Infosys
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AMPLIFYING HUMAN POTENTIAL

Towards Purposeful Artificial Intelligence

A Perspective For CIOs

CONTENTS

FOREWORD

Artificial Intelligence (AI) is reshaping the human journey. It is becoming increasingly part of every aspect of our lives, from simple things such as the way we shop and drive, to more fundamental things like how our homes, automobiles and offices amplify us. These elicit a mixture of emotions, from fascination to fear, from wonder to worry. For us, as business leaders, the potential to leverage AI to transform our businesses, bringing radical cost reductions and efficiencies while opening up entirely new kinds of opportunities, is truly exciting. As managers and employers, as citizens in our communities, we bear the great responsibility that comes with transformation, to ensure we are driving a purposeful approach to AI.

And yet, we are only just beginning to see the massive potential of AI. Since humanity's earliest days, technology has been a great enabling force that amplifies and empowers people, improving our quality of life, unlocking new opportunities, enhancing our creativity and equalizing the playing field for all. AI and automation technologies are taking this to a whole new level, enabling us to do more than we could have ever imagined. As intelligent systems take over more of the known, well-defined work, we will be called to exercise our human creativity and ingenuity to find new problems and opportunities and create new kinds of products, experiences, and value that do not yet exist.

The story of technological disruption and human transcendence continues to play out today, though the pace of change is only accelerating. Therefore, we need to rethink that which makes us fundamentally human — our ability to learn. We, as humans, have always been able to adapt to dramatic changes in our world because we have evolved the way we learn alongside our increasingly powerful technologies. We must now think beyond how we've been approaching our education, to recast it as a holistic, continuous and lifelong process of learning — one in which problem-finding is as important as problem-solving, and digital literacy is taken as seriously as language literacy.

Moreover, we must not lose sight of the values and ethics involved in this journey, particularly as it pertains to business. Standards must be developed and governed, and engineers must realize that what they build is not without consequence. Leaders have a great responsibility today, to steer their businesses and extended organizations purposefully through these extraordinary times.

Infosys, for its part, set out to understand more about current levels of AI adoption in enterprise; decision-maker perspectives on AI technologies; and future market disruption. In particular, we looked at job skills and ethics, market maturity and growth rate expectations. We believe that with greater understanding, we can further explore the opportunities and challenges that businesses face as they look to implement AI and do more to realize its potential. We can do this in a purposeful way — one that amplifies all that is possible, even beyond what we can imagine today, in our individual and collective human potential.

Dr. Vishal Sikka, CEO, Infosys

INTRODUCTION

Infosys commissioned independent market research company Vanson Bourne to investigate the approach and attitudes that senior decision-makers in large organizations have towards AI technology and how they see the future application and development of AI in their industries. The study also sought to measure and score organizational maturity, to create an index and set of profiles for the countries examined.

There is no precise definition for Artificial Intelligence (AI) as experts throughout the field disagree on the exact wording. Marvin Minsky, the renowned MIT professor, defined AI as "the science of making machines do those things that would be considered intelligent if they were done by people." This is a pragmatic definition, still valid today. In laymen's terms, AI is any activity that used to only be done via human intelligence that now can be executed by a computer. Some of the most powerful AI examples today include visual perception, speech recognition, machine learning, decision-making and natural language processing. These functions used to require an immense number of man-hours but can now be done in a fraction of the time and with a much higher degree of accuracy than before. As time moves forward and computers develop more processing power and pervasiveness, AI will develop a larger set of capabilities for addressing an expanding array of use cases — a phenomenon known as the "AI effect".

For the purposes of this research, AI was defined as an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities that computers with AI are designed for include image and speech recognition, learning, planning and problem-solving. Examples of applied AI technologies include (but are not limited to): machine learning, deep learning, predictive/prescriptive analytics, virtual agent and natural language understanding (avatar) technologies (Siri, Alexa, Google Home, Amelia etc.)

The research results reinforce the notion that AI will have a profound, disruptive effect on global business and society, and underscores the importance of developing and implementing a holistic AI strategy.

In undertaking this study, we sought to better understand both immediate and longer-term perceptions of AI and its role in individual businesses and in wider society. Respondents were asked to provide guidance on the expected contribution that AI would make to revenues, productivity and business rationalization, as well as to business expansion. Respondents were also questioned on the ethical issues related to AI. This was to build understanding of whether ethical considerations were already part of their corporate AI roadmaps. From this, we sought to evaluate the extent to which human disruption associated with AI adoption was being considered by enterprise decision-makers.

71% believe that the adoption of AI in business and society is inevitable, and only 9% disagree. Three quarters (76%) of senior decision-makers agree that AI is fundamental to the success of their organization's strategy. Seven in 10 (71%) have seen or expect to see industry disruption by AI technologies. By 2020, companies expect to see AI contributing a 39% average increase in revenue and a 37% average cut in operating costs.

SUMMARY OF KEY FINDINGS

76%

Three-quarters of senior decision-makers agree that AI is fundamental to the success of their organization's strategy

39%

By 2020, those currently or planning to use AI technology anticipate a 39% boost to their organization's revenue, on average

80%

Eight in 10 organizations that have replaced, or plan to replace, roles with technology will retrain or redeploy those who are displaced

Benefits have already been experienced from respondents' organizations who have fully, or partially deployed AI technologies, including automating processes and tasks (46%), cost savings (44%), increasing productivity (44%) and increases in revenue (39%). Organizations have been using AI for two years on average but don't expect to hit "mature" adoption for at least another three years. Only 25% state that AI technologies are fully deployed and working as expected. Of those that use it, only 10% believe they are fully maximizing the current available benefits of AI.

The vast majority believe employees (90%) and customers (88%) face concerns about the adoption of AI, according to respondents. Only about a third (36%) believe their organization has fully considered the ethical issues relating to AI. Over six in 10 (64%) believe the future growth of their organization is dependent upon large scale AI adoption. Over half (53%) believe ethical concerns stop AI from being as effective as it can be.

However, with the majority (71%) of decision-maker respondents believing that AI is "inevitable", it is concerning that only just over a third (36%) believe that their organization has completely considered the ethical issues relating to the use of AI.

Given these findings, companies must ask themselves three fundamental questions:

- **How could organizations assess their use of AI technologies to develop a strategic plan?**
- **How could organizations address the ethical issues behind the use of AI?**
- **What is expected of future generations of the workforce, in terms of skills and flexibility, to succeed in a world of AI?**

This document and the results aim to define what constitutes a successful, AI-mature organization and demonstrate what others can learn in order to continue their own AI adoption journey.

THE JOURNEY TO AI MATURITY

The vast majority of respondents believe that AI is inevitable and plan to implement AI in their organizations. On average, respondents' organizations that have fully, or partially, deployed AI-based technologies have invested $6.7 million in them in the last year.

Only a quarter (25%) have fully deployed AI technology that is delivering up to expectations. For many, there is a long journey ahead, with most being somewhere en route — most commonly (55%) having partially deployed or formulating their plans to do so. The bad news for organizations with no intention to deploy AI is that they are very much in the minority (9%) and are at risk of being left behind.

