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IT's changing mandate in an age of disruption



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About this report

"IT's changing mandate in an age of disruption" is a report written by The Economist Intelligence Unit (The EIU) and supported by Appian. The report's findings are rooted in a twin survey of IT decision-makers and senior business executives at major corporations, conducted by The EIU in May and June 2021. The 1,002 respondents represent six sectors (financial services, insurance, healthcare, the public sector, oil and gas, and energy and utilities) and nine countries (the US, Canada, France, Germany, Italy, the Netherlands, Spain, the UK and Australia). A third are C-level executives and the remainder work at the director level or above. Half of the respondents work in organisations with annual revenues of over US\$1bn. The report supplements the survey findings with secondary research and in-depth interviews with experts. The EIU would like to thank participants for their time and insights, including the following interviewees:

- **Morag Watson**, chief digital innovation officer, BP
- **Sami Yalavac**, CIO, Bupa Asia Pacific
- **Joe Soule**, CTO, Capital One Europe
- **Christopher Ross**, CIO, Mayo Clinic
- **Esther Talboom-Kamp**, chief innovation officer, Unilabs
- **Damian Bunyan**, CIO, Uniper

Executive summary

Sudden, widespread lockdowns triggered by the onset of the covid-19 pandemic in early 2020 thrust IT leaders into the spotlight. CIOs and their teams faced the dual challenge of ensuring business continuity by facilitating the shift to remote working, while launching new digital customer engagement channels to meet demand.

Covid-19 forcibly accelerated companies' digital transformation plans. However, against this backdrop, IT departments have often found themselves side-lined from digital transformation decisions. Exacerbating a trend that predates the pandemic, siloed, distributed teams within organisations have increasingly made their own choices over new tools, technologies and digital strategies.

With the focus now on business recovery and renewal, the IT function will need to forge a new role for itself based on its ability to deliver business resilience for the long term. To better understand this role and what it means for the ways in which IT leaders and their teams interact and collaborate with the rest of the business, The Economist Intelligence Unit, supported by Appian, conducted a global survey and a series of in-depth interviews with both IT decision-makers and senior business executives at major corporations. Our research finds that:

- **The pandemic has shone a harsh light on the shortcomings of existing IT systems.** More than four in five respondents (83%) believe that their organisation needs to improve IT infrastructure and applications to weather future shocks.
- **Capacity is a significant source of apprehension.** On average, firms are dealing with a backlog of 3-12 months for planned IT projects, and the situation is worsening as business project demand outstrips IT budget growth.
- **IT teams' control over their organisations' digital infrastructure and strategy is slipping.** At more than half of the companies surveyed (55%), business units already do more than IT to procure or develop new applications. Moreover, 53% of business decision-makers believe the volume of applications built or sourced by non-IT business units will increase over the next 12 months. Business decision-makers are also more likely than IT decision-makers to perceive ownership over critical systems to be equally shared by IT and non-IT departments, suggesting tension over the role of IT teams.
- **Collaboration between IT and non-IT teams is strong, but many believe that their organisations would benefit if collaboration was stronger still. Data is an area of particular strain.** New product development and customer experience are areas where both sides praise each other's collaboration capabilities, but there is more divergence when it comes to data privacy and protection. Three quarters (75%) of business decision-makers state that, when procuring or creating new applications, they prefer to keep data where it is rather than move it to new repositories. Six in ten (61%) report having to cancel a digital project for lack of the right data.

- **The technologies seen as most important to the success of organisations over the next 12 months are cloud computing, AI and machine learning, data science and analytics, and automation.** These must be treated as priorities for improved IT/non-IT collaboration.
- **Executives have mixed views on skills.** Contrary to expectations, four in five executives (80%) say that they have enough talent to support their next-generation AI and/or machine learning projects. However, 71% of respondents report that relatively few of their applications have AI and/or machine learning capabilities, and more than half (57%) report that robotic process automation (RPA) projects often fail.

Introduction

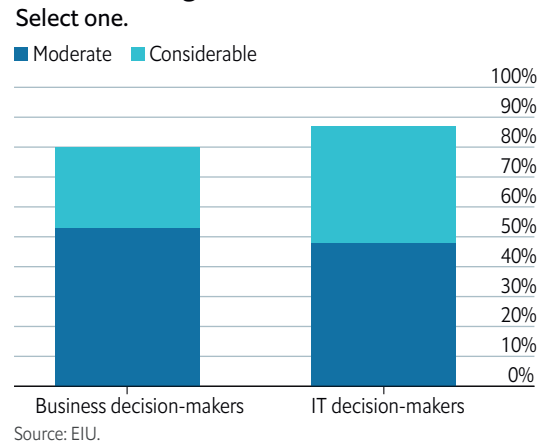
Coping with covid-19: lessons learned

Few things act as effectively as a catalyst for change as a genuine crisis. The covid-19 pandemic has been a case in point, sending even the most traditional companies scrambling to deploy new technologies. The speed at which IT leaders and their teams mobilised to get employees working from home and to ensure that customers could still do business with their organisations despite strict lockdown measures was remarkable.

