

Tech Tracker

The latest technology adoption trends



UK businesses have ambitious investment plans when it comes to technologies at the cutting edge of innovation

The CBI/Accenture Tech Tracker 2019 survey reveals that technology investment is shifting up a gear, with distributed ledger technology (DLT), artificial intelligence (AI), and quantum computing stealing the top spots as the technologies on respondents' next investment horizon.

These technologies will help to solve some of the biggest challenges our society faces, from an ageing population to climate change. Businesses across sectors and regions are investing to make the most of the opportunity to improve their productivity and international competitiveness.

- **AI is living up to its hype.** Backed by a strong business case, it's been widely deployed across sectors, with a third of respondents (33%) having already applied it to their business operations.
- Meanwhile, **the number of firms planning to invest in quantum computing has leapt** nearly threefold compared to the number already investing. Commercial application is still far away with the focus of respondents (26%) being to conduct research into the technology to see where its capability might lead.
- To solve challenges like getting more value from the data their technology generates (an innovation barrier identified by 33% of respondents), businesses will need to **leverage the right mix of technologies**, combining new investments with what's already embedded.

Tech Tracker respondents perceive themselves as innovators: the vast majority agree that they have access to the facilities they need to innovate (80%) and that their culture promotes innovation (73%). But even though people play a leading role in the innovation process, ensuring employees have the time to innovate is one of the biggest challenges for respondents – with 31% believing that their people don't have the time they need.

Though the evidence suggests that the regulatory environment underpinning investment in technology and innovation is competitive, it risks being undermined by the UK's political environment. While many respondents (41%) are positive about the UK's regulatory environment, over half (51%) say that the UK's political environment is having a negative impact, which could reflect the toll that ongoing uncertainty is taking.

For the reality to match up with the hype, government and industry must create an environment that stimulates investment in technology and innovation whilst boosting trust in their impact. Our survey paints a mixed picture: opportunities that businesses are already seizing alongside areas that risk undermining investment.

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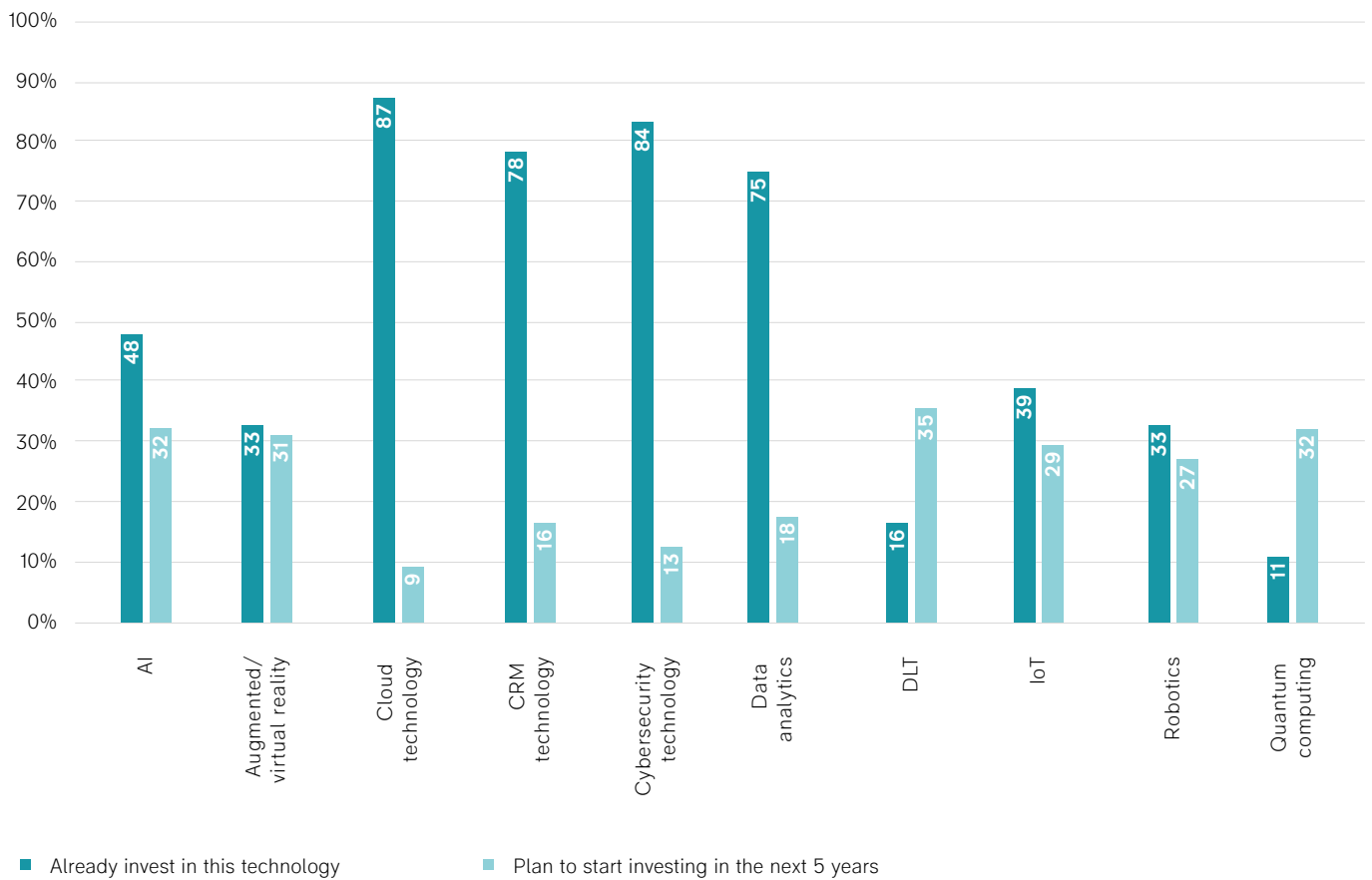
“The rate of investment in emerging technologies is set to accelerate even further over the coming years as technologies such as AI and blockchain start to become more mainstream. Quantum computing is a little further off, however as we can see from the survey, UK businesses are getting excited about its potential and the investment demand is there.