The same respondents report that their organization has been using AI technology for two years, on average, and anticipate their organization to hit "mature AI adoption" in an average of three years. Mature in this context means that the technological capabilities and the use of AI technologies by employees and customers have become commonplace. An interesting correlation uncovered in the research was a clear link between an organization's revenue growth and its AI maturity.

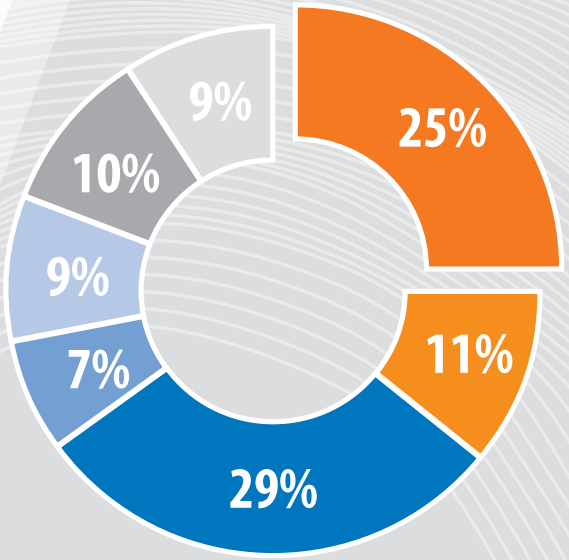


Figure 1: "How would you rate your organization's current experience in terms of its implementation and use of AI technologies?", all respondents (1,600)

- Fully deployed and they are working as expected
- Fully deployed but they are not delivering to expectations
- Partially deployed and they are working as expected
- Partially deployed but they are not delivering to expectations
- Limited deployment, results unknown
- No deployment but we plan to in the future
- No plans to deploy

Organizations who report faster growth in revenue over the past three years were also more likely to be further ahead when it comes to AI maturity.

Only one in 10 (10%) of those surveyed whose organization has deployed AI technologies believe that their organization is fully maximizing the current available benefits and capabilities of AI, and only around two in 10 (18%) of all respondents think that their organization is well ahead of their competitors regarding the use of AI. Nearly six in 10 (57%) respondents agree that the cost of AI solutions is a barrier their organization faces in adopting AI technologies. A similar proportion report employee fear of change (54%), lack of in-house skills to implement and manage AI (54%), a lack of available proven AI solutions (51%) and a lack of knowledge about where AI can assist (49%). Just over seven in 10 (71%) surveyed decision-makers admit that their organization's sector has been disrupted, or expect it to be disrupted by AI technologies.

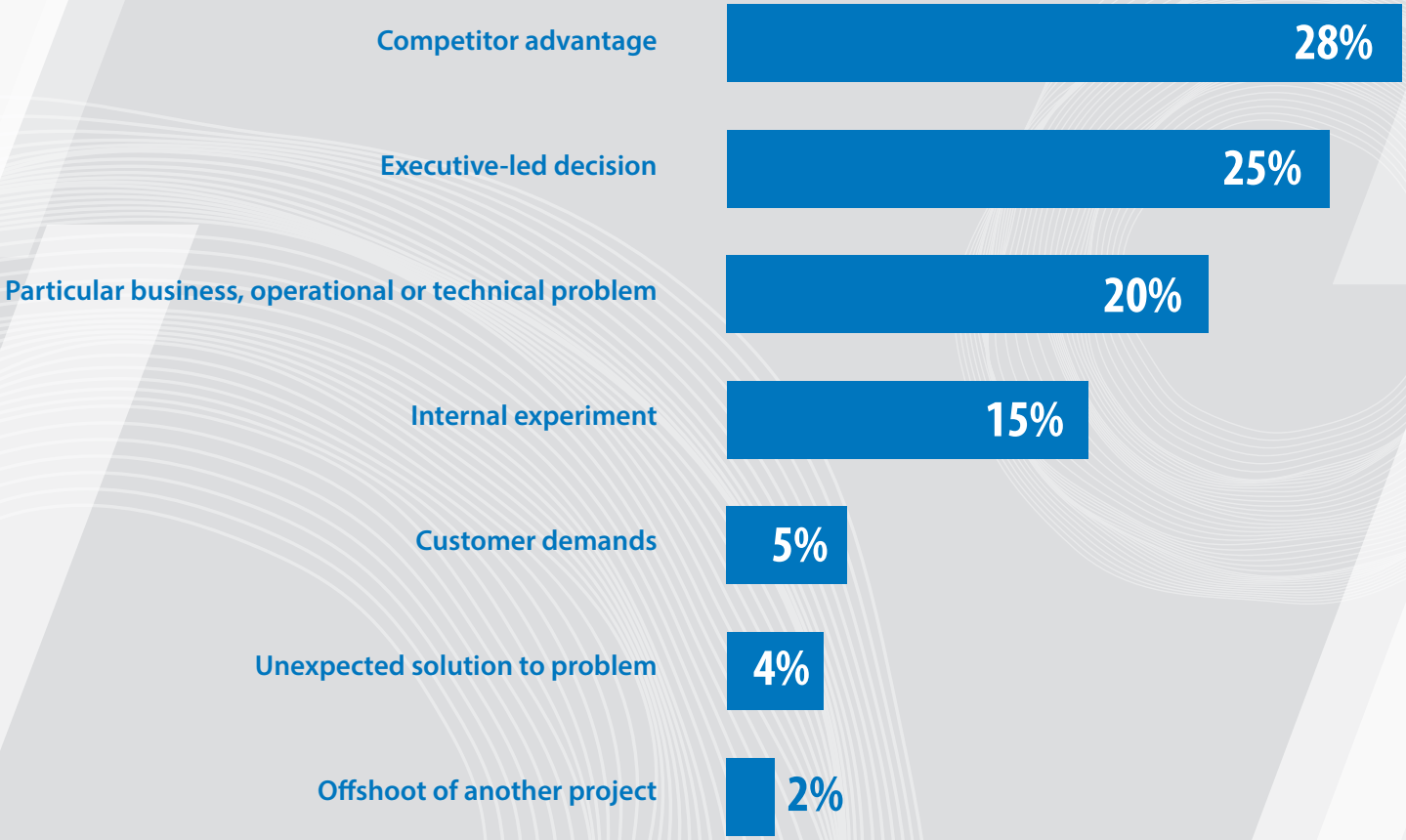
Scope and Motivation

So when we talk about AI adoption and use, what are the main technologies in scope for deployment? The answer is multiple. Around two-thirds (65%) of respondents say that their organization has deployed or plans to deploy big data automation for collecting, processing and storing data. Just over half are looking at predictive or prescriptive analytics (54%) or machine learning (51%). But it doesn't stop there. More than four in 10 (44%) have or plan to deploy expert systems (software that leverages databases and repositories to assist decision-making) and three in 10 say the same for deep learning neural networks (31%). A vast array of technologies and applications reflecting the wide-ranging agreement that AI can positively deliver towards future goals.

