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Insights

Innovation in Europe

A Deloitte survey on European companies and how digital technologies can strategically enhance innovation

Deloitte Innovation helps clients to develop innovation strategy, build innovation capabilities, design and launch new products and stimulate innovation ecosystems. Together with our subject matter experts, we explore trends, opportunities and threats, and derive goals for innovation success. Management capacity and available funding are the foundations needed to drive innovation. We help clients to select the best portfolio of innovation initiatives to lower risk, gain financial return and provide access to innovative solutions. Innovation needs creativity and discipline. Deloitte helps clients cultivate the right tools and methods to support their teams on the innovation journey. Managing and orchestrating innovation ecosystems is one of the main competitive advantages for the future. Reach out to any of the contacts listed in this article for more information.

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Executive summary

INNOVATION IS THE philosopher's stone of the modern era, an almost mythical substance that can create riches from base materials. And according to some, Europe needs a touch of this alchemy to rejuvenate its fortunes.

The continent is seen as suffering an 'innovation deficit', exacerbated since the financial crisis by poor growth and a lack of dynamism. With innovation today intimately linked to the notion of the digital future, Europe is sometimes judged to have been outflanked technologically by both Asia and the United States and at risk of being left behind because of a long-term lack of investment in research, digitalisation and education.

But this view is, in Deloitte's judgement, excessively bleak. Growth is recovering in Europe and there is an optimistic, vibrant air in the region that is fostering a renewed sense of ambition.

This Deloitte report investigates how companies in Europe are using digital, data-driven technologies to augment human physical and mental abilities. Specifically, the report examines the triggers of innovation and its implementation in relation to three critical enabling factors:

- **Technology.** The digital technologies European firms are choosing to invest in, their motivations for doing so, and how these technologies are being implemented.
- **The human factor.** The implications these digital technologies have for the future workforce, and how companies are using digital transformation to develop innovation cultures.
- **Innovative organisation.** How processes are being designed to create organisations that foster and spur innovation, and what is hindering innovation in companies.

In all, 760 European companies in 16 European countries from 20 major business fields were surveyed for this report. The main findings are as follows.

Innovation is a strategic priority – 88 per cent want to increase budgets over the next two years. European companies are prepared to invest in the potential of new technologies. Some 88 per cent expect their innovation budgets to increase over the next two years. The other 12 per cent expect it to remain the same.

Technology is the main trigger for innovation in Europe. Ninety-two per cent of businesses across Europe see advances in new technologies as the primary trigger behind innovation, with new consumer expectations (86 per cent) as the second most important.

Advanced technologies are not expected to destroy jobs. Robots are not coming for our jobs, at least not in Europe. Most companies (41 per cent) expect full-time headcount to increase, while 29 per cent expect it to remain the same. Only 23 per cent expect a decrease – although there are strongly divided opinions in some industries, such as banking and finance. Instead, one in two companies (49 per cent) expect to invest in substantial training in new technologies, as well as in leadership development (45 per cent), to upskill their workforce.

Investment in data analytics and cloud computing is already advanced. Investments in data analytics (69 per cent) and cloud computing (62 per cent) are already well advanced, with another 26 per cent of firms expecting to invest in data analytics in the next two years and 29 per cent in cloud computing. Artificial intelligence (AI) (43 per cent), augmented and virtual reality (38 per cent) and robotic process automation (RPA) (36 per cent) will also be areas of focus over the next two years.

Ecosystem innovation is not fully embraced by European companies. Despite talk

about 'Silicon Saxony', the United Kingdom's 'Silicon Corridor', 'La French tech' and other tech hubs, European companies do not seem to embrace the role of clusters and networks in dynamic innovation. The potential for collaboration with external partners to share knowledge, stay abreast of developments, expand market reach and provide complementary expertise appears underutilised. For example, less than a third of companies cooperate with startups or with universities.

The biggest hurdles to innovation are cultural – and resistance to change is high. Cultural resistance is identified as the main obstacle to fostering innovation by 32 per cent of companies. In addition, data security is seen as inhibiting data-driven innovation (30 per cent). Lack of technical skills and technology providers to implement new technologies and train staff are also considered significant hurdles to technology-driven innovation.

Innovation is far from dead in Europe. There is no denying that Europe is feeling competitive pressure. Challenged to innovate more effectively to meet the rising expectations of customers and stakeholders, European companies face the need to undertake substantial investment in digital infrastructure while being constrained by legacy ecosystems and ageing workforces. Yet Europe still reveals a strong ability as an innovation powerhouse. The continent is neither poorly positioned nor lacks confidence in its ability to compete.

Introduction

IN THE RACE toward the digital future, Europe is often cast as an ageing competitor, lagging distantly behind the powerful, front-running United States and its fast-closing competitor, China. But a deeper examination of Europe's position reveals a different picture.

Europe is indeed feeling competitive pressure. Globally, innovation is advancing at an increasing rate, with knowledge-based capital assuming ever increasing importance. New digital-savvy entrepreneurs in Asia and the United States are using data analytics to churn out highly customised products and services at a rapid rate.

The result is that European companies are being challenged to innovate more effectively to meet the rising expectations of customers and stakeholders. Such innovation requires expensive investments in leading digital infrastructure. Caught between these high costs, the constraints of legacy ecosystems, and ageing workforces, European firms can be slower to leverage new technologies.

Europe is still an innovation powerhouse. Despite these pressures, Europe remains an innovation powerhouse. The World Economic Forum (WEF), for example, considers Germany the world's most innovative economy and Switzerland the third. The United Kingdom is also considered one of the "beacons of innovation".[1] On the *Global Innovation Index 2018* from Cornell University, eight European countries are listed in the top ten positions, with the top four places occupied by Switzerland, the Netherlands, Sweden and the United Kingdom in ascending order.[2]

Registered patents indicate an ability to exploit knowledge and translate it into potential economic gains. Yet patent figures also reveal a region's weaknesses. In terms of patent applications submitted on its 'own turf' at the European Patent Office in 2017 classified by region, Europe dominated in seven of the ten main categories.[3] Yet the region falls well behind Asia and the United States in the field of computer technology. In terms of digital communications, Europe also lags significantly behind Asia. As these two fields are critical to the emerging digital reality that is disrupting industries and redefining business and society, the region's performance in these areas is a cause for concern.

European companies are being challenged to innovate more effectively to meet the rising expectations of customers and stakeholders.

Three enabling factors of innovation: technology, humans, and the organisation. To investigate the state of play of innovation in Europe, Deloitte surveyed key managers and innovation decision-makers.

In the report, Deloitte applies an empirical investigation and trend analysis to the wider European region to investigate what technologies companies are implementing to enhance their innovation and where they can do so more strategically. Specifically, the survey examines the triggers for innovation and its implementation in relation to three critical enabling factors:

- **Technology.** The digital technologies European firms are choosing to invest in, their motivations for doing so, and how these technologies are being implemented.
- **The human factor.** The implications these digital technologies have for the future workforce, and how companies are using digital transformation to develop innovation cultures.
- **Innovative organisation.** How processes are being designed to create organisations that foster and spur innovation, and what is hindering innovation in companies.

Before investigating these three critical enabling factors of innovation, we first surveyed the current state of play of innovation in Europe, looking in particular for the triggers of innovation. We then examined how the augmentation opportunities offered by new technologies – such as AI, blockchain, cloud and cognitive computing, data analytics, the Internet of Things (IoT) and more – are dramatically changing innovation.

METHODOLOGY

Deloitte surveyed key managers and innovation decision-makers in 760 companies in 16 European countries, with the bulk coming from France, Germany, Italy, Spain, the Netherlands and the United Kingdom.

Respondents were drawn from 20 major business fields, ranging from asset management and chemicals to the travel and hospitality industries. The most strongly represented fields were technology (17 per cent), industrial products and services (13 per cent) and retail, transport and logistics (7 per cent each).

