DIGITAL TRANSFORMATION

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PEOPLE

How to keep tech teams on board with your AI transformation

As the adoption of generative AI continues apace, tech teams are increasingly concerned about their job prospects. How can businesses calm their fears, keep them engaged with transformation plans, and boost their productivity and creativity?

Natasha Serafimovska

A recent survey paints a dire picture of how technology professionals feel about their career prospects. According to Computer Futures, more than a third (34%) are worried about their jobs because of AI, and more than half (53%) prioritise job security over a pay increase. The reasoning is simple: as more businesses turn to generative AI for tasks such as software development, what need is there for in-house specialists?

But there's another, less gloomy side to this too. McKinsey estimates that improvements in productivity through generative AI could lead to annual gains of between $2.6tn and $4.4tn (£2.1tn-£3.5tn) for the global economy. Given that those gains cannot be realised unless businesses have the right talent on hand – talent which is still in short supply – tech professionals should be in high demand for some time yet.

Gartner has found that 81% of IT teams are likely to grow this year despite – or rather because of – the arrival of AI. Another study by Gigged.ai, a Glasgow-based tech recruitment platform, shows that 72% of UK businesses are engaged in digital transformation, and 30% of those say there's too much work to do and not enough people to do it.

Why is there this disconnect between tech professionals' fears and the demand for their skills? Experts say the problem is twofold. There's a lack of communication on the leadership side as to what role AI plays in their digital transformation plans. And a lack of clarity over how IT roles and career paths will evolve. Both are key to easing some of the concerns and building a cohesive digital transformation strategy.

For Michael Renwick, head of data at asset management firm ICG, AI will take on some of the IT professionals' work – and that's a good thing.

"When you build anything, a small proportion of the work is new, creative or interesting. But most of it is boilerplate, repeated patterns and isn't enjoyable to do. AI can massively improve our productivity here," he says.


Portra via Getty Images

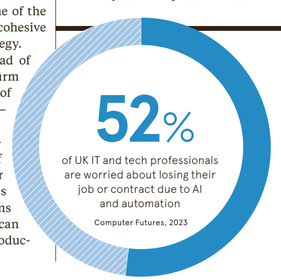
Renwick argues that this creates space for IT professionals to innovate in a way that they haven't been able to before, simply because they haven't had the bandwidth. For instance, the accessible nature of generative AI means that commercial and IT teams now have an opportunity to collaborate more regularly.

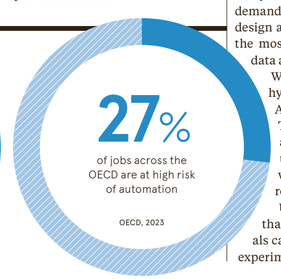
"This is one of the first times that both technology and non-technology people can experiment with company information, work out where AI will be useful and where it won't. I don't think AI will replace people. It will simply allow an IT department that is smaller in size to potentially tackle more," Renwick adds.

Meanwhile, Sulabh Soral, chief AI officer at Deloitte Consulting, sees AI as a way to share specialist knowledge. "The IT skill levels in any organisation are quite heterogeneous. Not everyone's a superstar coder, for instance. Most of the companies that are implementing AI-based coding co-pilots are actually using them as a force multiplier, not as a replacement. They're effectively democratising the technical knowledge of their workforce."

Of course, most businesses are in the early stages of using these technologies. Soral believes that, as generative AI evolves and our understanding of its possibilities expands, the focus will gradually shift from increasing productivity to uncovering novel applications. "If enterprises upskill people and enable them to use AI safely, we'll then see a lot more innovation and growth," he says.

Another key part of integrating AI as part of a digital transformation is acknowledging its limitations and inviting your tech team to test it and provide feedback.





Lisa Thomson is an HR consultant to early-stage and high-growth companies and says the secret to success with a transformation project is for employees to feel involved. "You can't over-communicate. You need to get people on board with you and get them to put forward suggestions," she says. "Don't just tell them what to do – make them feel involved."

Giving employees agency, says Thomson, will help companies bridge the gap between the executive vision of what the technology offers and how its use affects the day-to-day lives of its workforce. Getting employees involved in testing and experimenting also creates a learning environment.

Rich Wilson, CEO of Gigged.ai, says that another way to keep employees engaged in an AI transformation is to examine how the change affects individual roles and to do something about that. "If businesses want to do this right, they need to perform skills-mapping up front to find all the people who will be affected by this change. Get to them early and look at the different ways in which you can engage or reskill them."

Wilson has seen this work in the energy and banking sectors. When the introduction of chatbots affected helpdesk and call-centre workers, employers identified those whose jobs would be affected and the new skills the business would need. Employees were then retrained to work as UX designers, data or business analysts.

There's a consensus, then, that the future of the tech profession is bright, but changing. Until March this year, four of the top five skills in demand at Gigged.ai were around design and digital marketing. Now, the most sought-after skills are in data and AI.

Wilson believes that as the AI hype settles, the number of AI use cases will stabilise. There will be more clarity around how businesses can use this technology, which will help to define new IT roles and responsibilities.

Until then, the best thing that leaders and IT professionals can do is keep an open mind, experiment and keep on learning. ●

Commercial feature

INSIGHT

'We must invest in the technology and talent that will enable both transformation and innovation'

What is meant by digital transformation? The concept has undergone a profound evolution. It is no longer about migrating to the cloud or using a new technology. Digital transformation, today, is about optimising processes, enhancing operational agility and improving customer experience.

While no single piece of tech is sufficient in the pursuit of these goals, AI is spearheading the next frontier in digital transformation. It's no surprise that the AI market is set to skyrocket in value to $309bn (£245bn) by 2026, driven by popular generative AI services, AI-based IoT devices that make our cities smarter and friendly digital assistants like Siri and Alexa.

But amidst the fervour surrounding AI, there are two unsung heroes that we celebrate at Cloud Expo Europe and Techerati. The cloud infrastructures that empower our AI-driven future; and the professionals who work tirelessly on the digital architectures.

The cloud is key to AI's meteoric rise. Its vast computational and virtualisation capabilities have made key resources affordable and accessible when developing AI models. Take ChatGPT: it relies on the compute power of Microsoft Azure to function.

Cloud's many as-a-service forms also provide AI specialists with immediate access to essential resources like CPUs, GPUs and memory, and platforms that simplify application creation processes.

Cloud also democratises AI, allowing even small businesses to innovate and compete. A Deloitte study found that at least 65% of companies now source their AI capabilities from cloud-based software and use cloud services to create AI applications. Household names like Johnson & Johnson and Visa are already turning to cloud providers for their AI needs.

While we marvel at the capabilities of AI, it's essential to recognise the people who (often behind the scenes) epitomise the human ingenuity upon which our digital future is built.

Engineers, architects and myriad other professionals dedicate countless hours to building, refining and maintaining the cloud infrastructures that power our AI-driven world. Their expertise ensures the cloud remains resilient, scalable and ready to support the evolving demands of AI; ensuring that the foundational support remains unwavering.

However, the rapid ascent of AI is exerting considerable pressure on both of these unsung heroes; the infrastructure and the tech workforce. While the cloud has become the primary training ground for generative AI models, much of its infrastructure is not designed to handle these complex and expansive systems.

Tech giants like AWS, Google Cloud, HPE, Meta, Microsoft Azure and HPE recognise this gap and are accelerating efforts to evolve their infrastructure. Many of these companies are also collaborating with chip manufacturers to integrate specialised chips into their server clusters.

Still, some companies are exploring alternatives. On-premise and hybrid cloud solutions are gaining traction to ease the burden on the cloud. By shifting some computing tasks to devices, businesses can achieve faster processing, enhanced security, heightened data privacy, better connectivity and cost savings.

But maintaining and operating these architectures takes tech skills. And here, the global skills shortage looms large and could hamper our digital advancement. While AI itself can streamline hiring processes or automate mundane tasks to free up employee time for value-adding activities, business leaders should consider upskilling existing workforces.

You can also take initiative in continuous learning by staying up-to-date with industry trends, engaging in competitions or hackathons, and getting involved in the community through conferences.