"The most common driver for AI adoption is to harness competitive advantage (28%)"

"Only a quarter (25%) of respondents' organizations have fully deployed AI technology and report that it is delivering to expectations"

Figure 2: "What was the driving force behind this deployment?", only respondents from organizations that have deployed AI (1,299)



Demonstrating this widely held interest in and anticipation of AI further is the fact that decision-maker respondents report a multitude of different forces encouraging its deployment in their organization.

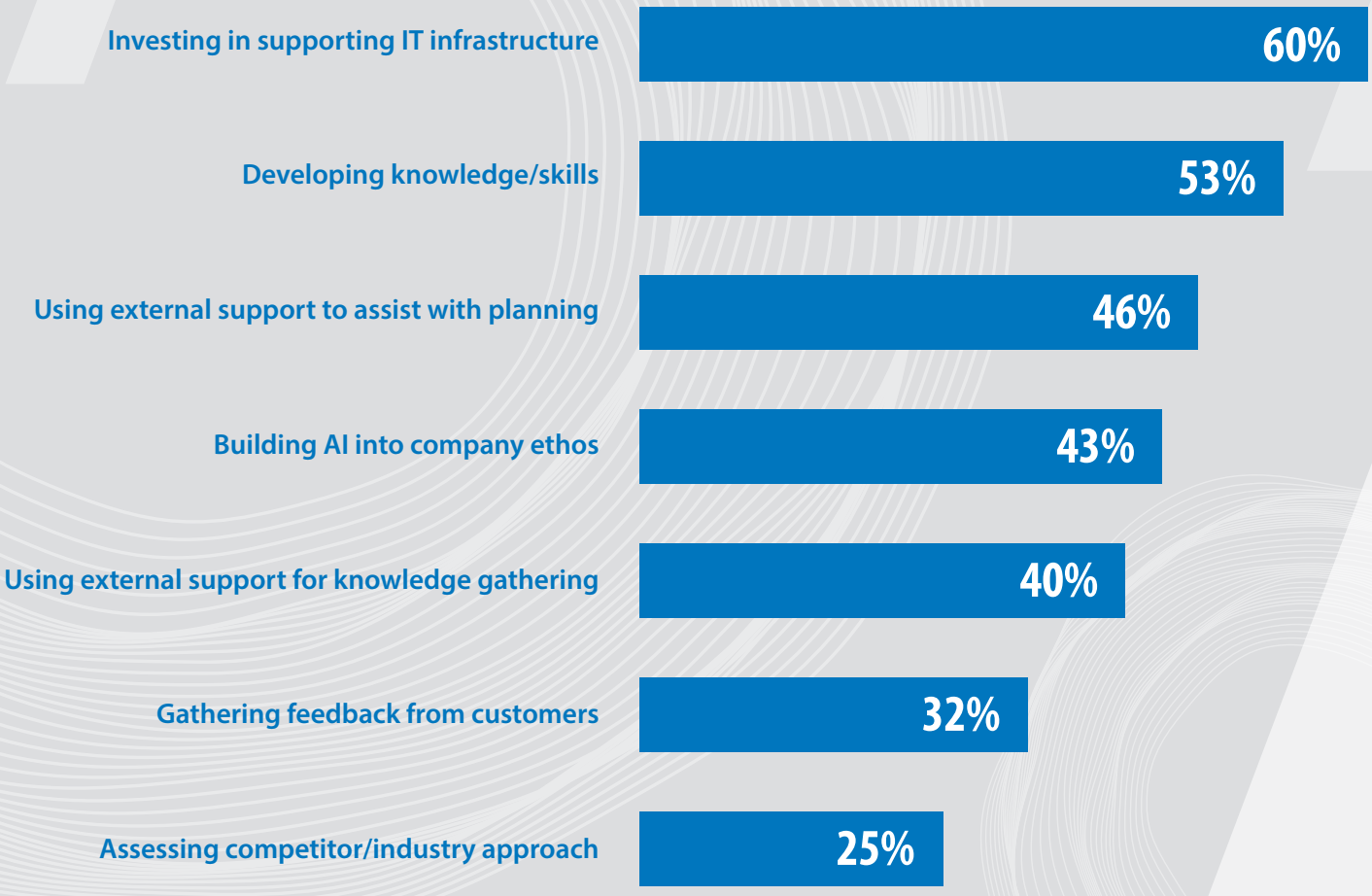
What's more, organizations appear to be putting their money where their mouth is and backing up interest with investment. In the last year, $6.7 million was spent on average on AI technologies according to respondents. With organizations around three years away on average from reaching what they see as mature AI adoption, this investment will only have to keep growing in order to keep up with those around them.

Preparing for AI

Most commonly, decision-makers report that their organizations are quite sensibly focusing on getting the foundations in place as a first priority. Half or more are investing in supporting IT infrastructure (60%) and developing knowledge/skills (53%) within the business. But alongside these key elements, many organizations recognize the value that outside specialist help can offer — four in 10 or more are using external support to assist with planning (46%) or for knowledge gathering (40%).

As we have already seen, perhaps it is still too early for customers to be informed enough in their knowledge and awareness of AI to really shape organizational decision-making. However, it is interesting to note that around a third (32%) of decision-makers report that they are already turning to customer feedback in order to prepare for deployment and use. Again, probably a proportion that can only be expected to grow in the future.

Figure 3: "How is your organization preparing for AI deployment and use?", all respondents (1,600)



Application within the business

So just how widely do respondents see the adoption of AI spreading in their organization — and where do they plan to use it?

The majority report that the IT department is a user. While this was broadly expected, adoption does not stop there. For around three in 10 or more, operations (34%), business development (33%), marketing (29%) and commercial, sales, and customer services (28%) are all opening up to the idea and application of AI.

Taking a closer look beyond departments and into specific business areas, a similar widespread picture emerges. IT systems and security (54%), data analytics (43%) and customer service (43%) are just a few of the many areas where AI is being considered. On average, decision-makers outlined five areas where AI is either currently or expected to be used.

Further Insights

- **Australia is most likely to have no plans to deploy AI (21%) compared to China where all (100%) respondents' organizations report plans**
- **Pharmaceuticals/life sciences (40%) are most likely to have fully and successfully deployed AI technology (40%) with the public sector most likely to have no plans to use it (27%)**
- **Pharmaceuticals and life sciences reported the widest usage of AI technologies that are working according to their expectations, leading to the highest AI Maturity Index scores by industry**
- **Organizations with faster revenue growth are most likely to agree that AI is fundamental to the success of their organization's strategy (88%)**
- **The most AI mature organizations are those that have been using the technology the longest on average**

Mileposts — the AI maturity index

In order to add greater context to the investigation of the opportunities and challenges organizations face in adopting AI, a maturity index was created. At the very beginning of designing the research from which this report is based, a series of questions were developed to measure and score organizational maturity. The answers for these questions were assigned scores and each respondent was given a total score across all areas.