Companies were considered large if they had revenue in excess of €5 billion. Mid-sized companies were defined as having revenue between €500 million and €5 billion. Small companies were defined as having revenue between €100 million and €500 million.

The state of play of innovation

TO UNDERSTAND THE dynamics around innovation, it is essential to first understand the status quo. Why do European companies care about innovation, what influences their investment decisions, and which investments are they pursuing? Such insights are valuable in determining the innovation strategies companies can adopt and how organisational processes can be designed to match.

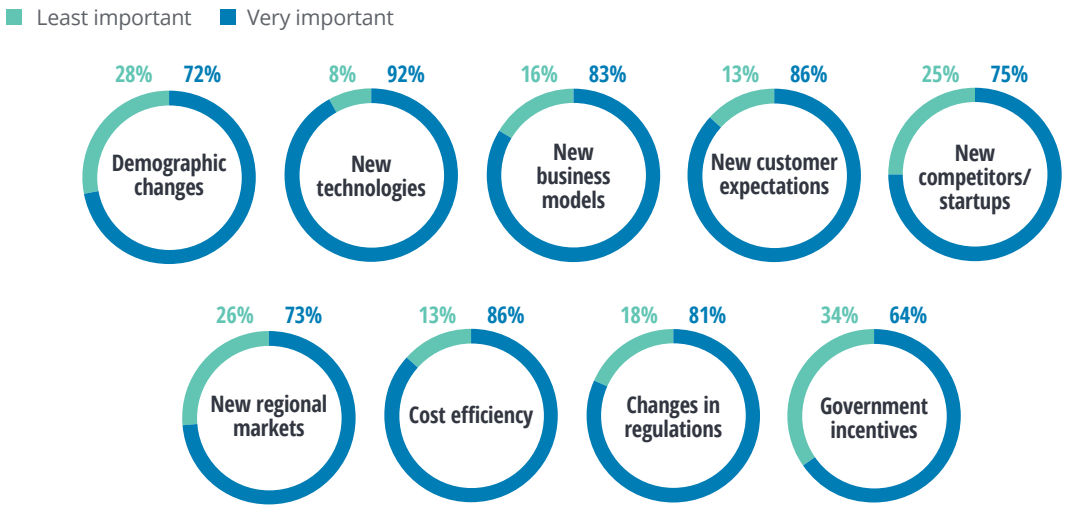
New technologies are the primary trigger for innovation. Advances in new technologies are the primary trigger behind innovation in companies (Figure 1). European industries, like those elsewhere, face dramatic disruption as new digital technologies destroy the status quo.

Businesses across all sectors are seeking to understand the relevance, growth potential and threats that new technologies will imply over the next decade. Asset management (90 per cent), insurance (100 per cent) and technology (97 per cent) are the fields in which new technologies are the strongest trigger to innovation.

Consumer goods, technology, transport and logistics see customer expectations as a strong trigger. Intertwined with this focus on disruptive technology are customer expectations and changes in business models. Consumers have always had the ability to vote with their wallets. But empowered by digital technology devices, they now have greater access to information and can disseminate information themselves, giving them the ability to influence what other consumers will buy. They are also dictating when, where and how they engage with brands and increasingly demanding more personalised goods and services.

FIGURE 1

What triggers innovation activity in your company?



Note: Percentages may not total 100 per cent because data for the category 'Doesn't apply' is not displayed.
Source: Deloitte Innovation Survey 2018.

Like businesses elsewhere, European companies rightly see this as a challenge – and an opportunity. Just as technology is empowering customers, it can also empower businesses to understand their customers better, gain insight into their behaviour and create more open and transparent relationships with them.

European companies have a keen interest in evolving customer expectations and the possibilities offered by new digital technologies to foster this. The industries in which new customer expectations are felt mostly strongly as a trigger are consumer goods (96 per cent), technology (94 per cent) and transport and logistics (92 per cent).

The emergence of new business models is also being closely monitored. Developing digital technologies inspire operating models that threaten traditional ways of doing business. They also provide greater opportunities in terms of cross-functional collaboration and the chance to develop new ecosystem partnerships. New business models are seen as a strong trigger in construction (94 per cent), consumer goods (93 per cent) and technology (92 per cent).

Cost efficiency is essential for insurance innovation. Cost efficiency is, as always, another major trigger to innovation across all fields and is felt particularly strongly in insurance (96 per cent). Changes in regulations are also of great interest to firms in rule-bound Europe and have the strongest impact in asset management (90 per cent) and automotive (88 per cent).

Not surprisingly, with Brexit looming in March 2019, there is greater interest in the United Kingdom (89 per cent) about changes in regulation than elsewhere in Europe (79 per cent).

INDUSTRIES FEELING THEIR AGE

Demographic change is another factor provoking innovation. What emerged from the survey is a surprising lack of interest in such change on the part of Spanish companies – only 52 per cent of them see it as a trigger for innovation. Like Spain, Germany and Italy have two of the oldest populations in the world, and 75 per cent of German and 88 per cent of Italian companies say demographic change inspires innovation. Industries where demographic change is felt to be a significant factor are asset management (88 per cent), construction and consumer goods (81 per cent each).

Pursuing innovation strategies

MANY COMPANIES THINK of innovation only as the creation of a new product suffused with new technology, or as adjustment to the production process or change to the business model. This is a very narrow definition. Each of these aspects represents only one way to innovate – and, when implemented in isolation, provides a poor return on investment.

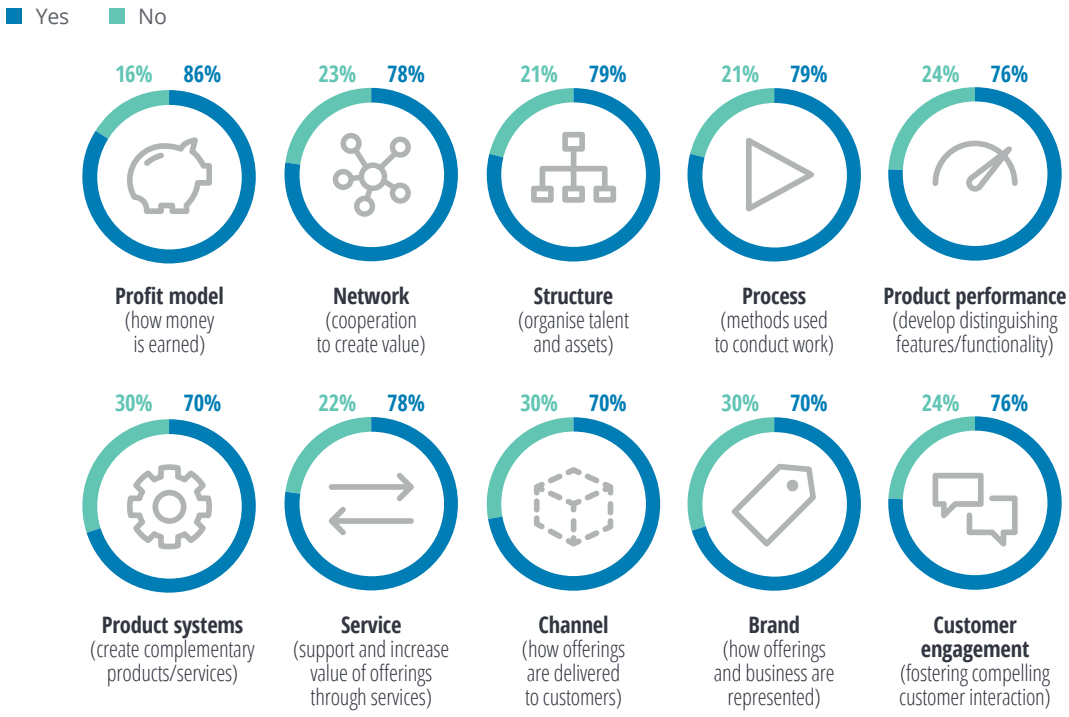
Innovation within a company should be pursued across the entire operational area. The best way to drive innovation is to apply a disciplined, consistent method across the entire value chain. One widely used framework identifies ten powerful types of innovation that provide opportunities other than new products to develop viable breakthrough innovations.