To progress through this momentous stage in digital transformation, we must invest in the technology and talent that will enable transformation and innovation. Firms and society must not lose sight of the cloud infrastructures and dedicated architects that are energising the AI buzz. It is essential to understand and appreciate what is going on backstage to enjoy the rousing ovation at the front. ●

Stuart Crowley
Global content & editorial manager, Cloud Expo Europe & Techerati.com

In tough times, CMOs must pick the right tools

Chief marketing officers are battling changing consumer behaviours and a fragmentation of media outlets and platforms. That's why it's vital for them to use the right digital tools to extract as much return on investment as possible

The mission for chief marketing officers (CMOs) has become increasingly difficult in the past few years: they must now connect with their existing and potential customers in a rapidly changing and fragmenting digital landscape.

Fast-changing consumer perceptions and behaviours, harsh economic headwinds, challenging spending habits and noticeably shrinking marketing budgets have combined to see CMOs scrutinised even more by the C-suite.

For instance, Csaba Szabo, managing director EMEA at Integral Ad Science, is in no doubt that CMOs are "in an incredibly tough place at the moment".

"They are asked to do more with less," he warns. "That means effective measurement and optimisation are critical to deliver a return on investment while protecting brand reputation."

However, as CEOs and CFOs juggle increasingly scrutinised spend across their organisations, signing off investment in marketing tools might not be a priority. But using data more effectively can improve marketing results, avoid inventory problems and reduce the costs associated with poor decision-making, Szabo suggests.

"Post-pandemic consumer journeys are even more complicated," he concedes. "So marketers must think about which technologies they use in different channels. Whether it's a gaming platform, a streaming platform or a social platform, your tools should support you to connect with audiences in a very simple and seamless way."

Regaining lost control

It's a task made all the more complex by the rapidly increasing number of channels vying for marketers' attention.

> CMOs are asked to do more with less. That means effective measurement and optimisation are critical to deliver ROI while protecting brand reputation

Szabo points to connected TV and online gaming as areas to factor into broader long-term strategies.

There is, though, "immense pressure to drive instant results", he warns, while the growth of user-generated content on social networks – themselves shifting in popularity – means brands face losing "even more control".

Implementing tools to guide marketers as they try to connect with consumers in "a very safe and suitable way" is possible, Szabo believes, allowing them and publishers to reach better-informed decisions.

"Measurement and optimisation gives visibility on how your money is being spent," he explains. "You take the learnings and make educated decisions going forward, like how to reallocate budgets. This eliminates waste and protects reputation."

Refocusing on 'responsible media'

Another critical concern for CMOs, says Szabo, is which media to advertise in.

Sustainability, as well as diversity and inclusion, have become far more influential in consumer choices, he adds, meaning marketers need help to decide which outlets and platforms to be seen in. There is a choice to make here, to appear alongside "quality content" and to avoid content with "a higher probability of fake news or misinformation". Such controversial content might embarrass the brand or have a negative knock-on effect on reputation.

Digital tools with the ability to scan for tone, sentiment and context across articles and videos can make the difference here. These flag up to CMOs and their media agencies areas where they should not place advertising.

"Recent innovations in technologies like IAS's Total Media Quality suite mean that CMOs have access to the right kind of data and measurement," Szabo explains. "It gives them the right path to make the right choices."

Szabo argues that working alongside a third-party partner to automate and transform marketing decisions can ultimately save CMOs money over the longer term. It can also scale advertising activity to reach target audiences and achieve ESG goals.

IAS has partnered with organisations such as Scope3 and Good-Loop to enable advertisers to measure the carbon emissions generated by their digital ad campaigns. Its brand safety and suitability tools also help CMOs choose content that meets their diversity and inclusion objectives.

"Our own research showed that 94% of UK consumers believe brands should play a role in advocating for environmental causes," Szabo explains. "And 76% are more likely to have a favourable view of brands that do."

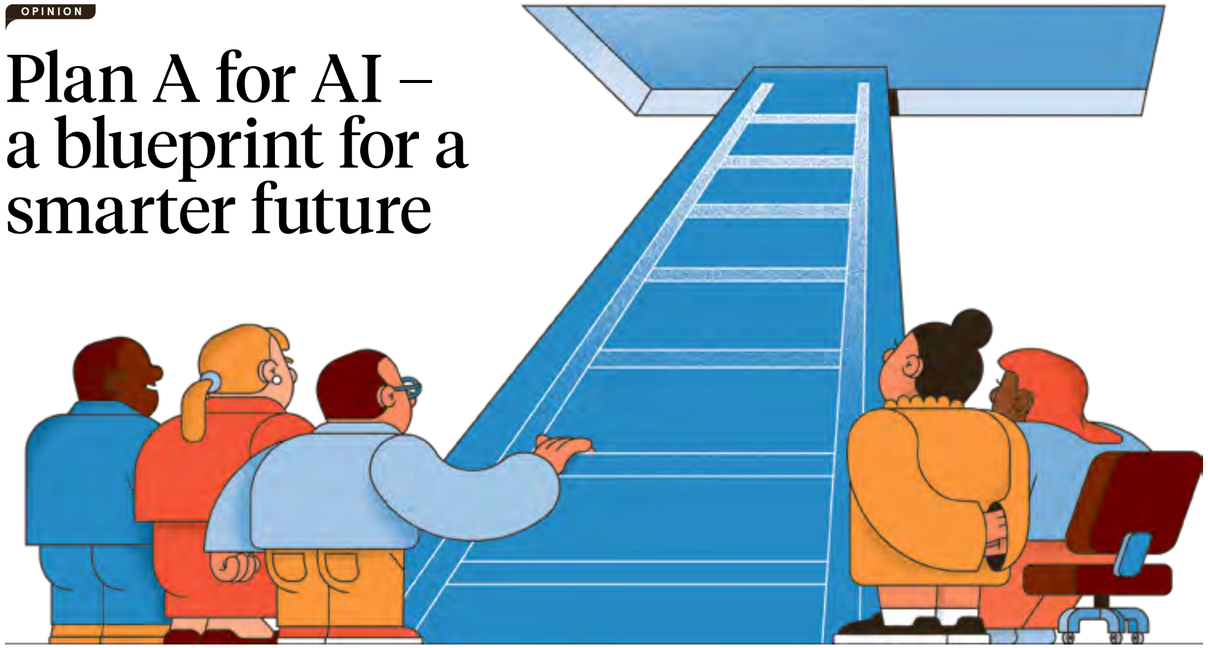
Moving forward, Szabo's strong belief is that CMOs "aren't asking for more data". "They are drowning in data," he says. "The answer is having more actionable data. Connecting data sets to an understanding of what results a brand, a CMO or a marketing team are trying to achieve gives actionable recommendations to improve campaigns."

For more information please visit integralads.com

IAS

OPINION

Plan A for AI – a blueprint for a smarter future



Forming and implementing an effective AI strategy can feel like a mammoth task, but it's becoming a business essential. Here's a guide for firms that may be wondering where to start

Bernard Marr

Artificial intelligence is perhaps the most transformative business technology that we have ever wielded. The dynamism it brings to every industry, business model and job means that organisations must develop and implement effective AI strategies if they are to thrive. Let's take a closer look at why creating such a strategy is not only beneficial but essential.

There have been phenomenal advances in recent years, such as breakthroughs in machine vision and the emergence of generative AI. These technologies have begun to redefine industries by providing intelligent solutions that can understand, learn and even create content on their own.

This technology can write computer code, accelerating software development cycles. It can generate images and videos, innovatively producing or modifying content to create personalised and immersive experiences. It can even write novels and poems that reflect deep human emotions.

It plays a crucial role in data analytics too, helping decision-makers to extract actionable insights from massive data sets.

The healthcare sector is also reaping the benefits, as generative AI aids medical research by facilitating fast and accurate diagnostics and accelerating the drug discovery process, promising safer and more effective solutions.

Businesses must stay abreast of these developments if they're to unlock the unprecedented opportunities that AI promises.

When companies ask me to help shape their approach to AI, their leadership teams often realise that the implications of the technology could be so wide-ranging that simply overlaying an AI strategy on their existing business strategy is not enough.

Adapting to the AI revolution means addressing fundamental questions about its impact on your firm's business model and industry. Leaders must consider the competitiveness and relevance of their business models in an AI-dominated future. They must also explore how AI can bring unprecedented levels of intelligence to products and services, and how it can streamline operations to enable new levels of efficiency. Achieving a deep understanding of, and readiness for, this AI-powered future is key before you move on to identifying use cases.

