IT LEADERS

MORE CLOUD, MORE SECURITY - AND SOFT SKILLS COME INTO THEIR OWN

Making IT good for society

CONTENTS

1. INTRODUCTION

Like no other year 2020 has shown how reliant all organisations are on the IT function. The effect on IT leaders, in the tech and people context, has been commensurately large. With 2020 showing us how much we need IT expertise, IT competency and dependable systems, the so-called soft skills of caring for the team and empathetic leadership have also come into their own.

This is shown by some of the biggest changes in numbers in the BCS IT Leaders survey in recent years. But the numbers also demonstrate that when IT leaders raise issues that need addressing (security and cloud, yet again, loom large) – they know of what they speak.

It is hardly surprising that responders this year have had things to say about good people management, business continuity strategy and, as always, where they feel their concerns and gaps are most pressing. There is a small amount of commentary in the following report, but it is mostly composed of raw numbers and verbatim comments from those at the (very sharp) end. These subjects will inform BCS content for the coming year – and will be reflected in the membership magazine ITNOW, the ITNOW e-newsletter and ITNOW's new series of expert webinars. Look out for them and get involved.

Brian Runciman MBCS

Head of Content and Insight, BCS The Chartered Institute for IT

1.1 Key findings

› The priorities for 2021 are operational efficiencies (59%), business transformation and organisational change (55%) and remote and distributed working (48%).

› When asked to single out their number one priority, the top answer is business transformation and organisational change, selected by 22% of respondents. This is followed by operational efficiencies (15%) and staff engagement and well-being (10%).

› The technologies that organisations are prioritising for 2021 are cyber security (61%), cloud (also 61%), and business process automation (47%).

› When asked to identify their top technology priority, cyber security (18%) edges ahead of cloud (15%). Also with 15% is business process automation, closely followed by agile methods (14%).

› Only 9% of participants feel their organisation has enough resources to achieve success in 2021.

9%

HAVE ENOUGH RESOURCES FOR 2021

2. WHAT CHANGED ACROSS 2020?

44%

PRIORITISED STAFF ENGAGEMENT AND WELL-BEING IN THEIR TOP 5 FOR 2021

The highest scoring priorities for 2021: 'operational efficiencies', 'business transformation and organisational change', and 'remote and distributed working' represent a shift in the patterns of recent years. This is no doubt due to the uncertain nature of the year and is reflected in the drop in the position of 'continuous innovation'. In 2020 'continuous innovation' was placed at number two overall (53%), 2019 it was first with 54% – this year it dropped to fifth place.

Conversely, 'staff engagement and well-being' was prioritised by 44% as a top 5 answer for 2021, a significant leap from the 32% who rated this in the top 5 in 2020's report.

Similar trends were reflected when choosing the organisation's top priority. Again, 'staff engagement' rose significantly – it was only a top priority for 3% in 2020 and 4% in 2019 but hit 10% this year.

'Operational efficiency', too, is on a general upward trend. It was rated as the top priority by 10% in 2019, and 17% in 2020, with 15% this year.

The highest scoring technology priorities were consistent with recent years – which reflects well on previous strategies, but the relative importance was even stronger. 'Cybersecurity' and 'cloud' were tied with a 61% strike rate, with 'business process automation' following in third position.

'Cybersecurity' and 'cloud' were also joint top in 2020 but with only a 52% strike rate; similar numbers were recorded in 2019. In 2019 'business process improvement' scored 36%, so 2021's 47% is again a jump.

Unsurprisingly these trends were also reflected in the choice of top technology priority. 'Cybersecurity' was chosen by 18%, 'cloud' and 'business process automation' by 15%; and 'agile methods' also made a much-improved showing at 14%.