The innovation framework is broad, and the ten types of innovation do not necessarily deal specifically with digital technologies; rather, each type of innovation can be enhanced by the application of digital technology.[4] In this survey, interviewees were asked about the types of innovation their company pursues based upon this framework (Figure 2).

One in three European companies uses the full spectrum of innovation. From the survey, it emerged that one in three European companies uses the ten types of innovation, and only ten per cent use four types or less. Combining four or more types of innovation opens companies to new possibilities and strengthens innovation. Four or less, according to the methodology used to create the framework [5], implies there are gaps in the strategy and the company may be missing innovative opportunities.

FIGURE 2

Which types of innovation is your company pursuing?



Note: Percentages may not total 100 per cent due to rounding.
Source: Deloitte Innovation Survey 2018.

Most European companies are currently innovating around the profit model, changing the way money is earned. This is followed by workflow process changes, the structuring of talent and organisation of assets.

Innovation in channel, brand and product systems is neglected by European companies – and digital technologies offer huge scope to improve.

When analysed on a sector level, technology is clearly leading, in that companies typically apply innovation in all ten areas. This is followed by the industrial products and services industry.

Four industries are failing to use all ten innovation types. Chemistry, energy and health have the most potential to improve, as these industries have significant areas in which innovation is not being applied consistently. Only one in three companies in the energy sector is innovating in terms of product performance and services. Only one in five is innovating its channel (the way in which its offerings are delivered to customers).

In health, five innovation areas are not being applied broadly. Only one in two companies is innovating in terms of process, product performance, brand and customer engagement. Only one in three is innovating in product systems.

Interestingly, insurance claims to be a customer-centric industry. However, only one in three insurance companies focus on innovation in product performance. Only one in three focuses on networks – that is, cooperation to create value.

A quarter of companies do not focus on customer engagement. There is evident weakness in the approach of European companies to customer engagement. One in every four companies does not focus on improving customer engagement, while one in three neglects channel and brand innovation. In Europe, it appears that the way products and services are presented to customers and how the brand is represented through offerings and the business is not a primary concern for many companies.

This implies that there is an opportunity for companies to improve in the way they interact with customers through channels and brand representation. Digital technologies, such as social media and company or product apps, have great potential to enhance the interfaces between firms and users.

Implementing technologies to enhance innovation

THE DIGITAL REVOLUTION – the new wave of digital connectivity and technological advances that has swept through industries over the last two decades – is continuing to drive forward relentlessly, transforming people's way of life, the cities in which they live and the overall economy. A result of this revolution is automated industrial systems and smart production processes that can boost efficiency across supply chains.

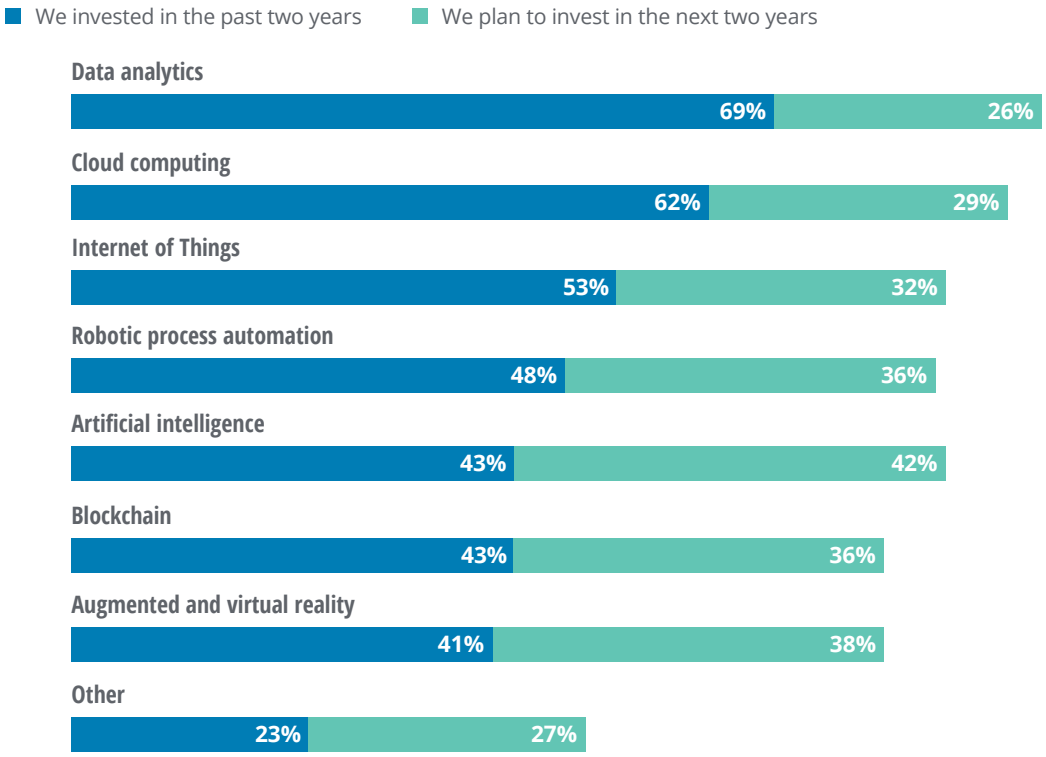
This survey examined which technologies are being implemented and where. The results reveal that European firms are already well advanced in terms of investments in cloud computing, data analytics technologies, the IoT and RPA (Figure 3).

Many are prepared to invest further in innovation. When asked if their company's budget for innovation would change over the next two years, nine out of ten innovation managers (88 per cent) expected it to increase. The question is where will this budget be spent?

European companies express the most interest in AI, with 42 per cent planning to implement AI projects in the next two years. Augmented and virtual reality (AR/VR), RPA and blockchain are also areas of decided interest.

FIGURE 3

Has your company or will your company invest in the following technologies and processes?



Note: Percentages do not total 100 per cent because data for the 'Doesn't apply' category is not displayed.
Source: Deloitte Innovation Survey 2018.

Where technologies are being applied

Knowing where to apply a technology is as important as knowing how to apply it. Having identified the most appropriate technologies for their business, the next point for European firms is to match it to an explicit operational unit within the corporation.

AI has the most potential in R&D and production processes. Across industries, various technologies are identified as having clear benefits when applied to specific corporate function (Figure 4). For example, data analytics is expected to play a central role in strategy, while AI is seen as having the greatest potential in R&D activities and in production processes. IoT will be dominant in purchasing while RPA has many applications in production.

AR and VR are considered to be important for sales activities and production. Blockchain is seen as most applicable in shipping (19 per cent) but overall, companies remain unsure as to where the technology can be best implemented.

AI will be the focus in coming years, followed by IoT, blockchain and AR/VR. Data analytics and cloud computing will grow at a slower pace.

