO IN THE FOURTH INDUSTRIAL REVOLUTION, KPMG



We are at the cusp of the Fourth Industrial Revolution; societies have progressed from steam power to the division of labour to the IT and electronic age and most are now firmly in the era of datafication, hyper-connectivity and digital labour. The future offers CIOs the opportunity to be at the forefront of digital change, both driving it and responding to it with new technologies, delivery models and governance approaches.

Now we are seeing the emergence of a new phenomenon - what one might term the 'Creative CIO', who is characterised by being a transformational business leader, technology strategist and business model innovator. The focus has moved beyond 'keeping the lights on' to creating business value; harnessing the social and technical disruption all around, using resources dynamically, implementing innovative IT and business products and creating an environment that can better attract and retain talent.

Key findings from the 2016 CIO Survey

Digital has firmly found a place on the board and C-suite agendas - 35 per cent of respondents have an enterprise-wide digital vision and strategy, and 24 per cent have a defined digital strategy within business units. The board or C-suite executives own 36 per cent of these strategies and increasingly organisations are expecting their CIO to lead the delivery of the digital strategy.

What is the Fourth Industrial Revolution?

"The Fourth Industrial Revolution is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres." – Klaus Schwab, Founder and Executive Chairman of the World Economic Forum (2016).

In taking this lead, the Creative CIO often uses their own IT teams and services to act as a test-bed to drive innovation and the execution of the digital strategy into the organisation. For example, deploying digital labour to IT service management processes, or applying cognitive intelligence to service desk agents to provide a better and more consistent level of service and improve the customer experience.

The Creative CIO frees up funding to drive innovation by delivering savings in other areas. For example, simplifying the IT estate, improving operational discipline and exploiting open source, cloud and other technologies. Yet only 31 per cent of respondents have a formal process to allocate resources to drive technology-enabled innovation across IT and the business. By taking charge and driving innovation, the Creative CIO is prepared to try, fail and learn quickly and without repercussion.

Cloud is no longer a choice; IT is not the sole purchaser of cloud solutions and 49 per cent of organisations plan to make a 'significant' investment in Software as a Service in the next one to three years, compared to 31 per cent who were making 'significant' investments in the current year. However, organisations are still struggling to build an overall strategy for migration to the cloud as this involves the broader business strategy along with infrastructure transformation. The Creative CIO is developing a set of cloud scenarios (use cases) which they can take to the operational board / executive management team to bring to life the opportunities and threats.

It is concerning that less than a quarter of IT leaders feel 'Very well positioned' to deal with IT security / cyber attacks. Only 40 per cent of respondents cited 'Insiders' as a significant concern, however an increasingly higher proportions of cyber incidents are originating from within the organisation. Are CIOs overlooking this threat or overestimating the threat of Organised Cyber Criminals?

Technology simplification is critical for successful cloud adoption. Nearly half of respondents quoted integration with existing architecture as one of the biggest challenges to cloud adoption – this must be addressed to prevent significant issues resulting from services around the edge of aging or complex architectures increasing in the near future.

Whilst 69 per cent of IT leaders sit on the operational board / executive management team, they must look to increase the depth of their relationships outside of their traditional 'comfort zones' of Finance and Operations. Only one third reported having 'very strong' relationships with HR, Sales and Marketing. This can lead to a fragmented approach when implementing a digital strategy. With 87 per cent of respondents spending more than 20 per cent of their time with non-IT colleagues to address business issues, the Creative CIO takes steps to build relationships across the business and takes the operational board / executive management team with them through the implementation of the digital strategy.

Big Data continues to be a priority – but there is a clear skills gap with 39 per cent of respondents suffering from a lack of skills in this area. The Creative CIO builds and leads skills development from within their existing teams and talent pools, through the implementation of analytics-based financial and operational disciplines. These disciplines will move their decision making from 'educated guesses' to

informed and fact-based planning and allow the freeing up of budget for reinvestment elsewhere.

Business models in all industries are transforming faster than CIOs are evolving their technology delivery capabilities, with many organisations building a separate new capability for digital but failing to address the legacy and skills issues they continue to have. CIOs must evaluate their current IT estate encompassing people, governance and technology, to ensure that they can deliver flexibly and dynamically. With 59 per cent of organisations looking to implement agile methods to develop and deliver IT services, the 'Next-Generation' operating models (which include Agile and DevOps), offer the prospect of a continuous delivery capability. For the Creative CIO, the goal is to simplify organisational structures to successfully deliver both a more agile and innovative business environment and a more engaging customer experience.

Conclusion

The Fourth Industrial Revolution brings with it an unprecedented level of change and disruption that all businesses must navigate. With this comes the need for an evolution in the role of the CIO. Those that are rising to the challenge are leading their organisations through this disruption as both a business and technology strategist. They are not relying on traditional approaches to IT or business change; Creative CIOs address disruption head-on with a clear strategy to suit. They are agile in their own thinking and work to broaden their relationships across the organisation identifying and, where necessary creating new ways to simplify technology and invest in talent and innovation.

How creative are you?

Adam Woodhouse,
Director, CIO Advisory, KPMG in the UK

1.4 MANAGING THE TECHNOLOGY FUNCTION

Resources for innovation

A majority of IT leaders globally (59 per cent) report to being held back on innovation due to a lack of resources or funding. However, respondents at organisations with IT budgets below \$250 million report even more restrictions when it comes to making resources available for innovation activity, with 62 per cent of firms with IT budgets below \$100 million and 66 per cent of firms with IT budgets between \$100 and \$250 million reporting they lack appropriate funding for innovation. IT leaders in very large organisations (IT budgets above \$250 million) have things a little better with only 53 per cent reporting they lack sufficient funds, but this is still more than half.

Similarly, very large organisations are more likely to have formal processes in place to drive technology-enabled innovation. Almost half (45 per cent) have established formal processes both inside of IT and the business to allocate resources to innovation initiatives, a significant difference compared to organisations with IT budgets between \$100 and \$250 million (34 per cent) and below \$100 million (29 per cent). When it comes to IT, 29 per cent of IT leaders at very large organisations and those with IT budgets between \$100 and \$250 million have implemented formal allocation processes versus 20 per cent at ones with IT budgets below \$100 million. However, these firms take the lead when it comes to the business, as 9 per cent report they have formal processes in place versus 7 per cent and 6 per cent for the other two groups.

CIOs at firms with IT budgets below \$250 million are more prone to lack resource availability for innovation

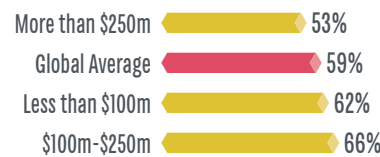


Chart 28: Do you believe that your organisation has the appropriate resources and funding to drive its innovation agenda? No

CIOs in very large firms more likely to rely on formal process to fund technology innovation

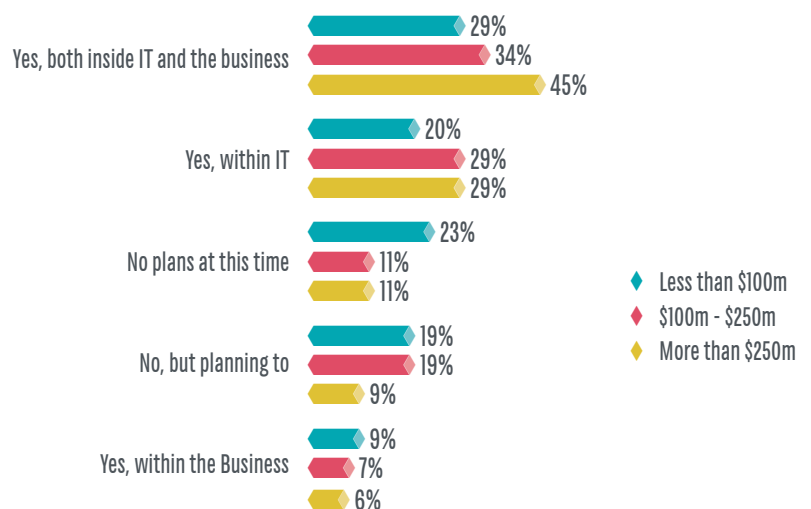


Chart 29: Do you have a formal process to allocate resources to drive technology enabled innovation? IT budget

What part of your technology function is changing the most, and why?



Craig Cuyar, Global CIO, Omnicom, New York City

What's changing most is my business colleagues. They are much better informed, more adept at using technology and come to me with more educated IT perspectives.



Paul Tuxford, CIO, The Global Fund, Geneva

The technology function has changed immeasurably in the past 10 years. Gone is the core skill of getting the boxes and wires in place, and the new hot skill is creating core business applications that as well as being scalable and stable, are at the same time adaptable and flexible and accessible while mobile.