> The implications of the technology are such that simply overlaying an AI strategy on your existing business strategy is not enough

Identifying impactful use cases for AI is vital if you're to maximise its potential in your business. You must engage stakeholders in this process, which involves brainstorming sessions where different departments work together to outline strategic use cases promising significant benefits. These could include using intelligent chatbots to improve customer service or implementing predictive maintenance on production lines to reduce unplanned downtime and increase efficiency.

Companies should also identify projects that can deliver value quickly, such as automating routine tasks to free people up to do more valuable work or using AI tools for market analysis to gain rich insights into consumer behaviour. This dual approach not only promises sustainable benefits through long-term strategic projects; it also provides vital early momentum.

I'd recommend defining up to three strategic use cases (where AI will make the biggest difference to your business) and one or two quick wins (projects that promise early tangible benefits without using too many resources). Once you have narrowed down your use cases, you can start considering factors such as ethical, technological, skills and implementation challenges.

It's crucial at this point to identify potential roadblocks and address these proactively. That will include setting well-defined goals, schedules and governance structures to guide the implementation process.

Contingency plans need to be established well so that any setbacks can be managed efficiently. The emphasis here should be on flexibility and adaptability.

Establishing some cross-functional teams can encourage diverse approaches to problem-solving. The use of pilots can also help to identify problems early on, allowing for the necessary adjustments to be made before a full roll-out.

A comprehensive AI strategy must incorporate effective approaches to managing change, with a particular focus on employee engagement. It's vital to recognise how AI will change people's jobs and to prepare the organisation for this.

Transparency and adaptability are the keys to a smooth transition. This entails openly communicating the upcoming changes, while training employees in the skills they will require in order to navigate the new landscape smoothly.

Fostering a culture of continuous learning and resilience can also help the whole organisation to adapt. Leaders should actively engage employees, seeking their feedback and suggestions for creating a workplace that preserves their wellbeing amid all the technological advancements. By doing so, organisations can not only use AI efficiently, but they can also maintain a motivated and productive workforce.

With a nuanced understanding of the many aspects of AI, any business can embark on a transformation that will steer it towards greater efficiency and innovation. The roadmap I have laid out here serves to guide firms as they work their way through this complex but rewarding new realm. It also points to a future where the symbiosis of man and machine can unlock an unprecedented potential.

Commercial feature

Q&A

How AI will transform the financial services industry

Sean O'Donnell, chief technology officer, FS International, at Publicis Sapient, and **Gil Perez**, chief innovation officer at Deutsche Bank, discuss how businesses can make the most of emerging technologies

It's almost impossible for anyone in financial services (FS) to avoid discussions about artificial intelligence (AI) and machine learning (ML), both of which hold significant promise in unlocking value in the industry. Raconteur sat down with two experts to talk about these technologies and their transformational power.

Q Why do AI and ML seem different from any other transformational technologies we've seen in the past 20 years?

GP What's unique about AI and ML is that everyone can see how these will change their everyday lives – and that's very exciting. It's a conversation topic stretching from the dining room to the boardroom and the highest levels of government.

Generative AI has shown its magical capabilities immediately and spark an innovation and business transformation era on a scale we haven't seen in years.

SO Gil is spot-on about the GenAI aspect. What's really struck me is its accessibility – the fact that even people with a non-technical background can already understand and use it.

I think we're all familiar with the web search world, where the results are a bit all over the place. But the results are absolutely in context with GenAI. Its responses resonate pretty much immediately and can be fine-tuned, which is like nothing we've seen before.

Q What are the most appealing applications for these technologies in FS and how are firms such as Deutsche Bank using their "magical capabilities"?

SO The biggest opportunities exist where the technology can make the day-to-day lives of customers and colleagues easier. FS has traditionally been tagged as a transactional world in which firms have struggled with personalisation, because their data is very fragmented. But we're moving into a more conversational world with GenAI-enabled banking, where customers can obtain more concise answers and clearer directions.

AI/ML is also being deployed in areas such as fraud detection and 'know your customer' processes. This can have a positive impact by streamlining the overall experience of customers while also keeping them safe.

GP Deutsche Bank aspires to be the leading global responsible AI bank. We are channelling the energy and excitement around AI/ML to drive a responsible AI business and innovation transformation of the bank. That means taking a phased approach and applying GenAI in controlled, well-defined, and non-client facing use cases to establish confidence internally.

For example, we're experimenting with chatbots across internal websites, HR, and IT help desks to improve employee access to information and resolve open issues more efficiently. This helps educate our employees how to use GenAI in a controlled and safe environment while also building confidence with both business leaders and regulators.

Q How can FS firms apply AI/ML technologies and what are the keys to their long-term success in doing so?

GP The long-term success of AI/ML will need to be quantifiable and provide tangible economical and societal value. That can only be achieved if we collaborate across the public and private sector to jointly deliver responsible and trustworthy AI at scale. We will need regulators, tech companies, the banking industry and client advocacy groups to establish the right adaptable frameworks and guardrails to maximise the positive impacts of AI/ML on our industries and society and minimise its negative impacts.

SO The element of trust is key, because that's what FS firms are built upon. We must ensure a consistent and transparent standard that's supported by regulators, which requires firms to talk to each other regularly. We're already seeing approaches to AI regulation and compliance emerging across the industry to help safeguard employees and ensure better experiences for the whole spectrum of customers.

> The biggest opportunities exist where the technology can make the day-to-day lives of customers and colleagues easier

Success here relies on robust AI model testing as well as sufficient access to data. The real power of this technology is unlocked when you combine your data with publicly available data, because that massively expands your horizons. But this requires your business to have the right skills to ensure the compliance of your AI models in this highly regulated industry. Having risk, compliance and legal divisions that understand the technology and are up to speed can really help here. We must embrace these technologies, but we also need to keep customers and colleagues safe. That's super-important in FS.

GP Sean's right. We need to embrace innovation but not at the expense of customer safety. At Deutsche Bank, we're working hard to develop appropriate guardrails and train our subject-matter experts in the responsible use of AI tools.

One example of this is the so-called GenAI omission challenge. A common use of GenAI is to summarise documents and reduce, say, 50 pages to three bullet points. But maybe the summary isn't quite right. You ask for three more bullets, then three more and so on. But how do you determine which are the right three points to choose? That will require a 'human in the loop' with active subject matter expert involvement and oversight. Getting this right is essential and reaffirms the need for every company to establish appropriate 'guardrails' and upskill employees to ensure these types of GenAI tools become an integral part of the FS industry.

Q How do you see AI/ML evolving in the next 18 months and what impact will this have on the industry?

SO We're going to see a kind of two-fold strategy. First, FS firms will become more familiar with this technology and start to embed GenAI within the business. Testing and refining this tech internally will give them space to get things right before rolling it out to customers.

The second phase will be this customer-facing piece in which large language models become more sophisticated and enable bank staff to improve their interactions with customers so that they become more natural and intuitive.

GP I agree with Sean. it's clear to me that AI/ML is improving, and will continue to improve, the productivity of everyone involved. These kinds of gains will help firms to grow, increase market share and achieve more with the same resources already available to them. You could also use these productivity gains to increase profitability and, in effect, do the same with less.

It's for each company to decide how to use the gains that AI/ML can offer, but what is certain is that this technology, especially GenAI, will have a fundamental impact on every aspect of banking. It will redefine how we operate and interact with our employees, partners and clients – and bring some much-needed magic to the industry as a whole.

STRATEGY

All of the gain with none of the pain

A low-cost, low-risk digital transformation is eminently doable, if businesses can seize the right opportunities


Charday Penn via Getty Images

Charles Orton-Jones

What's the worst digital transformation of all time? TSB's maybe, which cut off customers for five days after the building society migrated to a new core. Regulators hit TSB with a £48m fine for that disaster.

The launch of Universal Credit was possibly even worse. The government's all-in-one benefits programme arrived five years late and £3bn over budget.

Digital transformations are notorious for spiralling costs and terrible outcomes. But does it have to be this way?

Not necessarily. As a matter of fact, low-cost, low-risk ideas are in vogue. Companies are increasingly adopting laser-targeted upgrades, which deliver huge returns on investment for none of the peril.

Take the switch to open-source software. There's a fortune to be saved by migrating from costly licensed software to their fee-free, open-source rivals. If you're splashing out on Microsoft Office, for instance, LibreOffice is a near like-for-like replacement at zero cost.

The company behind AI writing tool Grammarly, which reached a $13bn (£10bn) valuation during fundraising, managed to cut its overheads tenfold in one part of its tech stack by going open source.