For comparison, in 2020 'business process automation' was chosen as top priority by 10%, with 'agile methods' at 4%; and in 2019 'business process automation' was 12% with 'agile methods' at 7%.
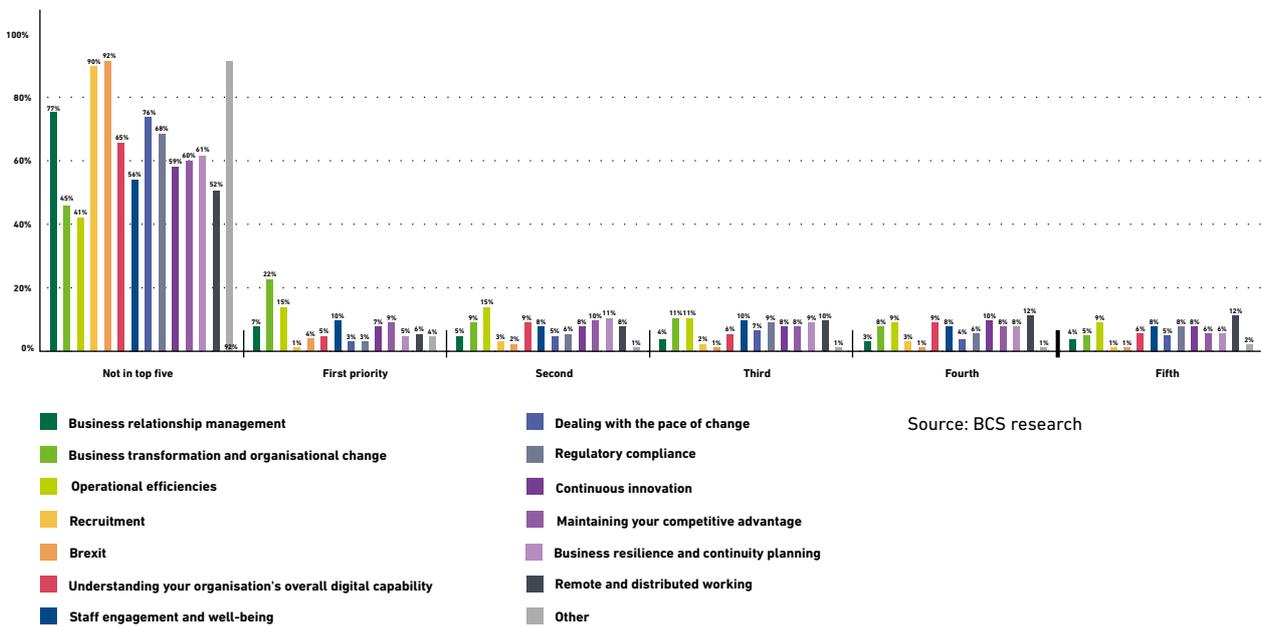
It will come as little surprise after a tumultuous year that optimism about achieving organisational goals is low. Only 9% of participants feel their organisation has enough resources to achieve success in 2021. This compares to a steady – although still very low - 12% in 2020 and 2019.

3. 2021 PRIORITIES AND CONCERNS

3.1 Organisational priorities

Figure 1:

WHICH OF THE FOLLOWING ARE YOUR ORGANISATION'S PRIORITIES FOR 2021?

Source: BCS research

Legend:
- Business relationship management
- Business transformation and organisational change
- Operational efficiencies
- Recruitment
- Brexit
- Understanding your organisation's overall digital capability
- Staff engagement and well-being
- Dealing with the pace of change
- Regulatory compliance
- Continuous innovation
- Maintaining your competitive advantage
- Business resilience and continuity planning
- Remote and distributed working
- Other

This chart shows the top 5 ranked organisational priorities for 2021. These included general items such as security, data governance and quality to more conceptual items such as 'industry 4.0'. Some of the more specific items included redundancies, supply chain security, fintech enablement and intelligent automation.
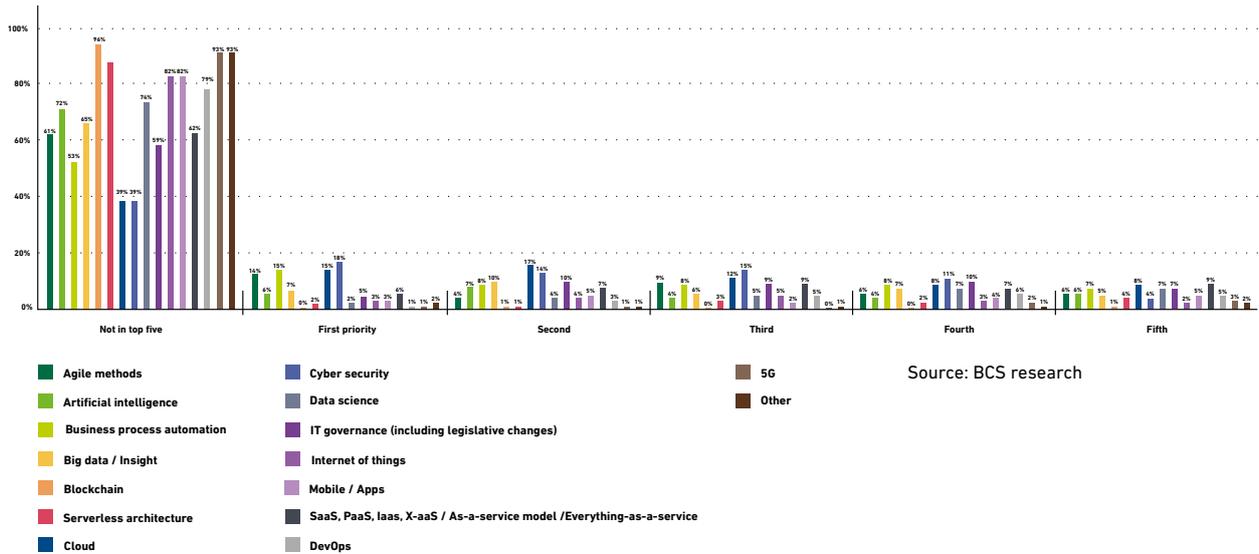
22%

CHOSE BUSINESS TRANSFORMATION AND CHANGE AS THEIR TOP PRIORITY

3.2 Technology priorities

Figure 2:

WHAT ARE YOUR ORGANISATION'S TOP TECHNOLOGY PRIORITIES FOR 2021?