But in the pandemic's second year, and with the benefit of hindsight, important lessons are hitting home. Employee working habits and customer buying behaviours have shifted significantly during the pandemic—in many cases, irreversibly—so a permanent uptick in the use of digital channels will need to inform future business and IT strategy. And while their organisations have never been more reliant on digital technologies, business leaders are acutely aware that covid-19 has shone a harsh spotlight on the shortcomings of existing IT infrastructure and applications.

In a global survey of senior executives, conducted by The Economist Intelligence Unit and sponsored by Appian, four out of five respondents (83%) said that, based on their pandemic experiences, they believe that considerable or moderate improvements are needed to their organisation's IT infrastructure and applications in order to better adapt to external change. Encouragingly, C-suite executives are even more likely to agree that this is the case (92%), suggesting that plans to refresh or bolster them will receive buy-in from the top.

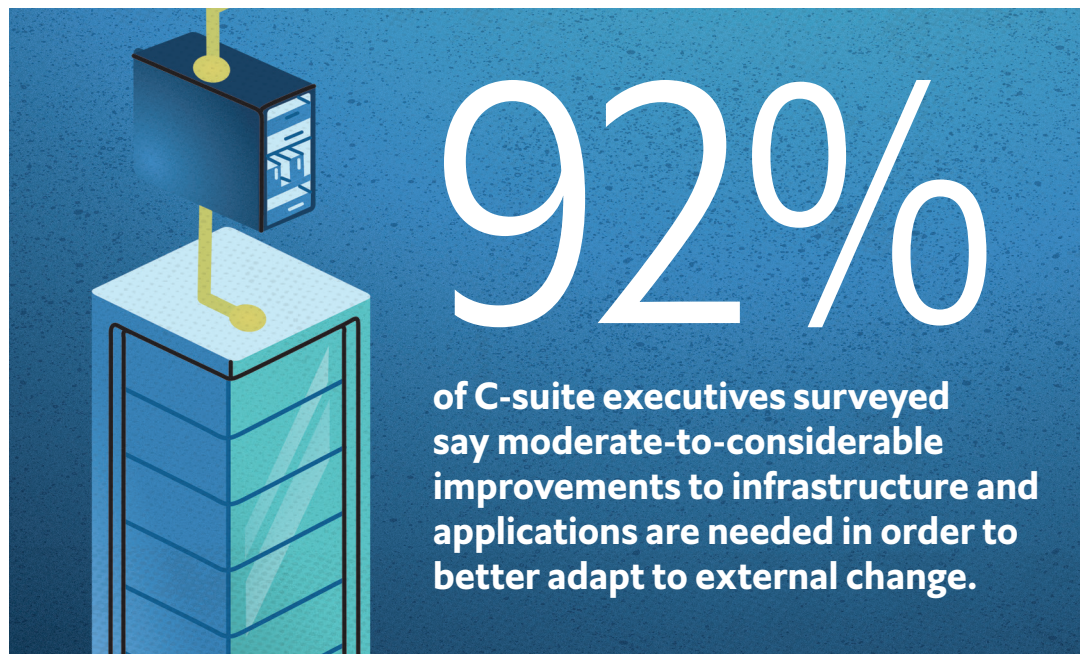
Figure 1: Based on your organisation's experience during the pandemic, to what extent do you believe that it needs to improve its IT infrastructure and applications in order to better adapt to external change?
Select one.



In particular, improvements to IT will be crucial if executive teams are to deliver on their goal of building the resilience necessary to drive business recovery. According to the 2021 Global Crisis Survey of almost 3,000 executives worldwide, conducted by management consultancy firm PwC, almost seven out of ten respondents (69%) are planning to invest specifically in building resilience and over three-quarters (77%) say they are adapting strategy to respond more nimbly to major interruptions.¹

After all, continued disruption should be expected. Pandemic-related lockdowns will be tightened in some regions and eased in others as new covid-19 hotspots and virus variants periodically emerge and retreat, with implications for business operations and customer demand patterns. Other

¹ 'Global Crisis Survey 2021: Building resilience for the future', PwC, March 2021



threats to business continuity, from climate change-related extreme weather events to international trade disputes, have not gone away, either.

And in some sectors, businesses are under pressure to disrupt themselves, making radical changes in business strategy in response to wider market pressures. At energy giant BP, for example, digital technologies are a key pillar of the company's "Reinvent" strategy, announced in 2020 by the incoming CEO, Bernard Looney, and intended to drive BP's transition from an international oil company to an integrated energy business and to become "net-zero" by 2050.

"This means that we will have to keep delivering on digital transformation at a faster and faster pace," says BP's senior vice president of digital science and engineering, Morag Watson. "It's a race to apply emerging technologies in entirely new areas of business, while simultaneously ensuring existing operations are safer, more reliable and more energy-efficient than before."

This represents a huge challenge, she adds, "one that will require our digital teams and capabilities to be deeply embedded in the business, understanding and keeping pace with needs and requirements that will, by necessity, be changing quickly."