Dr Michael Müller-Wünsch, CIO, OTTO, Hamburg

It is the technology function as a whole that is changing fundamentally: IT is continuously diffusing into all disciplines of our company and department borders are becoming blurred. Our business model is about consumer needs, customer obsession and meanwhile outstanding technology.

Software as a Service

When it comes to investing in cloud services CIOs are favouring Software as a Service (SaaS) in 2016. Three in ten IT leaders (31 per cent) are planning significant investment in SaaS compared with 25 per cent who plan similar investment in Infrastructure as a Service (IaaS). Only one in five (20 per cent) are anticipating significant investment in Platform as a Service (PaaS) solutions this year.

Looking ahead to the next three years CIOs plan to significantly ramp up their investments across all three cloud service platforms. The biggest jump will come from Platform as a Service with significant investment expected to almost double (from 20 per cent to 37 per cent). Also demonstrating robust growth IT leaders expect to make significant investment in SaaS solutions (49 per cent up from 31 per cent today) and Infrastructure as a Service (from 25 per cent to 39 per cent) within the next three years.

Platform and infrastructure innovation to receive less investment than software (SaaS)

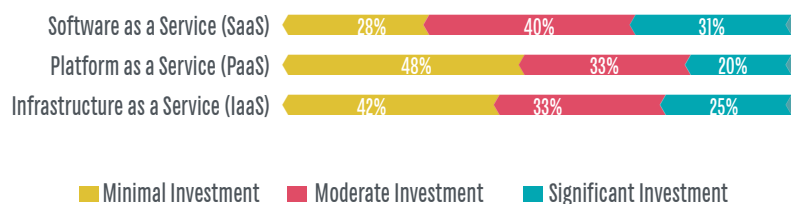


Chart 30: Current year innovation investment plans 'as a service' models

Innovation in the 'as a Service' model expects to grow by double digit per cent over three years

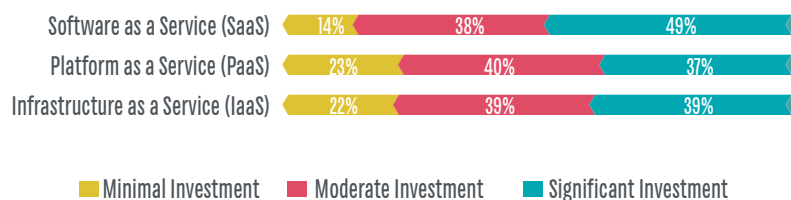


Chart 31: Innovation investment plans 'as a service' models for next 1-3 years

Responsiveness

In order to enhance responsiveness, CIOs are working to make their IT organisations more agile and significantly decrease delivery times to improve time to value. To accomplish this they are employing a number of approaches. Overall six in ten IT leaders are implementing agile methodologies. This is by far the most preferred strategy by IT leaders to ensure innovation and responsiveness in the development and delivery of IT. Almost four in ten (37 per cent) are buying more solutions to improve responsiveness and three in ten (32 per cent) are developing strategic partnerships to improve innovation outcomes.

IT leaders at organisations with IT budgets below \$100 million are less likely to adopt agile methodologies (56 per cent). On the other hand, very large organisations (42 per cent) and those with IT budgets between \$100 and \$250 million (43 per cent) will implement DevOps compared to only 25 per cent at firms with IT budgets below \$100 million where they are more likely to buy more solutions (40 per cent) than their counterparts.

Agile methodologies are preferred by six in ten CIOs to improve responsiveness



Chart 32: What steps are you taking to become more agile and responsive in the development and delivery of IT services?

Company size dictates different approaches to responsiveness

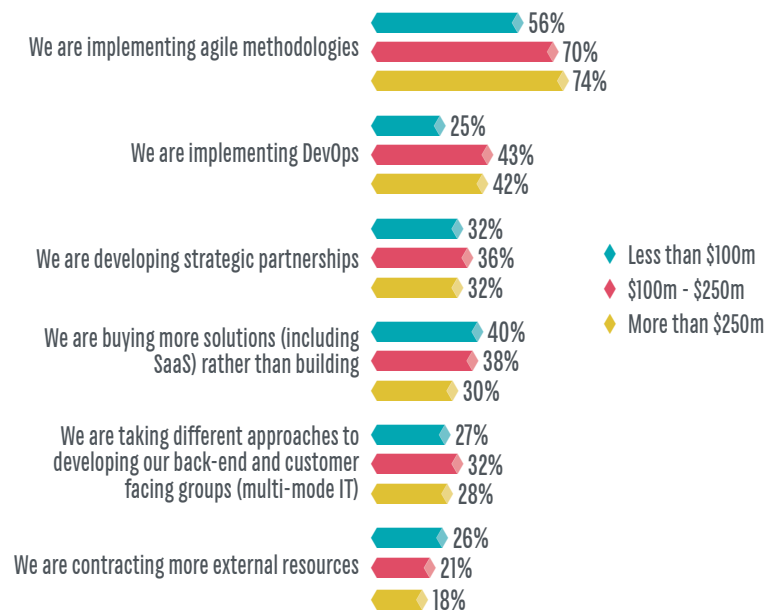


Chart 33: What steps are you taking to become more responsive in the development and delivery of IT services?

Cloud technology

Four in ten IT leaders (40 per cent) use cloud technology to improve responsiveness as well as resiliency.

A third (33 per cent) use cloud in an effort to save money, while a similar proportion invest in cloud to accelerate product innovation. Less than 1 per cent believe use of cloud technology helps attract talent.

Wide range of reasons for using cloud technology, dominated by responsiveness and resiliency



Chart 34: What are your top three reasons for using cloud technology?

Almost half of IT leaders (49 per cent) report data loss and privacy risks as the biggest challenge with adopting cloud technology. A similar proportion (47 per cent) have concerns about the integration with existing architecture. Governance and compliance concerns are a challenge for more than three in ten, while more than one in ten (12 per cent) cite concerns with disaster recovery.

Data loss and privacy risks cited by almost half of IT leaders as challenge in adopting cloud

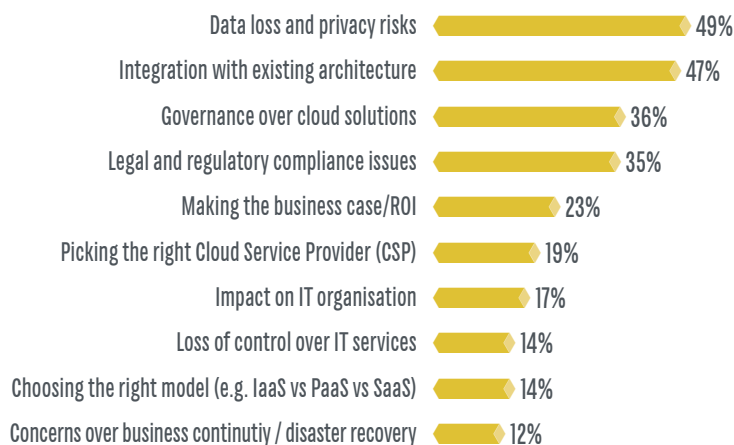


Chart 35: What are your top three biggest challenges when adopting cloud?

Cyber security

Three in ten (28 per cent) have had to respond to a major IT security or cyber attack on behalf of their organisation in the last two years. However, there is growing confidence from CIOs in the ability of their board to recognise the risks posed by a cyber attack. Last year 64 per cent felt their board was attuned to the risk; this has increased to 68 per cent today. CIO confidence increases with organisation size. At organisations with IT budgets below \$100 million only 65 per cent of IT leaders are confident in the board and that increases to 81 per cent for those with IT budgets between \$100 and \$250 million and 85 per cent for very large organisations.

Seven in ten IT leaders (69 per cent) are most concerned with the risk of cyber attack by organised criminals, while almost half (48 per cent) believe amateur cyber criminals pose a great risk. Only four in ten (40 per cent) think insiders – current or former employees – present a comparable cyber risk. It is interesting to note that outside forces are considered a greater risk to organisational security and brand reputation than the internal threat. This may be due to the greater publicity afforded recent external cyber attacks, compared to the more frequent risk of an intentional or accidental internal breach.

CIOs' concerns that a malicious cyber attack would cause reputational damage and have a noticeable impact on profitability have changed little in the past year. Four in ten IT leaders (43 per cent) consider great damage would be done, virtually the same as last year (42 per cent). A further four in ten (45 per cent) recognise some short- or medium-term damage may be done by a cyber attack but no long-term harm would occur.