The company wanted to upgrade its observability and monitoring service, which had originally been put together in 2014. It chose to implement an open-source product from VictoriaMetrics, a database and performance measurement provider that was founded in Ukraine and is now US headquartered. The product is free, as VictoriaMetrics makes its money by providing additional services – a common model in the open-source world.

The upgrade went smoothly. VictoriaMetrics is a mature provider – sufficiently robust to be used by Open Cosmos, a maker of low-Earth-orbit satellites. Grammarly's Dmytro Shevchuk reports: "When it came to building a custom solution for our particular needs, it was hard to match the increased flexibility of open-source software."

He adds: "Overall, the migration has been a resounding success because of the cost savings, the huge performance improvements, and the enhanced developer experience with our new system." The increased efficiency of the new set-up meant that Grammarly's bill with Amazon Web Services for storage and computing power fell by 90%.

"It's always at least a bit nerve-racking to do these major infrastructure migrations, but this was one of the smoothest transitions in Grammarly's history," Shevchuk says.

Using pre-made kit in this way is a common theme in low-cost, low-risk projects. Why spend a fortune building your own software when there's something ready to go?

Shawbrook Bank took this view when rejigging the customer experience for applying for unsecured loans. Shawbrook is a specialist savings and loans bank, founded in 2011. It wanted a system which took customers through the application process as fast as possible, but was easy to modify.

Rather than hiring a team of developers and consultants, Shawbrook opted for the easy route by implementing a low-code front end which was provided by Pegasystems. The platform is well-known in the banking industry; Pegasystems is a company with a global client base. And the software bolted onto Shawbrook's existing tech stack, with a few modifications.

Russ Thornton, CTO at Shawbrook, explains: "Our strategy is all about combining the best in technology with deep human expertise. Pega was easily integrated into our existing technology stack, streamlining and automating the journey."

> **Introducing a 'bring your own device' policy allowed us to start adopting new ways of working**

As a result, Shawbrook is operating a system that it reports is 75% faster at processing unsecured personal loans, yet also cuts maintenance and operating hours by 1,500 each month. Another advantage, common with cloud-based software-as-a-service products, is the benefit of enjoying ongoing upgrades. There's no need to employ a large in-house development team, leaving Shawbrook to focus on what it does best.

Of course, many businesses operate in the physical world too. Logistics and warehousing is a massive industry, one that is also in need of low-cost, low-risk upgrades.

DCK Group is one of the world's biggest jewellery designers and manufacturers, shipping 20 million products a year and working with companies that include Asos, River Island and Next. Its big digital transformation challenge was to improve the digital processes in its warehouse. The old processes involved a predominantly paper-based system.

The decision was taken to allow employees to use their personal smartphones to scan product labels. The software was provided by Scandit, a specialist in data capture.

It wasn't, however, an easy sell. Employees were reluctant to install company apps on their phones, but after a bit of convincing, they ultimately appreciated the efficiency of no more paper form-filling.

"Introducing a 'bring your own device' policy transformed us pretty quickly, bringing us much closer to our remote teams in the field," says Oliver Simons, operations development director at DCK. "It allowed us to start adopting new technology and new ways of working, which had been much further down our initial roadmap. But it very quickly became possible because we had this transformation in place."

Time taken to process products is down 50%. Manual errors have been largely eliminated. And the cost of the Scandit system? Just £50,000 and implemented start to finish in eight weeks.

The ethos of low-cost, low-risk, then, is gathering momentum in digital transformation. And the same is true at government level. The Baltic state of Estonia runs an open-source platform called X-Road, which provides its citizens with a unified experience across 600 digital services and only requires a single login. The technology is cloud native and extraordinarily efficient. The total IT bill for the nation is less than €200m (£173m) a year. That's less, according to Estonia's CTO Kristo Vaher, than a Netflix subscription for each user.

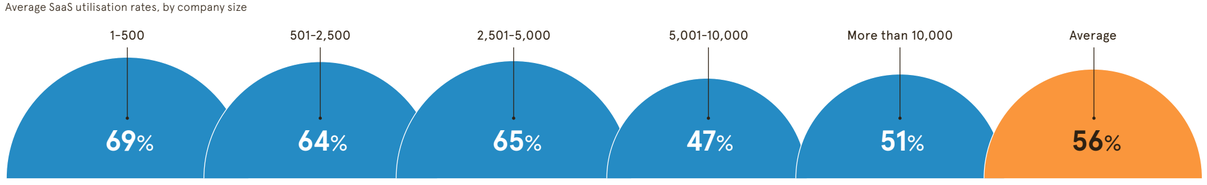
More than 20 nations are adopting Estonia's X-Road platform, including Finland, Iceland and Colombia.

The UK is yet to engage. The philosophy of HM government is to build afresh each time: high-risk, high-cost. The logic is proving ever harder to sustain.

MORE THAN 40% OF SAAS STACK IS NOT PROPERLY UTILISED

Zylo, 2023

Average SaaS utilisation rates, by company size



INNOVATION

3 low-code use cases for AI

Firms are looking to capitalise on AI but may be reluctant to commit the resources needed to develop capabilities internally. Here are three ways low-code and no-code vendors are helping to democratise business AI

Business leaders are constantly told that in the age of AI, those who don't move quickly to implement the technology will inevitably be left behind.

But there's much to consider before jumping, all in, on an AI platform. Firms seeking to experiment and adapt different use cases to their own business and operations may want to opt for relatively low-stress plug-and-play options.

Enter low-code and, of course, no-code platforms.

These development platforms enable software developers – and even those with no expertise in coding – to complete otherwise laborious tasks such as building apps, automating workflows and helping to modernise legacy systems, faster and cheaper than developing these capabilities in house.

And even if some of these platforms weren't developed with AI in mind, many vendors are now integrating AI into their services, offering businesses a variety of use cases that can be easily customised and adapted with very little coding expertise needed. Here are a few ways low- and no-code platforms are innovating with AI.

1 Dante AI

Chatbots have become invaluable for many organisations aiming to improve customer service. Indeed, as businesses digitalise more and more operations, chatbots will become essential technology for companies, like retailers, for instance, that must deal with high volumes of customer queries.

Dante AI, founded in 2023, is one of several companies offering a low-code/no-code platform for building AI-powered chatbots. These bots are trained on your company's data using all types of files, links and media types. It's also fully customisable. Want to give your chatbot a name? Its own personality? No problem.

Solutions like Dante AI's also easily plug into your company's website; it can get started fielding customer queries right away. And for international businesses or those trying to reach an international audience, Dante AI chatbots are the ultimate polyglot assistant. Its platform supports more than 100 different languages, which can be highly useful when interacting with customers or processing company documents, or other media.

2 Mendix Assist

AI-assisted development (AIAD) is an emerging trend in software development, and it may be the answer for businesses needing broader assistance with application development.

Mendix is an example of a company making use of AIAD in its Mendix Assist service. The platform currently provides software developers with three virtual co-developers: MxAssist Logic Bot, MxAssist Best Practice Bot and MxAssist Validation Assist Bot.

The logic bot guides developers through the configuration of the application logic and suggests the best 'next steps' based on the context and in real time; the best practice bot checks your company's app against Mendix's own best practice development guidelines and recommends actions or even automatically fixes problems; and the validation bot automates validation checks and the generation of validation microflows.

While some AIAD solutions cater to particular industries, Mendix's solutions have been used by companies in the banking, manufacturing and retail industries, among others.

3 Monolith AI

What if your business isn't building chatbots or B2B apps, but instead is designing a new tailpiece for an aeroplane, or a warehouse system for a manufacturer?

Monolith AI markets itself as an AI platform built for engineers, by engineers – no coding experience necessary. Its AI design assistant runs on 3D or tabular test data and, depending on how much data your company can provide, Monolith AI's platform can do everything from ensuring continuity between hires (needing about 10 designs or test results) to building fully automated workflows based on customer specifications (though this requires about 1,000 designs or test results). The vendor even guides customers through feasibility milestones for each new design.

And, of course, there are special concerns that arise in design fields. While data privacy is important in all industries, companies staking their reputation on design innovation may be particularly cagey about proprietary data. Monolith guarantees customers 100% ownership of all data and IP they provide.