Better IT needed

A study by global strategy firm McKinsey estimates that, on average, companies accelerated their digital transformation plans by three to four years during 2020.² But what is equally clear to technology leaders is that many of the shortcuts and quick fixes implemented in the early stages of the pandemic may prove unsuitable for the long term. In many cases, these were about basic survival; if new digital apps and services are to provide the robust, secure functionality that companies will need to successfully navigate the future, they will require re-evaluation, strengthening and scaling.

² 'How Covid-19 has pushed companies over the technology tipping point – and transformed business forever', McKinsey, October 2020

Respondents to our survey have clear views on where improvements are most needed. In particular, there is more work to be done on supporting remote workers (cited by 72% of respondents). Integrating information and workflows across the organisation and changing systems and processes quickly tie for second place, with both cited by 69%. Using technology to adapt to changing customer needs and experiences comes in third place (68%).

In terms of supporting remote workers, technology teams will need to ensure that the technologies in place offer the robust functionality needed for a new era of hybrid working, in which employees split their time between company offices and their own homes. At financial services company Capital One, for example, the global CEO, Rich Fairbank, recently outlined an approach that will see most employees working from home on Mondays and Fridays and at the company's offices on Tuesdays, Wednesday and Thursdays.³ Many other businesses have announced similar hybrid approaches, including tech giant Apple, automotive company Ford and management consultancy KPMG.

According to Capital One UK's chief technology officer, Joe Soule, this means that all applications and tools, and their associated functions, should be completely standardised and accessible across both home and office environments. "It's a matter of creating a portfolio of tools that is just as flexible and efficient at home as it is in the office, so that location isn't relevant at all to employees being as productive and effective as possible."

The same basic rule of providing a comparable experience applies to customers, too, whether they are interacting with a company via offline or online channels. At healthcare group Bupa

Asia Pacific, CIO Sami Yalavac and his team are actively looking for ways to build on what has already been achieved. In the early stages of the pandemic, they shifted some 4,000 Bupa employees to home working, including 800 contact centre staff. They equipped residential care homes with pre-configured iPads, so that elderly residents could easily and securely make and receive video calls at times when in-person visits were restricted, and developed the Bupa Aged Care Connect app, enabling care staff, residents and families to stay in close contact as the situation unfolded. For health-insurance customers, secure WhatsApp-based messaging was launched to reduce on-hold waiting times for phone calls to customer service staff regarding coverage and claims.

"The changes have been huge and I'm really proud of how my team coped with the transition and what we were able to deliver. We did what we needed to do in that situation and were treated like heroes by the business. But at the same time, we know there are a lot more changes to come and a lot more work still to do," says Mr Yalavac. "Now I'm telling my team that it's time for our work to go wider and deeper. It's time to focus on the experience that employees and customers have using those channels—and that experience needs to be as good for them or even better than working in one of our offices or visiting one of our stores in a local shopping mall."

IT under fire

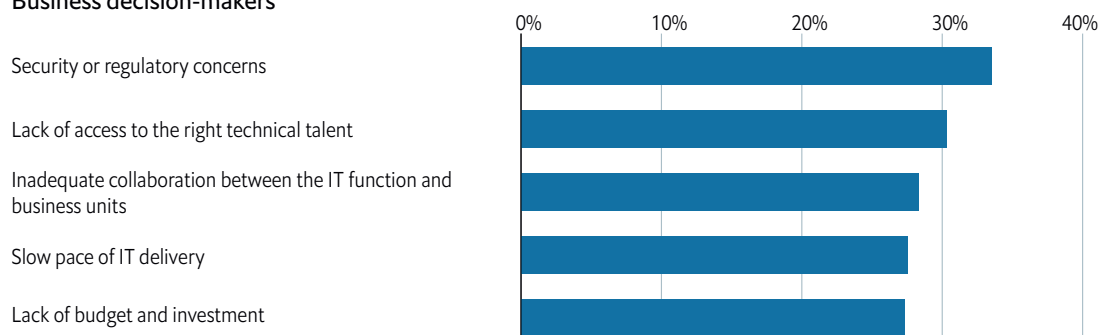
Whether organisations will be able to meet their digital objectives and seize on new opportunities remains in question. The survey shows that current technology capabilities and resourcing are a significant source of apprehension.

³ 'Capital One Declares Future as a Hybrid Work Company', Letter from Capital One CEO Rich Fairbank, 29 June 2021

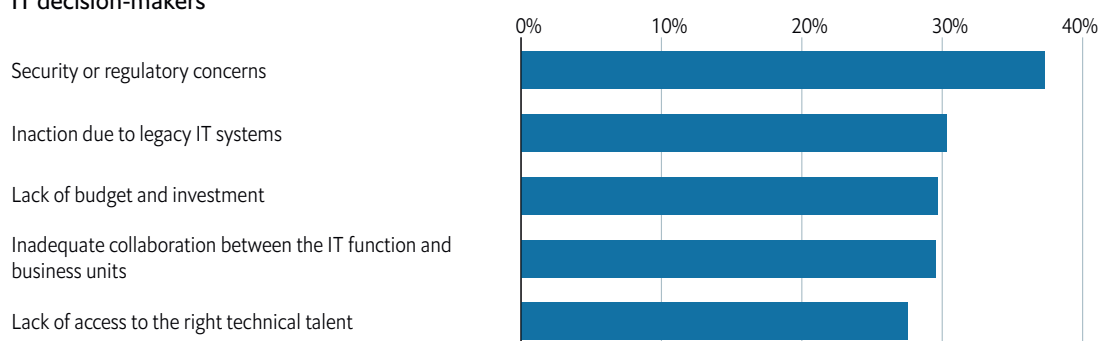
Figure 2: What are the chief barriers to achievement of your organisation's digital objectives?