CIOs are confident about cyber response

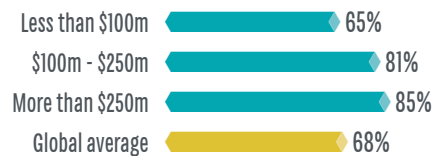


Chart 36: Do you believe your board recognises the risks posed by cyber attack, and is doing enough about it? Yes

External risk of cyber attack concerns more CIOs than internal threat of cyber breach

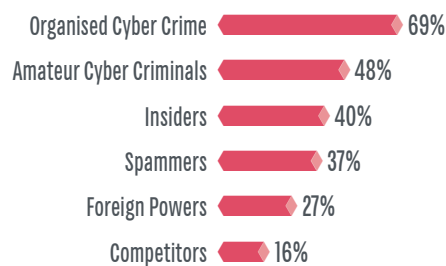


Chart 37: Which types of threat give you most cause for concern in terms of a cyber attack?

Majority of IT leaders remain concerned about the profit and brand damage from a cyber attack

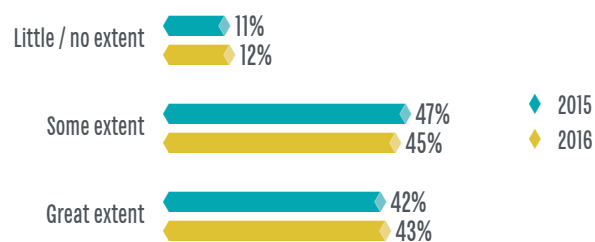


Chart 38: If hackers successfully struck your organisation with a malicious and serious cyber attack, to what extent do you believe this could damage the operations and positive brand image of the company?

The proportion of IT leaders who believe their organisation is very well prepared to identify and respond to cyber attacks and IT security threats continues to fall.

Only one in five (22 per cent) are now confident that all reasonable risks are covered, compared with 29 per cent in 2014. More than one in ten IT leaders (12 per cent) now believe their organisation is exposed in multiple areas, the same proportion as last year.

IT budget

In line with IT budget trends of the last three years, almost half of IT leaders (45 per cent) report budget increases in 2016, continuing a trend in budget growth since 2009. That said, one in five (22 per cent) reported budget declines so for many CIOs IT budgets are in a state of flux.

Some of the budget issues can be attributed to CIOs reporting that more of their overall IT budget is being controlled or managed by decision-makers outside the IT function. In 2016 one in ten IT leaders (10 per cent) had more than half of their IT budget controlled by non-IT decision-makers, up by a fifth since last year and almost double the rate in 2013. Four in ten (38 per cent) have more than 11 per cent of their IT budget controlled outside the IT department, up from 34 per cent in 2015 and 32 per cent in 2014.

Fast-changing security threats are making CIOs more pessimistic about their preparedness



Chart 39: To what extent do you feel your organisation is positioned to identify and deal with current and near future IT security/cyber attacks? Very well positioned

IT budget growth continues for more than four in ten CIOs, similar levels since 2012

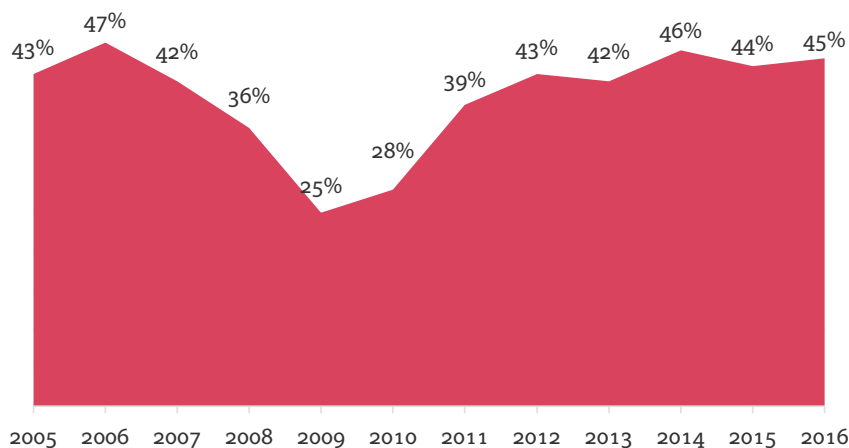


Chart 40: 2005-2016: CIOs reporting budget increases

CIOs report IT spend increasingly being controlled by influencers outside the IT function

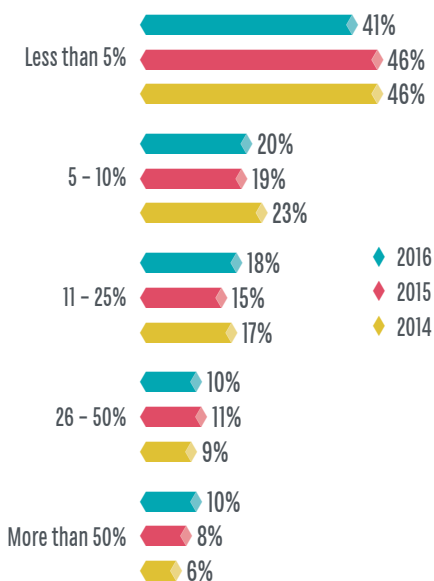


Chart 41: What proportion of the overall spend on IT is controlled by/managed outside the IT organisation/department?

IT budgets by sector

Across all sectors and IT organisations the average spend on IT as a percentage of sales (or total budget for public sector organisations) is 9 per cent. The advertising and technology sectors are investing significantly more into IT as a proportion of sales revenue than the global average (9 per cent) and other sectors. Traditionally high-spending sectors such as financial services and media are similarly devoting larger proportions of their company's resources to IT.

Since last year, there have been only minor changes to the level of resourcing in each sector. Respondents from the advertising industry, together with transport and government IT, tell us that they are proportionally spending more money on IT compared to last year. Advertising is probably at the

vanguard of the digital revolution, while transport and logistics companies may be finding lower oil prices are giving them some breathing space for much needed investment. Many government organisations have earmarked digital engagement with their citizens as a priority and the evidence we see suggests that they are following through on this commitment.

On the other side of the coin, respondents from broadcasting, energy, pharmaceuticals and the technology sectors tell us that IT spending as a proportion of revenue has fallen slightly compared to last year. Energy changes may simply be the flip-side of energy prices, but the reasons for pharmaceuticals and broadcasting are less clear.

Sector	Number of Respondents	Average %	1st Quartile %	Median %	3rd Quartile %
Technology/Telecoms	269	17.9	5	10	22
Advertising/PR	23	17.6	5	10	20
Financial Services – Banking	147	14.6	5	10	16
Government – Central/Federal	46	11.2	4	10	20
Financial Services – Other	84	11.2	5	10	15
Broadcast/Media	69	10.6	3	7	15
Business/Professional Services	217	9.4	3	5	10
Financial Services – Insurance	122	9.1	3	5	10
Transport/Logistics	101	7.2	2	3	6
Healthcare	137	7.1	2	4	10
Charity/Non-Profit	48	6.9	3	5	10
Education	76	6.9	4	5	8
Energy	48	6.7	1	3	5
Government – Local/State	38	5.5	2	3	5
Retail/Leisure	146	4.6	1	2	5
Construction/Engineering	73	3.5	1	2	3
Pharmaceuticals	23	3.3	1	3	3
Manufacturing	188	3.3	1	2	3
Utilities	26	2.9	2	2	5

Table 7: What percentage of the company's annual sales (or public sector total budget) is spent on technology/IT in your organisation?

The data table provides quartile data as well as averages and transparency on the number of respondents to enable CIOs to better determine how their organisation compares to industry sector benchmarks.

Outsourcing

Exactly half of CIOs (50 per cent) will increase investment in outsourcing this year, up from 46 per cent in 2015. And 44 per cent of CIOs will increase offshoring activity in 2016, up from 41 per cent last year.

Intent to outsource and offshore both set to grow further in 2016

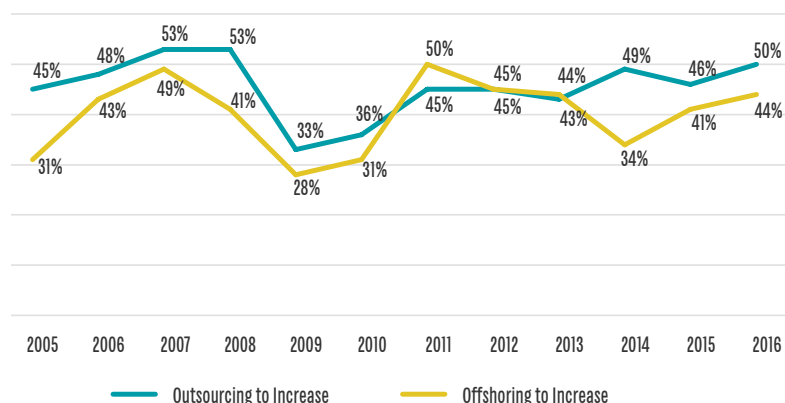


Chart 42: How do you expect your spend on outsourcing and offshoring to change over the next 12 months?