Source: BCS research

X-axis categories: Not in top five | First priority | Second | Third | Fourth | Fifth

Legend:
- Agile methods
- Artificial intelligence
- Business process automation
- Big data / Insight
- Blockchain
- Serverless architecture
- Cloud
- Cyber security
- Data science
- IT governance (including legislative changes)
- Internet of things
- Mobile / Apps
- SaaS, PaaS, Iaas, X-aaS / As-a-service model /Everything-as-a-service
- DevOps
- 5G
- Other

This chart shows the highest ranked technology priority for 2021. There was also an option to add to this if needed. The more focused answers included ISO 8000, FTTP, remote interaction technologies, preventing censorship, virtual reality apps, geographical information systems, biometrics and product-centric ways of working.

So, what is it that leads to IT leaders having a record-breaking (in BCS surveys) low expectation of success in 2021? One of the key questions we have asked over the years of this survey is, *'what are the changes and trends in IT that keep you awake at night?'*

The general picture from these verbatims is very much in keeping with the figures, with the two main answers: cybersecurity and cloud. Two respondents summed these up neatly, on security: *'Cybersecurity is a big worry. Most of the rest we are in control of - the inputs and outputs - but we cannot control bad actors. How much defence is enough?'*

And on cloud: *'we need to be able to prevent service failures in a complex, hybrid-cloud landscape.'*

Of course, some other regular contenders were well represented: 5G, AI, legal compliance, Brexit, change management, capability gaps, data proliferation, decoupling data from legacy systems (Editor's note: we have earmarked this to explore what it really means in 2021), digital transformation and optimisation, disaster planning, digital literacy of general workforce, resilience, and shadow IT.

The need to adjust to a changed 2021 provoked comments on what organisations will need to keep going... for example the *'ability to keep up and adapt without incurring unnecessary expenditure'* and *'to support large numbers of end users with new platforms.'*

18%

CHOSE CYBERSECURITY AS THEIR TOP TECHNOLOGY PRIORITY

What else should we be aware of? Some comment highlights:

› 'Articulating business value.'

› 'Being able to provide the latest IT services quickly enough for our business to deliver applications to our customers.'

› 'Higher expectations for software security, unrealistic expectations for AI, reliability of deep-learning systems.'

BCS being a broad technology church means we also licit some domain specific comments. One commenter raised this problem: *'All the changes are happening faster than the health service can (will) react to.'*

Naturally enough many of the concerns raised in the survey that will affect 2021 arise from 2020's situation: *'During this pandemic platforms like Zoom, Teams, GoToMeeting, etc. have been very popular and often enabled businesses to continue to function, however, whilst they may in some cases have raised the public and the business's trust in the profession, there are still too many failed IT projects.'*

As noted above, innovation has taken an understandable back seat to business as usual. As one commenter said: *'I work in the leisure sector and what keeps me awake is helping my company make it through the next year. Forget about upcoming trends, we are trying to work with 40% less staff and very little spending.'*

Inevitably political views come in. BCS takes a neutral stance on party politics of course, but as an example, one respondent listed their concerns: *'Lack of clarity over service provision to and from the EU. Losing all my biggest clients who are based in the EU. Brexit/ government is a joke.'*

Some larger unknowns also came up. *'Scale of technical debt vs the imperative to address this very quickly (and at acceptable cost) in order to meet the changing needs of the world. Also, the difficulty of delivering complex change at scale.'* Another comment concerned *'how to articulate the shift to operational expenditure model with a traditional organisation that expects a certain level of capital expenditure. And recruitment of staff with concerns about IR35 statutory changes.'*

And some raised organisational maturity: *'I am keen that we are working on strategic planned objectives and are innovative and creative. However, some of our drivers would require tactical solutions and we need to provide routes to create that flexibility. I am not sure we are mature in that way.'*

Here are some of the business consideration comments this survey uncovered:

› 'Lack of general understanding of the mission criticality of data quality.'

› 'Keeping pace of all changes is tremendously difficult (if not impossible). Not sure a specific "upcoming change/trend" is a cause of sleepless nights – but general workload can do at times.'