But greater investment doesn't always equate to greater success. Tech adoption for tech's sake often yields limited results or value. To make the most of their investment, businesses need to leverage technology, talent and be aligned with business objectives and outcomes. By adopting this approach, they can build an agile system to support the new tech that it needs to thrive not just now but also in the future.

One aspect the survey did highlight was the lack of awareness about some of the challenges and responsibilities that come with technology adoption. As data is collected and applied through AI, the need to eliminate bias and bring diversity of thought in is critical. If businesses overlook their important role in addressing this then we'll fail to create the best possible outcome for society.”

Figure 1 Businesses' technology investment plans (% of respondents)

Businesses told us whether they plan to start investing in the next 12 months, 1-3 years, and 3-5 years. Their answers were aggregated to calculate respondents' 5-year technology investment plans.



Today's mainstream technologies reflect businesses' investment in digital transformation and an explosion in big data...

- Businesses are digitally transforming at pace, firmly embedding today's hot technologies: the majority of companies who responded to the Tech Tracker have applied cloud (82%), cyber security (79%), and Customer Relationship Management (CRM) (77%) technologies to their business operations.

...while many of tomorrow's investments will shift up a gear, pushing the boundaries of what technology can do

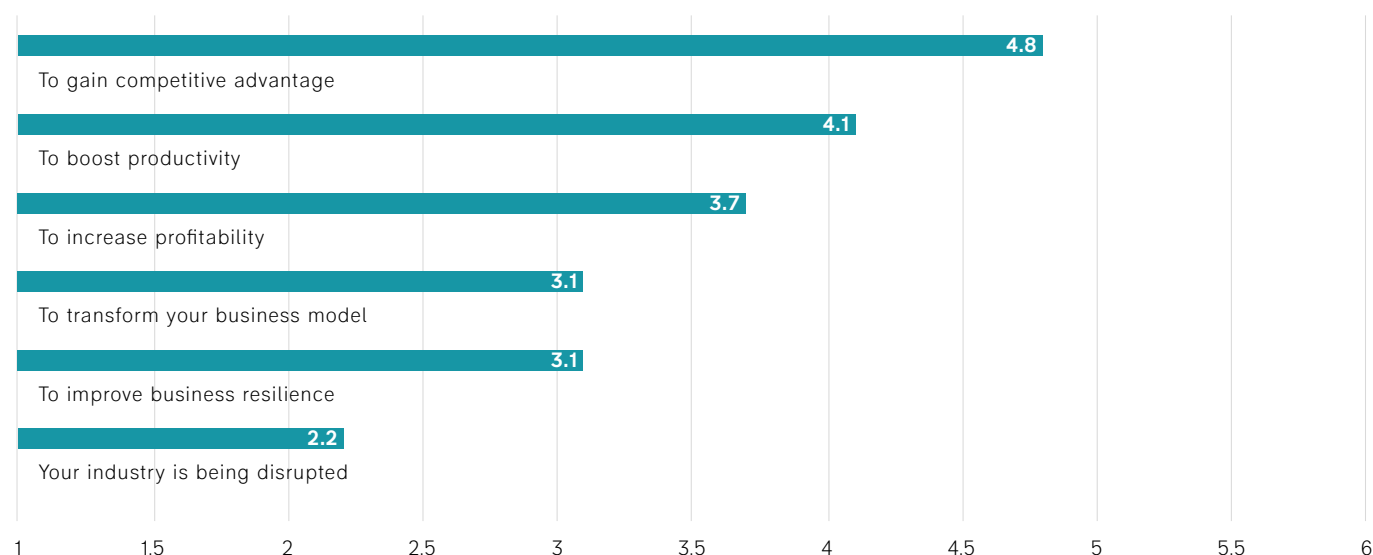
- Transformative technologies once seen as niche are firmly on businesses' next investment horizon: DLT (36%), AI (32%), and quantum computing (32%) are the top technologies respondents plan to start investing in over the next five years.

- AI straddles now and tomorrow as one of the top current and future technology investments – and it is living up to the hype, with a third of businesses surveyed (33%) having already applied it to their business operations. A further third (30%) are at the scoping and piloting phases, and 17% are still conducting research.
- Investment in quantum computing and DLT is set to accelerate. Three times as many Tech Tracker respondents (32%) plan to start investing in quantum computing and twice as many in DLT (35%) over the next five years, compared to the number of businesses who are already investing (11% in quantum computing; 16% in DLT) in these technologies. But with less maturity and fewer commercial applications than AI and other popular technologies, both of these technologies currently remain firmly in the research phase, with many businesses not planning to invest at all.

	What is it?	What could it mean for business?
Artificial intelligence (AI)	An umbrella term, AI encompasses technology that exhibits behaviours which appear intelligent and autonomous.	AI is particularly good at spotting patterns in big data. It is being used in different and increasingly complex ways across businesses and sectors, from helping firms in the energy sector to optimise how energy is supplied to improving how millions of legal contracts are analysed.
Distributed ledger technology (DLT)	As its name suggests, a distributed ledger is a database of assets shared across a network made up of multiple locations. All participants in the network have an identical copy of the ledger and must adhere to the network's rules. Any changes made to the ledger are reflected immediately across all copies. The Bitcoin ledger, underpinned by blockchain, is the most well-known example of a DLT.	The main advantages of distributed ledgers are transparency and security. DLT has cross-sectoral potential, for example allowing businesses to verify the ownership of goods and track them through the supply chain.
Quantum computing	Quantum computing is a type of computing that uses different laws of physics to standard, or 'classical' computing. That means that as they develop, quantum computers are expected to surpass classical computers when it comes to solving certain types of complex problem that we're unable to today.	Quantum computers' ability to model real-life scenarios with greater speed and accuracy could transform supply chains, decision-making, and innovation in sectors from pharmaceutical to cyber security.