ABOUT 90 PER CENT OF ORGANISATIONS EXPECT INNOVATION BUDGETS TO INCREASE OVER THE NEXT TWO YEARS, WHILE 70 PER CENT OF TECHNOLOGY FIRMS HAVE IMPLEMENTED DATA ANALYTICS

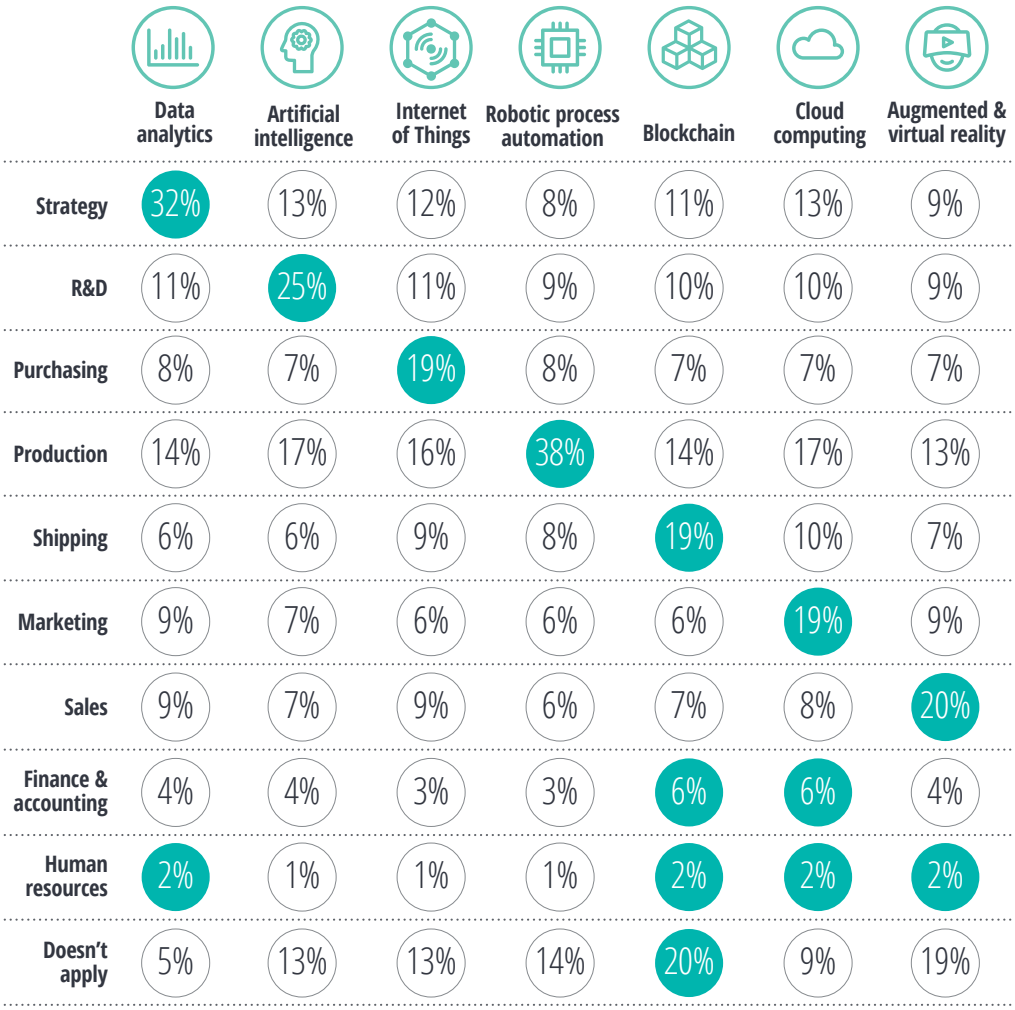
When examined from a sector perspective, technology leads in data analytics, with 95 per cent having invested or planning to invest in the technology. This represents 20 per cent of all European companies that have implemented or plan to implement data analytics. The same is true of AI, with 20 per cent of European companies who have already implemented AI or undertaken pilots coming from technology, followed by ten per cent in industrial products and services. For IoT, it is again similar, with around 20 per cent of all companies coming from technology, then ten per cent from industrial products and services.

Looking forward, the survey found that AI will be a focus of two in three firms in the insurance industry. It will also be an investment for every second firm in the industrial product and services, retail (wholesale and distribution) and technology industries. RPA will be a focus in banking (45 per cent) and health (50 per cent), while industrial product service companies (52 per cent), as well as retail (50 per cent) and technology (38 per cent) firms, will invest significantly in blockchain.

FIGURE 4

Which corporate functions will benefit the most from implementing which technologies and processes?

■ Highest value



Source: Deloitte Innovation Survey 2018.

The human factor in digital innovation

RAPID ADVANCES IN robotics, RPA, AI and big data are sparking anxiety about employment. 'Robots are coming for our jobs' is a common theme in headlines, with up to 800 million jobs predicted to disappear worldwide by 2030 in some estimations.[6] But a debate is now raging between those who argue we face an era of unprecedented technology-provoked unemployment and those who claim job prospects for people with the right mix of talent have never been better.

In Europe, our survey suggests workers have little to fear. Companies strongly believe their staff headcount will actually stay the same or increase as a consequence of new technologies (Figure 5). Italy and the United Kingdom are the most optimistic, with 60 per cent and 58 per cent of companies, respectively, expecting their full-time headcount to increase. Only one in four companies expect a decrease in headcount.

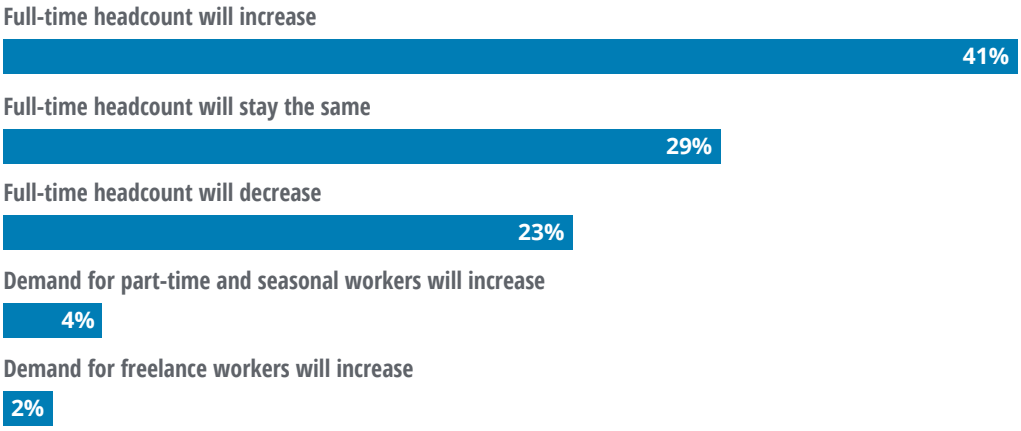
Job losses are expected in banking and finance, energy and insurance. However, it should be noted that there are strong differences of opinion within some industries as to whether technologies will generate or destroy jobs. In the majority of industries, the opinion is firmly that technology will be a net creator of jobs. Four in every five companies in technology, for example, hold this belief fervently.

A marked divide is apparent in other industries, such as banking and finance, where as many companies expect an increase in jobs as a decrease (42 per cent, in each case). More companies in the energy sector expect jobs to decrease (40 per cent) than increase (25 per cent), and the same is true of insurance (30 per cent opposed to 13 per cent).

Companies in asset management (62 per cent), construction (59 per cent) and technology (60 per cent) all expect staff increases. Insurance expects

FIGURE 5

What will be the impact on the labour force of your company due to the implementation of new (digital) technologies and digital transformation?



Source: Deloitte, *Digital technology: Job creator or job destroyer?*, 2015.

a substantial increase in its demand for part-time workers (26 per cent).

The debate about whether technology is a job creator or a job destroyer has significant human resource ramifications. If companies believe that workforce numbers will remain constant or increase, then technology is only one part of the cost of the digital revolution (Figure 6).