› 'Making sure the balance is right between user needs, organisation needs and the appropriate use of digital and tech to improve services.'

› 'My organisation fails to keep up because of a lack of IT literacy amongst leaders.'

Whilst there are clearly large areas of concern, there are also those with a philosophy that works for them. **These two comments show either end of the spectrum:**

'There's not enough space (in the survey) to really answer what keeps me up at night.'
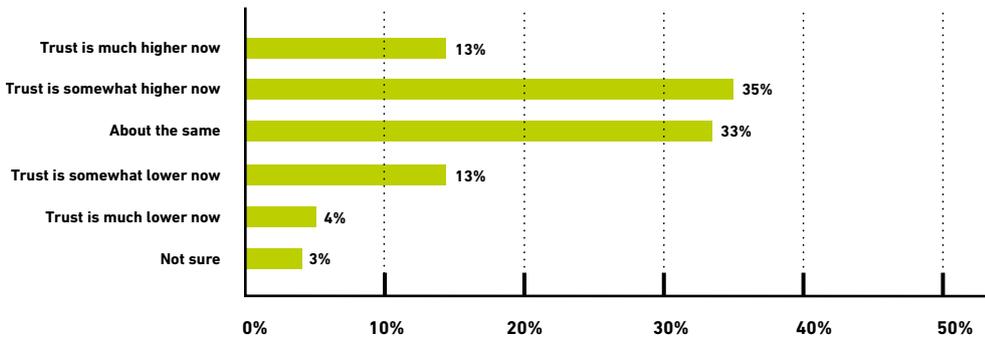
versus

'Nothing keeps me up, really. Organisations that have embraced agile methodology and/or devops as part of their IT delivery process are already ahead of the curve towards adapting to any upcoming changes. For those that haven't, this would be their main focus as well as building out their remote working capabilities.'

3.3 Public trust in IT

Figure 3:

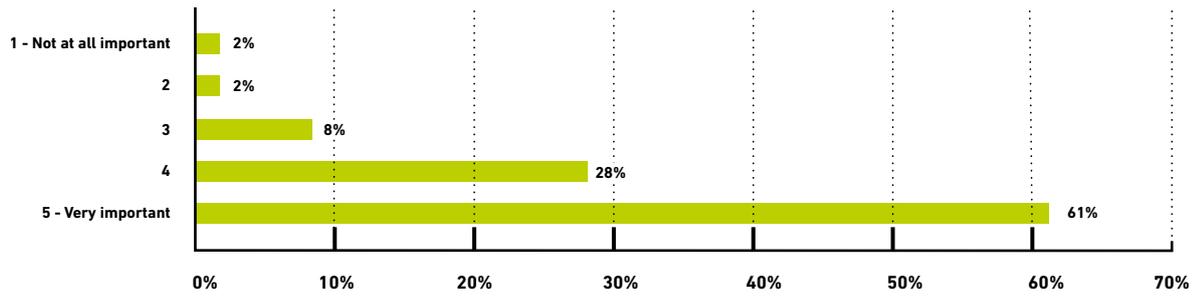HOW DO YOU BELIEVE THE PUBLIC'S TRUST IN THE IT PROFESSION HAS CHANGED IN THE PAST FIVE YEARS?

Source: BCS research

This chart shows how responders felt that public trust in IT has changed in the past five years.

3.4 Importance of ethical thinking and practice

Figure 4:

HOW IMPORTANT IS IT TO YOUR ORGANISATION THAT YOUR IT PROFESSIONALS HAVE THE HIGHEST LEVELS OF ETHICAL THINKING AND PRACTICE?

Source: BCS research

BCS does a separate report on ethics, but the responses here show a good level of importance attached to organisations' IT professionals having the highest levels of ethical thinking and practice.

4. THE COVID EFFECT

Maybe an indicator of the effect of COVID is encapsulated in this stat: concerns about Brexit ran at 14% in the top 5 concerns for 2020 but dropped to 8% for 2021. IT leaders were clearly more concerned with other things, for example business continuity and looking after dispersed workforces.

4.1 Business continuity strategies

Nothing tests a business continuity or disaster preparedness plan more effectively, sadly, than an event. And we well know the effect that COVID has had on workforces, as one responder wrote: *'100% remote working, temporary office closures, events have had to be moved online only - this has impacted our field marketing strategy significantly.'*

A considerable number of responders found their plans up to the task. *'One could make the argument that COVID has been a thorough test of our continuity strategy and that the test has been passed with flying colours'*, wrote one commenter. *'Very little disruption has occurred despite the majority of our workforce now performing their duties from home, where previously there was a strong focus on working from fixed office locations.'*

COVID has also meant that previously ad-hoc approaches to homeworking have been quickly firmed up. The move to the cloud, with an attendant collaboration mindset, has been not only needed, but imperative. Likewise, the move away from fixed hardware.

