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Turning AI into concrete value:

the successful implementers' toolkit

DIGITAL TRANSFORMATION INSTITUTE

By Capgemini Digital Transformation Institute

Introduction

"Organizations are now convinced of the benefits that AI can bring. They are now asking themselves where and how they should invest." Gordon Schembri
Principal Digital Technology, GE Oil & Gas.

This research is a pragmatic guide to help organizations in their AI investment decisions. We analyzed more than 50 AI use cases regarding their adoption, complexity, and benefits. We surveyed senior executives from nearly 1,000 organizations around the world that are already implementing AI; see the research methodology at the end of the paper for more details. We also spoke to academics — as well as AI-focused executives at global companies, startups, and vendors — to gather perspectives in four areas:

- What concrete benefits are organizations seeing from AI today?
- What use cases are bringing the most benefits?
- Where should organizations invest?
- What steps are essential to getting started with an AI strategy and roadmap?

50
AI use cases analyzed

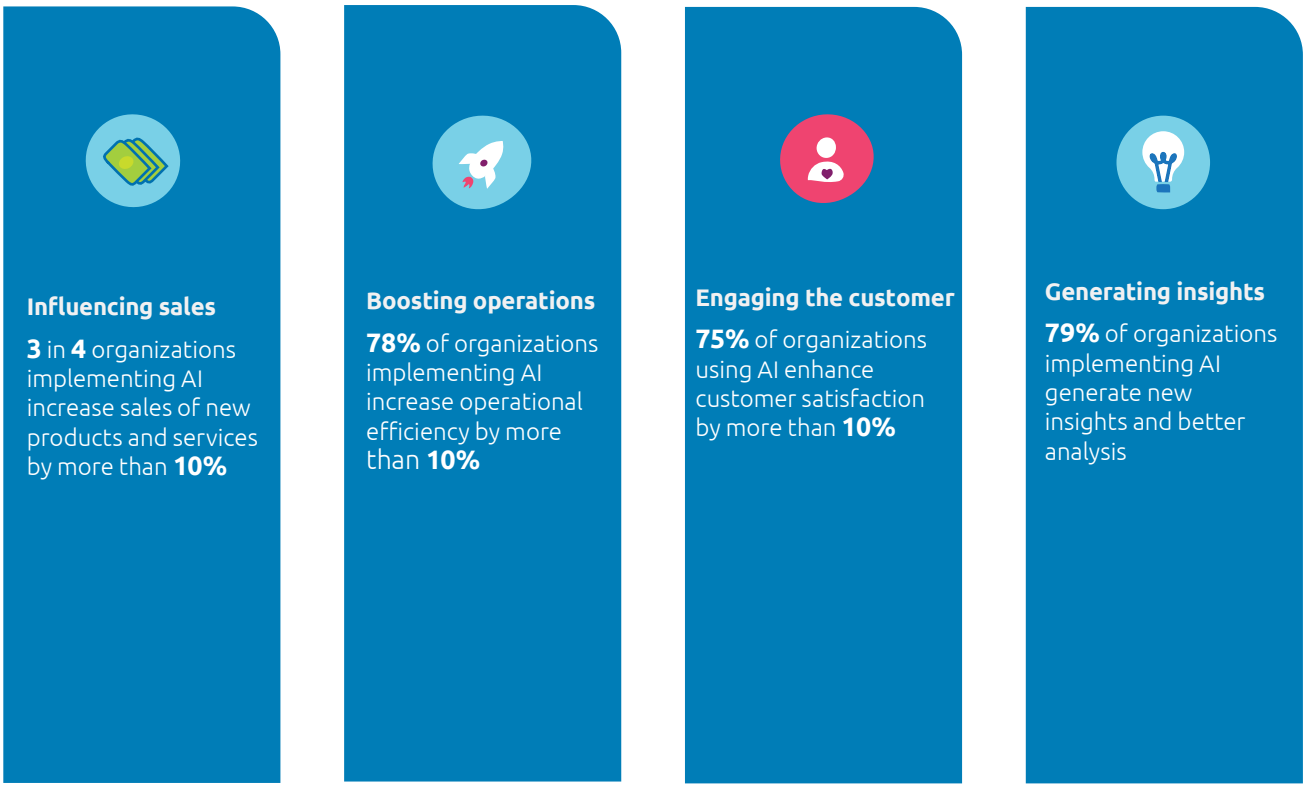
Benefiting from AI now

"We had the computer revolution, the smartphone revolution, and the internet revolution but AI will probably be the biggest technological shift we have ever seen." Edouard d'Archimbaud, Head of Data & AI Lab, BNP Paribas.

Our research shows that AI is already transforming how organizations do business, manage customer relationships, and stimulate the ideas and creativity that fuel groundbreaking innovation (see Figure 1).

1,000
organizations implementing AI surveyed

Figure 1. How AI is driving benefits across the organization



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

AI is boosting sales

Cosabella, a luxury lingerie retailer, has moved to an AI-managed marketing platform. This smart platform automates digital advertising and marketing efforts, such as targeting a high-value audience and driving paid search ROI. In a three-month pilot, the platform produced a 336% return on ad spend (ROAS) and a 155% increase in revenue (Q4, 2016). Before they shifted to the AI platform, social media accounted for 5 to 10% of Cosabella's paid ad revenue. Since the adoption of the platform, social media consistently accounts for 30%. Cosabella's CEO says:

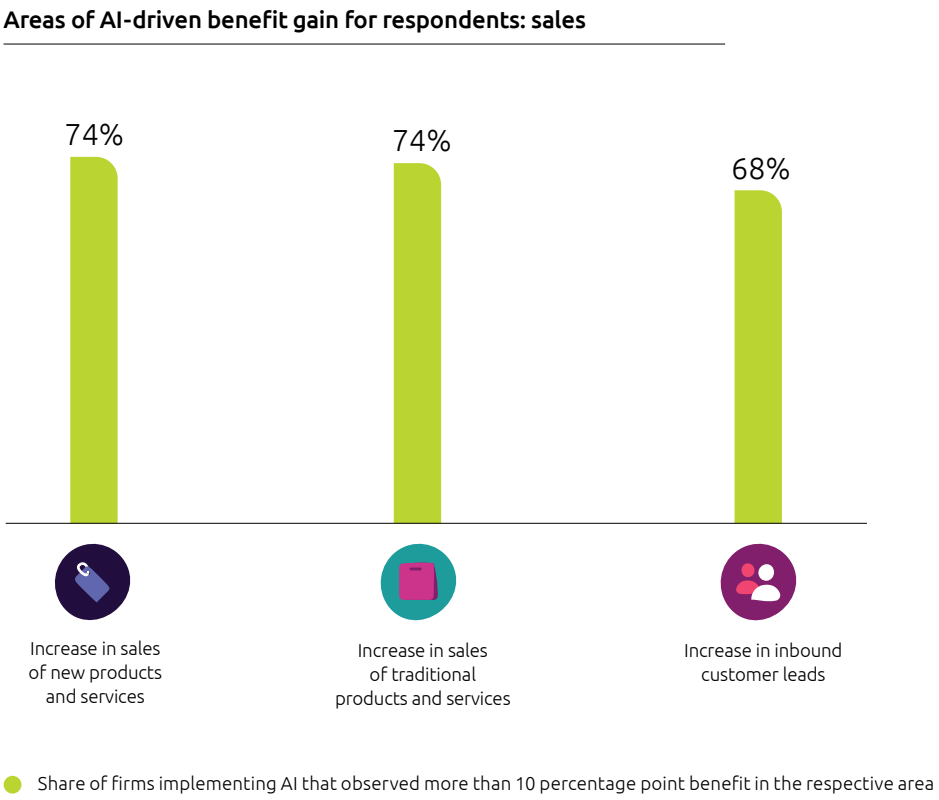
"…I would never hire a human to manage the technical aspects of our ad campaigns ever again. We'll leave the tech stuff to the tech and hire humans for the high-level strategic and creative."[1]