Around half of IT leaders (51 per cent) see outsourcing primarily as a tool to free up resources to focus on the core business – this is up from 46 per cent since 2015. The impact of the technology skills shortage is also evident – 45 per cent of IT leaders now outsource to gain access to skills not available in-house; last year it was 41 per cent. The traditional outsourcing rationale for saving money remains essentially static; 42 per cent choose this as a reason to outsource.

Access to skills and gaining access to resources grow in importance for CIOs who outsource

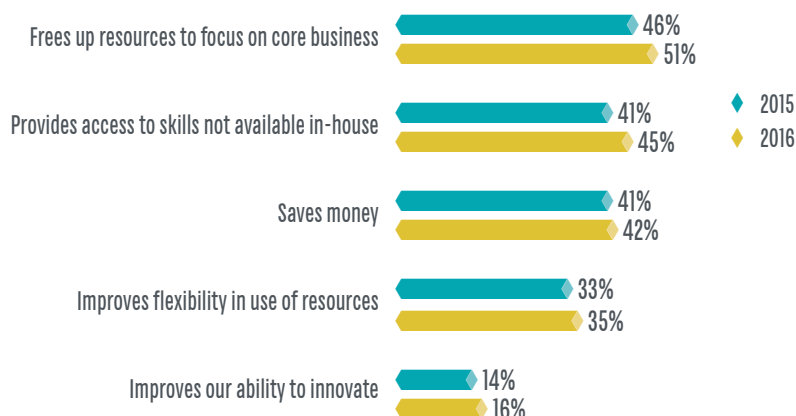


Chart 43: What are the two main reasons you choose to outsource?

Outsourcing candidates

As in previous years, software development and data centres remain CIOs' most favoured outsourcing candidates. However, demand in both these areas has been declining in recent years. Despite this, more than half of IT leaders will outsource some software application development work in 2016. The proportion of IT leaders outsourcing data centre services has declined by 8 per cent in the past 12 months. Software application maintenance is also down 11 per cent this year, but maintenance outsourcing has been in decline for some years. IT department, IT BPO and KPO have shown large rises, but these are from a low absolute base, so the increase may be exaggerated.

IT infrastructure outsourcing grows while data centre and software maintenance decline

	2010	2011	2012	2013	2014	2015	2016	Variation past 12 months
Software Application Development	60%	64%	64%	58%	54%	53%	52%	-2%
Data Centres	N/A	50%	50%	55%	51%	53%	49%	-8%
IT Infrastructure	53%	38%	38%	37%	46%	42%	42%	0%
Software Application Maintenance	51%	52%	53%	47%	45%	45%	40%	-11%
Service Desk/Help Desk	N/A	42%	38%	31%	38%	42%	39%	-7%
Networks	N/A	53%	50%	47%	45%	40%	35%	-12%
Systems Integration	24%	25%	23%	24%	22%	20%	19%	-5%
HR BPO	10%	9%	10%	8%	8%	14%	11%	-21%
IT Department	6%	5%	6%	4%	8%	7%	8%	14%
IT BPO	10%	9%	8%	7%	6%	7%	8%	14%
KPO	1%	2%	1%	1%	2%	2%	3%	50%

Table 8: 2010-2016: What functions do you outsource?

1.5 CIO CAREERS

CIO life span

More IT leaders moved role last year (15 per cent) compared to 2015 (12 per cent). In fact almost a third (31 per cent) have been in their current role for less than two years. On the other side of the coin, a fifth (21 per cent) have survived the trials of IT leadership and have been in post with their current employers for a decade or more.

Fewer IT leaders plan to move role in the next 12 months. A fifth (22 per cent) say they plan to be with a new employer within a year, compared to 24 per cent who had similar ambitions in 2015. A third (32 per cent) plan to be in their current role for the next five years, similar to last year. All in all, these data suggest that the life span of a typical CIO has marginally increased in 2016.

A third of CIOs moved job in the past 24 months

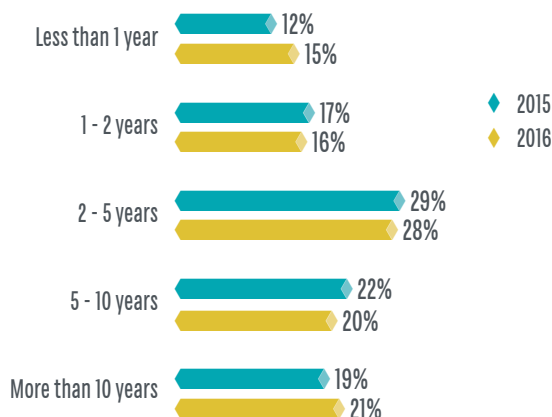


Chart 44: How long have you worked for your current employer?

CIOs plan to stay in their role for longer compared to sentiment

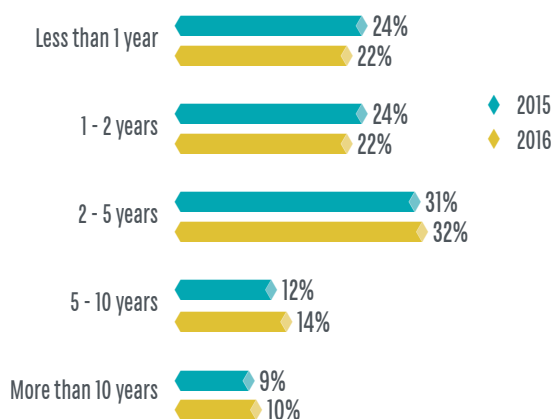


Chart 45: How long, from this point onwards, do you expect to stay with your current employer?

What would you do differently if you started your technology career again?



Katie Docherty,
CIO, HSBC Bank
Australia Limited,
Sydney

I wouldn't do anything differently, as even the more challenging roles and situations I've faced have helped me to develop and grow my career.



Steve Homan,
CIO, Daily Mail Group,
London

Aside from befriending Mark Zuckerberg? I would take more risk with my roles earlier on and worked in a wider variety of environments whilst I was junior enough that moving around did not matter – startups, tech companies, corporates.



John Brisco,
CIO & COO Manulife
Asia, Hong Kong

I feel fortunate that I've had a heavy mix of business, consulting, transformation and technology experience through my career to-date. Nevertheless there is one core skillset and appreciation I have realised is more important than any other – becoming obsessed with the needs of customers you seek to delight and serve.

CIO career development

IT leaders at larger organisations (with more than 5000 employees) are significantly more likely to plan a career move in the next 12 months; almost three in ten (28 per cent) at larger firms want to move job this year, compared to only 19 per cent at smaller organisations (less than 500 employees).

Three in ten IT leaders (30 per cent) from the broadcast and media sector anticipate moving job this year, the most of any IT leaders peer group. A quarter of respondents in technology firms and non-profits are also more likely than the IT leaders global average to want to move job this year. Respondents in the manufacturing sector (17 per cent) are the least likely to want to move job this year.

CIOs at larger firms more restless about career move than peers at smaller competitors



Chart 46: How long do you expect to stay with your current employer? Less than one year.

Almost one third of IT leaders in broadcast/media want to move job within the next 12 months

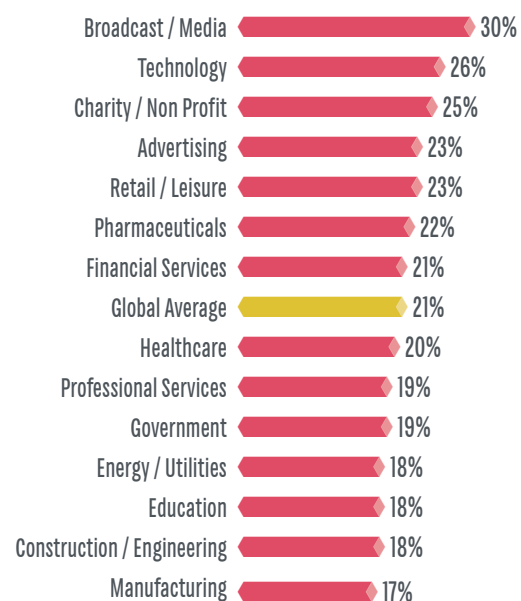


Chart 47: How long do you expect to stay with your current employer? Less than one year.

CIO job satisfaction

CIO job satisfaction continues to rise; 84 per cent of IT leaders are 'very' or 'quite' fulfilled in their role compared to 80 per cent last year.

An overwhelming majority of CIOs remain content and report being fulfilled in their role

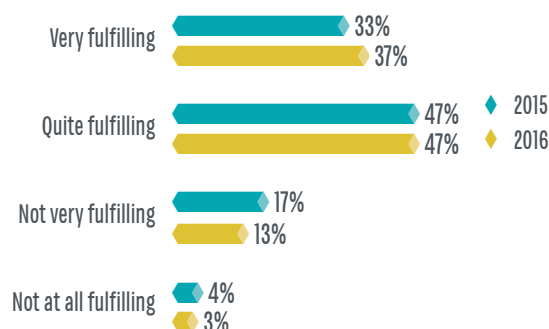


Chart 48: How fulfilling do you find your current role?