Businesses are more likely to proactively use technology to get ahead than react to industry disruption

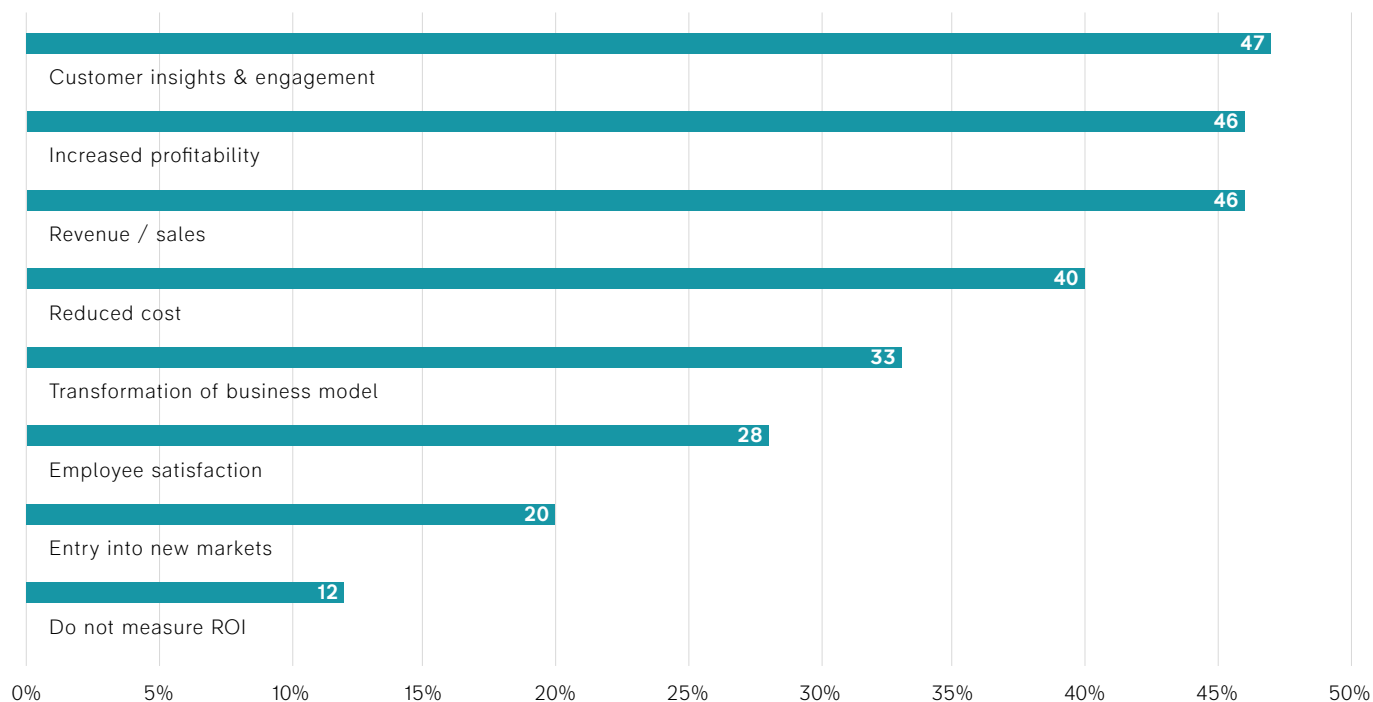
Figure 2 Businesses' most important reason for investing in new technologies (average ranking with 6 as most important reason)



- Companies keen to distinguish themselves view technology as an opportunity to gain a competitive advantage rather than investing in response to disruption. When asked to rank six reasons for technology investment from most to least important (with six as the most important reason), respondents said that growing their competitive advantage was particularly important, with the highest average ranking (4.8). This was followed by boosting their productivity (average ranking 4.1) and increasing profitability (average ranking 3.7). Respondents' least important reason for technology investment was responding to disruption of their industry (average ranking 2.2).

Customers come first for businesses measuring their return on technology investment...