Select up to three.

Business decision-makers



IT decision-makers



Source: EIU.

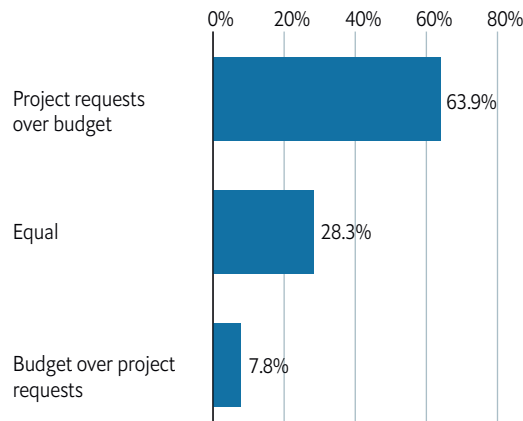
Security and regulatory concerns top the list of barriers, cited by 34% of respondents. Lack of access to technical talent, inadequate collaboration between IT and non-IT teams, and lack of budget and investment are each cited by 29% of respondents. Inaction due to legacy IT is cited by 28%. But comparison between business decision-makers (BDMs) and IT decision-makers (ITDMs) exposes clear contrast in perceived barriers. BDMs are more likely to bemoan lack of access to technical talent and inadequate collaboration with IT, while ITDMs identify legacy IT systems and

lack of investment as more obstructive to their objectives (see Figure 2).

Respondents from the financial services, banking and the insurance sector are more likely than those from other industries to identify inadequate collaboration between the IT function and business units as a barrier. More than one in three (34%) say that collaboration is inadequate, compared with 29% in healthcare, life sciences, pharma and biotech; 26% in oil and gas, and energy and utilities; and 24% in the government and public sector.

Figure 3: How does growth in annual IT project requests compare to growth in IT budgets?

Select one.



Source: EIU.

In short, at a time when IT departments are being urgently called upon to fast-track transformation and help to build resilience, they find themselves short on time, short on resources, and lacking the close collaborative

links with other departments necessary to accurately understand their requirements and get vital work done. Our survey shows, for example, that current growth in demand for IT projects outstrips IT budget growth (see Figure 3). Almost two-thirds of the ITDMs surveyed told us that this is the case in their organisations.

There is also evidence that IT departments have found themselves side-lined on digital transformation projects during the pandemic as line-of-business teams have taken control of technology choices, setting up systems for themselves and adopting more consumer-friendly tools and technologies, exacerbating a trend that predates covid-19.

We will investigate how IT leaders can overcome these challenges and play a central role in helping their organisations reset strategy and build resilience, in order to successfully navigate disruption in the years ahead.

1. Strategic partner, not gatekeeper

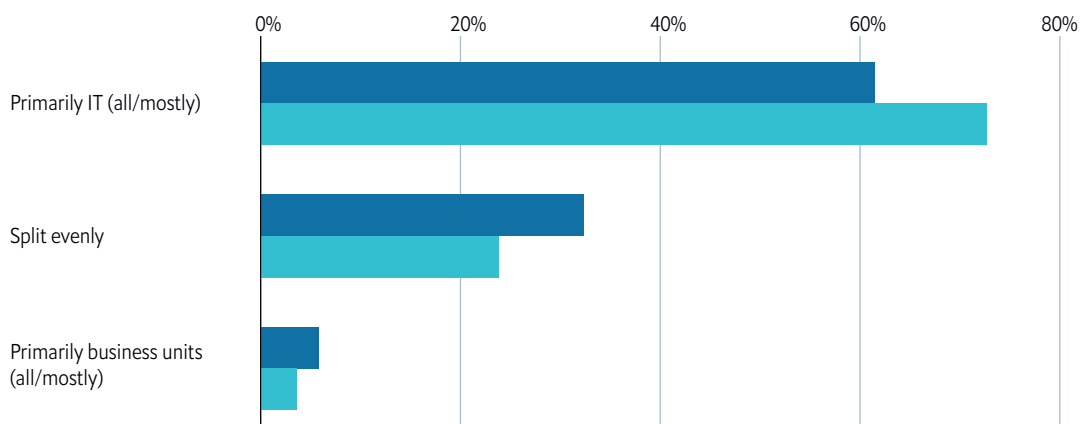
As digital technologies increasingly become an enabler of day-to-day work and revenue streams, it is perhaps inevitable that different parts of the business outside of the IT department feel a growing sense of ownership over “their” data and systems. Seventy-five percent of BDMs state that when procuring or creating new applications, they prefer to keep their data where it is rather than move it to new repositories that may be controlled by IT or outside vendors. Coupled with the fact that IT teams are already struggling to keep up with the demands placed upon them by the business, the IT function’s traditional role as the gatekeeper of corporate technology starts to look increasingly unworkable.