Q&A

Turning bottlenecks into breakthroughs

Resource shortages and process management challenges are hampering digital transformation. **Annemarie Pucher**, CEO at Papyrus Software, outlines how to stay at the forefront of innovation

Q What's getting in the way of companies working to build digital systems? Do we need a different approach?

A It's time to reconsider how we streamline value creation and applications within digital businesses, that much is true. There's a pervading idea – often stemming from tech-focused service providers – that the resources needed to implement critical applications must be deeply technical. But this notion is outdated.

As businesses scale their digitisation efforts, finding skilled individuals for application development remains a challenge. Many companies have specific requirements that either go unconsidered or remain unfulfilled due to IT limitations, and even when they are addressed, the process is excessively time-consuming. On one hand, you've got a wide translation gap between the business and IT, and the output often doesn't align with business objectives. On the other, standard off-the-shelf applications are simply not cutting it.

We need to empower business teams to do it themselves. Democratising how we build business value streams opens up that technical gridlock, enhancing both customer and employee experiences.

Q How can businesses settle on the best route forward?

A We need innovation, especially when it comes to inflexible systems. Backlogs aren't just about technical resource shortages and tool limitations. There's also the issue of process management, where decades-old methods are still very much at the centre of things. Traditional flowcharts and process definitions are good enough for documentation, but they fall short when it comes to moving at the speed of customer expectations.

Companies start out with a desire for customisation but end up with unwieldy processes resembling spaghetti code, as we call it. Before you can even consider what you want to achieve, there are a mountain of steps to take and decisions to be made.

So, start with defining the desired result. Business managers should play a key role from the beginning, setting outcomes which teams can work backwards from, and outlining tasks for each stage. You not only get to the result much faster, but you also get there as a business, fully aligned on your goals.

Q What can businesses do to break down barriers to digital transformation?

A One of the greatest advances will be letting users work in their natural business language. Many of the current issues associated with digital transformation are skills- and resource-related. We've developed Converse Designer-Composer as a no-code tool so that a business analyst, business consultant, or business manager like me should be able to use it.

In your own words, you define rules and actions in plain, declarative terms. Artificial intelligence can then help guide staff while they work on a business case. Conversations become an integral part of the entire workflow, and the need for code is ruled out. It's reinventing how custom business applications are built.

The feedback we've had from analysts, like Gartner and Forrester, has been intriguing. This level of user-friendliness is unusual among serious business applications. It's used by small task-driven tools, but not in the business context yet. Our broad perspective on business language, business rules, and conversational tech brings a new way of thinking to the table. It's a 'mind shift'.

Q In an increasingly digital world, are there ways to stay competitive, particularly when building value streams?

A Cost is always a consideration, but we're told it's not the primary focus among organisations. Speed and flexibility are, competitively speaking, more important than ever. You have to respond to new requirements efficiently and then implement the next version, and the next and so on, continuing to evolve without creating legacy systems.

That's the goal with Converse: ongoing development. If you have a brilliant idea a year later, it's easy to seamlessly expand on working reality. That's difficult with traditional programming because it requires coding expertise. If business users can drive these changes independently, they have a powerful advantage against typical transformation challenges and costly migrations.

The question a lot of organisations have is: "If everybody does the same thing and has access to the same tools, how do I compete?" That's why customisability is so important. We want companies to build custom process definitions for operational excellence and let them maintain their unique vision.

To learn more about building digital business value streams, visit isis-papyrus.com/converse

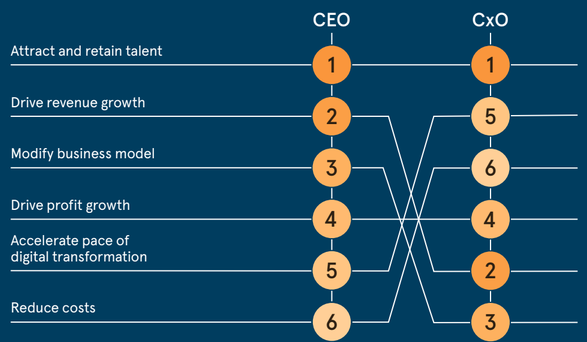
PAPYRUS SOFTWARE

DIGITAL ALLIES IN THE C-SUITE

While CIOs, CTOs and other tech chiefs may be the natural leaders of digital initiatives, most business leaders agree that a digital transformation must be embraced across the organisation to be successful. To inspire firm-wide confidence in a digital strategy, it is essential that tech leaders develop digital allies in the C-suite – other C-level leaders who are convinced of the benefits of digitalisation and can garner support for digital initiatives across the workforce and in the boardroom. So how do C-suite leaders currently view digital transformation as a component of the wider business strategy? And how can tech leaders build support for digital initiatives among their peers?

DIGITAL TRANSFORMATION IS A TOP PRIORITY FOR C-SUITES

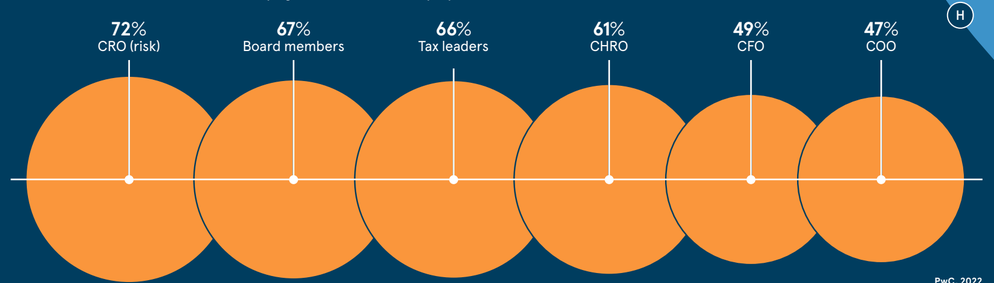
Rank order of top priorities for CEOs and for other C-suite members worldwide



The Conference Board, 2023

BUT FINANCE AND OPERATIONS CHIEFS ARE LESS CONVINCED THAN OTHER C-LEVEL LEADERS

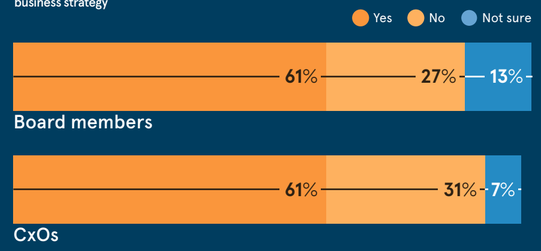
Share of executives and board members that say digital transformation is 'very important'



PwC, 2022

NEARLY A THIRD OF BUSINESS LEADERS BELIEVE TECH IS INSUFFICIENTLY ALIGNED WITH BUSINESS STRATEGY

Opinions of respondents on whether their organisation's tech is integrated enough into the business strategy