Based on the score that they achieved, respondents were placed into one of five groups reflecting their organizations' AI maturity:

Skeptics (Maturity score: 0–19 percent) These organizations are least mature when it comes to AI, with no current deployment of such technologies and no plans to do so in the near future. These organizations tend to lack AI-related skills and do not see a strong link between AI's adoption and the success of their strategy.

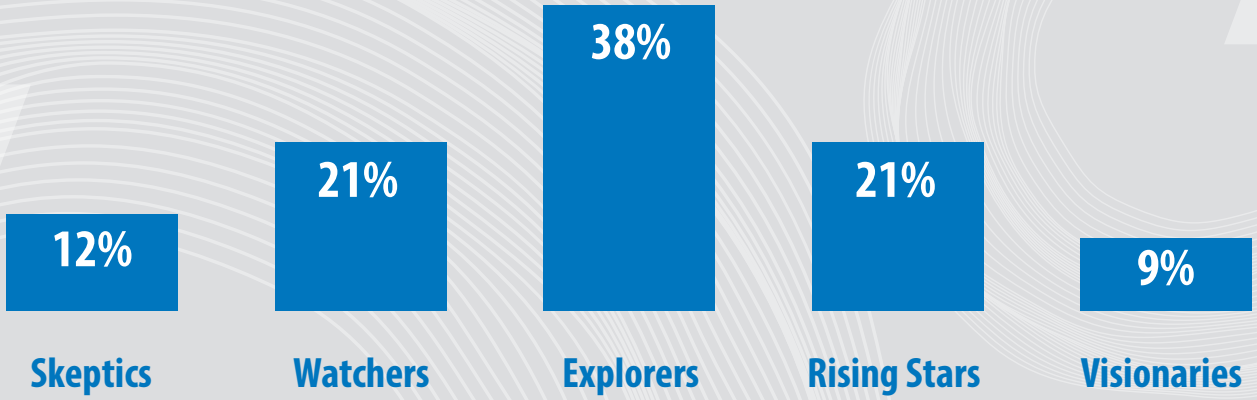
Watchers (Maturity score: 20–39 percent) Here, partial deployment of AI has begun, but things remain in the very early learning stages of its use. AI skills are lower, and as such, many preparatory or supporting activities for AI are planned for the longer term. Nevertheless, the link between AI and strategy success is starting to be recognized.

Explorers (Maturity score: 40–59 percent) the most common group (maturity score: 40-59%). Their partial deployment of AI is proving its value, and there is a desire to expand further. AI-related skill levels are on the increase and more initiatives to support AI are on the horizon for the coming 12 months.

Rising Stars (Maturity score: 60–79 percent) are organizations that are taking the leap to a more widespread deployment of AI throughout the business. There is more work to do in order to maximize the benefits but initial successes are supported by a wider presence of AI-related skills and an increasing number of supporting activities. AI is seen as key to the organization's strategic success.

Visionaries (Maturity score: 80–100 percent) This small group of organizations have already successfully deployed AI throughout their business and are reaping the benefits. AI-related skill levels are high and opening doors to a greater number of AI technologies and opportunities. AI is central for the success of their future strategy.

Figure 4: Percent of respondents in each maturity group, all respondents (1,600)



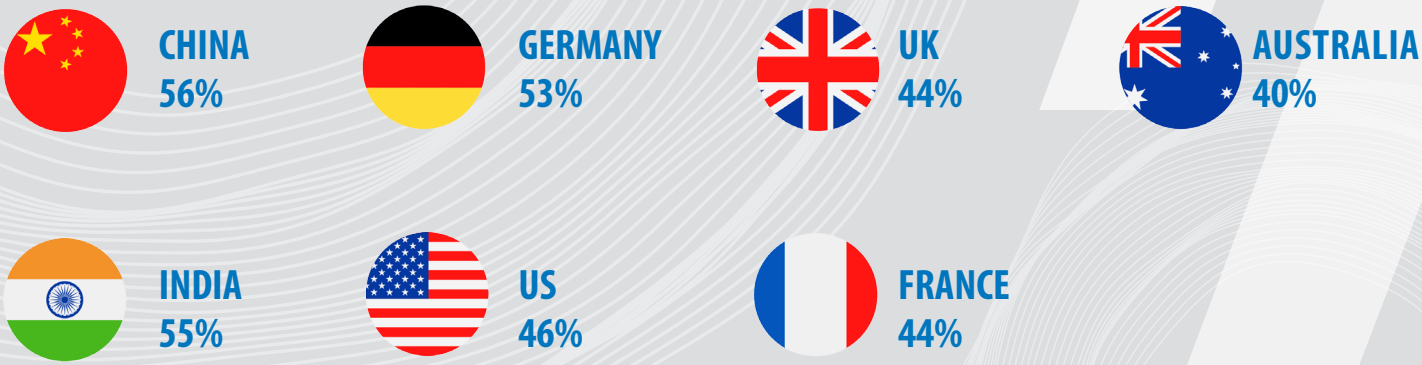
AI maturity groups

The index shows us that at this point in the AI journey, the profile of the largest group is that of the explorer — those actively participating in probing, trying and learning about AI in real-world scenarios including deployments.

A deeper look at AI maturity levels by country

China and India head the maturity scoring by country, a trend replicated elsewhere in the research when respondents were answering questions about the level of progress and adoption of AI. This is potentially due to both countries having fewer legacy systems and business processes to contend with, making AI adoption and integration easier to accomplish.