Ostensibly, the IT department is still in charge. The IT department is primarily responsible for owning and maintaining the applications and systems that have been most critical for an organisation’s ability to adapt and change during the pandemic, according to more than two-thirds of respondents (67%). But there are definite signs of tension here between IT and non-IT departments. ITDMs are far more likely than BDMs to believe that critical applications and systems are mostly or all owned and maintained by IT (73% versus 62%), which suggests some conflicting views within organisations. Likewise, BDMs are more likely than ITDMs to believe that responsibility for ownership and maintenance is split between IT and one or more business units (32% versus 24%).

Figure 4: Thinking of the applications or systems that have been most critical for your organisation’s ability to adapt to change during the pandemic, who owns and maintains them?

Select one.

■ BDMs ■ ITDMs



Source: EIU.

Respondents from the financial services, banking and the insurance sector are more likely to see systems as entirely IT owned and maintained (36% versus a cross-survey average of 26%). The highly regulated nature of such businesses, along with their continued reliance on legacy systems for core functions, has kept IT largely centralised. Meanwhile, those in government and the public sector, where IT responsibility is more broadly distributed across agencies, departments and teams, are least likely to see systems as entirely IT owned and maintained, with 42% believing that responsibility is split evenly between IT and one or more business units.

Hurry up and wait

When it comes to the procurement or development of new applications, however, there are clear signs that departments outside of IT want far more involvement and say than they have enjoyed in the past. Many are already taking matters into their own hands: a small majority (55%) agree “somewhat” or

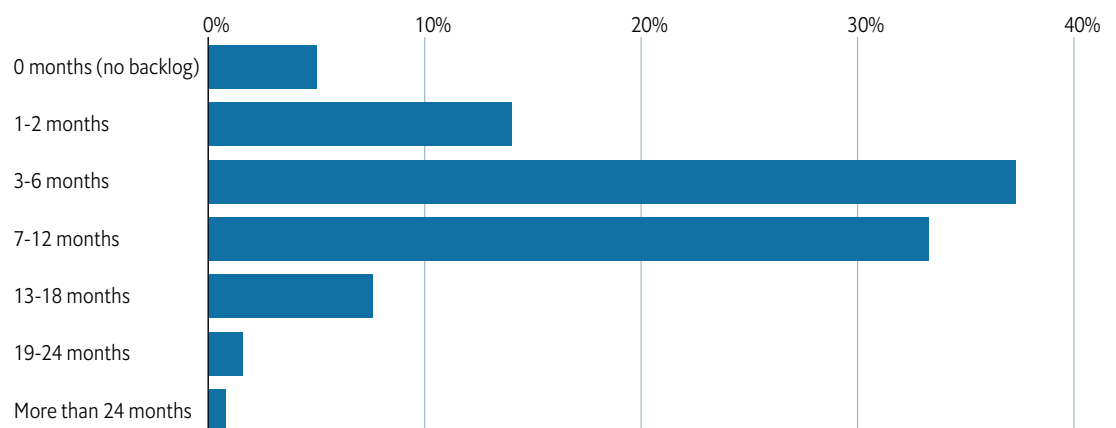
“strongly” that non-IT business units now take the lead in procuring or developing most of the applications that they use. Sixty percent of ITDMs say this is the case, compared with 50% of BDMs.

The trend looks set to accelerate, too. Just over half of BDMs (53%) believe that the volume of applications built or sourced by non-IT business units, rather than the IT department, will increase over the next 12 months.

In part, this may be down to frustration at the time that it takes to get digital projects rolled out in their organisation—a situation exacerbated by the pandemic. Two-thirds (66%) of BDMs report that the average length of time that projects affecting their part of the organisation have been on backlog over the past year ranges from three to 12 months. IT decision-makers do not deny that there is a problem, either: more than seven out of ten (71%) report the same average delays to digital projects held on backlog.

Figure 5: Across your IT project portfolio, what is the average number of months that projects have been on backlog during the past year?

Select one (ITDM respondents only)



Source: EIU.

53%



believe the volume of applications built or sourced by non-IT business units, rather than the IT department, will increase over the next 12 months.

The shift may also be attributable to experiences during the pandemic, which saw plenty of IT investments and implementations take place that did not fall under the direct purview of IT teams, says Jay Jewitt, cyber security director at management consultancy firm KPMG. “If ever there was an excuse to ask for forgiveness, rather than permission, the pandemic without question tops the list,” he wrote in a recent article focusing on business-driven subscriptions to cloud-based capabilities such as Dropbox, Google Drive, Amazon Web Services and Microsoft Azure during 2020.⁴ At many businesses, he added, there was an unstated message to employees to simply implement whatever was needed to function, alongside a vague intention to ask IT to review it all retroactively. But, as he points out, where this does not happen, “the solution will usually result in an increased risk of exposure to corporate data, personally identifiable information and

intellectual property.” Clearly, this is a serious cause for concern, especially at a time when IT security teams are already feeling the strain of responding to a rising tide of ransomware and other cyber attacks.