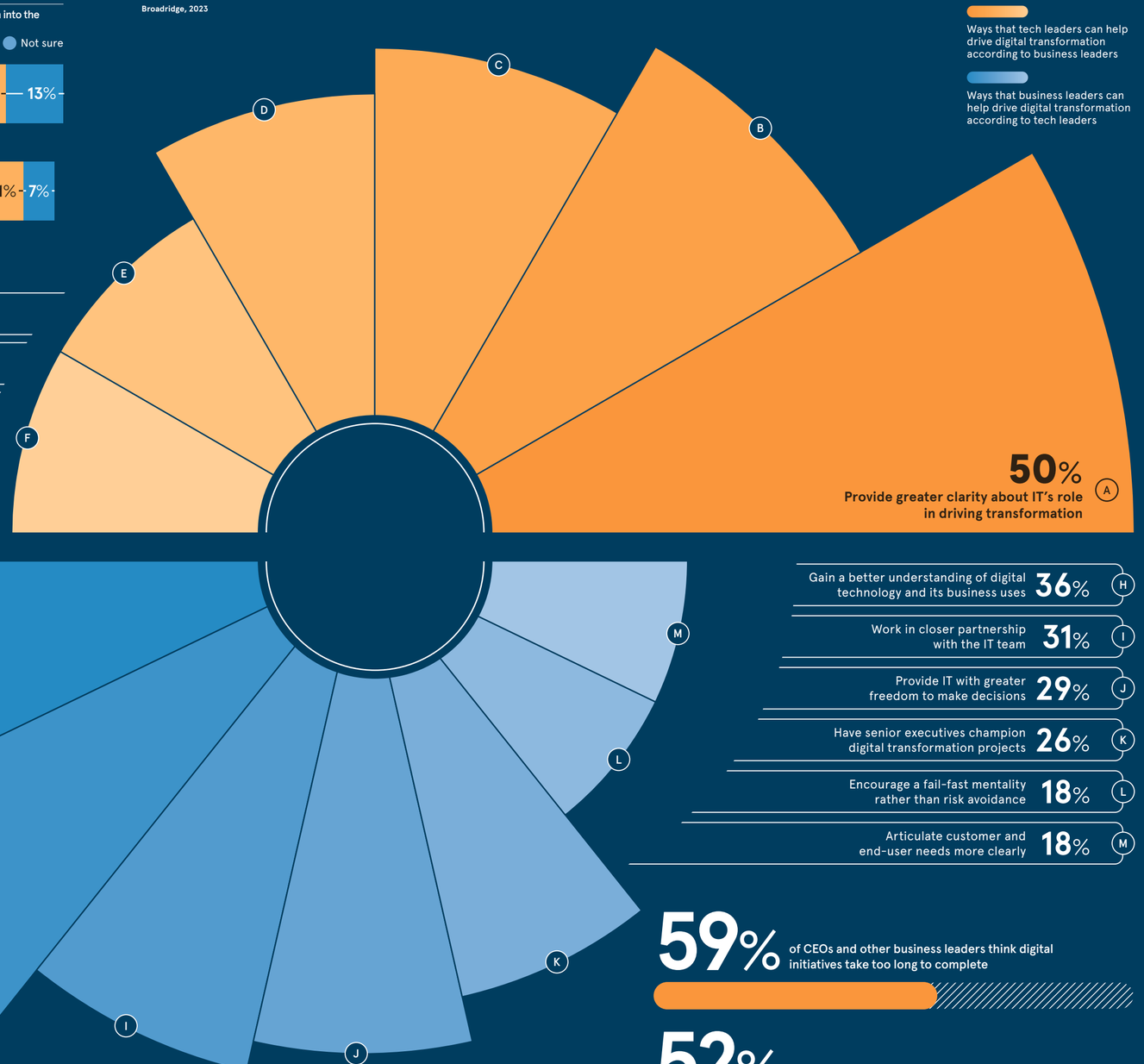


Deloitte, 2022

- B **37%** Learn more about the business and how tech can support it
- C **32%** Articulate a strategy on how the firm can leverage the data it holds
- D **29%** Avoid investing in the latest technologies without a clear business case
- E **24%** Help build the business case to sell tech projects to management
- F **24%** Work in closer partnership with the business team

HOW CAN C-SUITES WORK TOGETHER TO ACCELERATE DIGITAL TRANSFORMATION?

Broadridge, 2023



59% of CEOs and other business leaders think digital initiatives take too long to complete

52% think digital initiatives take too long to realise value

Gartner, 2023

INTERVIEW

‘Technology is one of your competitors’

The disruptive frontier technologies being developed today – largely without supervision – will transform the world. Entrepreneur **Daniel Doll-Steinberg** warns business leaders that it’s time to get ready

Heidi Vella

Daniel Doll-Steinberg wants you to start paying close attention. Specifically, he’s putting out a rallying cry for you to *really* heed the new reality that is stealthily being constructed with the emergence of frontier technologies.

“We are entering a phase when many well-intentioned people are building technologies to disrupt the way we live. The more people who understand that, adapt to those technologies, and use them in a way that suits them, the less chance we have of experiencing outcomes no-one wants,” he explains.

He refers to Sam Altman – one of those well-intentioned people – who is the CEO of OpenAI and whose ChatGPT has brought artificial intelligence to the masses.

Altman has said that one of his aims is to build artificial general intelligence that would make computers as capable as humans, essentially, overtaking people’s marketable skills. His is not the only company with such a goal. DeepMind, Meta and others appear to have similar ambitions.

> **The more people adapt to disruptive technologies, the less chance we have of experiencing outcomes that no-one wants**

“They are trying to replace coders, accountants, lawyers and more; but just unleashing something like that onto the world could be catastrophic,” thinks Doll-Steinberg.

So-called frontier technologies – including AI, 5G, blockchain, cryptocurrency and quantum computing – are developing at an exponential rate. In 2019 alone, Amazon spent $36bn (£28.8bn) on R&D to create human-replacement technologies, from robots to smart home assistants. Adoption of these technologies was accelerated by lockdown and, as they become increasingly general-purpose – not requiring domain experts to create them – they are expected to be virtually unstoppable.

This is why business leaders need to start *really* understanding and deploying them today, so that they can not only take advantage of them, but they can also counterbalance some of the wilder future concepts emerging, says Doll-Steinberg.

It is this sentiment that inspired Doll-Steinberg and Stuart Leaf’s book, *Unsupervised: Navigating and Influencing a World Controlled by Powerful New Technologies*, published this month. It is a detailed guide on the key technologies being developed and the concepts and capabilities emerging from them, from Google’s new large language model, PaLM, which can explain why a joke is funny, to possible biological and technological enhancement.

Doll-Steinberg is a serial entrepreneur and investor, with decades of experience in the tech sector. He previously advised the European Commission on enterprise policy and from 2008 to 2011 helped form the UK’s International Innovation Strategy. In 2022, he co-founded innovation investment firm and tech ecosystem EdenBase. Anthony Scaramucci, the US financier who briefly served as Donald Trump’s White House director of communications, also calls him a friend.

Speaking not long after returning from eight days at the Burning Man festival in Black Rock Desert, Nevada, Steinberg explains that the book was born from the first lockdown in 2020. His friend and business partner Eric Van der Kleij, keen to keep his “full-on” friend occupied, asked him to write “the future of the next five years of the world”. (Doll-Steinberg claims that during this process he accurately predicted the Black Lives Matter riots, and that people would lose trust in experts). Then, after several lockdowns and many long dog walks spent dictating into his phone, the bones of Unsupervised emerged.

But far from predicting the future, the book is more of a guide, of sorts, on how to embrace and contribute to an inevitable future shaped by frontier technologies.

So, what should business leaders be doing? First, they need to understand how these technologies will impact each area of their business. This could involve running proofs of concept to see where certain technologies might impact the business positively or negatively, in the next one to three years.

Take quantum computing. “The US National Security Agency and the US Air Force have said quantum computers are close enough to breach your systems in a shorter period than it takes to fix them. So, if you don’t start making all your systems quantum-safe in 2023, you’re likely to have quantum hitting you before you're ready, which will be catastrophic,” he explains.

He also recommends creating a fund to deploy in startups that could disrupt your business as a safety net.

The important thing is to start taking small and steady steps today – but be aware that going too slow or too fast can have unintended consequences. It is partly for this reason that Doll-Steinberg doesn’t believe that leaders should outsource the task to a big consultancy or a siloed department, which may not be as familiar with the organisation or as quick to respond to success or failure.

“Other people don’t understand the culture of your organisation and what you’re trying to achieve – it’s vital for the board and CEO to be in the loop,” he says. “CEOs should read about this like they’d read about new regulation or their competitors; this is a competitor to you, like Tesla to Ford.”

He advises businesses to also start building trust within their organisation today, because it will make technology adoption smoother.

> **CEOs should read about this like they’d read about new regulation or their competitors**

Doll-Steinberg had experience with disruptive technology early in his career, first building derivative trading technology, which enabled a new asset class to be traded, and later when he was tasked with implementing a new technology system at a major US bank.

“Most people resisted the change, seeing it as a threat,” he says. “It made me realise that even minor changes are difficult. But AI is going to displace entire functions – and if big firms don’t do it, smaller ones will eat their lunch,” he says.

Doll-Steinberg navigated the resistance by building trust with people across the workforce. Employees are key to successful implementation and should feel comfortable to speak up without fear of repercussions.

“If you’re deploying AI across a department and employees notice some negative unintended consequences, there should be mechanisms for them to flag it. Conversely, they should feel comfortable about sharing new ideas,” he explains.

Many CEOs are worried about the impacts of AI on their staff and how to implement it in mutually beneficial ways. The focus, according to Doll-Steinberg, should be on finding ways to use these technologies to augment staff, not to replace them.

“Leaders should ask: how can I maximise the value of my staff with these technologies? It might involve redeploying people or using AI to retrain staff to use new systems or learn new roles,” he explains.