CIO job fulfilment is up for all categories in 2016. However, IT leaders at smaller organisations are more fulfilled than peers at mid-sized and large organisations. Respondents who report to the CEO are more fulfilled than peers who report to the CFO, and respondents who sit on the executive management board are the most fulfilled.

Happiest CIO works at a small organisation, reports to the CEO, sits on the leadership team

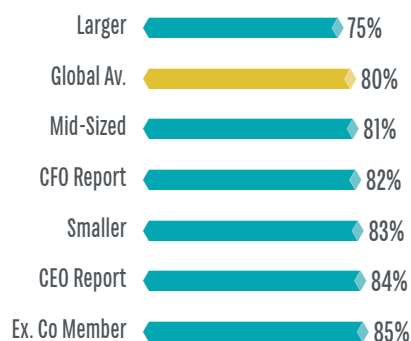


Chart 49: How fulfilling do you find your current role? Very or quite fulfilling. By reporting line, whether Ex Co member and org. size (small <500 and larger >5000 employees)

Where are the happiest CIOs?

In general, CIOs are a happy group of people, despite their many challenges.

The happiest and most fulfilled IT leaders can be found in the charity and non-profit sector. More than nine in ten in this sector report high levels of job satisfaction. The least fulfilled IT leaders can be found in the advertising and manufacturing sectors, although it should be noted that in each of these sectors more than eight in ten still reported job satisfaction.

Charities and non-profits are home to the happiest CIOs

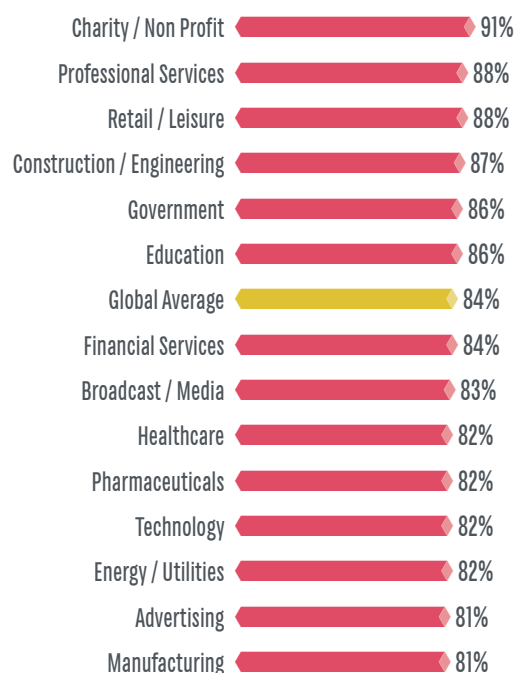


Chart 50: How fulfilling do you find your current role? Very or quite fulfilling

CIOs overinflate their performance against peers by up to four times

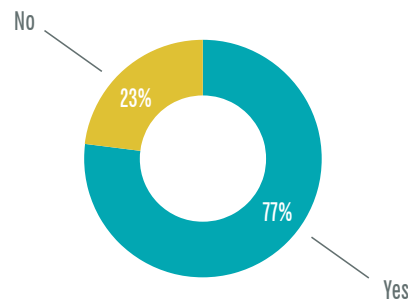


Chart 51: Thinking objectively about your success in your current role, would you say you are performing within the top 20% of your IT leader peer group?

CIOs are also a confident bunch! In fact they are so confident that 77 per cent of respondents to the survey believe they are amongst the top 20 per cent of high performing CIOs in their industry.

Comparing the 77 per cent 'high performing' CIOs with the remaining 23 per cent unearths few discernable variances. Both high performing and regular CIOs have a similar chance of reporting to the CEO, a similar chance of working with increasing IT budgets, similar priorities set by the board and a similar chance of being male or female.

However, CIOs who consider themselves high performing are more likely to report project successes,

especially in relation to digital, mobile and web. They are also more likely to register effective relationships with other business units, especially in relation to marketing and sales.

This suggests that increasingly the 'success' of a CIO might be defined by outward-looking projects and priorities, as well as building business relationships that they are able to maintain.

Whatever the answer, it is perhaps encouraging that most CIOs see themselves as winners in our industry. With the challenges IT leaders face, each and every one is going to need a very strong constitution if they are to survive and flourish.

CIO next career steps

IT leaders are slightly less active about looking for their next role in 2016 compared to last year, underscoring the notion that longevity in post is slightly increasing. One in five are actively seeking and applying for roles, compared to 22 per cent previously. A third of IT leaders (34 per cent) would take a call from a head hunter, down 10 per cent, while 15 per cent would not consider any role presented to them, up from 11 per cent who held a similar position last year.

Although most IT leaders want to remain in the IT function as they develop their career (45 per cent), this is down 13 per cent compared to last year. More CIOs have plans to develop their career into more senior leadership roles that are not exclusively technology related. Some want to move on to take on executive positions in line organisations, such as sales or operations. Others wish to move to wider company roles such as corporate development while others aspire to become the COO or CEO of their organisation.

Salaries

A third of IT leaders (34 per cent) benefited from an increase in base salary last year. This is slightly up from the 31 per cent of who enjoyed an increase in 2015. For many this slight improvement is welcome news after years of salary freezes or even salary cuts.

A fifth of CIOs are actively looking for new roles

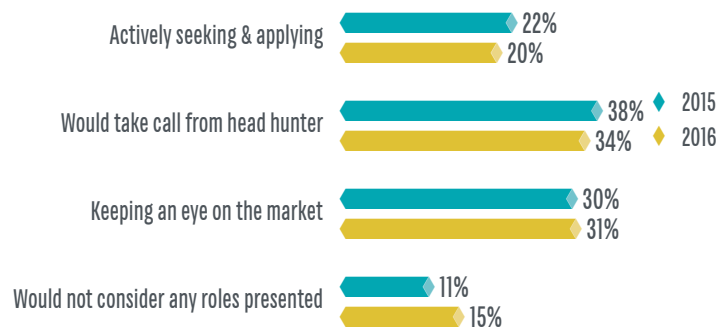


Chart 52: 2016-2015: How active are you in looking for a new role at present?

Fewer CIOs foresee their entire career in the IT function; growing interest in future CEO role

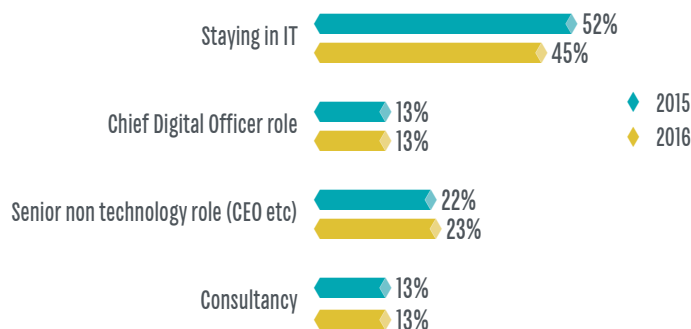


Chart 53: Where do you see your career heading in the next five years?

Pay increases enjoyed by a third of IT leaders, while six in ten are unchanged

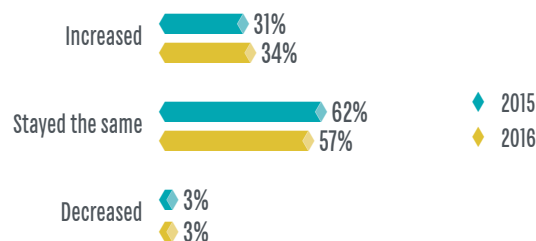


Chart 54: How has your base salary changed compared to last year?

The hottest sector for salary growth appears to be advertising. Half of IT leaders in this sector experienced a rise in base pay last year. This is significantly above the global average and other sectors. Four in ten technology sector respondents also enjoyed a base salary increase. Energy sector IT leaders (at 21 per cent) are the least likely to have received a base salary increase in the past 12 months, followed by less than three in ten government respondents.

Sectors differ greatly in CIO likelihood to receive base salary increase

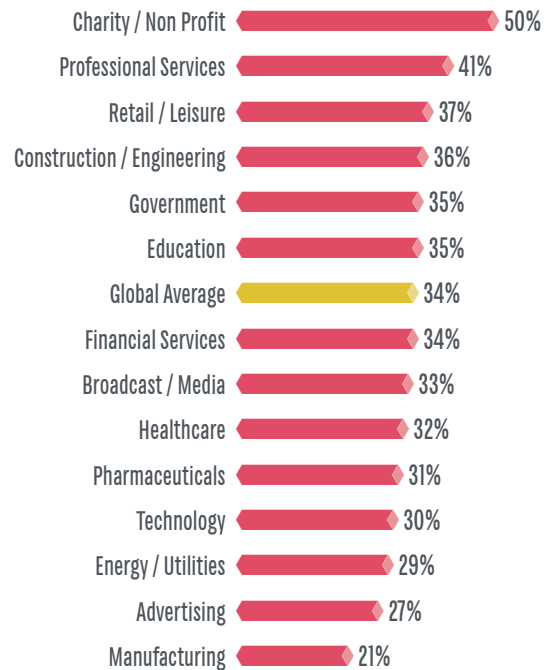


Chart 55: How has your base salary changed compared to last year?