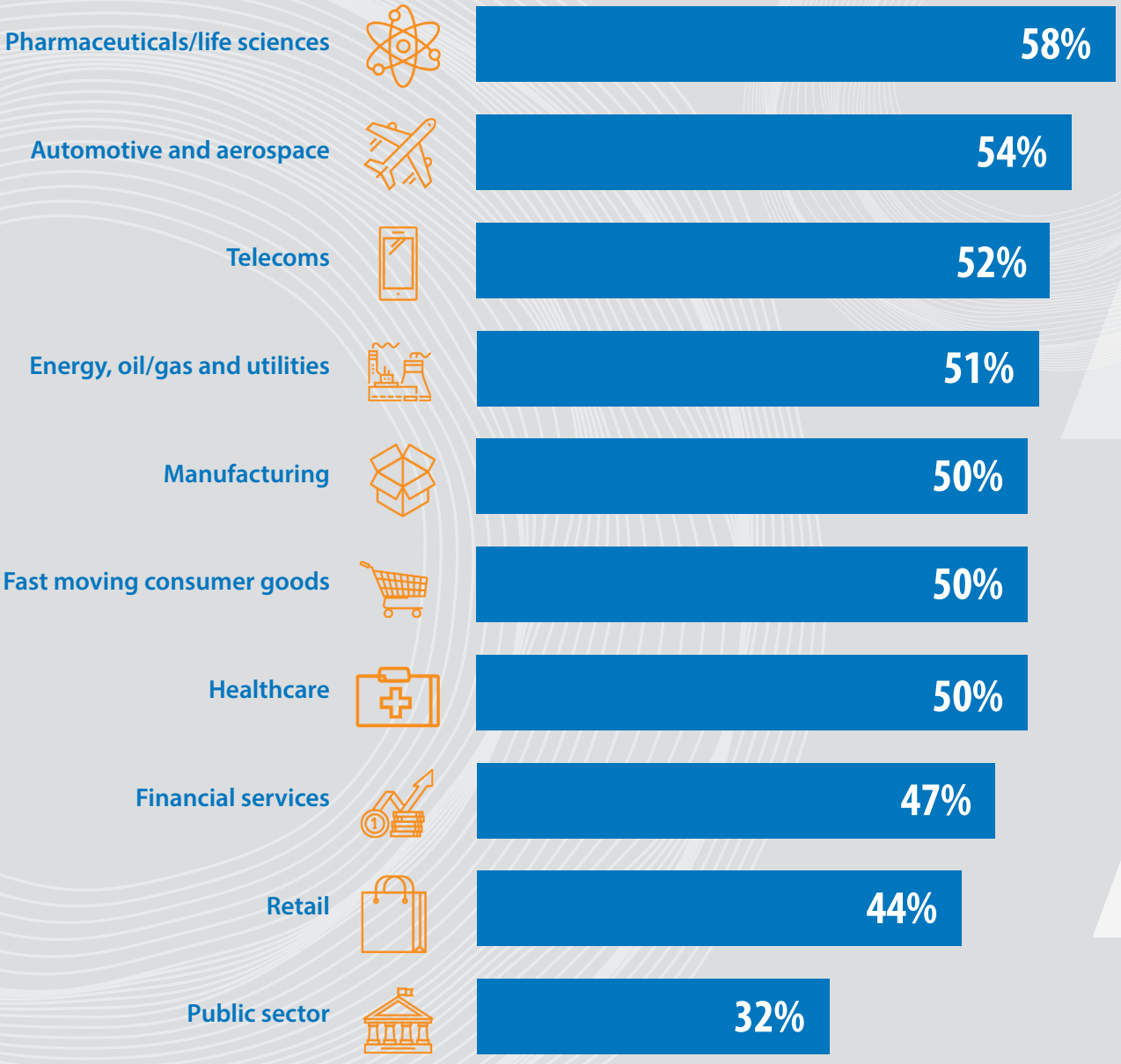
Figure 5: Average survey score by country, all respondents (1,600)



A deeper look at AI maturity levels by sector

The maturity index shows us that across all organizations, the evaluation and partial deployment stages dominate the AI journey. Organizations across all verticals continue to evaluate AI, as well as look inwardly at their own workflows and employee processes to better understand how and where AI could fit. Current spending will be, in part, on evaluation, proof of concept, prototypes, external support and expertise to help companies on their way. However, we also see that a fifth of organizations are being aggressive in their investment in and adoption of AI technologies. These "rising stars" represent the trailblazers at the infancy of modern AI technology, potentially setting themselves up for greater success as AI becomes more widely adopted and more developed.

Figure 6: Average survey score by industry, all respondents (1,600)



Key country highlights

The research uncovered intriguing country disparities. There are key areas where decision-makers across multiple countries have contrasting approaches to AI:

US — the most likely to have invested more in AI technologies in the last year — $12.3 million (on average)

Germany — the most likely to be developing AI knowledge and skills in preparation for AI deployment (61%)

UK — the least likely to report that their respective industries have already been disrupted by AI technology (25%)

India — the most likely to expect to hit "mature AI adoption" the fastest — just over 2.5 years on average

France — the least likely to believe that they are ahead of their competitors when it comes to AI adoption and use (32%)

China — the most likely to agree that AI is fundamental to the success of their organization's strategy (96%)

Australia — the least likely to have plans to deploy AI-related technologies (21%)

THE AI ETHICS DEBATE

Delivering on the promise of AI

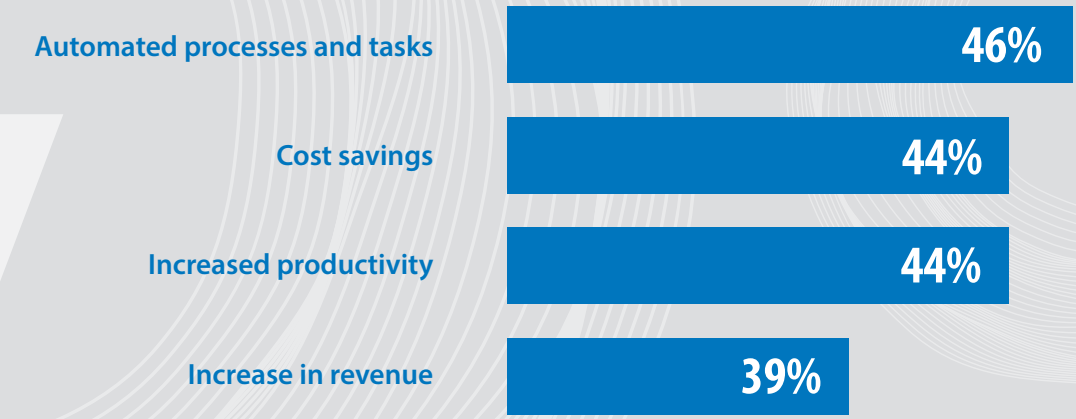
With the vast majority of organizations somewhere along the path towards AI adoption, let us now consider the key reasons for its use and the hurdles that many face trying to get where they want to be.

Respondents from organizations that have or are planning to deploy AI technologies, report multiple drivers behind their decision tying in with the previously observed range of areas for which AI is anticipated for use. For half or more, there is a desire to increase workplace efficiency through automating IT (59%), boosting employee productivity (56%) or business processes (55%).

Financial goals are also key influencing factors, with a similar number looking to save costs (55%) or to increase revenues (53%).

A highly positive picture emerges when comparing initial adoption drivers against actual benefits that many organizations have experienced. The message is that AI can deliver on what it promises. Significant numbers of decision-makers report that their organization has benefited from the automation of processes (46%), cost savings (44%), increased productivity (44%) and an increase in revenue (39%).

Figure 7: Analysis of the top four most commonly reported benefits of AI use, only respondents from organizations that have deployed AI (1,299)



AI can demonstrate its value to the business internally, through cost and time efficiencies, but it doesn't end there. That means good news for the customer as well. The majority of decision-makers (71%) believe that business-to-consumer is the model that is most likely to be impacted by AI and almost all (97%) feel that there are customer benefits to be had from the adoption of AI.

"Only 10% of respondents' believe that their organization is fully maximizing the benefits of AI currently"

They hope that AI can assist customers, as well as the businesses serving them, in many ways. In particular, in the creation of new, improved products, services and business models (55%) and in giving faster access to existing ones (55%). In a world where customer demands and expectations become ever more instant and specific, half (50%) report that AI can help with the quicker resolution of problems (50%) and over two fifths (42%) say it can help with greater personalization.