Lastly, use the influence you have to steer the direction of travel. “A big real estate company or property developer working with many contractors, suppliers and councils can influence all of them to start using technologies in a cross-consistent way that benefits everyone – that’s enormous,” he explains.

This is the so-called swarm effect that is described in the book: “No matter how small our individual actions, the aggregate effect can be enormous.” And without clear and consistent regulation, this effect becomes ever more important. It is a crucial reason why companies should carefully consider writing their own code of conduct for adopting technologies.

Yet, despite the enormity of it all, Doll-Steinberg’s message, he assures us, is a positive one.

“Because of technology the last decade has been the best one yet for humanity. I see no reason why that shouldn’t continue as long as people start today, in a sensible way, to make sure they deliver these technologies for the benefit of their friends, employees and customers.”

ARCHITECTURES

Lake or fabric? How to find the right data structure for your business

They're the two biggest buzzwords in data architecture, but what are they, and how should businesses go about choosing what's right for them?

Ed Jefferson

Data architecture is full of jargon, from data meshes to hubs and warehouses.

Two of the biggest buzzwords right now, though, are data lakes and data fabric – two different approaches to handling the often vast amounts of data a modern business ends up collecting.

The concept of a so-called data lake is a metaphor: if a lake stores water in whatever natural form it arrives in, from rain, rivers or streams, a data lake stores data in whatever form it arrives, from whichever part of your organisation is creating it, whether that data is structured or unstructured.

This was traditionally positioned in opposition to a data warehouse, where you define what kinds of data you're going to store before you collate it, standardising and structuring your data as it comes in.

The flaw in that approach is obvious. If I run a business selling hats and have set up my data warehouse to record information about hats, but then decide to branch out into selling shoes, I would have to change the structure of the warehouse to hold different kinds of product information. But a data lake doesn't care whether the data is about shoes, hats or dinosaurs, or even what format it's in. You can simply pour anything in there and figure out the rest later.

Of course, every approach has its advantages and disadvantages. Data that is stored with a clear, pre-defined structure is easier to use, whereas making sense of everything that has been poured into a lake requires more specialist knowledge and will likely need to go through a data scientist before other people in your business can get actionable insights out of it. The unfiltered nature of the data can also present some issues around reliability and/or security.

But data lakes are more flexible, have lower storage costs and can support a broader range of uses. For instance, they're often used in combination with machine learning, as raw, unstructured data is often more suitable there than something that has already been carefully tagged, filtered and labelled.

Unfortunately, there are broader problems with handling data that no storage solution can solve on its own. This is where data fabric comes in. While a business could in theory use a single storage solution, in practice this is rarely ideal because organisations tend to have such a wide range of use cases and demands on their data: a team focused on machine learning may have very different priorities to a team focused on compliance.

A data fabric establishes relationships and interoperability between all the data an organisation holds; the metaphor being that you can 'knit' all these different things together to create a single framework that accounts for all your data, without having to store all that data together in one place.

The actual architecture behind it will vary depending on business needs. Connecting different sources may be as simple as hooking them up via application programming interfaces or it may be as complex as matching data via artificial intelligence. The point is to do this within a clearly defined framework in order to ensure that everyone in the organisation can get access to the data they need, when they need it, without tying up technical and data resources, and without introducing data security and governance issues.

The difference from a data warehouse approach is that you don't necessarily need to rigorously define how every individual piece of the framework is storing the data. Instead, you can simply bring in new components to the fabric as and when you need to.

A common use case for a data fabric is tracking identity throughout your data – whether that's the human identity of a customer or employee, or the non-human identity of a machine or other entity.

John Pritchard is chief product officer at identity data platform Radiant Logic. He describes the issues and how a data fabric can tackle them.

"It's common for organisations to have lots of systems that define their employees or customers, and a data fabric is often used to try to bring those together in a coherent and cohesive state," he explains.

> **When real-time analytics are required by finance and healthcare use cases, data fabrics can be useful**

> **A fabric approach can sort of watch how the data is moving over time and assess it for its completeness**

A business might hold lots of different information on an employee, for example: contact details, the different types of training they have completed, certifications they have gained to use a particular machine and any compliance procedures they have been through.

As Pritchard puts it: "Those types of data attributes tend to live in lots of different specialised systems. And the idea of a fabric is to try to bring them together. It's necessary when you've got a lot of different things going on. That's probably the big driver for most organisations. And in our world, it's very common for that data to not exactly match each other."

This kind of inconsistent and incomplete data can have big implications. "In our space, a lot of times that completeness relates to risk," Pritchard says. "When identity data has either quality issues or data drift, the systems that use that data to make, say, access decisions can be put at risk, because the data has become old. A fabric approach, connecting lots of different data sources, can sort of watch how the data is moving over time and assess it for its completeness."

But a data fabric approach is about more than just making sure all the systems holding your data can talk to each other. It's also about using all that data together to ensure you're building a complete and up-to-date picture that is based on everything you know about a given entity, whether that's a customer, a product or a business partner.

Daniel Wood is chief information security officer at development platform Unqork and highlights examples of where this can be key. "When real-time analytics are required by finance and healthcare use cases, such as understanding patient data, performing fraud detection, or general monitoring and alerting, data fabrics can be incredibly useful due to the complex data integrations."

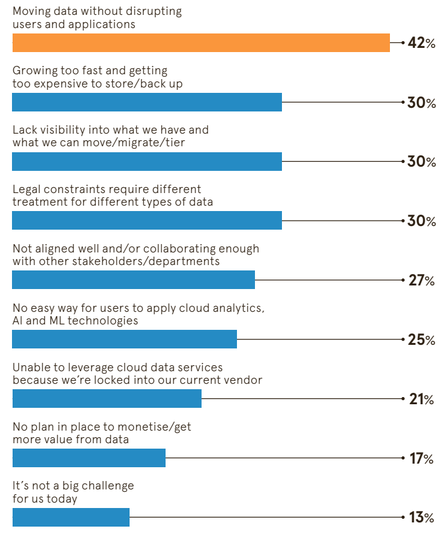
So, which should your organisation be using – a fabric or a lake? Well, that might not be quite the right way to look at it, because a data lake could well be one of the components stitched into the architecture of a data fabric.

What any tech leader needs to think about, first and foremost, is the type of data being collected and whether it needs to be shared. A team doing a lot of work with IoT devices, machine learning or any other big data use case is likely to need a data lake of some kind.

The real question is if, or when, that data needs to be used outside that particular silo. How should that process be managed? That's the point at which a data fabric becomes useful.

THE PROBLEMS WITH DATA MANAGEMENT Komprise, 2022

Top challenges with unstructured data management, according to IT leaders in the US and UK



Commercial feature

Enterprises will fail using Gen AI, unless...

Generative AI tools will be transformative for productivity and business operations, but many systems aren't robust or secure enough. Firms will need the right data architecture to make these tools truly game-changing

If you've used a generative AI chatbot, you'll understand its power, both in daily life and in business. These AI tools can examine patterns and commonalities in datasets to produce texts, images and answers to questions.

Crucially, they make it look as if the results came from a human rather than a machine, and these emerging systems – which automatically interpret data and write content – have many C-suites wondering how they can harness their power to boost productivity, improve customer service and push operating expenses down.

However, according to Óscar Méndez, CEO of AI and data fabric company Stratio BD, when in their infancy, some of these tools might not be robust or secure enough to find and maximise a company's wealth of internal data.

Generative AI, he predicts, will certainly free up employee time by automating manual tasks and enabling firms to refocus resources on "nurturing a competitive edge". But he recognises CEOs' struggle to "grasp the endless possibilities" now available to them.

In fact, Méndez warns C-suites not to simply "pile onto the generative AI bandwagon" and advises boardrooms to consider three critical areas before taking the plunge.

First, are they using a data fabric architecture so that generative AI tools have access to high-quality data to improve answer accuracy while keeping data secure? Secondly, do they have robust data governance policies to control data access and keep their firm's data use compliant with regulations? And finally, are they investing in in-house skills to implement, train and use generative AI effectively?

Data fabric is a powerful tool

That first point is a particularly important one. For instance, Stratio's own AI solution, specifically designed for enterprises, uses several large language models (LLMs) to handle queries. Méndez explains that this differs from competitors' systems by offering an "underlying data fabric", unifying all of a company's data into a centralised virtualisation layer. This automatically gives it business meaning through the use of ontologies and knowledge graphs to counter poor data quality. Stratio's Data Fabric also automatically applies governance policies to keep data secure.