Discussing the change needed in threat perception, one person wrote: *'All services are being reviewed and a programme of improvement to the ICT infrastructure has been implemented. Other planning is also underway. More monitoring of systems is taking place. The availability tiering of systems has been reviewed.'* These are no small tasks.

For some these changes were part of a progression: *'it accelerated change already underway - it also shifted the risk appetite to a less controlled environment.'*

In terms of planning, certain principles have been reinforced: *'Business continuity requires continuous effort. It is ongoing, so programme and documentation should not be seen as final. There are always resource changes that could impact these arrangements. During COVID-19 we have seen increases to resources, improved recruitment process, development of rotas, redeployment of essential resources, contracts extended and budget increases. Change improvements are reflected in continuity planning, which requires continual analysis of arrangements, so we are better positioned.'*

We had several comments on successes and the benefits of previously started transformation:

› *'Being an IT company not only has our own (recovery plan) been properly tested, our entire client base and the IT model we sell has proven to be the best one it could have been.'*

› *'We invested in remote working prior to the pandemic.'*

But a certain amount of refocusing has been provoked too. Some comments:

› *'It has made us focus much more on resilience and failover to ensure we keep systems up for longer.'*

› *'In many ways, continuity has improved with less reliance on availability of physical spaces. We are however now over-reliant on one key cloud infrastructure provider.'*

› *'Every business needs a business continuity plan. Our business impact analysis (BIA) focused more on system / DC outage scenarios prior to COVID-19. But business continuity planning in workplace, i.e., business continuity for a pandemic, has become equally important now.'*

The new requirements of continuity were well summed up by one commenter: We have seen… *'increased identification of business-critical processes and personnel. Increased use of technology to overcome diverse location of teams and key business activities. Additional validation testing of people, process,*

"COVID-19 HAS MADE US THINK MORE ABOUT OUR STAFF AND HOW WE SUPPORT THEM. IT HAS BROUGHT OUT THE SOFTER SKILLS IN GOOD ICT LEADERS"

technology, to achieve effective business continuity. Fast-track delivery of new VDI and zero trust network services to support agility.'

4.2 Changes in IT leadership competencies

Much has been made over the years about soft skills, especially in IT, where the kneejerk response is often that managers and leaders can be too technical – the nerd/geek stereotype of empathy deficiency. The overwhelming number of comments here paint a different picture.

The importance of empathy and trust came through strongly. Said one responder: *'COVID-19 has made us think more about our staff and how we support them. It has brought out the softer skills in good ICT leaders.'*

What has been required of leaders in this situation, which one responder said has allowed us to *'think laterally about remote working'*?

› *'Heavy demand on all-round IT leader to lead changes socio-technically.'*

› *'Ability to empathise with people and build resilience, with constrained non-verbal communication,'*

› *'An increase in trust to resource new ways to manage / mentor / report as a result.'*

› *'It has forced IT leaders to be much more business- and value-focused rather than IT-centric in their thinking.'*

› *'A leader needs to take care of their people, especially when so many of our colleagues have lost their jobs. A good leader, whether or not they are in IT, will do this. The ability to think on your feet and prioritise when so much of the workforce is working from home is essential.'*

› *'Be more patient with delivery times as the vendor chain is under pressure too.'*

› *'Less concentration on the minute detail, and more around bigger picture approach. Less bureaucratic, but without sacrificing key governance processes. Greater trust in the skills and capabilities in place.'*

› *'There is increased focus in developing soft skills such as emotional intelligence, storytelling and managing time.'*

Will COVID lead to a weeding out of leadership teams? One person said that it has *'exaggerated (the deficiencies of) the less able leaders.'* And, from the technical perspective, *'anyone who thought the future is on-premise only is probably out of a job. Cloud has got everyone working from home so if you are not thinking cloud first then that is a problem.'*

What are some of the other negatives that need further addressing?

› *'It has shown that "know-it-alls" don't actually know it all and that we are not immune to the basic business practices or continuity planning...'*

› *'IT has become reactive in 2020 where we need to be strategic.'*

› 'It's definitely highlighted weaknesses in IT management for a number of companies, in the job market I have noticed more IT management positions being offered asking for more skill sets than usual but for the same salary. For me, strategy and project management skills have been tested rigorously.

A general change in mindset is evoked in this comment: *'Business-not-as-usual is the new business as usual.'*

What other positive effects have been felt by IT leaders?

'We're taken more seriously by senior management.'

'We've become more human - and understanding of different working practice models.'

Overall, the pandemic has *'shown organisational reliance on the IT function'* as one commenter wrote.

IT strategy changes post-COVID

Working from home has very quickly become the norm for many in IT disciplines – it almost seems to go without saying. Whilst it is not as simple as that, what other effects should the events of this year have on business strategy? Here are some responder comments with suggestions to evolve IT strategy...