A call for collaboration

As business and technology strategies become more entwined, it is increasingly clear that how technology is implemented is now a major factor in success or failure when it comes to meeting business goals. This raises a clear argument for more effective collaboration between IT and non-IT teams—and a vital aspect of the CIO’s changing mandate is promoting this collaboration in order to create a closer fit between digital projects and business goals.

The authors of the Tech Trends 2021 report from management consultancy firm Deloitte see this as a two-way conversation:

⁴ ‘Shadows in the cloud’, KPMG Global, 23 September 2020

⁵ ‘Tech Trends 2021’, Deloitte, December 2020

"IT leaders and technologists should be engaged in strategy development processes and education that gives them a broad understanding of the business and its strategic objectives. As strategic partners, tech leaders can help business leaders identify and explore emerging technologies that support the strategic vision, with the objective of aligning the organisation's technology and corporate strategies."⁵ The good news is that our survey finds that collaboration between IT teams and non-IT teams is seen to be strong by both sides, although four out of ten respondents (41%) agree that their organisations would benefit if collaboration was stronger still.

How each side rates the other offers some valuable signposts as to how and where that effort might be best directed. BDMs regard IT colleagues as being largely or highly effective in collaborating on new product development (66%) and customer experience (62%). From the perspective of ITDMs, meanwhile, non-IT colleagues are largely or highly effective when it comes to collaborating on customer experience (67%) and customer service (64%).

There are gaps in perception, however. The largest are found in the area of data privacy and protection. While more than three-quarters (78%) of BDMs think that their IT colleagues are largely or highly effective in this area, only 61% of ITDMs think the same of their non-IT colleagues. Conversely, BDMs are far more likely to report that they have had to cancel a digital project because the proposed app or solution could not access the right data (61%, versus 47% of ITDMs). This suggests that ITDMs have concerns around how non-IT business units store and manage data, while BDMs are in the dark as to how data might be integrated into new apps and services—a clear signpost for more fruitful conversations in future.

So what might help to foster these conversations? For many technology leaders, Agile principles are a big help, with their focus on iterative development based on close collaboration between cross-functional teams. This is certainly the case at Capital One UK, where, Mr Soule says, Agile methodologies are used not only in software development, but also in non-IT projects across the business. "Developing digital services and products is a team sport – it has to be," he says. "You can't buy a differentiating outcome; you have to build it. And you can only build it well by deeply understanding what customers and employees really need to answer a challenge they're experiencing. Technology's role in that is to help the business articulate that need and to help it understand what's viable and what's feasible in that specific context."

At Bupa, Mr Yalavac's approach is to put together teams that focus on core services for each part of the business and take responsibility for the technology that delivers those services. These teams then work directly with that part of the business, "to understand current pain points and opportunities and help them address them directly, rather than waste time reviewing requirements of which they have no experience," he says.

"You simply can't be agile if you have this traditional model of people in the business setting requirements and people in IT trying to fulfil those requirements without really understanding the reason for them or what the end goal is," Mr Yalavac adds. "What you get then is IT working hard, only for people in the business to turn around and say, 'That's not what we meant', or 'It doesn't work the way we thought it would'. These conversations can go backwards and forwards for months, and all the time, customers are still waiting, and employees can't get work done effectively."

The iterative development aspect of Agile comes into play once a minimal viable product—a version of a product with just enough features for early customers to provide feedback for future product development—has been developed. A minimal viable product provides the basic answer to an employee or customer need and can subsequently be refined and augmented incrementally, in direct response to feedback on how it is working and where it requires improvement. “We start from the basis that while we can’t read people’s minds, we can respond to their feedback, whether that’s formal or informal feedback, data on usage, and so on,” says Mr Soule.

When it comes to closer alignment of IT strategy with business goals and outcomes, a new set of metrics might be required that more closely reflect overall strategic objectives. These will likely be financial, operational and customer-focused in nature. At energy company Uniper, for example, CIO Damian Bunyan says it is incumbent on IT leaders to measure and monitor exactly how their team is contributing to an outcome that the business strives to achieve. “In our case, we have a global energy trading team, and I track our cost per trade closely. As a

profession, we have to look wider than the basic hygiene metrics that tell us how IT is performing and measure our success in terms of business success.”

Finally, there is huge scope in many organisations for being much smarter about the way that digital applications and services are delivered, in order to pick up the pace of transformation, says Esther Talboom-Kamp, chief innovation officer at Unilabs, a Netherlands-based medical diagnostics service provider. “Most digital services are based on components, but lots of organisations urgently need to understand what they have there and what they can reuse,” she says. “And that requires taking an in-depth inventory of what pieces of the puzzle exist, what problems they solve, their quality, whether they’re scalable or not.”