Our research shows that organizations are using AI to influence sales in a variety of ways, from supporting new products to generating leads (see Figure 2). Harley-Davidson, for example, used AI for highly targeted marketing activities, identifying customers who shared the attributes of previous high-value customers. The AI tool helped generate leads and also analyzed thousands of campaign variables to identify what worked and what didn't. This helped increase sales leads by 2,930% within three months.[2]

2930%

Increase in sales leads experienced by Harley-Davidson using an AI tool in three months

Figure 2. Driving sales performance through AI

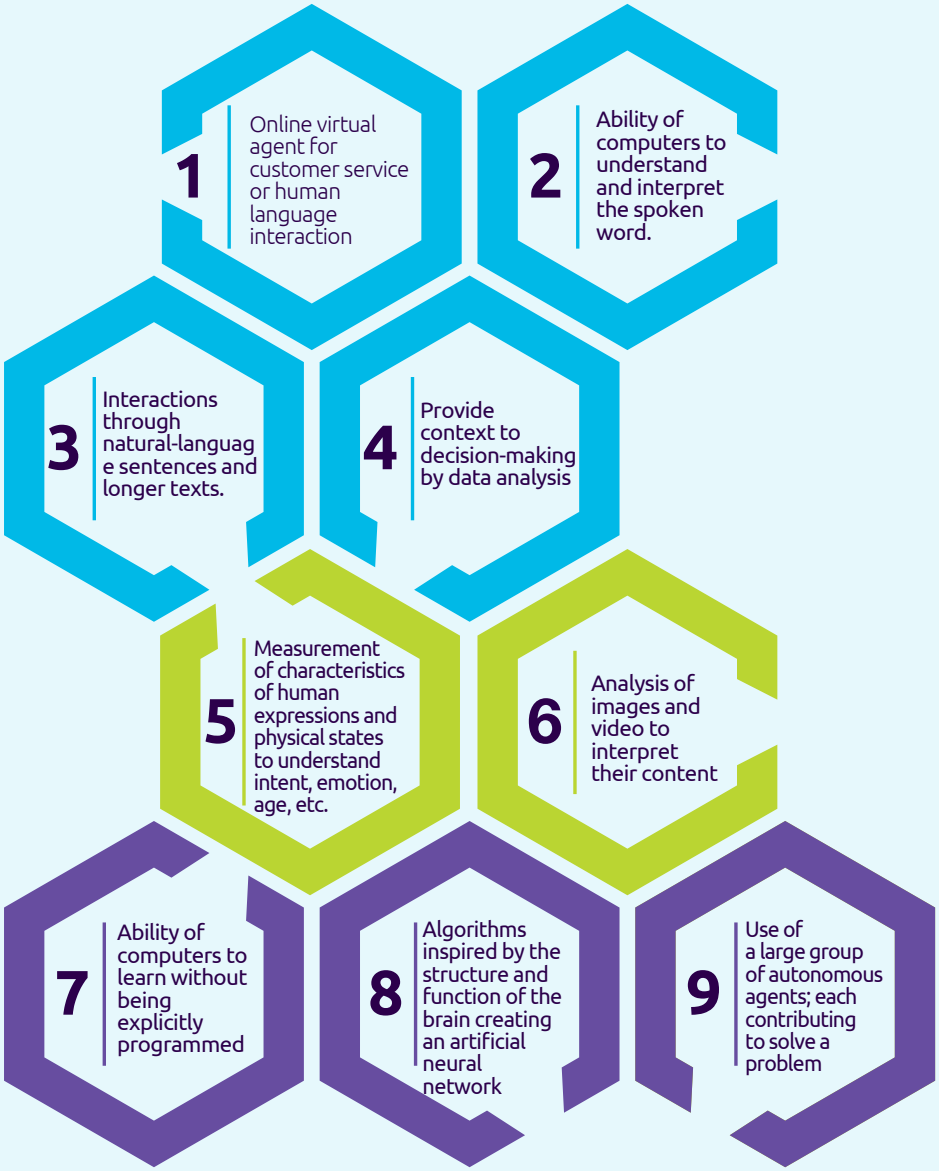


Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

What is Artificial Intelligence?

Artificial Intelligence encompasses a range of technologies that learn over time as they are exposed to more data. The definition we used in this report is that AI includes speech recognition, natural language processing, semantic technology, biometrics, machine and deep learning, swarm intelligence, and chatbots or voice bots. Figure 3 below summarizes most of the prominent technologies that are classified as AI.

Figure 3. Series of key technologies commonly classified as AI



Natural Language

1. Chat bots or Voice bots
2. Speech Recognition
3. Natural Language Generation
4. Semantic Technology

Computer Vision and Biometrics Intelligence

5. Biometrics
6. Image and Video analysis

Technology Foundations

7. Machine Learning
8. Deep Learning
9. Swarm Intelligence

Source: Capgemini Digital Transformation Institute Analysis

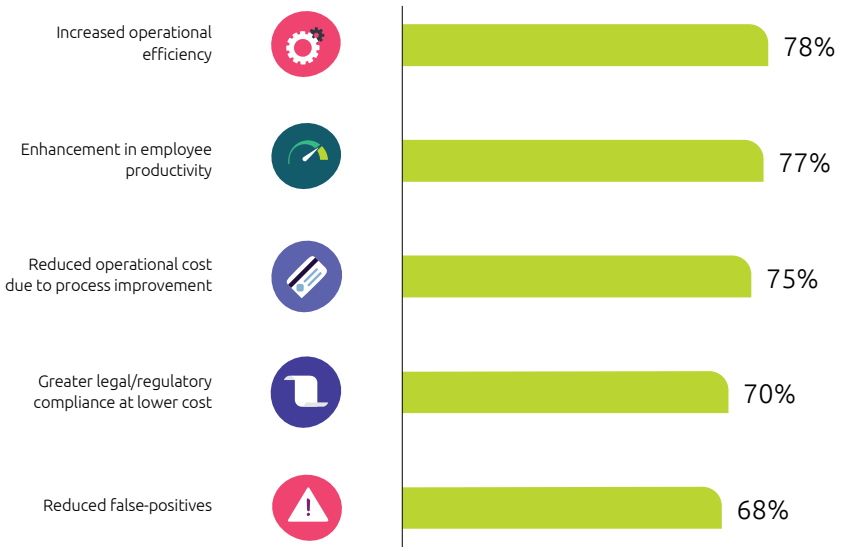
AI is transforming operations

Our research shows that AI delivers significant transformational benefits, from reducing churn to increasing regulatory compliance. More than 7 out of 10 organizations surveyed for this research are gleaning significant benefits in various areas of operations (see Figure 4).