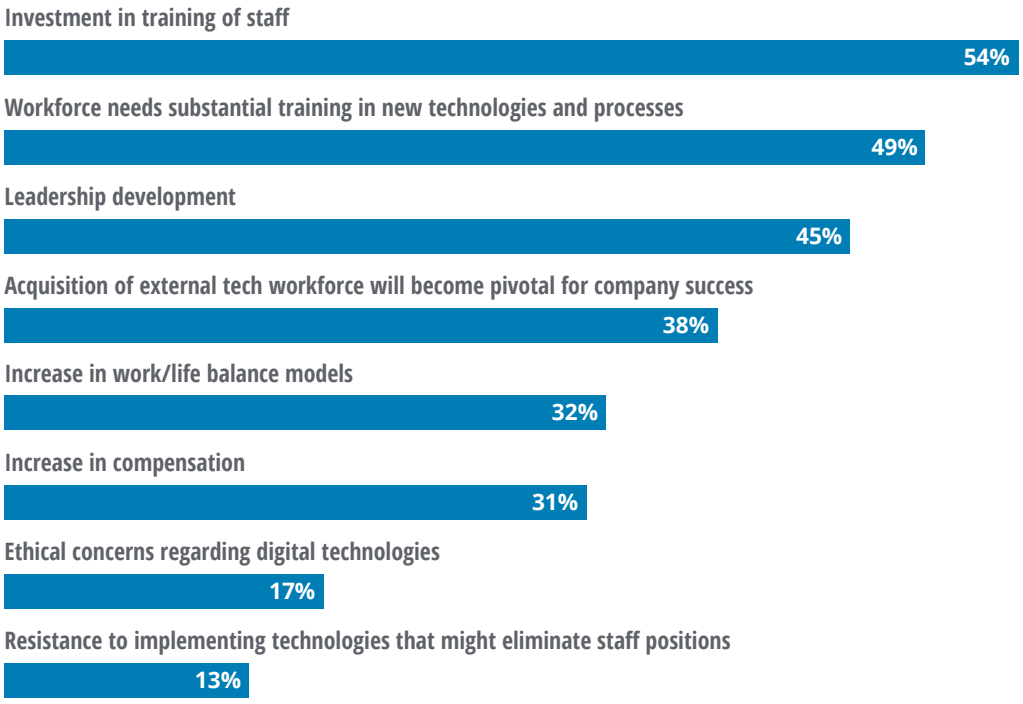
When implemented, new technology such as robotics, RPA, AI and big data require that the future workforce have an enhanced set of skills or even an entirely different set to fully utilise the opportunities provided by the technology. This implies a double investment: first in the technology, second in upskilling the workforce.

One company in two expects to increase staff training

European companies are aware of the need to upskill their workforce. Every second company expects that digital transformation will drive substantial increases in staff training and leadership

FIGURE 6

What changes in your workforce and other human aspects do you expect to see in the course of the digital transformation for your company?



Source: Deloitte Innovation Survey 2018.

development, particularly in new technologies and processes. Indeed, the lack of technical and leadership and management skills were identified by companies as two of the major hurdles now preventing innovation (see section titled "Hurdles in innovation").

The sectors that see an urgent need for training in new technologies and processes are automotive (58 per cent) and insurance (61 per cent). Sectors that see the least need are chemicals (32 per cent) and energy (ten per cent). Asset management and insurance both see the acquisition of skilled external staff as pivotal for success (50 per cent and 48 per cent). Consumer goods companies saw a distinct need for investment in leadership training (59 per cent).

Every second company expects that digital transformation will drive substantial increases in staff training and leadership development, particularly in new technologies and processes.

One company in three expects to pay more and improve work/life balance

To obtain the workforce they need, every third company expects to increase compensation and improve work-life balance. Technology is the sector where an increase in compensation is expected to play the most significant role (51 per cent), while work-life balance models are seen as critical in chemicals (42 per cent) and energy (55 per cent).

Ethical concerns regarding digital technologies are expected to play the most significant roles in asset management (26 per cent) and automotive (29 per cent).

Spurring innovation through the organisation

DESTROYING THE OLD to make way for the new is the essence of market economics, but the technologies of the digital era have turned 'disruptive innovation' into a supercharged process. Over the next decade, conventional industries expect to face massive disruption, particularly from tech competitors wielding vast financial resources, new technologies and massive reserves of data.

Disruption need not be a death sentence, however. When asked which internal processes and assets are important for successful innovation, European companies identified the sensing and scanning of new technologies and trends (43 per cent) (Figure 7). This was followed by the designing of appropriate innovation strategies and setting aspirations (42 per cent), as well as having the right metrics in place to measure innovation success (39 per cent). Organisational setup (38 per cent) and leadership support (36 per cent) are considered other key factors for successful innovation environments.

Potential of external resources lies untapped

Companies see the opening of their organisation and processes to external inputs as one way to spur innovation activity that is essential to shield them from a disruptive onslaught. One-third of companies responding to the Deloitte survey say that external influences are now more important to innovation within their company than internal influences and capabilities. Some 60 per cent consider external influences as important as internal influences and capabilities.

Yet the willingness to open up to external resources remains low, particularly in an era in which clusters and networks are widely seen as essential to dynamic innovation. The potential of collaboration with external partners – whether suppliers, customers or universities – to share knowledge, stay abreast of developments, expand market reach and provide complementary expertise appears to be underutilised in Europe.

This was also evident when companies were asked about the methods used to tap into innovation sources from outside. Companies believe that exchange with experts from their own industry is the most promising approach, followed by exchanges with experts in other industries. In addition, analysis of social network activity and customer experience and expectations are seen as critical, although less important. Interacting with startups through corporate accelerators and cocreating with startups is an approach taken by only one in three companies.

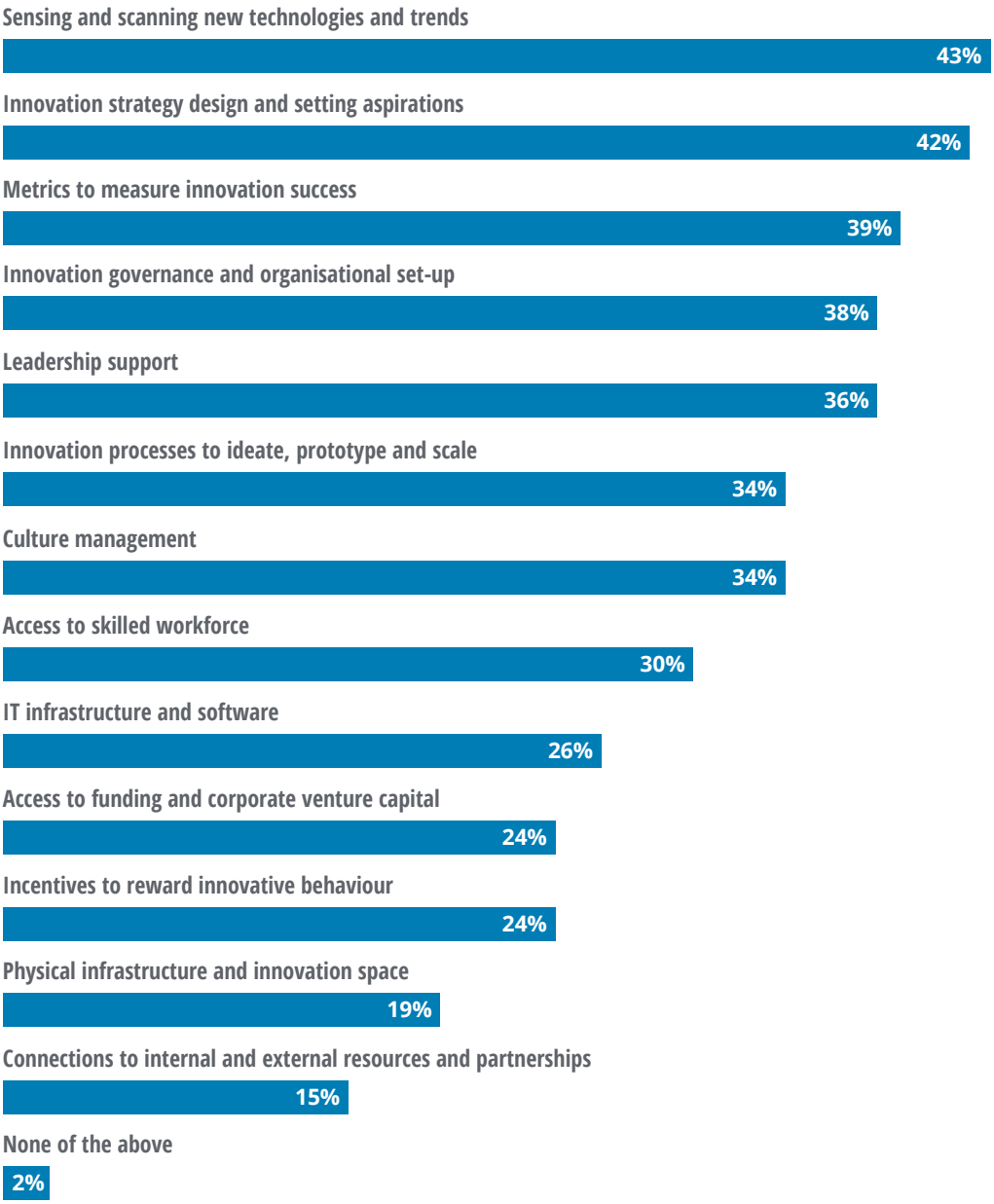
European companies are yet to realise the relevance of ecosystems. No method or process is used heavily by European firms to tap into innovative sources from outside the firm (Figure 8). For example, only every third company cooperates with universities and research centres.