"Almost all (97%) decision-makers believe that there are customer benefits from the adoption of AI"

Furthermore, by 2020 almost all (97%) respondents believe AI can generate a significant ROI impact through both an expected 39% boost to revenues on average and an anticipated 37% reduction in costs.

Breaking down the barriers

However, as with all adoption of advancing technology, challenges do exist. The use of AI presents an extraordinary mix of technical and ethical hurdles. Organizations using AI to some extent find themselves struggling to really get the most they can out of it — only 10% of respondents' organizations are fully maximizing the benefits it can offer.

In addition to this, only just over half (54%) of decision-makers believe that their organization is ahead of their competitors when it comes to their use of the technology. With so many having begun their AI adoption journey, just what is it that is slowing down organizations' progress? As one might expect, given AI's broad potential use, there are a wide range of barriers that organizations face. Among the most commonly highlighted center on the stakeholder likely to be most disrupted or otherwise initially displaced by AI adoption: the employee. Around half or more of decision-maker respondents believe that employee fear of change (54%) and cultural acceptance (47%) are key issues to be addressed. A similar number (54%) also feel that a lack of in-house skills to implement and manage AI is a concern. Over half (51%) admit that cost reduction is an area of AI that requires the most improvement before it can be effective for their organization. Perhaps a symptom of this is that many report a lack of knowledge in their organization about exactly where AI can assist (49%) or face concerns about handing over control (47%).

These issues in particular can be addressed by increasing communication and awareness of AI plans in organizations and it is encouraging to see that only the minority report senior management resistance (37%) as a barrier — for the AI dream to become a reality, organizations will require effective, understanding leadership from above.

Figure 8: "Which of these barriers does your organization face in adopting AI technologies?", all respondents (1,600)

With increasing AI adoption becoming more widespread, it is to be expected that industries including financial services, pharmaceuticals, retail, fast moving consumer goods, healthcare, telecoms and more will find themselves to be impacted and disrupted. Around four in 10 (39%) decision-makers report that their industry has already faced disruption by AI, and looking to the future over seven in 10 (71%) either have been or expect to be at some point.

Further Insights

- **India (81%) and China (77%) are much more likely to state that they are ahead of their industry competitors when it comes to AI use. This is potentially due to both countries having less legacy systems and business processes to contend with**
- **China is the most likely market to have already felt industry disruption as a result of AI (68%)**
- **Fast moving consumer goods (57%) and telecoms (48%) are much more likely to report that they have already felt AI disrupting their sector**
- **Those with faster revenue growth are much more likely to believe that they are ahead of their competitors when it comes to AI (75%)**
- **More AI mature organizations are much less likely to see employee fear of change as a barrier (52%) to adoption**

The inevitable impact of AI

Very few advances in technology have come so closely entwined with the issue of ethics as AI does. It is an area that touches all stakeholders — management, employees, customers and the wider world — and one that surely must be taken into account for any sustained and successful deployment of AI to take place.

However, with the majority (71%) of decision-maker respondents believing that AI is "inevitable", it is concerning that more than a third (36%) believe that their organization has completely considered the ethical issues relating to the use of AI.

Ethical considerations and successful AI adoption are a tricky balancing act — while the majority of respondents believe that their organization's future growth is dependent on large-scale AI adoption (64%), over half (53%) feel that ethical concerns significantly stop AI being as effective as it can be. These concerns must be addressed at an early stage of planning and adoption for an organization to have real hope of getting the desired return on their AI investments.

It is anticipated that the benefits of AI will eventually spread beyond the organization and into the macro environment — around two-thirds (65%) of decision-makers believe it will bring out the best in their organization's people and seven in 10 or more feel it can deliver positive societal (70%) and economic (76%) change. In anticipation of such benefits, it is interesting to note that a significant minority of respondents' organizations are even willing to endure short-term pain in the form of sacrificing employee (39%) or customer (35%) satisfaction in order to achieve the longer-term gain that AI promises.

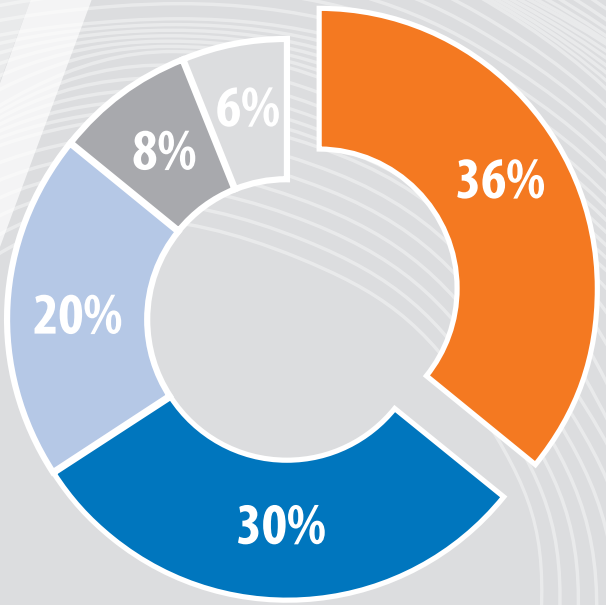
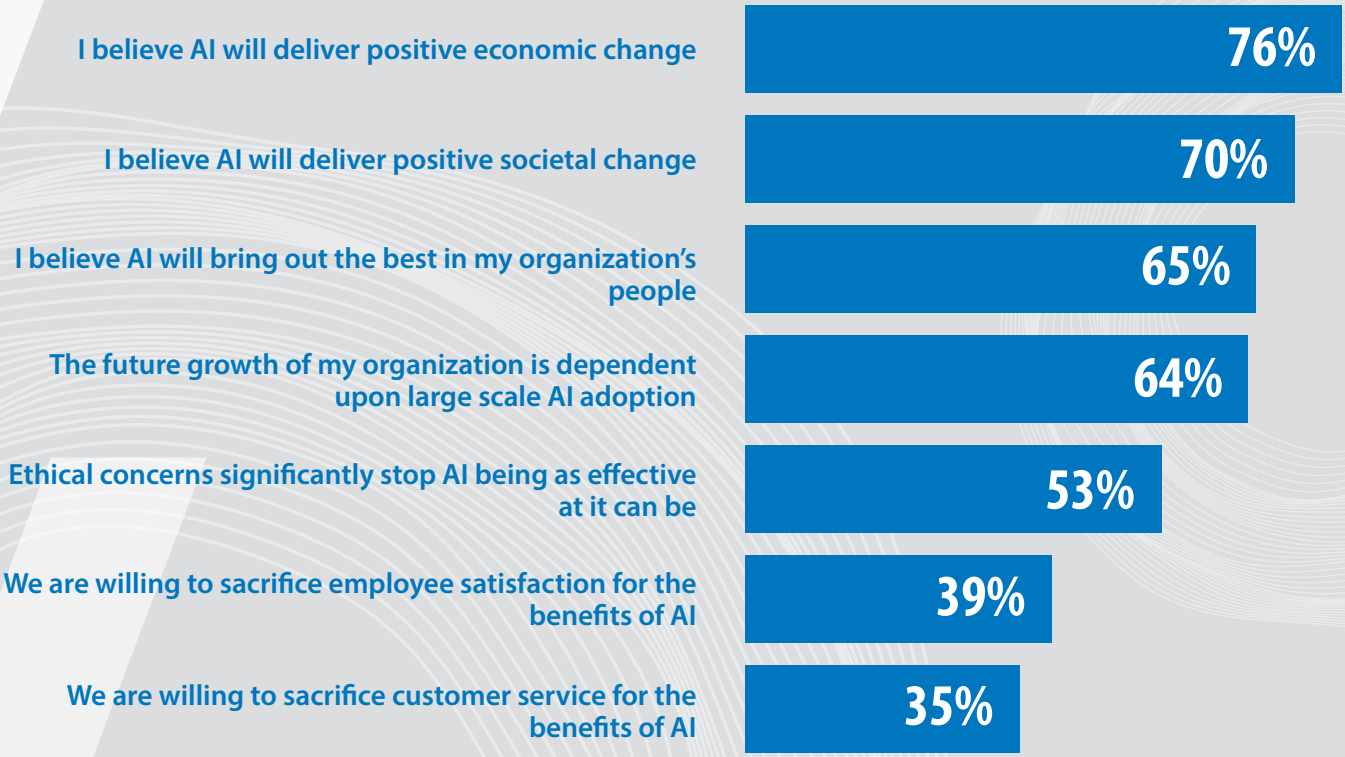