Examples include:

- At JP Morgan, lawyers spent thousands of hours studying financial deals. Now, an AI system is doing the challenging job of interpreting commercial-loan agreements, taking on a task that has swallowed 360,000 hours of work by lawyers and loan officers. The AI system reviews documents in seconds and is less prone to error. The system has cut down on loan-servicing mistakes, many of which originated from human error in interpreting 12,000 new wholesale contracts per year.[3] A similar experience is highlighted by Mohammed Marikar, Director of Intelligence & Automation at Royal Bank of Canada: **"The role of the system is to augment human analysis. AI offers the ability to scale our capacity 10,000-fold of human analysis and scale back as and when needed."**
- Siemens has developed a neural network-based AI to optimize the combustion processes in their flagship gas turbines. The system has, in tests, already bettered human experts. After an expert set the turbine manually to minimum emission, AI took control of the combustion unit. Within two minutes, it reduced the emission value further by 20%.[4] Jonas Albertson, Managing Director, Atlas Copco—a Swedish industrial tools and equipment manufacturer—says: **"Typically, when you move to more autonomous solutions, you gain >20% productivity improvement at the lower cost."**
- Mastercard intends using AI to improve the overall accuracy of real-time approvals of genuine transactions while reducing the number of false declines. Mastercard estimates that the value of false declines is over 13 times greater than the total amount lost to actual card fraud and that a third of customers stop shopping at retailers after being falsely declined. By using AI, Mastercard hopes to reduce the overall number of false declines, and thus help their retailer partners.[5] Stephen Epstein,

Figure 4. Organizations are seeing benefits across operations, sales, and customer service



Share of firms implementing AI that observed more than 10 percentage point benefit in the respective area

20%

Improvement in emission value by AI over a manual setting at a Siemens gas turbine

Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

VP Product Marketing at Digital Reasoning—a leading AI company—resonates with the thought: **"The most immediate improvements are— there is a dramatic reduction of false positives and in operational costs associated with those false positives."**

AI is engaging the customer

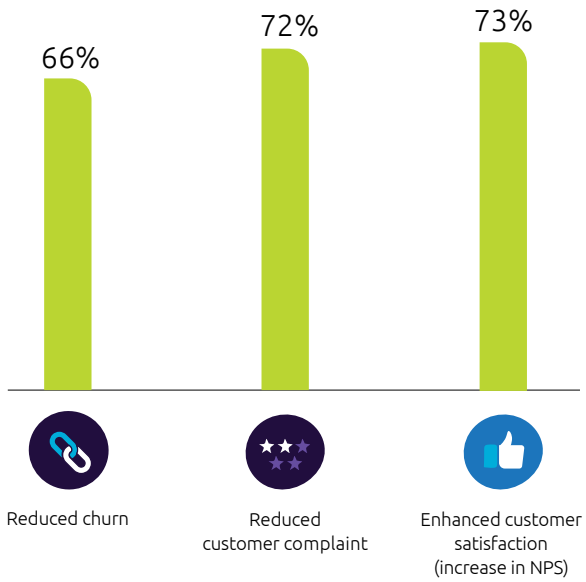
KLM, the Dutch airline, adopted an "AI-assisted human agent" model to reinforce their existing customer support staff. Using voice biometrics, the system can identify over a hundred human vocal features to instantaneously authenticate and process a call. The AI agent can also solve customer queries over a variety of digital platforms, adapting the reply based on the inquiry platform. For instance, it will reply in prose in an email, but use fewer than 140 characters if the query comes from Twitter. Overall, it has resulted in 35% efficiency gains and about 30% of KLM cases are now resolved through the AI platform.[6] Chief Data Officer at one of the world's leading telcos who we spoke to for this research explains how AI creates value in customer engagements: **"As AI deployment takes away some of the repetitive work, it allows organizations to spend more time on real customer engagements and trying to understand what customers really want."**

Organizations across sectors are increasingly seeing the benefit of using AI to improve customer engagement. More than 1 in 2 organizations (59%) agree that AI is supporting customer intimacy, and AI initiatives have helped more than 6 in 10 organizations increase customer satisfaction and reduce churn (see Figure 5).

As AI drives operational efficiency, it allows employees to spend more time focused on the customer. See "AI at ICICI, India's leading private bank." Fidaa Chaar, Global Head of Client Services, Société Générale, says: **"Operational efficiency frees up time that we can dedicate to focusing on added-value tasks such as the customer relationship."**

Figure 5. AI is improving how organizations engage with customers

Share of organizations implementing AI that observe more than 10 percentage point gain on the following bene



Source, Capgemini Digital Transformation Institute, State of the AI survey, N=993 companies that are implementing AI, June 2017

35%

Improvement in customer service efficiency at KLM using an AI platform

AI at ICICI, India's leading private bank

ICICI Bank, India's largest private-sector bank, is an early adopter of AI, with a new division—Technology and Digital Group (TDG)—established to improve its digital capabilities.

The bank has deployed software robots in over 200 business process functions across the organization, including retail banking operations, agri-business, trade and foreign exchange, treasury, and human resources management. The bank has implemented the platform mostly in-house, leveraging artificial intelligence techniques such as facial and voice recognition, natural language processing, machine learning, and bots, among others.

The bank's robot capabilities include;

- Chat bots that act as quasi-bankers
- Software bots that carry out remittances while helping customers with their loan choices
- Email bots that sort customer and distributor emails based on transaction status or similar criteria; this has helped the bank slash its response time.

The software robots now perform over a million banking transactions every working day. This has reduced the response time to customers by up to 60%, and increased accuracy to 100%, sharply improving the bank's productivity and efficiency. It has also enabled the bank's employees to focus more on value-added and customer-related functions.

74%

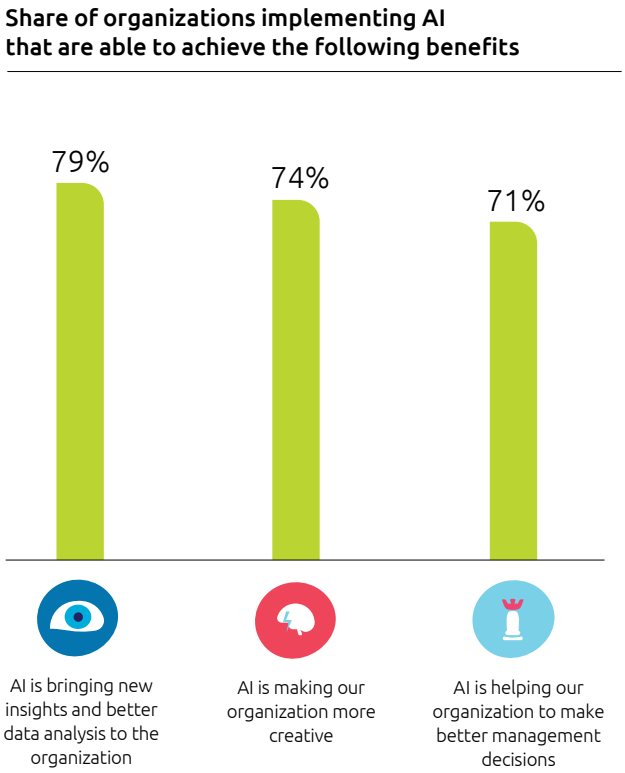
Share of organizations implementing AI believe that AI is making their organization more creative

AI is generating new insights

Nearly three-quarters of companies say that AI brings new insights, improves data analysis, and helps them make better decisions (see Figure 6).