A recent exercise of this kind at Unilabs has been a good launchpad, she adds, for better understanding of where future software development priorities should lie, so that the company can mount faster responses to new areas of disruption and opportunity. Digital transformation work needs to be fine-tuned to avoid the kinds of duplicated effort and incremental investment that only slow it down.

2. A collaborative vision of the digital future

When Uniper was spun off from former parent company Eon in 2016, one of the first decisions taken by Mr Bunyan in his role as CIO was that the company's new IT infrastructure should be entirely based in the cloud. It is a decision that has paid dividends, he says, especially since the start of the pandemic. Uniper has two main areas of focus: power generation and global energy trading. While covid-19 has led to significant price volatility in energy markets, Uniper's traders have been able to keep trading in real time from their own homes. "Not every company in our business can say that. At competitors where core trading systems are based [on the firm's premises], they had to have traders working in the office, because of their technological limitations. We didn't."

But just as importantly, says Mr Bunyan, Uniper's cloud-based infrastructure provides a platform for the company's forward strategy, which includes its exit plan from coal-fired power generation, as part of a wider goal of carbon neutrality by 2035. The company's power stations, Mr Bunyan explains, use industrial Internet of Things (IIoT) technologies, based on smart sensors. The data that these generate ensure that plants can be run as efficiently and safely as possible. "That means we've already got huge expertise in collecting and managing that data, using machine learning techniques to analyse it, and

software to present the necessary information to our power station managers and their teams—and it's all in the cloud," he says.

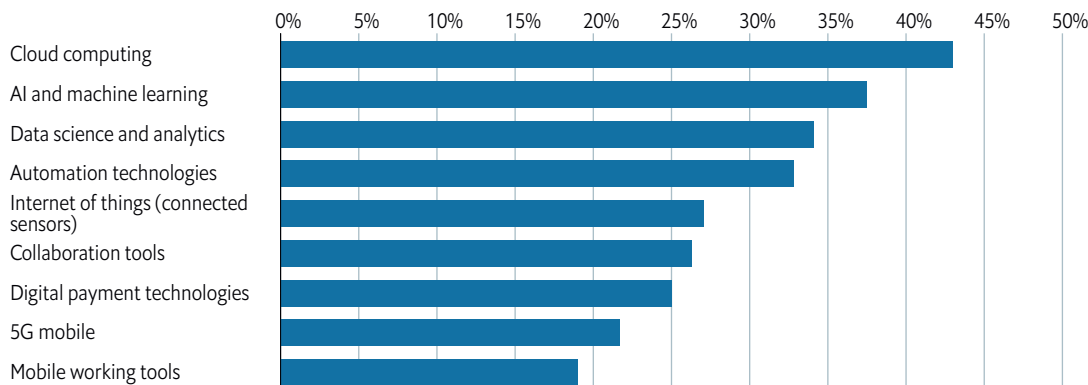
Not only is this expertise applicable to other types of power generation in which Uniper is expanding, but it also provides the foundations of the company's Enerlytics platform, which it sells to other companies that generate energy, in order to monitor plant status, manage performance and risk and plan vital maintenance work. In other words, it is at the heart of an entirely new revenue stream for Uniper.

The cloud as a backbone for change

At other companies, executives agree that cloud computing offers them the flexibility and scalability that they will need to cope with disruption and accomplish their own business-model pivots. It is also seen as a way to future-proof the technology platform that will deliver new apps and services. When respondents were asked about the technologies that will be most important to the success of their organisations over the next 12 months, cloud computing topped the list, cited by 43% of respondents (see Figure 6). This makes a lot of sense, given that this model of internet-based access to systems and applications is inherently engineered to support remote access and online collaboration.

Figure 6: What categories of technology will be most important to the success of your organisation over the next 12 months?

Select up to three



Source: EIU.

On top of this, the low-cost scalability and resilience offered by the cloud makes it an ideal platform for developing new digital applications and services and running them in production, as well as storing corporate data for analysis. The cloud also increasingly gives companies ready access to a huge range of “cloud-native” technology tools in emerging areas such as artificial intelligence, IoT and mobility, opening the doors to new digital services and business insights. ITDMs are more enthusiastic than BDMs about cloud’s potential contribution to business success (47% versus 39%), perhaps reflecting their desire to free up their own teams from having to provision, manage and monitor on-premises hardware, as well as their enthusiasm to explore emerging technologies.

Next on the list comes artificial intelligence (AI) and machine learning, cited by 37% of respondents. This refers to technologies capable of analysing large quantities of data, learning from the results and using this knowledge to action business steps

that might otherwise be performed by a human employee. Surprisingly, four in five respondents (80%) agree that their firms have enough talent to support their AI and/or machine learning projects. However, 71% report that relatively few of their applications currently have AI and/or machine learning capabilities.

Third and fourth on the list are the closely related fields of data science and analytics (34%) and automation technologies (33%). Both have important roles to play in resilience. In the case of analytics, companies need to consider the significant economic and structural upheaval triggered by the pandemic, spanning oil prices and scarcity of vital components used in manufacturing to the effects of port shutdowns and regional surges in illness and unemployment. Recovery will be unpredictable across geographies, product categories and customer segments, and, to complicate matters further, historical data and forecasting models may prove unreliable in this new normal.