Bonuses and benefits

Bonus rates for IT leaders remain comparable between 2016 and 2015. Three in ten (28 per cent) do not receive any bonus in addition to their base salary. This is unchanged from the previous year. Forty five per cent of IT leaders receive a bonus commensurate to 20 per cent or less of their base salary, while 4 per cent in 2016 will receive a bonus worth up to 50 per cent of their base salary. Two per cent of will be given the opportunity to earn bonuses of more than 100 per cent of their base salary – the same proportion as last year.

Bonuses for 72 per cent of IT leaders; same proportion as last year

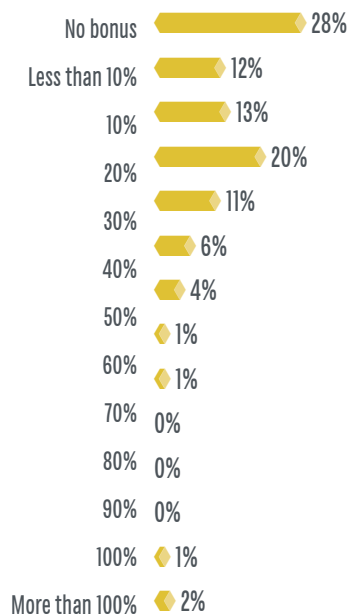


Chart 56: What bonus have you received in the last 12 months?

IT leaders in the pharmaceuticals sector are most likely to receive a bonus in addition to their base salary. Nine out of ten leaders are eligible for bonus payments. More than eight in ten respondents in manufacturing, construction and engineering, financial services and advertising can expect bonus opportunities. IT leaders in government (24 per cent), charity and non-profit (31 per cent) and education (37 per cent) are the least likely to receive bonus payments in addition to their base salary.

Quarter of IT leaders in government receive bonus payments; 90 per cent of IT leaders in advertising do

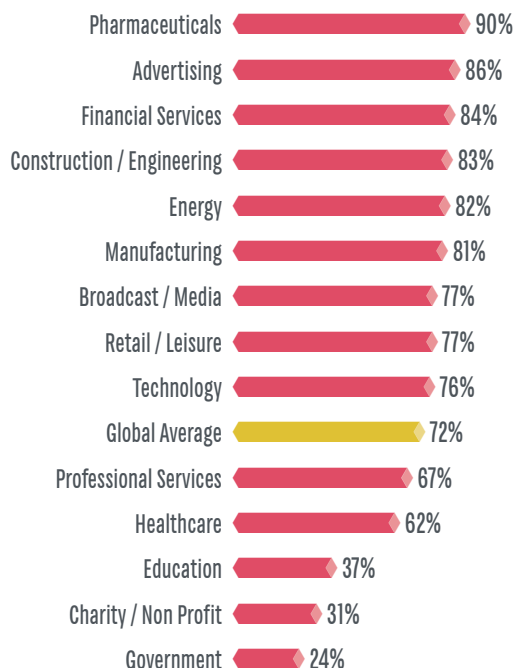


Chart 57: IT leaders who received a bonus in last 12 months. By sector

The value of other benefits including car, short- and long-term incentive plans, shares or equity continue to add significant value to CIO remuneration.

While three in ten IT leaders (27 per cent) receive no additional benefits other than their basic salary, almost two-thirds (61 per cent) estimate the value of their benefits to be worth up to a third of their base salary. Around 3 per cent of the IT leader community have contracts where bonuses can exceed their base salaries.

Having a bonus opportunity is one thing. Earning it is quite another. Bonus payouts amongst respondents vary enormously as they are usually based on personal performance as well as company performance metrics. Also, long-term incentives in the private sector, for example, might have to show superior total shareholder return compared to peer companies over a period of years before the bonuses kick in. In other cases, bonuses are paid in the form of equity or share options. In some geographies, this is used as a retention technique as the benefit of such bonuses cannot be accrued until some years have passed.

Majority of IT leaders value their benefits package between 10%-30% of their annual base salary

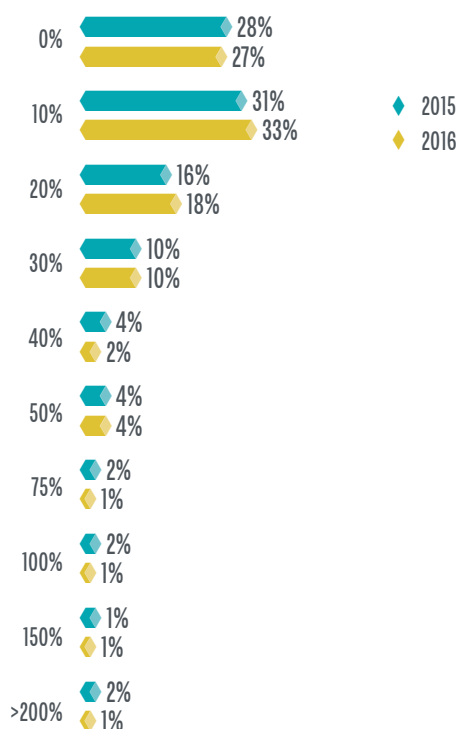


Chart 58: What is the value of the benefits you receive, including car, LTIPs, shares, equity? (As a % of your base salary)

Six per cent in the technology, retail and leisure sectors enjoy terms where their bonuses and benefits can exceed their annual base salary. However, those from the charity and non-profit, education, government, pharmaceuticals or advertising sectors generally receive much lower bonuses.

On average one in twenty five IT leaders have bonuses that exceed base salary

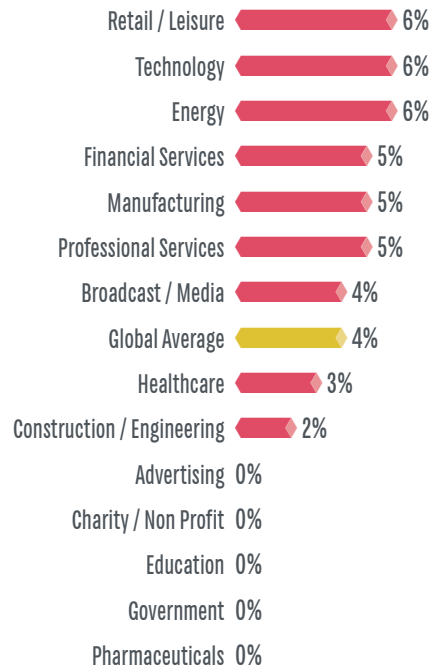


Chart 59: What is the value of the benefits you receive, including car, LTIPs, shares, equity? As a percentage of base salary

SPECIAL REPORT: CIOS – A CAREER CHOICE AHEAD?

Over 500 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.



**Center for Information
Systems Research**

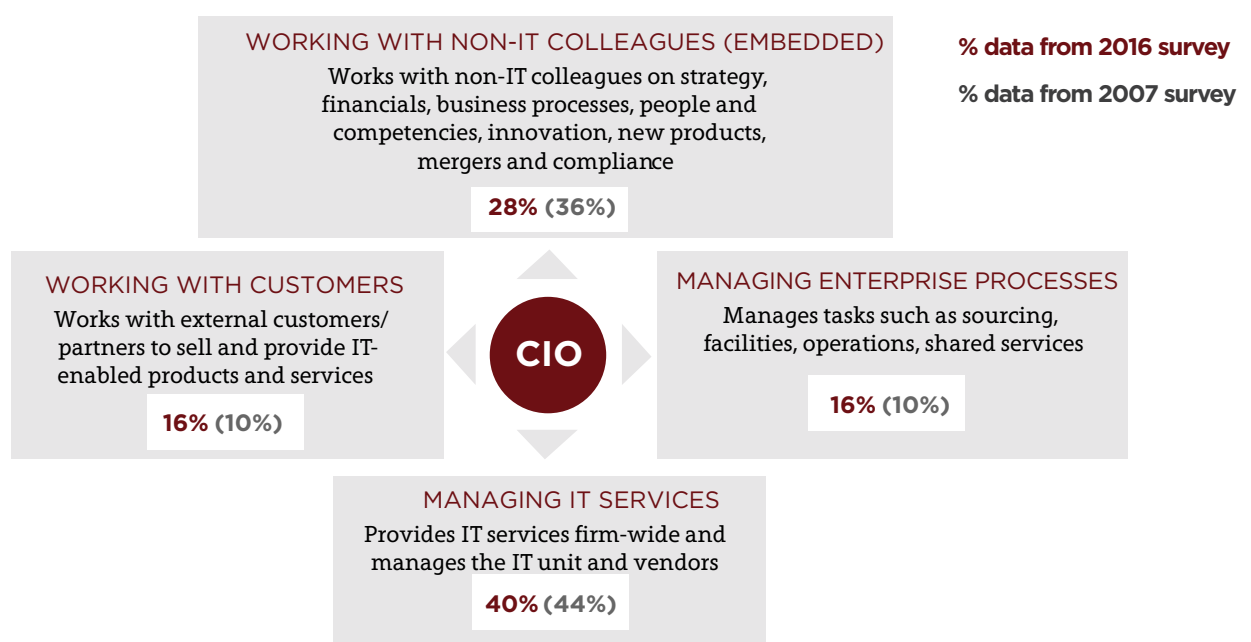
Many CIOs tell us their role is changing. Beyond managing their enterprises' IT organisation, some CIOs own business processes, others have revenue targets, others manage a network of partners, suppliers and customers, and still others manage shared services including HR, financial services and sourcing. A key driver for this change is the digitisation of the business, creating exponentially more connections between individuals, enterprises, devices and governments; enabling easier transactions, collaborations and social interactions; breaking down traditional industry boundaries; and changing how profits are made.