It also makes the organization more creative. For George Sarmonikas, AI Lead at Ericsson, this is a result of AI's ability to automate routine tasks.
"Artificial Intelligence automates some of the repetitive tasks of the engineer. Now those engineers can dedicate more time to tasks that require more creativity," he says.

Figure 6. AI is bringing new insights and making organizations more creative



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Has the negative impact of AI on jobs been blown out of proportion?

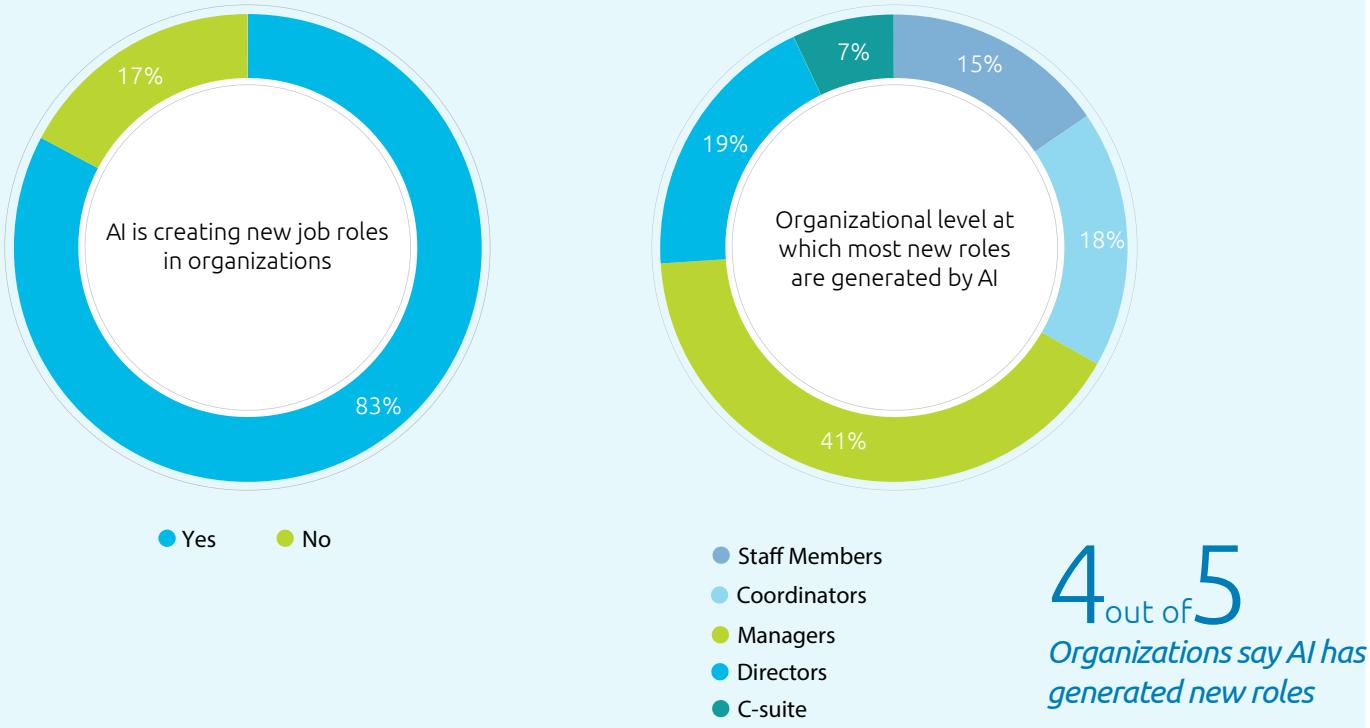
History teaches us that, in the long run, technology creates more jobs than it destroys. For instance, the advent of ATMs was largely expected to decimate the role of the bank teller. But between 1970 and 2010, the number of bank tellers in the US increased from around 300,000 to around 600,000.[7] By lowering their operating costs, ATMs allowed banks to open more branches, and thus drove the need for more tellers. Similarly, since the 1980s, the advent and extensive use of spreadsheet software has skyrocketed demand for jobs that leveraged such software. For example, management analyst and financial manager jobs have quadrupled to 2.1 million since 1983—this is a job category that wasn't even being tracked earlier.[8] The number of accountants and auditors has grown by 41% since 1985 even as demand for traditional bookkeepers, and accounting and auditing clerks fell by 44% in the same period.

The CTO of a large, multinational technology firm agrees: **"I think for every job that is lost, there will be many more jobs that are gained. The role of AI is not to replace humans, it is to augment humans. It is about helping us do what we do better."** From our research, the near-term outlook in particular is positive.

AI is creating new job roles in many organizations. Four out of five executives in our survey of large organizations say AI has created new job roles (see Figure 7). Most of the new jobs are also at a senior level. Two in three new jobs (67%) were being created at the grade of manager or above.

AI is augmenting human output and hasn't negatively impacted jobs. A majority of organizations (63%) have not seen AI produce a negative effect on jobs. Among organizations that have implemented AI at scale,[9] more than

Figure 7. Four out of five organizations say AI has created new roles in their organizations



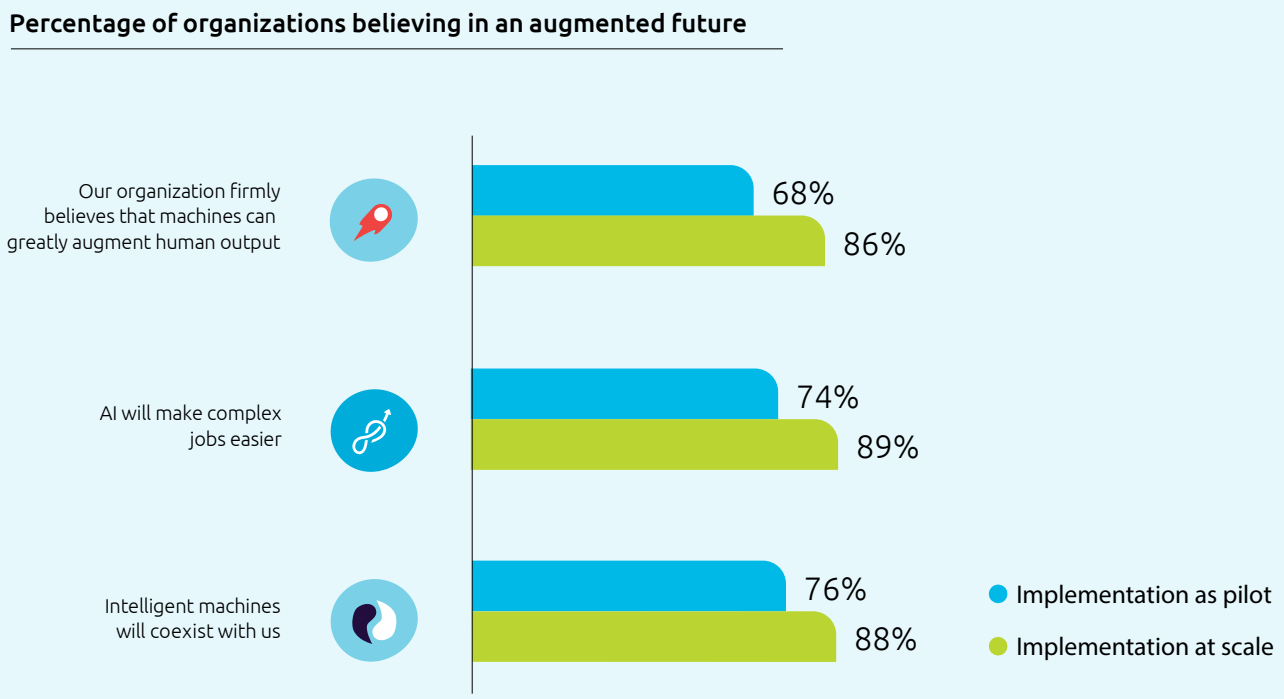
Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