This means European companies are yet to realise the relevance of ecosystems to the future of their business. The reality is that the best talent does not always work in the company. This deficiency can be compensated for by opening the firm to a funnel of ideas from across a value chain of suppliers and collaborators.

When implemented, digital ecosystems provide richer connections that enable companies to gain access to new knowledge faster and incorporate change more effectively. Business ecosystems allow companies to tap into new sources for ideas, which is crucial to speeding up innovation and augmenting internal innovation capabilities. Failing to access outside inputs fully means European businesses are not realising their full potential.

FIGURE 7

Which internal processes and assets are important for successful innovation in your company?



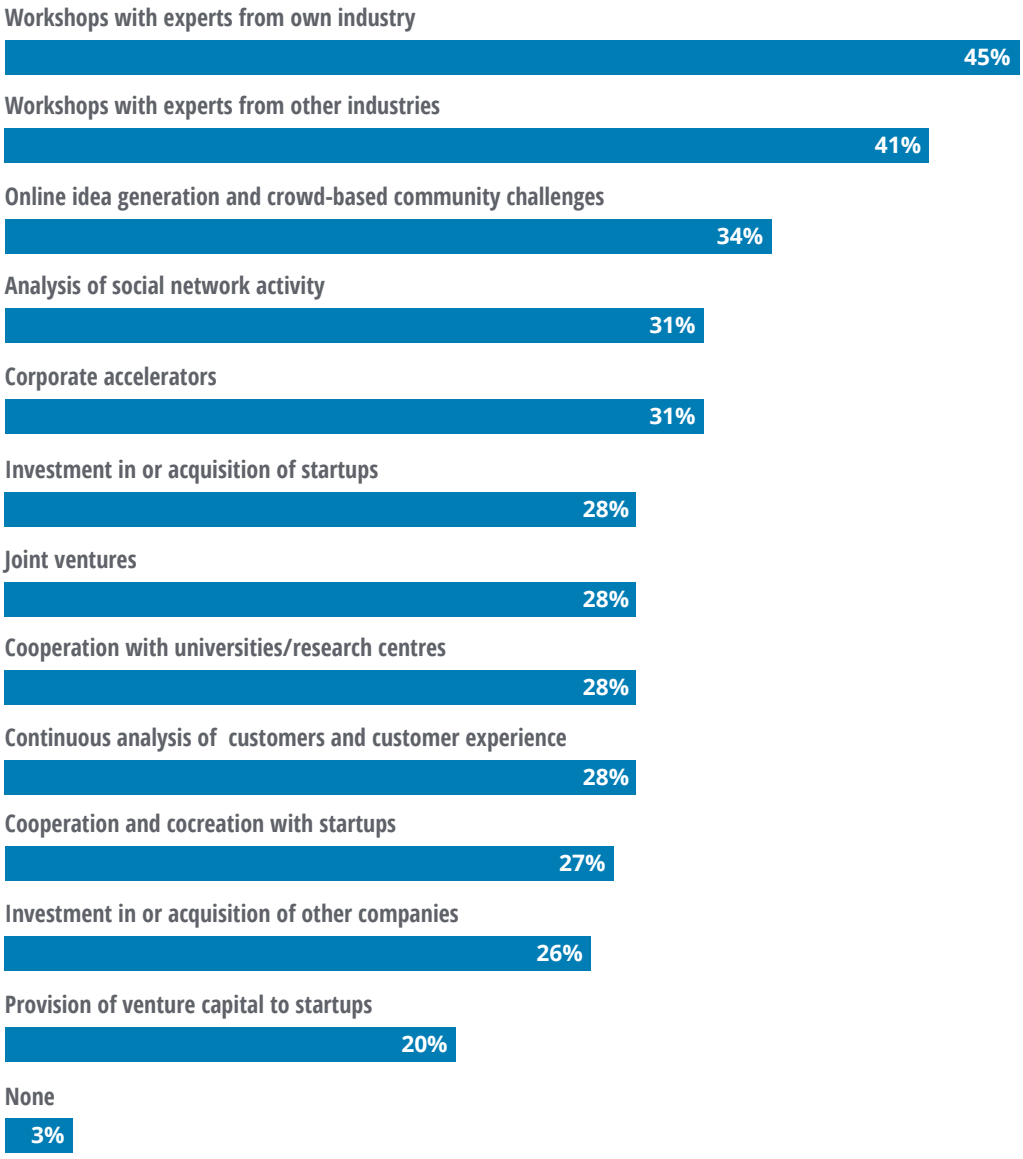
Source: Deloitte Innovation Survey 2018.

Automotive and technology companies are most open to external input. Automotive companies are the most open to input from external innovative sources. The sector is ahead of others in the use of workshops with experts that are both external and internal to the industry (63 per cent and 58 per cent), as well as online idea generation (46 per cent). Automotive is also the third most prolific user of joint ventures (38 per cent), after industrial products and services (40 per cent) and insurance (39 per cent), and is behind only energy (35 per cent) in the provision of venture capital to startups.

Technology firms lead in the use of corporate accelerators (45 per cent), cooperation and cocreation with startups (35 per cent), investment or acquisition of startups (36 per cent) and investment or acquisition of other companies (35 per cent). Insurance companies lead in analysis of social network activity (43 per cent) and the use of corporate accelerators (48 per cent), as well as cooperation with

FIGURE 8

How does your company tap into innovation sources from outside your company?



Source: Deloitte Innovation Survey 2018.

universities (43 per cent) and continuous analysis of customers and customer experience (43 per cent). They lag behind only industrial products and services (40 per cent) in the use of joint ventures (39 per cent).

Construction and health care are not open to external sources of innovation. Health care recorded the lowest responses on the analysis of social network activity (18 per cent), cooperation and cocreation with startups (11 per cent) and the analysis of customers and customer experience (14 per cent). It was ahead of only construction (three per cent) in its provision of venture capital to startups (seven per cent).

As noted, construction lags in the use of venture capital, as well as in the investment or acquisition of startups (13 per cent) or other companies (nine per cent). Along with asset managers, it made the least use of corporate accelerators (19 per cent). It did, however, lead in terms of analysing social network activity (41 per cent).