To understand how digitisation is changing the role of the CIO, MIT CISR, working with Harvey Nash, is studying how top CIOs allocate their time. In this section we look at how time allocations have changed over the last decade, making comparisons between the Harvey Nash / KPMG CIO Survey data and MIT CISR research we conducted in 2007. We look at what CIOs at top-performing companies do differently and touch on size, industry and the lack of regional differences.

In previous research, MIT CISR found CIOs allocate time in four major areas:

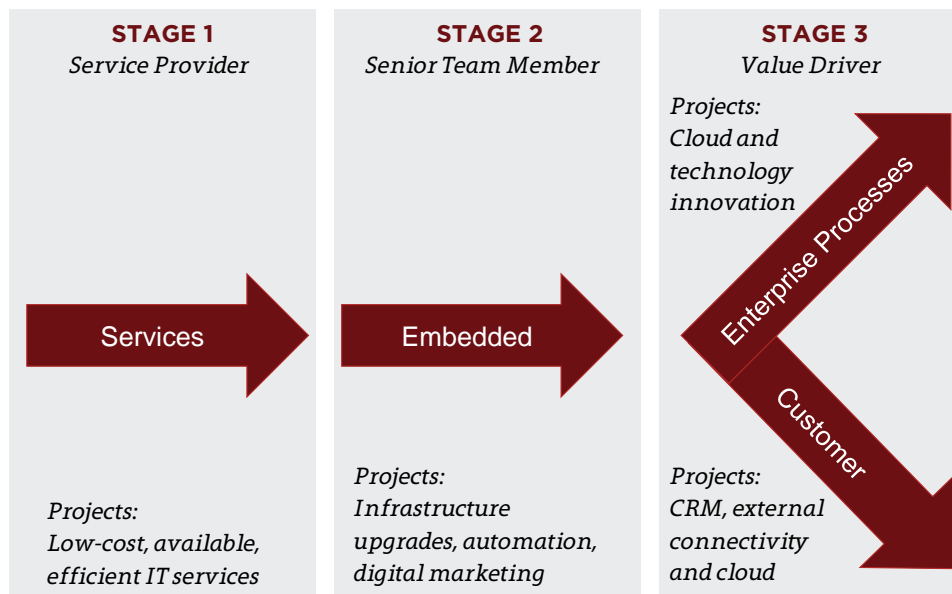
- 1. Managing IT services:** Managing the IT unit ensuring delivery of IT services across the company at the desired cost, risk and service levels. Includes working with vendors and other partners.
- 2. Working with non-IT colleagues:** Working with non-IT colleagues on business strategy, business processes, digital governance, new product development, compliance, risk and investment prioritisation.
- 3. Working with customers:** Meeting with the company's external customers, partners and colleagues as part of the sales or service delivery process, including establishing electronic linkages with customers.
- 4. Managing enterprise processes:** Managing a variety of non-IT areas including shared services (other than IT), product development, operations, corporate responsibility, sustainability, HR and a range of special projects.

Figure 1. CIO time allocations have changed dramatically from 2007 to 2016



Sources: 2016 Harvey Nash / KPMG CIO Survey, N=553 and 2007 MIT CIO Survey, N=1508

Figure 2.



We show these four different CIO activities as a trident, representing how CIOs today are being pulled simultaneously in all four directions. In Figure 1 we show the average time spent on each of the four activities now and 10 years ago. The change is dramatic.

Here are some highlights:

- 60 per cent more time spent with external customers, increasingly with sales targets. CIOs of companies as varied as Microsoft, Raytheon and State Street are spending more time with external customers.
- Less time spent embedded with senior colleagues. At first glance, this is surprising as the goal of many CIOs is to have a seat at the table and be more embedded in the business. But it turns out the real value creation of being embedded is simplifying the digital governance, expediting investments in connectivity and identifying where technology can add new value. Once that's completed, successful CIOs reduce the time spent on embedded activities to about 25 per cent by relying on those new governance processes and focus on enterprise processes or customers.

The move in time allocations over the last 10 years beautifully illustrates how companies have changed what they want from their CIOs. The great CIOs adapt to these demands in three stages (see Figure 2). Every stage has its bottom-line benefits for the company and there is cumulative learning from stage to stage.

Stage 1: Service provider. Every CIO tells us about the importance of making sure that IT services are efficient, available and low-cost, while meeting the business requirements of their line-of-business colleagues. Services need to be the stable base of the trident. To progress to the next stages and reallocate time to other activities, a CIO first has to get – and keep – the services right.

Stage 2: Senior team member. Once IT services are successfully managed, a CIO is able to work more fully with non-IT colleagues, focusing on automation, governance and better project outcomes, embedding digitisation throughout the organisation. In top performing firms ¹, these Stage 2 CIOs are significantly better than competitors at successfully completing projects like offshoring, infrastructure upgrades and digital marketing.

Stage 3: Value driver. Once CIOs have successfully integrated themselves into the senior team, they have an important choice to make, both for their enterprises and their careers: is their next focus customers or process? Where can the CIO create the most value for the company and what is best for their career? Taking the customer path focuses the CIO on customer engagement, sales and peer connections. Taking the process path focuses the CIO on making the enterprise run better by bringing out the best of the processes, people and technology.

For instance, Bernard Gavvani at BNP Paribas Investment Bank leads all of IT and operations

¹ Top performing firms are the top 25% of firms based on both five-year revenue growth and net profit margin, adjusted for industry.

globally. We see many CIOs, especially in industries like financial services, take on a process focus, often consolidating IT and operations. In top-performing firms, the highest enterprise process time allocation is significantly correlated with successfully completing projects like cloud implementations and technology innovation.

In Stage 3, the other option is to work more with external customers. For example, Ramon Boaz, when he was the CIO for HP, spent a significant portion of his time working with external customers. When HP split into two corporations in 2015 (HP and HPE), Boaz became SVP for Customer Advocacy of HPE “to lead a customer-centric, technology-driven business strategy across the organization, ensuring best-in-class experiences for customers and partners”.

We see a movement towards the customer in highly volatile environments, when customer needs and demands are constantly changing. In these environments, it is critical to amplify the customer voice inside the company and CIOs working with their peer CIOs and customers can do this very effectively.

Besides the stages, we also found interesting differences in time allocation based on firm size and industry, but not location. CIOs in small firms (less than 100 people) are spending much less time on IT services (35 per cent) and much more time working with customers (22 per cent). This is what we can really learn from startups! In these small firms CIOs are actively learning what their customers want, building it and integrating it into their customers’ systems. The industries where CIOs are spending the most amount of time with customers are technology and telecom (20 per cent), financial services (19 per cent) and healthcare (18 per cent). Interestingly, these three industries are also leading the move toward building digital ecosystems. The lesson here is that CIOs in Stage 3 who are operating in more volatile industries often do and probably should move towards the customer rather than processes. We did not find any strong regional patterns – it seems like the whole world is working on similar digitisation issues.

CIOs are under pressure to help their firms become more digitised, agile and global, and to help them grow profitably. Therefore, they must find ways to increase their time allocation outside of providing IT services. CIOs and their colleagues need to design governance mechanisms that allow the CIO to spend less time managing IT services and more time delivering business value.

To see if your time allocation reflects the needs of your enterprise and meets your career aspirations, do your own analysis.