Figure 3 How businesses measure ROI for technology investments (% of respondents)



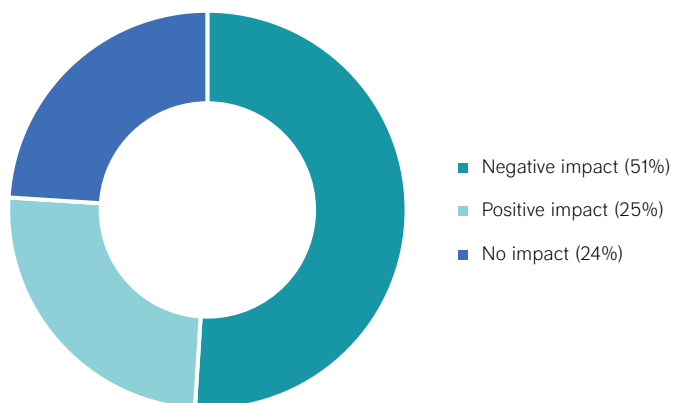
- Digital technologies will help businesses gain a competitive advantage by helping to deliver a seamless and efficient customer experience. It's therefore positive to see that customer experience is a key metric of ROI on technology investments, measured by nearly half (47%) of businesses. Importantly, a similar number of businesses also take into consideration increased profitability (46%) and revenue and sales (46%).

...but more effectively harnessing data and measuring ROI could help industry innovation deliver more for business and customers

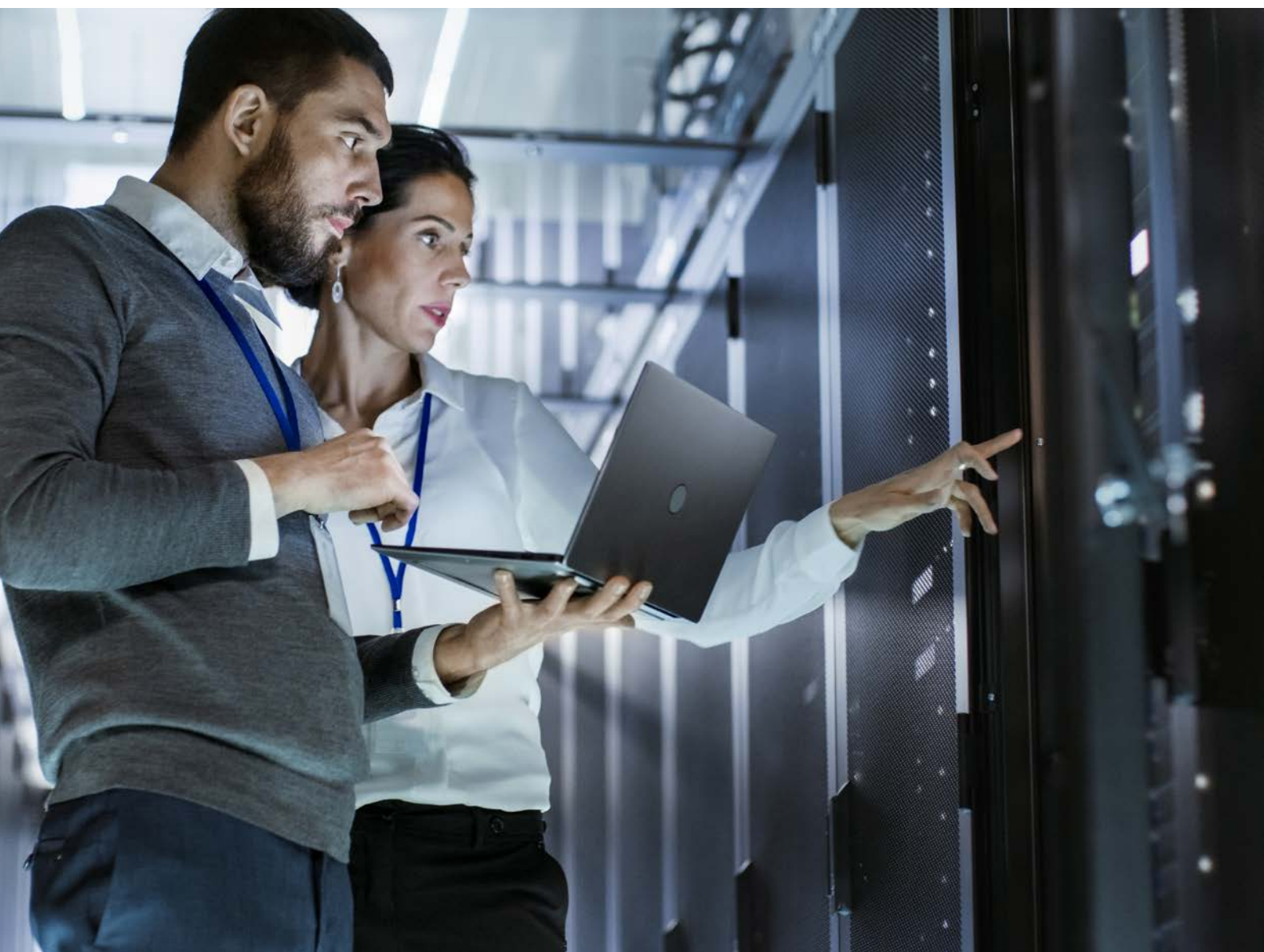
- A data explosion has created challenges as well as opportunities, with the evidence suggesting that not all businesses are deploying technology as effectively as they could: although nearly seven in ten (68%) respondents have applied data analytics technology to their business operations, a third (33%) of total respondents don't think that they're getting the most out of the data their technology generates, which was the biggest barrier to innovation reported in the survey.
- However, over one in ten (12%) of respondents do not measure ROI for technology investment, even though this metric will be vital in helping to determine how well new technologies deliver.
- It's positive that customer experience is a main consideration for respondents. But prioritising reduced cost (40%) above transformation of business model (33%) or entry into new markets (20%), could mean that some are missing out on the transformative opportunities digital innovations offer beyond the bottom line.
- To fully enable successful digital transformation, businesses will need to combine new technologies with those that they've already embedded – for example, layering AI on top of data analytics technology. To achieve the boost to productivity and profit that they seek, they must also ensure technology closely aligns with business objectives.