While insurance was among the leaders in term of cooperating with universities and research centres (43 per cent) and continuous analysis of customers and the customer experience, asset management is failing to exploit this potential. The industry recorded only a 17 per cent response to cooperation with universities and research centres, and 14 per cent in terms of analysis of customers and their experience. Along with construction, it also used accelerators the least of all sectors.

WORKSHOP NATION: UNITED KINGDOM

Companies in the United Kingdom are the most enthusiastic users of workshops, with experts from both within and external to their industry (49 per cent each). French (33 per cent) and German (34 per cent) companies are far less impressed by experts outside their own industry. The French are also less keen on workshops with experts from within their industry (32 per cent) compared to other countries (which average 48 per cent) but place more emphasis on cooperation and cocreation with startups. In the United Kingdom, there is more investment in or acquisition of startups than elsewhere.

Hurdles to innovation

CULTURAL RESISTANCE IS the main obstacle to the fostering of innovation within European companies. In addition, data security is seen as inhibiting data-driven innovation. Lack of technical skills and the availability of technology providers to train and implement new technologies are considered other significant hurdles to promoting technology-driven innovation (Figure 9).

Security issues are felt most acutely among large firms (34 per cent) across Europe. At a country level, companies in the United Kingdom felt security issues to be the largest obstacle (35 per cent) followed by uncertain demand for new goods and services (32 per cent). In France and Germany, cultural resistance to change (26 per cent) and cultural resistance to risk-taking (18 per cent and 19 per cent, respectively) were seen as less of an issue than the European average. The lack of access to technical skills was felt most strongly in Italy (32 per cent), as was the lack of government support (22 per cent).

Thirty-four per cent of companies believe cultural resistance to change is a major hurdle to innovation. The industries that feel most acutely that data security is an inhibitor to data-driven innovation are insurance (48 per cent) and asset management (43 per cent). Insurance companies also believe that the immaturity of specific technology standards (30 per cent) is a major hurdle.

Automotive companies believe the availability of technology providers to train and implement new technologies is a major factor limiting innovation. Automotive also sees cultural resistance to change as significant (29 per cent), as do the banking and finance (36 per cent) and insurance (39 per cent) sectors. Lack of leadership and management skills (42 per cent) is also perceived as an issue in automotive and in asset management (36 per cent).

Energy (50 per cent), construction (38 per cent) and banking and financial (32 per cent) companies suffer most acutely from a lack of technical skills.

Supporting implementation of digital technologies

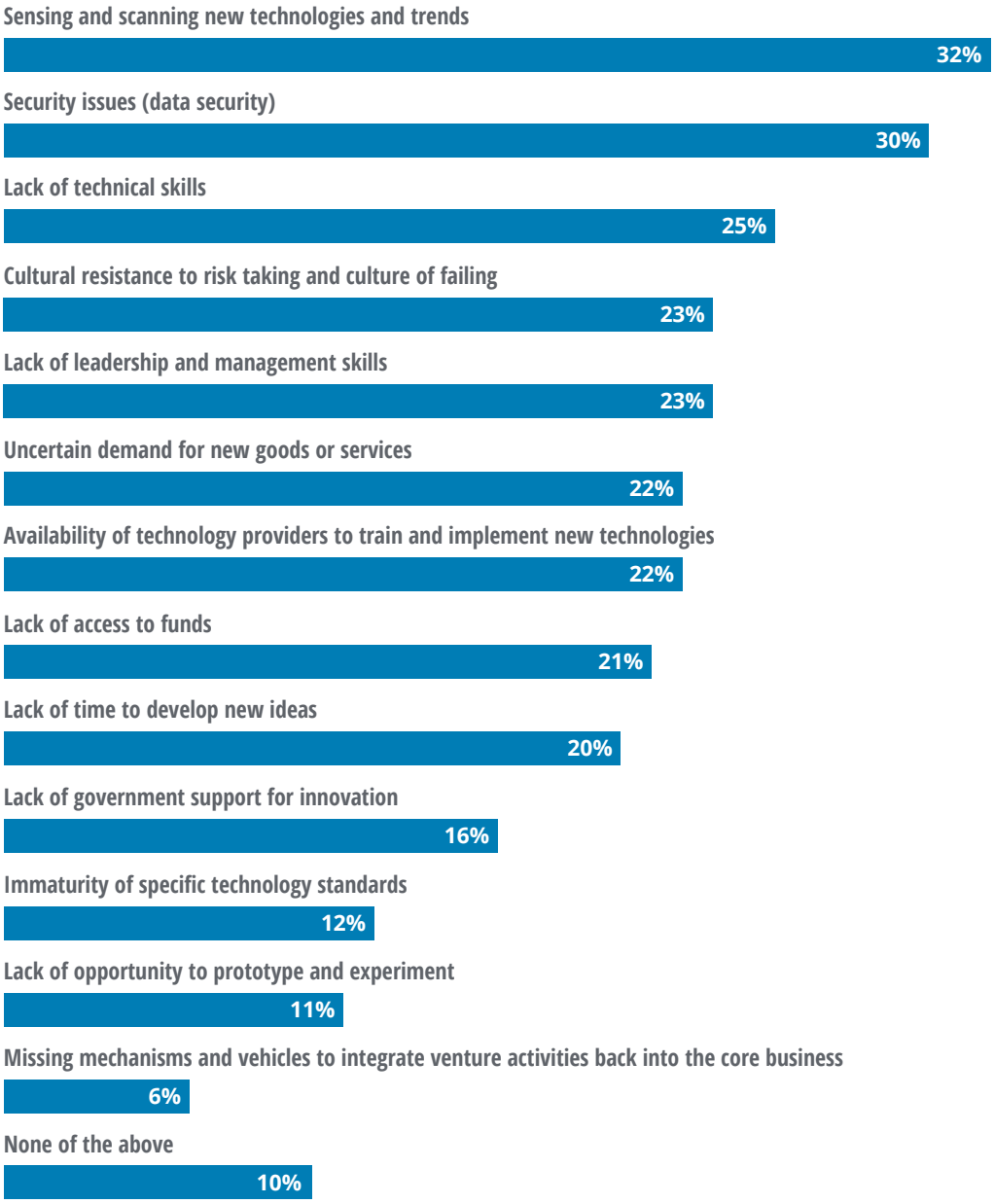
The remedy to innovation roadblocks relating to cultural deficiencies is to learn from the success or failures of early adopters. This is the primary approach companies are taking to support the implementation of digital technologies and to improve innovation processes (83 per cent), followed by encouragement and enabling of innovation across the company by senior management (79 per cent) (Figure 10).

The lack of technical skills inside a company can be alleviated by establishing cross-functional task forces to explore new technologies, training staff to work with new technologies, hiring talent with technology capabilities and getting advice from third-party experts. European companies are actively undertaking such approaches to overcome weaknesses in innovation processes.

Small companies are less likely to seek advice from third-party experts or consultants (61 per cent) or train existing staff to work with new technologies (69 per cent). They are also less likely to undertake initiatives such as incubation programmes (57 per cent) or establish cross-functional task forces to explore new technologies (69 per cent).

FIGURE 9

What are the main obstacles to fostering innovation within your company?



Source: Deloitte Innovation Survey 2018.

Consumer goods and automotive industries lead in promoting innovation. Far more can be undertaken in health care to implement digital technologies and support the improvement of innovative processes. As an industry, it recorded the lowest responses to every innovation action metric.