Figure 9: "In your opinion, has your organization fully considered the ethical issues relating to AI?", all respondents (1,600)

- Yes, completely
- No, only partially
- No, not at all but we should do
- No, not at all and we don't think it is relevant
- I don't know

Figure 10: "What was the driving force behind this deployment?", only respondents from organizations that have deployed AI (1,299)



However, the concerns of these key stakeholder groups cannot simply be swept under the carpet — particularly when according to respondents, 90% believe that employees have concerns about AI and 88% believe the same for customers.

When it comes to employee concerns, a third or more decision-makers consider issues around data safety (43%), job security (40%), impact on privacy (34%) and pay rates (30%) as the areas of workforce concern despite the broadly positive outlook for AI adoption. Almost three in 10 (28%) believe that AI's impact will go beyond concerns about the day-to-day job and will also have an impact on their employees' human dignity, such as their sense of self-worth. With employees as the lifeblood of organizations and tasked with the successful implementation, management and use of AI technologies, these are fears that cannot be ignored.

A range of concerns are highlighted by decision-maker respondents in relation to their organization's customers — the most likely being a lack of understanding about AI's use or benefits (41%). This is perhaps a major factor in the currently low positioning of customer demands as a driving force for AI adoption that we observed earlier. Linked to this, similar numbers also foresee a mistrust of the technology by consumers (38%) and a preference to interact with human workers (37%).

It is clear that both employees and customers require more information and knowledge about just what AI can do for them. With these two groups central to any successful organization, it is vital for organizations to take this into account particularly if they wish to continue their journey towards AI success.

Employees — reduce, redeploy, upskill?

With the AI benefits to customers and businesses already observed, it is most probably the employee who will feel the greatest impact by the use of AI technology in the workplace. We have already seen fear of change as a barrier faced by organizations and this will and should be a primary consideration for all organizations when developing their AI strategies and plans.

With that in mind, it is highly encouraging to see respondents' organizations either currently or planning to undertake a number of activities in this area to boost awareness and peace of mind. Over eight in 10 decision-makers report that their organization is giving, or planning to give, their teams freedom to experiment with new technologies (83%) and training employees about the benefits and use of AI 85%. Most positively of all perhaps, is that although three quarters (75%) of respondents' organizations are currently or planning to replace roles with technology, of these the vast majority (80%) will either retrain or redeploy the displaced employees. An optimistic sign that employee fears may be misplaced and that AI deployment and worker redundancy do not necessarily go hand in hand.

"The vast majority (80%) of respondents' organizations that plan to replace roles with AI technology are intending to redeploy or retrain displaced employees"

Mapping out the future of AI

Looking to the future, with all of the previously noted benefits and challenges of AI adoption, there are a variety of improvement areas that are highlighted.

Further Insights

- **Australia (26%) and the UK (27%) are less likely to have fully considered the ethical issues related to AI than other markets, potentially due to the impact of legacy systems and business processes**
- **Pharmaceuticals/life sciences had more respondents reporting that AI ethics has been completely considered (53%). This reflects its higher level of AI maturity, along with its comparably high proportion of rich data on hand that can drive AI systems, compared to other sectors**
- **More AI mature organizations are much more likely to have fully considered the ethical issues related to AI (80%)**

Among the most commonly cited are improving AI's time to implement (44%) and its ease of use (43%). For organizations to harness the benefits, they need to act as quickly as possible to set the wheels of progress in motion. As we have already seen, many will look to third-party specialists for help and others will focus on training internal users to boost knowledge and awareness. With many already behind their competitors when it comes to AI and with industry disruption rising, the case becomes more and more pressing.

In addition, for AI to become more widely accepted and adopted throughout organizations, many decision-makers would like to see AI technology demonstrate its value more in terms of proof of concept/ROI (43%) along with improving transparency (43%) and interoperability with other platforms in use (39%).

But to tie all these things together effectively it requires the right level of skill. The very bedrock on which strong AI foundations will be built are the skills of employees that organizations entrust to lead them on their AI journey. Whilst most (90%) respondents believe that their organization has some AI-related skills, over four in 10 do not feel that they have the necessary development (42%), security (42%) or implementation (43%) skills required for AI use.