4.3 The organisational perspective

'A review of business practices during 2020 (which for most have been quite different from previous years) should be undertaken. Management learning around what worked and what didn't should drive business practice for the New Year and beyond...'

The personal perspective

'Absolute focus on enabling and empowering people to do their best work, with the least amount of friction.'

'More emphasis on communication, change adoption and guidance.'

'We need to be aware that organisations are not flat in socio-economic terms. We have folks working from home who just don't have space. Seniors making the decisions often have the luxury of house and garden. We also need to understand human social needs. In technology terms, mobility and connectivity are king, and we mustn't let technology drift us into work-focused surveillance and monitoring.'

The tech perspective

'We need a rethink of the IT approach, system architecture, IT security and compliances. For instance, traditional Active Directory, etc, used to work well in office environments, but is lacking when working from home. The approach for authentication needs a rethink; moving to multi-level authentication etc.'

'Cloud-first strategy, security at the end-point first.'

'Cyber security must be at the top of every risk agenda.'

'Phishing is on the increase. Remotely staff may typically behave differently working from home than at work. Therefore, added levels of protection are paramount to ensure that staff remain aware that they should still follow the guidelines and be observant when accessing and handing corporate data. More emphasis on education about security would be good.'

'The walled garden no longer works, secure distributed computing to a largely remote workforce will become key. BYOD, company supplied devices and staff tech literacy will become critical to corporate performance.'

'Distributed working and endpoint / home network protection will be a focus. MDM vs BYOD will be back on trend with 5G.'

'I feel there is argument for considerable changes in need towards SaaS/PaaS/IaaS and cloud-based solutions. Strategy should reflect this.'

4.4 Hitting reset

There were also some interesting general comments on the future of IT strategy – and the implications from 2020. Said one commenter: *'Business continuity planning investment was justified - these things do happen.'*

What of our terms: *'I think there is a question mark around calling something an IT strategy,' wrote one person. 'I think there is a need for a digital strategy which is underpinned by an IT strategy AND an information strategy. When organisations talk about being data-driven but don't have an information strategy, they will struggle to deliver their vision.'*

And, finally, a comment on the larger issue we all face: An IT strategy *'should be more focused on making technology easier to engage with and tools such as social networking, more useful ethical and less intrusive. IT strategy should also ensure positive contribution to our climate.'*

How has your business continuity strategy been affected by COVID-19?

Selected comments:

'Business continuity strategy has almost become the norm, with emphasis becoming focused on agility and responsiveness to change.'

'The organisation had to implement a new business continuity system.'

'We now have more regular disaster recovery testing.'

'We have reassessed the need for (physical) recovery sites for locating teams, as capability to work from home has grown.'

'We paused all budgets and development from March to August last year. Then re-wrote the roadmap based around IT-driven efficiencies. Those projects are now being kicked off.'

'A circa 350% increase in daily remote user activity and clinical practice being moved out to other provider sites, particularly private healthcare sites, has broadened the scope of what services must be covered by business continuity. The rapid development of new solutions (we are a pilot site for many COVID-19 related testing programmes and data modelling solutions) has meant it has been a fast changing and constantly evolving picture to provide business continuity.'
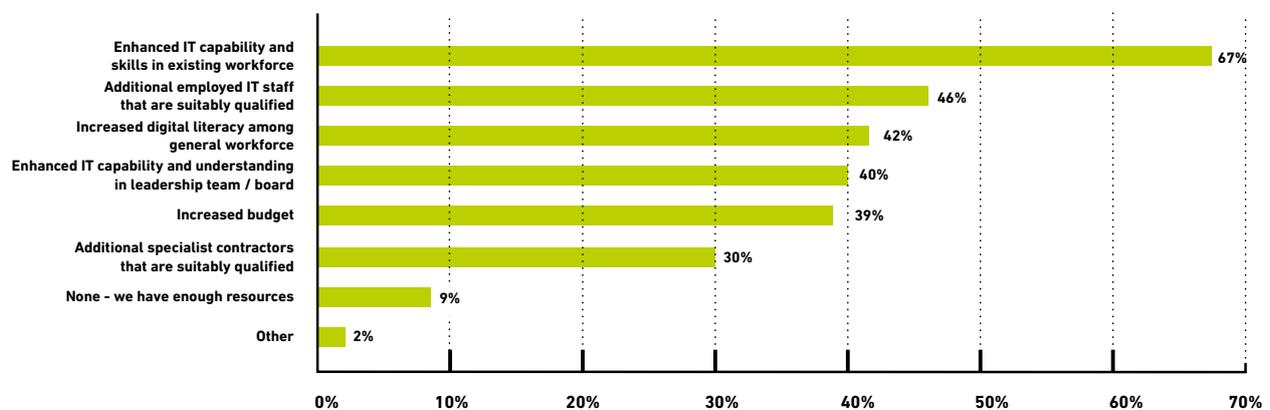
67%

WANT TO ENHANCE IT CAPABILITY AND SKILLS IN THEIR EXISTING WORKFORCE

5. FILLING THE 2021 GAPS

5.1 Additional resource needs

Figure 5:

TO ACHIEVE SUCCESS IN 2021, WHAT ADDITIONAL RESOURCES WILL YOUR ORGANISATION NEED?