The UK's regulatory environment provides a strong foundation for ambitious technology development, but the political environment risks stifling the huge opportunity of game-changing technology investment

Figure 4 To what extent is the UK's political environment impacting on your businesses' investment in technology and innovation (% of respondents)

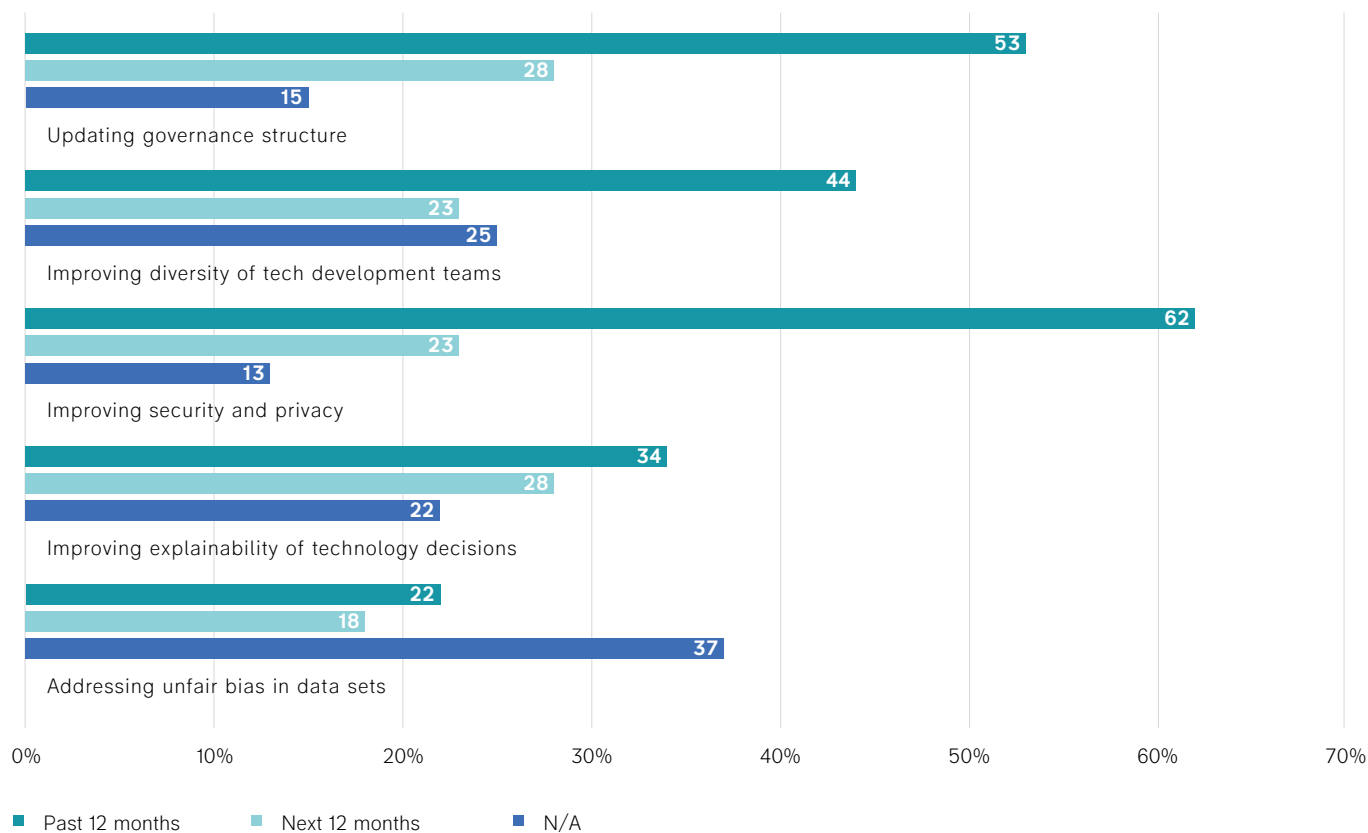


- Reflecting the UK's world-class regulators and innovative bodies like the Centre for Data Ethics and Innovation (CDEI), Tech Tracker respondents were more likely to rate the UK's regulatory environment as having a positive impact (41%) – although there is still a way to go, with 30% of businesses reporting that the regulatory environment has a negative impact.
- However, over half of respondents (51%) reported that the UK's political environment is negatively impacting technology and innovation investment, compared to just a quarter (25%) who said its impact is positive – which could suggest that sustained political uncertainty is taking its toll.



Many businesses are investing in responsible technology, with improving privacy and security the top focus

Figure 5 When businesses are investing in responsible technology (% of respondents)



- As technology becomes smarter and more powerful, new challenges can arise as well as opportunities. In particular, new technologies can make existing ethical challenges more urgent and lead to new ones. Tech Tracker evidence shows that many businesses are investing to address these challenges.
- The way that a company treats personal data is the most important characteristic when a customer decides which businesses to buy from and work with. Given this customer demand as well as major regulations such as the GDPR, it's unsurprising to see that most respondents invested in privacy and security (62%) over the last year. Respondents also took positive steps by investing in updating governance structures (53%) and improving the diversity of tech development teams (44%). Over the next twelve months, their top priorities are improving the explainability of decisions informed by technology (28%) and updating governance structures (28%).
- Four in five (80%) of respondents will be investing in AI within five years – meaning that businesses must continue to address unfair bias and discrimination, which can arise through both data and development teams. Two in five (40%) of respondents are already tackling unfair bias. Although a similar number (37%) report that this is not currently applicable for their technology, this is an area where businesses may need to step up as AI receives more investment and becomes further embedded.

The vast majority of businesses feel confident about their preparedness for when technology goes wrong – but managing reputational damage is a greater concern

- It's positive to see that investment in privacy and security is paying dividends, with nine in ten respondents confident in their preparedness for potential system/service failure (91%), phishing attacks (90%), data corruption (89%), or data loss (88%) when they invest in new technology.
- However, far fewer (74%) respondents reported that they felt prepared for the reputational damage when technology goes wrong – a concern because a breakdown in trust could put the brakes on exciting new innovations.