three in five (63%) said that AI has not destroyed any jobs in their organization. This is in line with what several industry executives we spoke to said. Mohammed Marikar, director at Royal Bank of Canada says, **"A lot of commentary confuses AI success in very narrow fields, such as playing Go, with the general intelligence needed to carry out most jobs. The reality is that the most advanced systems are yet to demonstrate anything approaching what we would consider 'common sense' and cannot operate without human direction."**

In fact, most organizations, as Figure 8 shows, see machines as complementary to humans. They also believe that AI will make complex or difficult jobs easier. An executive from a mining company we spoke to pointed out that new technologies make it easier to attract employees. This is because they can rely on autonomous vehicles, robotics, and smart analytics to run their mines and employees do not need to be physically co-located in the often uncomfortable terrain.

Of course, organizations will need to support their people in this new future through skills training. We found that 71% organizations have proactively initiated up-skilling and re-skilling employees with new skills to deal with the impact of AI. As the CTO of a large, multinational technology firm says: **"Organizations should not think in terms of how AI displaces their workforce, but how to improve the reach of their workforce. And we, as employees, need to learn and understand how we can make ourselves better with the additional benefit we get from augmentation."**

Figure 8. Organizations believe in co-existence of AI and humans



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Use Cases: Organizations are missing a bigger opportunity by ignoring the low-hanging fruit

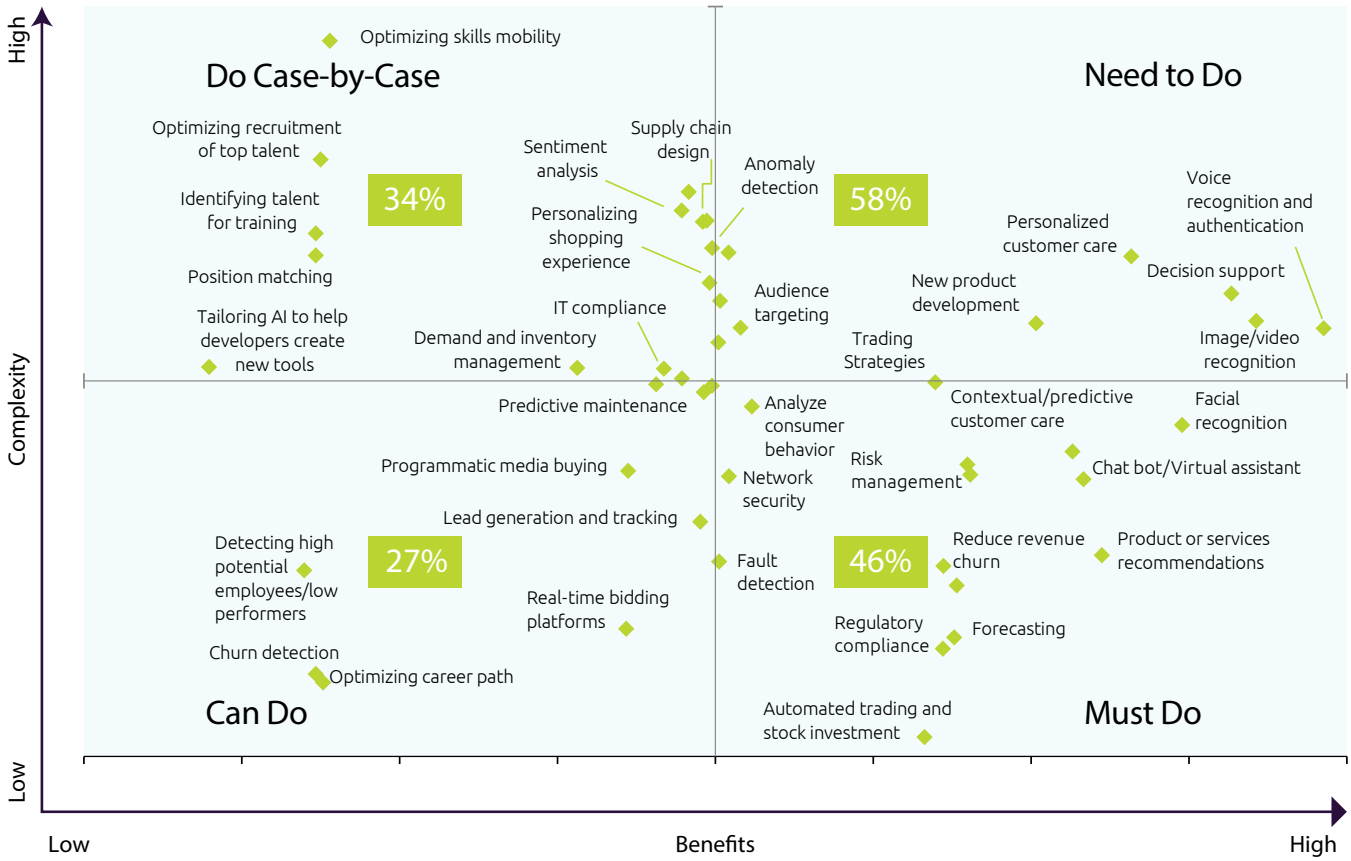
Our analysis of the implementation of over 50 AI use cases shows that many organizations are jumping straight to some of the most challenging use cases. However, only small minorities are focusing on use cases that are not only easy to implement, but have a high benefit upside.