As a result, for organisations to maintain profit margins, predict demand patterns and manage assets successfully, data that formed the basis of previous forecasting and planning models will require careful re-evaluation, as will the models themselves, and the methods and analytics tools used to parse those models. At the same time, analytics has a big role to play in modelling the impacts that different potential responses to disruption are likely to have on organisations.

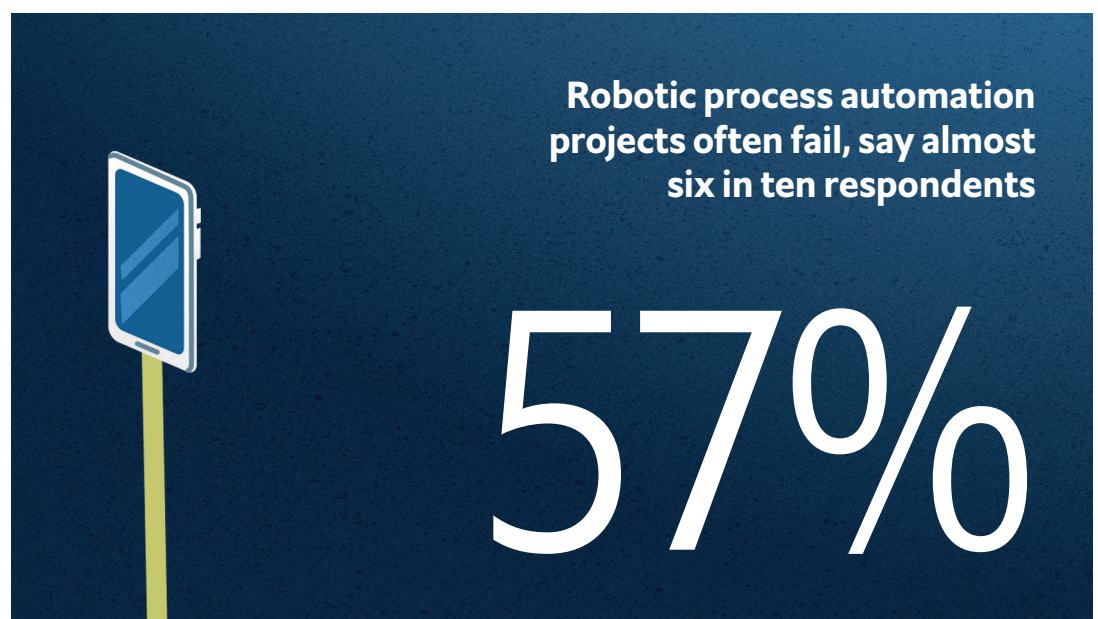
Getting data into the hands of decision-makers will be important, says Ms Watson at BP. While the energy giant has always relied heavily on data, especially in its upstream operations, and established a giant data lake on the Microsoft Azure cloud several years ago, there is now a concerted effort to make it easier for business executives to access the data they need to answer specific questions.

"At pretty much all large organisations like ours, there have been significant barriers in the past to employees accessing data without having to rely on specialist IT and data science

skills," says Ms Watson. "We're looking to help them become "citizen data scientists" and "citizen developers", who can easily create for themselves the analytics models and applications that give them exactly the insights they need, when they need them. It's a huge focus for us."

Automation, meanwhile, will boost resilience by reducing costs, improving employee productivity and speeding up corporate responses to unfolding situations. Cybersecurity is a top area of focus for automation over the next 12 months, according to 47% of respondents. Machines, after all, are faster and more accurate than humans when it comes to detecting threats and shutting them down.

New product and/or service development comes next (38%), with business teams looking for faster ways to build new apps, design new workflows and integrate them with siloed data and systems. They will definitely need help from their colleagues in IT. Robotic process automation projects often



fail, say more than half (57%) of respondents. And what would help them meet their automation objectives are better data quality (42%) and closer collaboration between IT and business units (41%).

Image makeover

Understanding IT's new mandate is, to some extent, a question of how IT leaders see themselves, says Cris Ross, CIO at US healthcare provider the Mayo Clinic. "There have always been tactical CIOs and strategic CIOs, but it's not enough to just be tactical anymore, because organisations need so much more. As a tactical CIO, you're always in reactive mode, responding to a constellation of individual decisions within the business. A strategic CIO, in my view, has a far more

fundamental role to play. And it's a role that's focused less on control and more on delivering on a smaller number of carefully identified and agreed-upon business priorities."

"The role of digital leaders has totally changed, in my view," says Ms Watson. "Yes, you still need deep technical capability and expertise, but you also need to communicate effectively with the business, translate their requirements into technical specifications, and be able to convey to them clearly exactly what technology can and can't do in terms of delivering on those requirements. And if you can get that last bit right, you'll find you can open peoples' eyes, spark their imagination and fuel new ideas about tackling their day-to-day challenges."

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LONDON

20 Cabot Square
London, E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8500
Email: london@eiu.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@eiu.com

NEW YORK

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@eiu.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@eiu.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@eiu.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@eiu.com