Source: BCS research

This chart shows the additional resource needs that IT leaders think they require for success in the forthcoming year. Interestingly 'increased budget' has dropped from second place last year (45%) to fifth this. The number one requirement – which presupposes training, education and certification, very much in BCS' wheelhouse - has increased from 63% last year.

In the 'other' category some commenters took a more societal view: listing a 'country-wide 5G network' and 'collaboration with other organisations' as additional resource needs.

5.2 Capability gaps

We asked those surveyed to give free text answers of where they saw the capability gaps in their organisations. A lot of answers came with a cloud flavour: cloud adoption and migration; general cloud skills (for example AWS); cloud infrastructure and security; and cloud service support especially to aid large-scale homeworking.

Said one person: we need more *'knowledge centred around on-premises infrastructure, which requires a change in development practices as we move towards a more cloud-based organisation.'*

In other comments these areas were mentioned as needing bolstering: cybersecurity, devops, project management, testing, legacy systems' knowledge, robot process automation, SCCM knowledge and general web skills.

Some answers were around culture issues, for example, one commenter noted an issue with 'employees' willingness to learn and adapt in new and emerging technologies. Staff tend to become comfortable with existing technologies and forget to learn about the new stuff, which could offer significant benefits.' We need them to *'keep on top of change in the IT and applications stack, finesse soft skills for customer handling, have a general knowledge of what is possible, be multidisciplinary, understand commercial priorities and understand digital consumer behaviour.'*

Some also had a forward-looking approach. One person was looking for *'experience in Tameflow, a combination of agile and theory of constraints approaches. Many of our IT developers are working on old technology and use waterfall techniques. They will need training in cloud-based technology and agile methodologies, serverless architecture and UX.'*

Again, we had some sector-specific comments, such as: we need a *'general awareness of how digital can improve the many different roles across the healthcare provision environment. The sudden work practice changes of the coronavirus pandemic made a big leap in people's understanding and adoption of digital, but it also highlighted how much more there is to be done to bring the level of digital literacy across the organisation up to a reasonable standard.'*

Some of the above gaps require some effort to fill. BCS, of course, has a lot of provisions to help fill some of these.

'Upskilling' has bounced back this year. It has always been number one on the list but had its highest ever score this year at 75% - rebounding from a 2020 score of 64% after a previous best in 2019 at 74%.
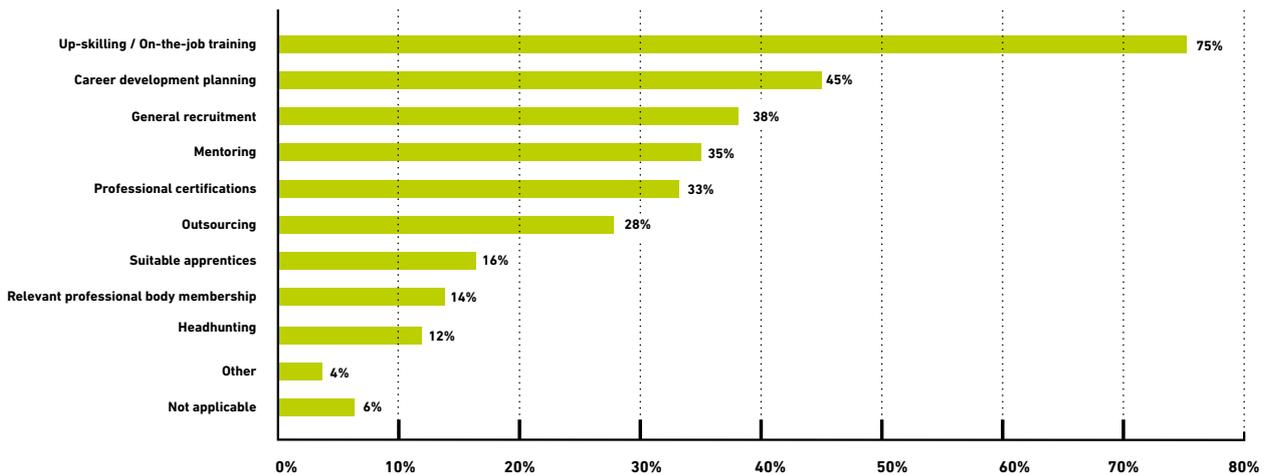
'Professional body membership' has increased to 14% from 2019's 11% and 2020's 10%.