As Figure 9 shows, we segmented the use cases by their complexity and the benefit upside that organizations can expect to see. We found that many organizations are currently tackling the most complex and high-benefit AI use cases:

58%

Average share of organizations implementing a high-complexity and high-benefit use case

Figure 9. Distribution of use cases by benefits and complexity

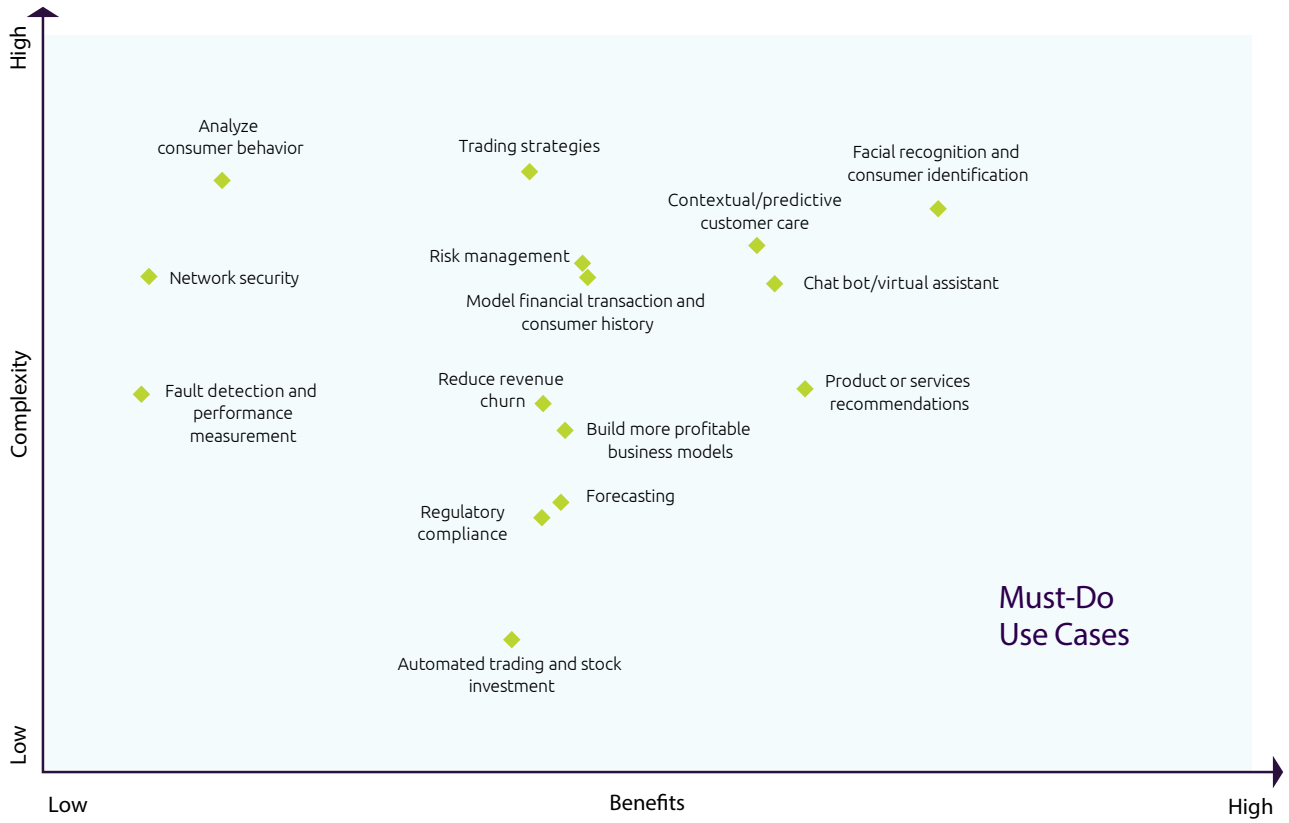


Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

20%

Share of organizations implementing AI who deploy "must do" use cases at scale

Figure 9. Distribution of use cases by benefits and complexity (cont'd)



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

- Over half of organizations (58%) are tackling "need-to-do" use cases (those defined by high complexity and high benefit).
- However, fewer (46%) are tackling what we call "must-do" use cases, which are low-hanging fruit in the sense that they are of high benefit but low complexity. Only about a fifth (20%) of companies are implementing "must-do" use cases at scale.

Neglecting these "must-do" AI initiatives—that span sectors—is a missed opportunity. Examples of these use cases include:

- Fault detection and performance measurement: At a leading global mining company, quality issues were detected too late during the manufacture of aluminum tanks. By using an AI-based predictive model, the organization was able to optimize product quality, yield, and energy consumption. The company was also able to better predict product quality, and product lifecycle with 70% accuracy.[10]
- Automated trading: UBS recently implemented a program for dealing with clients' post-trade allocation requests. The system scans client emails, looks for details on how they want to divide large block trades between funds, and then processes and executes the transfers. This would take a typical investment banker about 45 minutes, but the system can do it in less than two minutes. This frees up bankers' time for more value-added activities.[11]

Open Sourcing AI Technologies

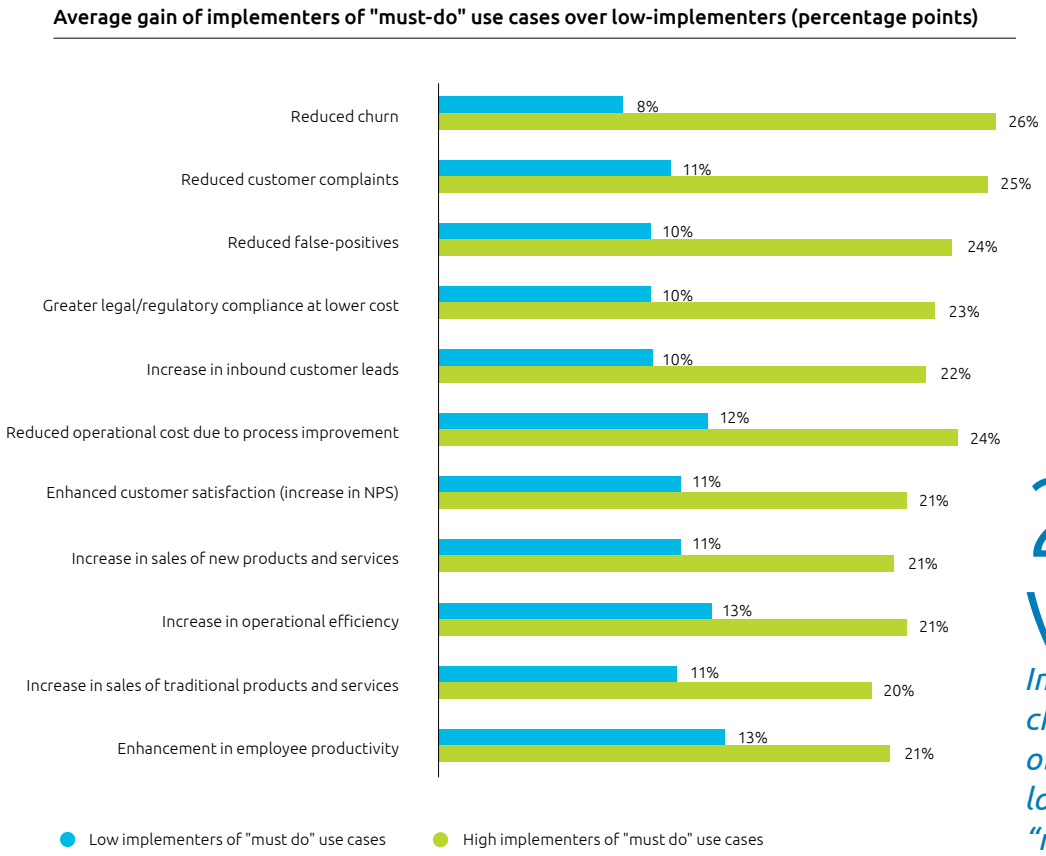
A defining characteristic of the growth of AI technologies is the open sourcing of key technologies by digital leaders. All the major tech companies are keen to have more developers on their platforms. This trend began with Google making its TensorFlow Platform open-sourced in 2016 (Facebook then open-sourced Caffe, its flexible deep learning framework, and Amazon did the same with MXNET). For traditional organizations willing to find real-world applications for their business challenges, these platforms are an interesting avenue.