- Review your diary for the last 12 months, colour-coding your time into the four major CIO activities.
- Compare your time allocation to the averages in Figure 1 and ask yourself if you can explain the difference between your current time allocation and the averages from the CIOs in this study? Are the areas that most need attention (e.g. setting IT governance, working with partners, spending time with external customers, digitising business processes) getting enough of your time? If the answer is yes, then your time allocation looks good.
- If your answer to the questions in step 2 is no, then contemplate where you could make changes to the responsibilities, skills (and incentives) of your direct and dotted-line reports to free up time spent on less important areas to concentrate on more important ones. One very effective change is to spend more time mentoring your direct reports so they can take over some of the activities you do now.



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.

www.hnkpmgciosurvey.com

The online home of the Harvey Nash / KPMG CIO Survey

EVENTS

Find out about our launch events across the world

DOWNLOAD

Get hold of the digital version of the report



DATA

Play with interactive charts

CIO VIEWPOINTS

Read the opinions of CIOs across the world

REGIONAL LEAGUE TABLES

GROWTH ORIENTATED

% IT LEADERS OPERATING WITH IT BUDGET INCREASE

By region:

1	North America	52%
2	GLOBAL AVERAGE	45%
3	APAC	44%
4	EU	44%
5	Europe – Non-EU	34%

By country:

1	France	69%
2	Belgium	60%
3	Canada	60%
4	Luxembourg	60%
5	Spain	59%
6	United States	52%
7	Ireland	51%
8	Vietnam	51%
9	Italy	50%
10	Norway	50%
11	Poland	50%
12	Singapore	48%
13	GLOBAL AVERAGE	45%
14	Sweden	45%
15	Australia	42%
16	Japan	42%
17	New Zealand	42%
18	United Kingdom	42%
19	Germany	41%
20	The Netherlands	41%
21	Finland	40%
22	Hong Kong	40%
23	India	40%
24	China (inc HK)	39%
25	Switzerland	33%
26	Greece	27%

TOP OPERATIONAL PRIORITY

% IT LEADERS #1 RANKED IT FOCUS FOR 2016

By region:

1	Europe – Non-EU	Business processes	60%
2	North America	Operational efficiencies	60%
3	GLOBAL AVERAGE	Operational efficiencies	58%
4	APAC	Operational efficiencies	57%
5	EU	Business processes	56%

By country:

1	Luxembourg	Operational efficiencies	84%
2	New Zealand	Operational efficiencies	81%
3	France	Cyber security	77%
4	India	Operational efficiencies	75%
5	Canada	Operational efficiencies	72%
6	Hong Kong	Operational efficiencies	70%
7	Japan	Business processes	69%
8	Greece	Saving costs	67%
9	Italy	Saving costs	66%
10	Finland	Saving costs	64%
11	Poland	Saving costs	63%
12	China	Operational efficiencies	63%
13	Vietnam	Business processes	63%
14	The Netherlands	Business processes	62%
15	Belgium	Consistent and stable IT	61%
16	Singapore	Business intelligence	61%
17	Switzerland	Business processes	60%
18	Germany	Business processes	60%
19	United States	Operational efficiencies	60%
20	Ireland	Operational efficiencies	59%
21	Spain	Consistent and stable IT	59%
22	United Kingdom	Operational efficiencies	59%
23	GLOBAL AVERAGE	Operational efficiencies	58%
24	Sweden	Business processes	58%
25	Australia	New products & services	55%
26	Norway	Saving costs	53%

IMPORTANCE OF OUTSOURCING

% IT LEADERS PLANNING TO INCREASE OUTSOURCING SPEND

By region:

1	APAC	54%
2	North America	53%
3	GLOBAL AVERAGE	50%
4	EU	48%
5	Europe – Non-EU	47%

By country:

1	France	70%
2	New Zealand	63%
3	India	63%
4	Finland	60%
5	Canada	58%
6	Vietnam	57%
7	Australia	55%
8	Belgium	55%
9	The Netherlands	55%
10	China	53%
11	Ireland	53%
12	United States	52%
13	Hong Kong	51%
14	GLOBAL AVERAGE	50%
15	Singapore	50%
16	Germany	49%
17	Sweden	46%
18	Switzerland	46%
19	United Kingdom	45%
20	Italy	43%
21	Norway	40%
22	Poland	39%
23	Spain	38%
24	Japan	37%
25	Luxembourg	33%
26	Greece	25%

SAFEST FROM CYBER ATTACK

% IT LEADERS FACED MAJOR SECURITY INCIDENT PAST TWO YEARS

By region:

1	Europe – Non-EU	21%
2	North America	21%
3	GLOBAL AVERAGE	28%
4	EU	29%
5	APAC	32%

By country:

1	Greece	13%
2	Canada	16%
3	Finland	19%
4	Luxembourg	21%
5	Norway	21%
6	Switzerland	21%
7	United States	22%
8	Belgium	26%
9	GLOBAL AVERAGE	28%
10	United Kingdom	28%
11	Australia	29%
12	The Netherlands	29%
13	China	30%
14	Italy	30%
15	Japan	30%
16	Germany	31%
17	Hong Kong	31%
18	Singapore	32%
19	India	33%
20	Ireland	34%
21	New Zealand	35%
22	Sweden	36%
23	Poland	38%
24	Vietnam	39%
25	France	50%
26	Spain	53%

EMBRACING DIGITAL LEADERSHIP

% ORGANISATIONS WITH CHIEF DIGITAL OFFICER

By region:

1	Europe – Non-EU	20%
2	APAC	20%
3	EU	20%
4	GLOBAL AVERAGE	19%
5	North America	14%

By country:

1	Spain	47%
2	Singapore	41%
3	France	31%
4	New Zealand	27%
5	Hong Kong	26%
6	Luxembourg	24%
7	Norway	24%
8	Finland	22%
9	United Kingdom	22%
10	Ireland	22%
11	Switzerland	20%
12	Australia	20%
13	China	20%
14	Italy	20%
15	Germany	19%
16	GLOBAL AVERAGE	19%
17	India	18%
18	Japan	17%
19	Sweden	16%
20	Belgium	14%
21	United States	14%
22	Poland	13%
23	Vietnam	12%
24	The Netherlands	10%
26	Canada	7%

DIVERSITY

% WOMEN IT LEADERSHIP ROLES

By region:

1	North America	16%
2	APAC	11%
3	Europe – Non-EU	11%
4	GLOBAL AVERAGE	11%
5	EU	8%

By country:

1	Norway	26%
2	Hong Kong	22%
3	Canada	19%
4	China	19%
5	United States	16%
6	Australia	14%
7	New Zealand	14%
8	Sweden	14%
9	Italy	12%
10	GLOBAL AVERAGE	11%
11	United Kingdom	9%
12	Switzerland	9%
13	Ireland	8%
14	India	8%
15	Poland	8%
16	Singapore	7%
17	Vietnam	7%
18	France	6%
19	Germany	6%
20	Spain	6%
21	The Netherlands	6%
22	Luxembourg	5%
23	Japan	4%
24	Finland	3%
25	Belgium	2%

CAREER PLANNING

% IT LEADERS MOVED JOB IN PAST YEAR

By region:

1	APAC	16%
2	EU	16%
3	GLOBAL AVERAGE	15%
4	North America	13%
5	Europe - Non-EU	13%

By country:

1	Sweden	28%
2	New Zealand	27%
3	Norway	21%
4	Germany	20%
5	Australia	19%
6	United Kingdom	19%
7	Hong Kong	18%
8	India	18%
9	France	15%
10	GLOBAL AVERAGE	15%
11	China	14%
12	Singapore	14%
13	Vietnam	14%
14	Poland	13%
15	United States	13%
16	Spain	12%
17	The Netherlands	12%
18	Switzerland	12%
19	Japan	9%
20	Mexico	8%
21	Ireland	7%
22	Luxembourg	7%
23	Belgium	5%
24	Finland	5%
25	Canada	4%
26	Italy	4%

SALARY INFLATION

% IT LEADERS REPORTING PAY INCREASE IN PAST YEAR

By region:

1	APAC	39%
2	GLOBAL AVERAGE	34%
3	EU	33%
4	North America	32%
5	Europe - Non-EU	23%

By country:

1	Vietnam	75%
2	India	67%
3	Mexico	63%
4	Poland	50%
5	Singapore	47%
6	Germany	45%
7	Australia	36%
8	Italy	36%
9	GLOBAL AVERAGE	34%
10	China	33%
11	United Kingdom	33%
12	Hong Kong	33%
13	United States	32%
14	Ireland	32%
15	Japan	32%
16	The Netherlands	28%
17	Norway	25%
18	Sweden	24%
19	Switzerland	23%
20	Spain	22%
21	Finland	18%
22	Luxembourg	17%
23	France	16%
24	Canada	15%
25	New Zealand	15%
27	Belgium	13%



The Power of Talent