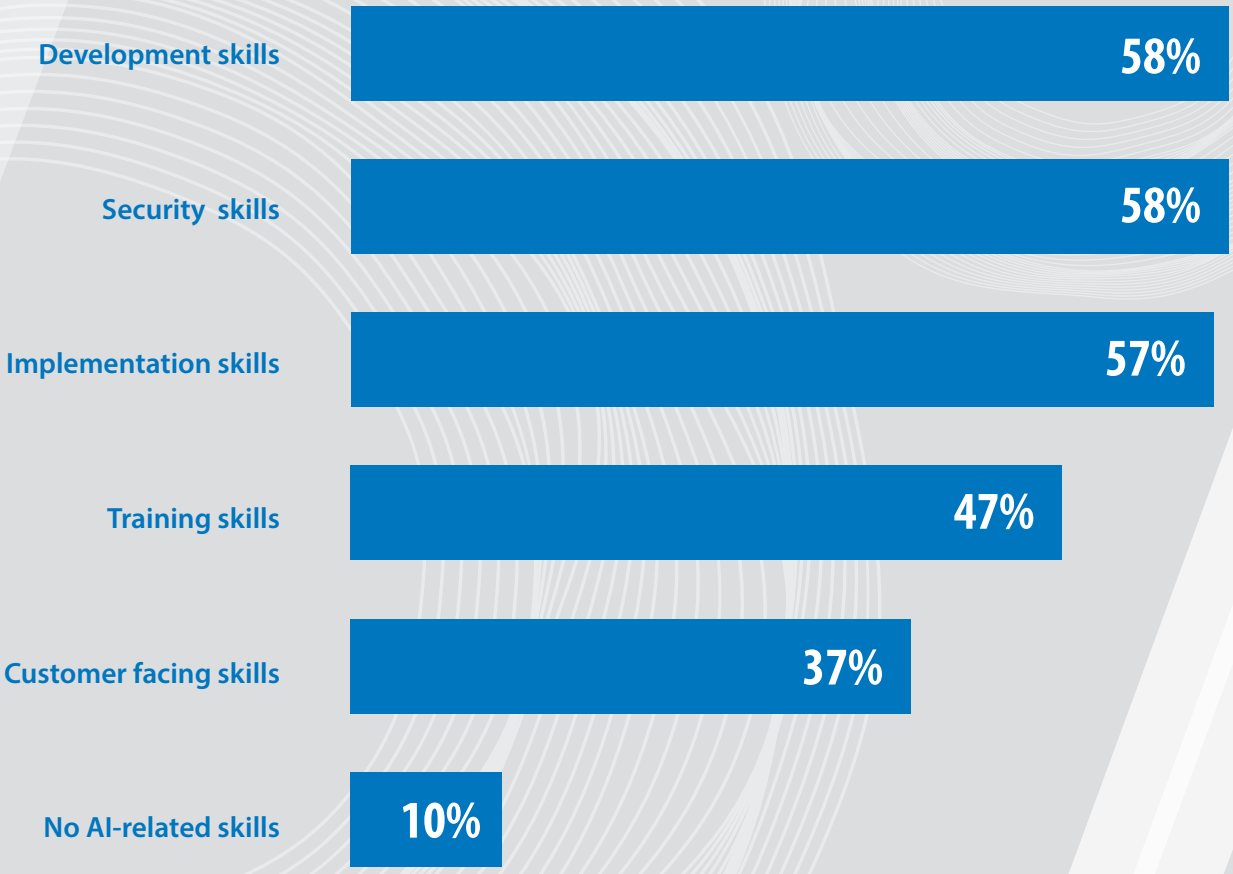
Further Insights

- **AI will cause greater investment in workforces, specifically China (95%), France (90%), Germany (89%), the UK (82%), and the US (76%)**
- **Australia (23%) is most likely to report not having any AI-related skills**
- **Pharmaceuticals/life sciences (97%), telecoms (95%) and automotive/aerospace (94%) are the sectors most likely to report that they have AI-related skills in the organization**
- **Organizations with faster revenue growth are much more likely to report having AI-related skills (98%)**
- **Organizations that have fewer AI-related skills are more likely to redeploy workers impacted by AI adoption, whereas those with more AI-related skills are more likely to retrain employees**
- **The leading industries that plan to retain and retrain their workers are: fast moving consumer goods (94%); aerospace and automotive (87%); energy, oil and gas (80%); and pharmaceutical and life sciences (78%)**

What's more, considering the challenges observed of employees and customers, it is concerning to note that only the minority of decision-makers believe that their organization has AI-related training (47%) or AI-related customer facing (37%) skills currently in place. Such skills gaps threaten to derail many organizations before they have even begun to use AI, putting its success and effective ROI at risk. However, as we have already seen it is encouraging to see many organizations planning to invest in AI training for employees in the future.

So, in a world of AI, what are the key skills that organizations will demand of future generations in the workforce? What is clear is that the level and sophistication of skills will rise with decision-makers believing active learning (58%), complex problem-solving (53%) and critical thinking (46%) to be key. Creativity (46%) and logical reasoning (43%) also come into play, highlighting a growing need for employees who can learn quickly, think on their feet and overcome problems efficiently in order to succeed in an AI-driven environment. In order to reach this level, the most important academic subjects that decision-makers see as focus areas for future generations are computer sciences (72%), business and management (47%) and mathematics (45%).

Figure 11: "Which of the below skills do you believe your organization's employees have when it comes to implementing and using AI?", all respondents (1,600)



CONCLUSION

As the vast majority of decision-makers believe, AI is inevitable. Some organizations already find themselves actively exploring how the technology can work for them, while many remain focused on planning their approach. What is clear, however, is that the successful use of AI requires balance: greater automation versus employee engagement and customer satisfaction versus changing business models. The goal is to harness the vast array of possible rewards while minimizing the many potential risks.

Driven by the significance of the potential benefits, AI adoption continues to spread more widely throughout organizations and begins to touch and impact more and more employees and customers.

But, ethics are a significant hurdle to be addressed. The key responsibilities and challenges here for organizations are to properly address ethical concerns as they try to maximize the potential not only of AI technology, but as they seek to amplify the potential of the human workforce. This is not an easy task, but remains one that offers significant benefit for the organization with AI and the employees working side-by-side, as AI supports the people in the organization to do more, be more creative and to deliver greater value for the business. Many could improve their consideration of ethical issues and those that fail to do so are at risk of being left behind by more AI-mature organizations that can balance the often opposing competing forces of doing well and doing right.

So with many organizations still a number of years away from reaching AI maturity, what can they learn from those AI visionaries who are leading the way?

The key factor in organizations that are more mature in their use of AI is that employee resources are being effectively used to the benefit of AI implementation and not simply sidelined by technology. Organizations that can retrain or redeploy employee resources instead of simply making redundancies stand to benefit from increased skills and greater motivation to help further explore what AI can bring. Organizations have high expectations of the future generation and the skills it should offer — once these employees are on-board, it is down to the organization to help further nurture and foster this talent in an increasingly AI-filled world.

A holistic view to AI adoption is also fundamental — organizations that look to apply an array of technologies across a wider number of areas will position themselves to benefit the most from the potential synergies that AI can

offer — not least the anticipated significant ROI benefits in the form of revenue increases and cost reductions. Strong established links between AI adoption and the overall business strategy are a key feature of organizations that are true AI visionaries. Such an approach helps to consider and align the needs of employees and customers ensuring that their trust and buy-in is achieved.

Overall, the adoption and use of AI technologies offers an exciting leap forward for many organizations, but careful consideration must be placed on the impact of doing so in order to ensure that employees and customers come along for the ride.

Scope of research/methodology

Infosys commissioned independent technology market research specialist Vanson Bourne to undertake the research upon which this report is based. 1,600 IT and business decision-makers were interviewed in November 2016. All came from organizations of more than 1,000 employees, with $500m or more annual revenue and from a range of sectors.

The research was carried out across seven countries with interviews split accordingly:

Country	Number of interviews
US	400
Australia	200
China	200
France	200
Germany	200
India	200
UK	200

The majority of interviews were conducted using online interviewing with a small number of telephone interviews. All were undertaken using a rigorous multi-level screening process to ensure that only suitable candidates were given the opportunity to participate. Unless otherwise indicated, the results discussed are based on the total sample.

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