Organizations focusing significant efforts on "must-do" use cases achieve greater benefits than more slimline approaches

As Figure 10 shows, we found that organizations implementing a large number of "must-do" use cases (>75% of all cases) drive significantly higher benefits than those implementing a smaller share (<25%). For instance, those making large-scale efforts are able to reduce churn by up to 26% on average, whereas those with a more slimline approach only achieve about 8% churn reduction.

Increased focus on "must-do" use cases improves benefits across both consumer-facing and operational initiatives. As Head of Data Science at one of the largest Australian banks puts it: **"There are a lot of benefits from AI; there is efficiency improvement, enhanced customer experience, speed to market. At the operational side there is optimization of operations, of workload, of credit card payment and issuance."**

Figure 10. Organizations implementing a large amount of "must do" use cases drive increased benefits



26% vs. 8%

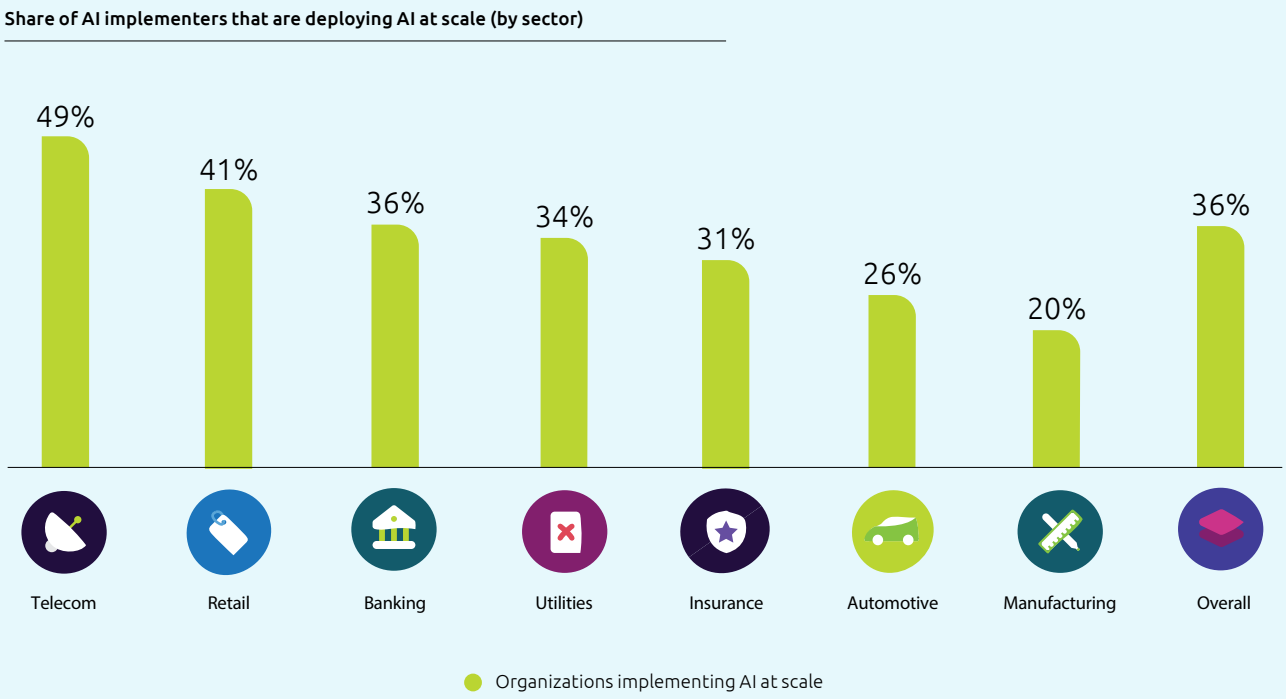
Improvement in churn reduction observed by high vs. low implementers of "must do" use cases

Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

One in three companies implementing AI is doing so at scale

On average, over a third (36%) of companies currently launching AI initiatives implement them at scale. In other words, they are going beyond small pilots and test projects and adopting AI applications at a larger scale—across business units, functions, or geographies (see Figure 11). Progress is most advanced in telecom, retail, and banking.

Figure 11. Telecom, Retail, and Banking have seen the highest implementation of AI at scale (by sector)



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

"AI has potential implementations across all sectors that have learned to understand themselves as an information processing business; particularly financial services and telecom." —Chris Nicholson, Co-founder and CEO, Skymind—data analysis and machine intelligence start-up.

There are a number of drivers behind this trend: For sectors such as financial services, regulatory compliance requirements are a key driver. AI can play a significant role in the effective and consistent execution of repetitive, process-driven activities in compliance. As Michael Schrage, research fellow at the MIT Sloan School's Initiative on the Digital Economy, says: **"AI will most quickly enter the industries that are most regulated."**

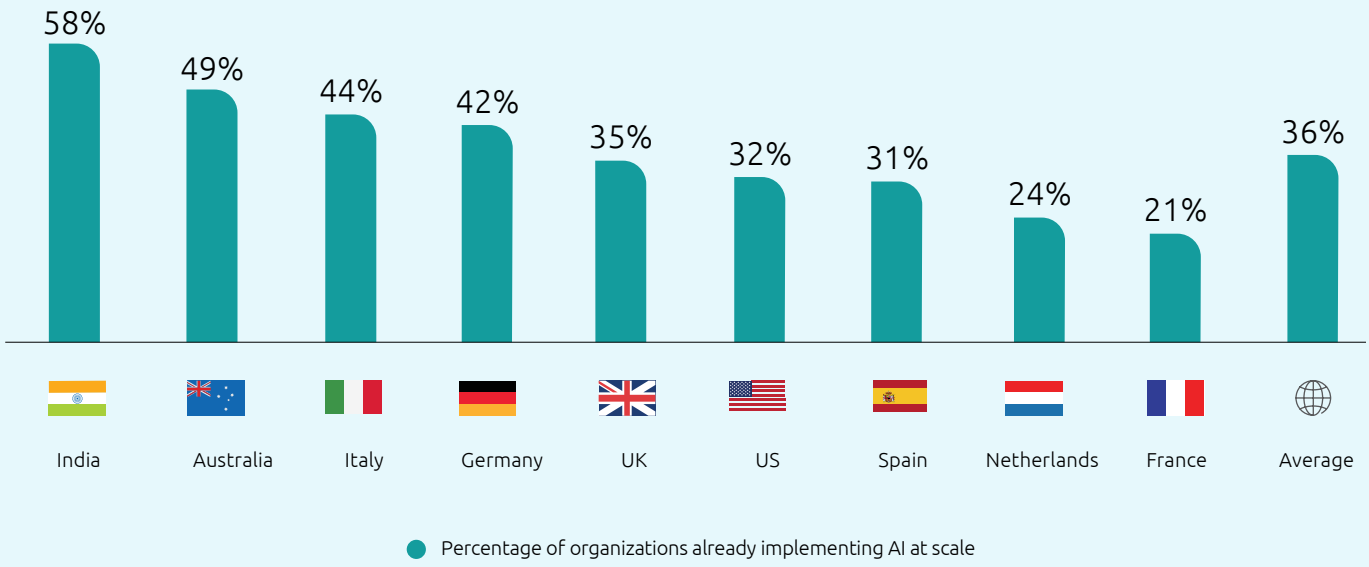
- Sectors that are consumer-facing, where hyper-personalization and churn prevention is key to growth, tend to see the highest adoption of new data-driven technologies. They are closely followed by operations-centric sectors such as manufacturing, automotive, and utilities that try to link new data-driven technologies with sensors and Internet of Things (IoT) to optimize their operations.