The apprenticeship approach has had a very consistent fan club, with 2019 seeing 17% planning to use them, 2020 15% and 2021 16%.

5.3 Closing the gap

Figure 6:

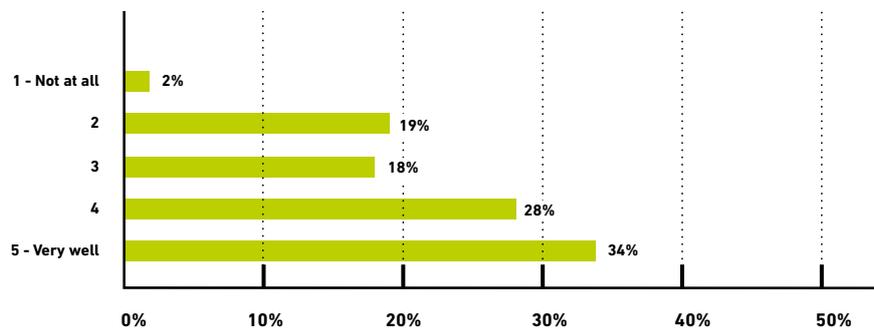### HOW DO YOU PLAN TO ADDRESS THESE ISSUES?

Source: BCS research

6. WHERE IT LEADERSHIP IS NOW

6.1 IT representation on the board

Figure 7:

WITHIN YOUR ORGANISATION, HOW WELL DO YOU FEEL IT IS REPRESENTED AT BOARD LEVEL?

Source: BCS research

For 2021 we have asked a new question – in your organisation, how well do you feel IT is represented at board level? Whether IT should be a board-level position has been a matter of debate for many years. Perhaps this year more than most has shown the importance of how technology is represented at the highest level of business. Whilst it is good to see well over half marking this as 4 out of 5 or 5 out of 5 – 62% - that still leaves 38% with a feeling that it is mediocre or worse. We will keep an eye on how these change over 2021 – especially as the technology arm of most organisations will undoubtedly have a say on the business decisions that are made to address the impacts Brexit will have. It would be no exaggeration to say that effects on VAT, invoicing, rules of origin – general trade requirements – and the data, intellectual property, trademark and copyright implications are huge. IT as a business partner is well placed to quantify friction and costs for an organisations' backend to inform business decisions.

34%

FEEL IT IS WELL REPRESENTED AT BOARD LEVEL

6.2 Leadership tips and inspiration

The final new question in this year's research was on where IT leaders go for leadership tips and inspiration. These fell into five broad buckets – presented here in the order of most popular first.

1. Written material

These included specialist books, magazines, The Financial Times, Gartner, Harvard Business Review, Computer Weekly, ITNOW, the Twitter tech community, tech forums, LinkedIn, McKinsey, and Forrester.

2. Peers

Specifically listed were: colleagues, LinkedIn contacts, peers, professional networks, like-minded people, BCS specialist groups.

3. Membership organisations

BCS came first here (caveat: of course, it was predominantly members who responded to this survey) but also name checked were the Chartered Institute for Information Security, CMI, DigitalHealth, ISACA, CIISEC, SANS, CISP, NCSC and the IET.

4. Audio-visual material

These included online resources in general, webinars and YouTube.

5. Inspiring people

Amongst this group drawing inspiration from digital leaders in general was often mentioned. Other more specific names included Elon Musk, Joe Biden, TED talk speakers and mentors.

We also had some outliers that didn't fall into a particular category. Here are the most unusual inspirations, presented in no particular order, and without comment:

1. Sports

2. Tinder

3. Past experience

4. Self

5. Nature, biomimicry

6. I draw my inspiration from start-ups. Their processes are lean and there is more accountability. Unlike established organisations, it is a sink or swim and I find it provides additional motivation to succeed.

Final bonus inspirational comment: *'I'm highly motivated and gain tips on every corner from almost anyone. I am inspired by meeting people who lead happy workforces or innovate for all the right reasons.'*

7. METHODOLOGY

This report was written using findings generated on 12/01/21. In all 283 respondents completed or partially completed our survey during the period 9 December 2020 to 11 January 2021. The survey was conducted online and was promoted via a number of channels including direct email invitation, weekly newsletter and social media. The BCS IT leaders forum were also invited to take part in the survey. The survey was aimed at CIOs, IT managers and others who contribute to setting their organisation's strategic objectives.

The vast majority of participants are BCS members. Percentages quoted are based on the number of respondents who answered each question. This will vary from question to question because non-respondents to specific questions are excluded from the base.

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