Consumer goods displays the broadest range of actions. The sector actively trains staff to work with new technologies (93 per cent), seeks advice from third-party experts and consultants (85 per cent), and tries to hire talent with technical capabilities (89 per cent). It is also among the best industries

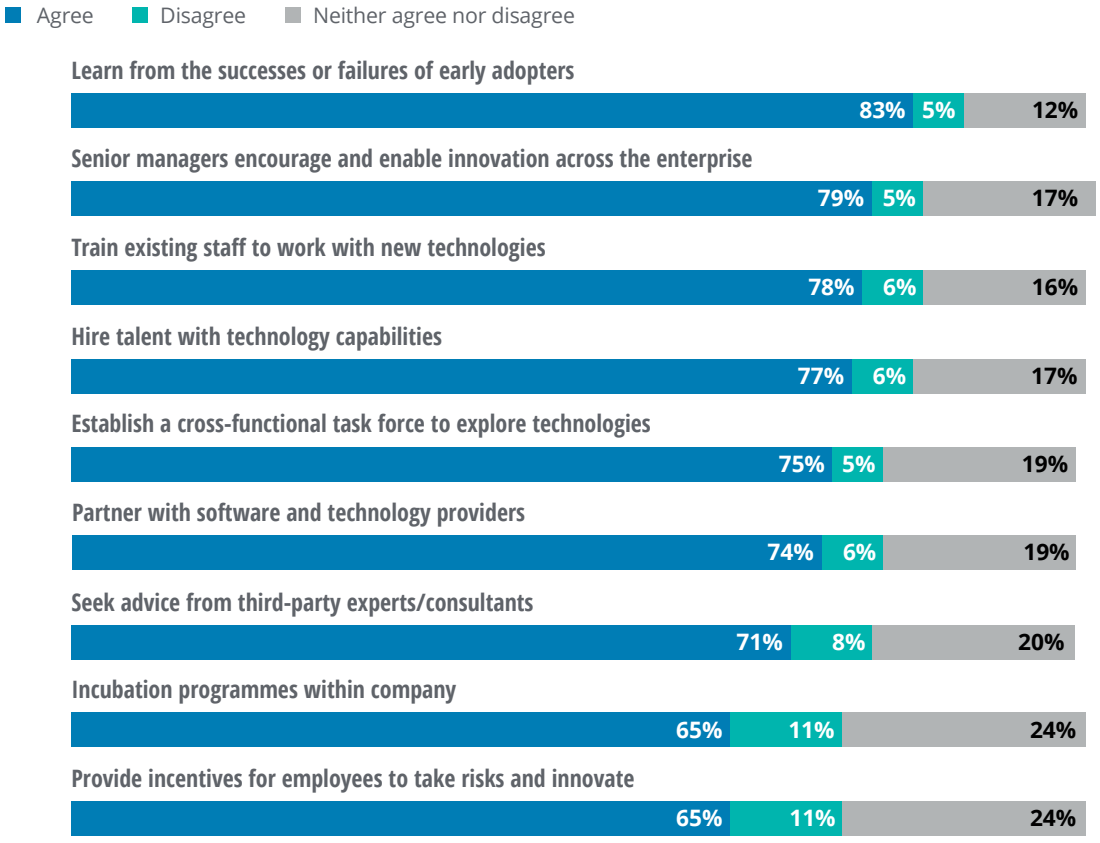
in that senior managers encourage and enable innovation across the enterprise (96 per cent), establish cross-functional taskforces to explore technologies (96 per cent) and run incubation programmes within the company (81 per cent).

Automotive is also a frontrunner in that senior magers encourage and enable innovation across the enterprise (100 per cent), establish cross-functional taskforces to explore technologies (96 per cent) and run incubation programmes (83 per cent). Along with technology, the sector also leads in terms of providing incentives for employees to take risks and innovate (79 per cent) and in seeking advice from third parties (83 per cent).

Lack of culture and data security issues inhibit technology-driven innovation; technology know-how is the key to it.

FIGURE 10

What actions does your company take to support the implementation of digital technologies and improve innovation processes?



Note: Percentages do not total 100 per cent because data for the 'Doesn't apply' category is not displayed.
Source: Deloitte Innovation Survey 2018.

Implications: Addressing the innovation equation

INNOVATION IS FAR from dead in Europe. In 2017, the European Patent Office granted 105,635 patents – a record high, and almost twice as many as a decade ago.[7] Of course, patents are only one indicator of invention, the step before innovation. Intangible assets like business models, design, data, organisational innovation and software are increasingly becoming key elements in modern-day business success.

Yet traditional levers of innovation provide an indication of its vitality and reveal that Europe has certainly not been left behind in the race toward the digital future. However, this Deloitte report indicates five significant areas in which European companies can improve:

- **Avoid the trap of focusing on technology alone.** It is easy to become focused on digital technology and its potential. With nine out of every ten European companies poised to increase innovation budgets in the next two years, there is a danger that firms could become blinkered and focus solely on implementing technology. Companies need to remain aware that successful innovation not only requires the right technology, it also needs the right people and the right organisation structures. The correct blend is an equation that needs to be carefully calculated by each company.
- **Understand the multidimensional nature of innovation.** There is a danger that companies think of innovation in narrow terms. This survey indicates there are significant innovation improvement opportunities available to European companies not already using all ten types of innovation, and in particular for the ten per cent using only four types of innovation or less. Companies should seek to foster innovation across the entire operational area by identifying the most important innovation dimensions for their company and industry and any innovations that are currently overlooked.
- **Prioritise skills.** To exploit the innovative opportunities that digital technology offers, the workforce needs to be upskilled. European companies are prepared to invest in this and recruit talent when necessary but could do far more in making themselves known to potential employees. In particular, by engaging with universities, they could place themselves in a better position to recruit students from the critical science, technology, engineering and mathematics (STEM) subjects. Stronger employer branding could strengthen their position in the market.
- **Cultural change is the underlying essential for innovation.** To overcome cultural resistance to change, companies must strive to involve the workforce. Employees must come to understand how innovating business processes keeps firms competitive. An innovative mindset and innovative incentives need to become part of the organisational setup.
- **Use the power of ecosystem innovation.** With digitalisation challenging established innovation strategies and new technologies dramatically changing markets, being part of an ecosystem is crucial to shorten innovation cycles and remain in touch with trends. Yet European companies seem reluctant to engage with external resources. The potential for collaboration with external partners to share knowledge, stay abreast of developments, expand market reach and provide complementary expertise needs to be fully utilised if innovation is to be fostered in Europe.

Endnotes

1. Klaus Schwab, *The Global Competitiveness Report 2018*, World Economic Forum, http://www3.weforum.org/docs/GCR2018/05FullReport/TheGlobalCompetitivenessReport2018.pdf, accessed January 2, 2019.

2. Soumitra Dutta, Bruno Lanvin and Sacha Wunsch-Vincent, *Global Innovation Index 2018*, Cornell University, INSEAD, and the World Intellectual Property Organization, https://www.globalinnovationindex.org/home, accessed January 2, 2019.

3. European Patent Applications filed with the EPO (TOP 25 applicants), clustered by world regions, 2017, ttps://www.epo.org/about-us/annual-reports-statistics/statistics.html#applications. The fields Europe dominated: 1. electrical machinery, apparatus, energy, 2. transport, 3. measurement, 4. organic fine chemistry, 5. pharmaceuticals, 6. biotechnology and 7. special machines. Europe lagged in computer technology, digital communications and medical technology.

4. This framework was developed by Doblin, the innovation practice of Monitor Deloitte within Deloitte Consulting. It has influenced thousands of executives and companies around the world and is an enduring and useful way to think about business transformation. Learn more at www.doblin.com/ten-types.

5. Ibid.

6. Thomas Frey, "Demystifying the future: Two billion jobs to disappear by 2030", *Journal of Environmental Health* 74, no. 10 (2012), pp. 36–39. The author assumes this loss could be offset by a billion new types of jobs created over the next two decades.

7. EPO statistics, "European patent granted 2008-2017 per country of residence of the first named applicant", accessed January 12, 2018.

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