"Data fabric is the most powerful data management solution today, leveraging AI to handle data at scale and in real time," Méndez says. He believes that this must be implemented at the same time as generative AI technology if businesses are to manage deep learning methods safely and effectively.

Speaking of Stratio's generative AI tool, Méndez cites a boost in productivity from the reduction in time spent communicating with various data departments to retrieve vital information and reports. Users can simply ask a question in their "natural language" and receive an accurate and reliable answer within seconds. "This helps businesses maximise their resources and make decisions faster, with the right information in hand," he adds.

For example, Stratio's system could be asked questions such as 'How many loans were issued today?', 'How much stock of our most popular product do we have in each store right now?' or 'What is the risk of fraud in this mortgage application?'. It also works with unstructured data from documents and internal policies, so that employees could ask it how to set up a printer, for instance.

> **Data fabric is the most powerful data management solution today, leveraging AI to handle data at scale and in real time**

Ethics, regulation and compliance

A major consideration for CEOs is how to take employees on this journey. "Generative AI will create completely new job opportunities, even if it displaces some," Méndez says.

He advises C-suites to watch that certain employee groups, such as women and those from diverse backgrounds, are not disproportionately affected.

His company is a founding member of the Generative AI Association, which works to monitor and discuss the issues around ethics, jobs and regulation.

Méndez believes the positives of generative AI outweigh the negatives – for example, there's particular value in presenting data in accessible formats to non-experts. Stratio's Data Fabric provides leading banks, retailers and governments globally with high-quality data, which can then be queried in any natural language.

This makes regulatory compliance simpler, Méndez explains, offering a comprehensive view which enables compliance with international data privacy rules.

Even so, Méndez does recommend "due diligence when reviewing the answers provided", as Gen-AI is "a very long way off" from human intelligence. He explains that the system "is not really thinking" but managing and combining data. This is why "high-quality data" is critical for generative AI to realise its "true potential", he adds. As he puts it: "The answers provided by any chatbot are only as good as the data fed into it."

For more information please visit stratio.com

STRATIO

INTERVIEW

‘Make the right thing to do the easy thing to do’

Hugh Tatton-Brown, head of cyber strategy and architecture at the Ministry of Defence, urges organisations to stop relying on quick fixes and instead embrace the principles of ‘secure by design’

Francesca Cassidy

The public sector is not known for pushing the envelope of innovation – and that’s understandable. When you’re spending taxpayers’ money, ‘move fast and break things’ is not the most appropriate motto. But, says Hugh Tatton-Brown, head of cyber strategy and architecture at the Ministry of Defence, the risk-averse attitude that pervades most of Whitehall doesn’t extend to his department.

In fact, he says, “The MoD is the ultimate ‘fail-fast’ organisation. When it tests real-world outcomes, it’s one of the few places that lets things be blown up.”

Tatton-Brown would know. His background in the Royal Navy and then at BT, eventually as CISO of BT Defence, enables him to understand the threats facing both the UK and UK plc – and the best ways to combat these increasingly serious risks.

Earlier this year, cyber attacks on the Police Service of Northern Ireland and the UK’s electoral register had potentially devastating consequences. Can the private sector learn from such cases?

> **It’s about thinking about security upfront, in the same way as you think about cost or health and safety**

“Big public hacks serve as useful examples of what attackers can and will do,” Tatton-Brown says. “But it’s possible to overfocus on these.”

Broadly, he explains, attacks occur for the same three reasons: someone has not designed something in a secure way; someone has done something inadvertently; or someone has maliciously tried to break into something.

“Cybercrime is a way to extract information or disrupt operations. It’s the same as breaking a window to get into a house,” he says. “What’s different is the speed of these attacks and the distance from which they can be made.”

Focusing on individual high-profile attacks to try to stop a similar event can take too much time – and the perpetrators will always find new ways to smash the glass or new windows to attack. A better way to protect your business, Tatton-Brown believes, is to embrace the approach known as secure by design. In essence, this is the term used to describe any system or piece of software that is particularly built to be foundationally secure.

The government has drawn up 10 principles for secure by design, which are based on recommendations from the National Cyber Security Centre. These include appointing a “business risk owner” for every service throughout its life; designing flexible architectures that allow new security controls to be integrated; and ensuring that controls are simple to use.

“You need to make the right thing to do the easy thing to do,” Tatton-Brown stresses.

If you retroactively add security elements to a system, people will simply look for a way to get around them, he observes. The best practice is to build these in at the start and in such a way that they cannot be bypassed while ensuring the software is still easy to use.

This is all well and good when designing from scratch, but how practical is this for those organisations that already have systems up and running and don’t have the time or budget to dismantle them?

“This is why the digital world is so exciting,” Tatton-Brown says. “It’s constantly evolving, so you have to make changes. When you do, you might not be replacing everything. But, whenever you deliver a new feature you can ensure that you’ve thought about securing it.”

Businesses must review how their capabilities are changing, which creates an opportunity to rethink systems – or even parts of systems – and build them better, he adds.

“It’s about thinking about security upfront, in the same way as you think about cost, or health and safety, or your customers.”

This requires a significant cultural change. “Security doesn’t need to be your top priority,” he explains. “But you should make active decisions so that, if you aren’t going to make something secure, you know why.”

The key here is to think how an attacker would. Beyond designing tools that ought to be secure, security chiefs need to work out what someone could do if they didn’t use a system correctly.

For Tatton-Brown, this means considering not only system users who are most prone to making innocent mistakes, but also those at the other end of the scale.

“These are innovative people who are trying to do things more efficiently. One of the best ways for them to achieve that is to hack the tools they’ve got so that they do things faster,” he says.

These are often employees who are looking to do their best work. They should be enabled, not discouraged, from streamlining processes.

“Is it straightforward? No. Cultural change never is. This is not about the technology itself – there is no silver bullet. It’s about how you can change the way people think,” Tatton-Brown says.

This may require overhauling how you train employees. It could also mean simply sticking to your guns. Cultural change can take years, says Tatton-Brown. “Just keep doing it. Continue to change. Perhaps your training hasn’t landed yet.”

He points to the enduring lack of cybersecurity skills in the UK. The first problem is that potential entrants to this sector might be put off by a misconception about it.

“There’s an idea that you need to be like the super-geek character you see on TV. A white man in his late 20s, who has no friends and sits with 14 screens around him. That’s not the reality,” he explains. “We want people from different backgrounds and cultures. We need people who think differently.”

Tatton-Brown encourages businesses to look beyond tech solutions for cybersecurity, to the people and processes that can help make secure by design the default way of working. If companies hire people with inquisitive minds and a readiness to learn, they will be easy to train.

> **We can’t still be talking about patching things. We’ve got to do something fundamentally different**

Most important of all for Tatton-Brown is that organisations remain strongly committed to improving their cybersecurity.

“In 10 years’ time, we can’t still be talking about patching things,” he says. “We can’t still be talking about vulnerabilities that were designed as features years ago. We’ve got to make sure that we do something fundamentally different.”

Making security, rather than cost, the first priority when considering your tech stack is certainly that.

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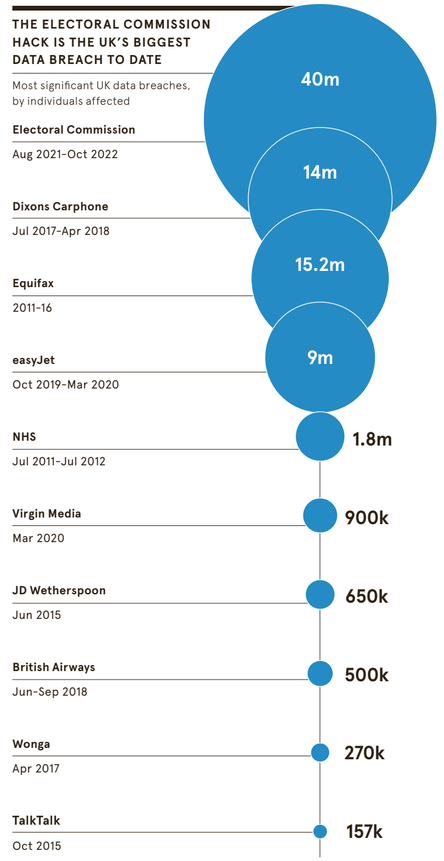
Most significant UK data breaches, by individuals affected



UpGuard, 2023

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