At a country level, India and Australia are leading the way in implementing AI at scale (see Figure 12). There are several potential reasons India has a strong position. First, the country has taken center stage for companies setting up innovation centers.

Our 2016 innovation center research shows that India is the second-largest global site for new centers set up by large and traditional organizations,[12] and many innovation centers are increasingly focusing on AI.[13] Second, the government's support through initiatives such as "Digital India" creates a favorable regulatory environment.

Figure 12. India leads in AI implementation at scale

Share of AI implementers that are deploying AI at scale (by country)



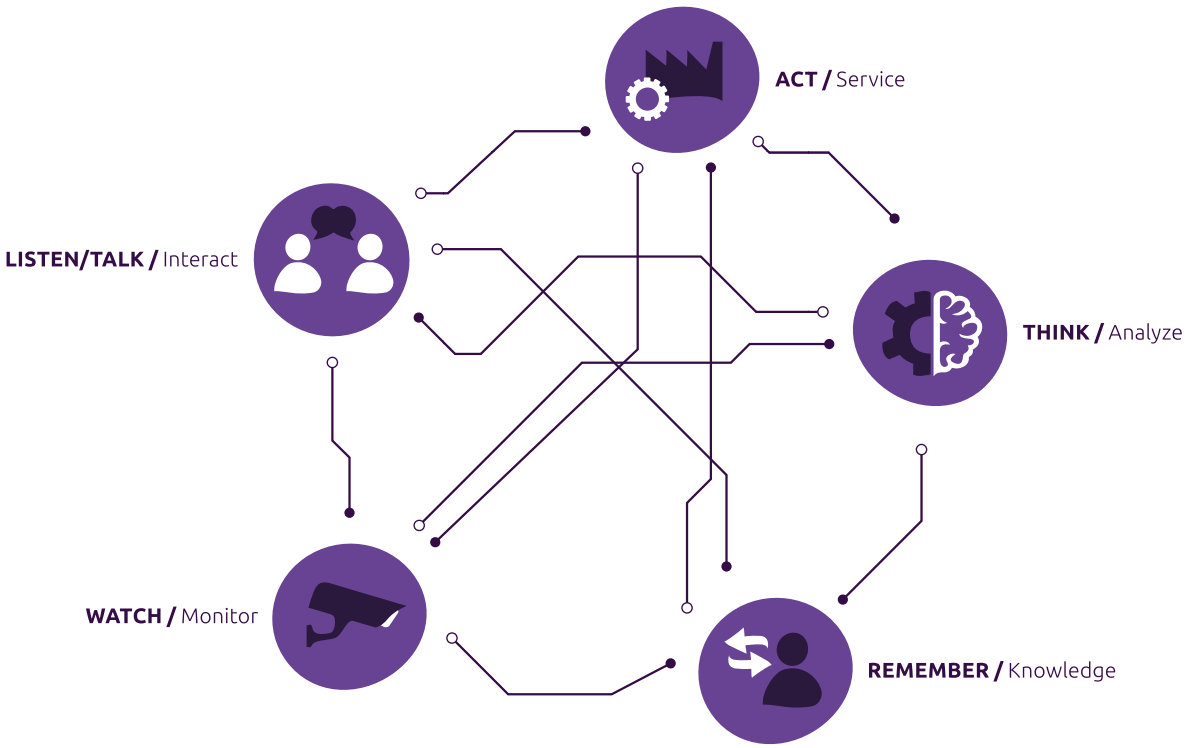
Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Where should organizations invest?

Identify areas where AI can create the most significant, long-term advantage

Organizations need to have a clear view of where AI can create the most enduring advantage for them and their customers. For Jonas Albertson, Managing Director, Atlas Copco, focus is a key differentiator. **"The benefits of AI are everywhere. I think it is more the maturity and the ability to drive the necessary change into the organization that differentiates organizations,"** he says. Being smart about where the impact will be felt is key according to Microsoft's Lili Cheng, who says: **"Most people never dreamed how the web browser and connecting to the internet would change daily life. In contrast, the term AI motivates us to question how technology will transform the way we work and live. This change is inspiring, because we want more people to participate in imagining and designing our future."** Our 'Five senses of AI' framework can help identify where AI can make the most impact (see Figure 13). Read more about the framework at: Capgemini.com "The five senses of Artificial Intelligence."

Figure 13. Five senses of AI



1 Source: Capgemini, "The five senses of Artificial Intelligence: Christopher Stancombe," May 2017

Pinpoint use cases where AI can create most value for your organization

Once the key areas (e.g., service, interactions, or knowledge) have been identified, organizations must focus their efforts on targeted use cases that meet two criteria:

1. They are not too complex to implement—to avoid the risk of failure or suboptimal results
2. They drive significant benefits—to ensure a faster payback or breakeven.

Clearly, finding the optimal use case can entail significant effort. However, our analysis points to certain areas where every industry can start looking. For each industry in our survey, we recommend a set of use cases that are expected to yield greater benefits. These are "must-do" use cases—in the sweet spot of high benefit and low complexity—which have yet to see a significant level of implementation (see Figure 14). By focusing on these use cases, firms may well gain a competitive advantage since few competitors will have implemented them.

Figure 14. Every industry can benefit from a set of 'must-do' use cases

Industry	Low hanging fruit – Least adopted "must-do" use cases
Automotive	Managing risk Reducing revenue churn Forecasting Analyzing consumer behavior
Manufacturing	Managing risk Forecasting Detecting faults and measuring asset performance
Retail	Forecasting Tracking customer history/transaction Reducing revenue churn
Utilities	Analyzing consumer behavior Trading strategies Forecasting
Telecom	Reducing revenue churn Forecasting Managing risk Tracking customer history/transaction
Banking	Analyzing consumer behavior Trading strategies Automated trading and stock investment
Insurance	Analyzing consumer behavior Trading strategies Reducing revenue churn Complying with regulations

Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

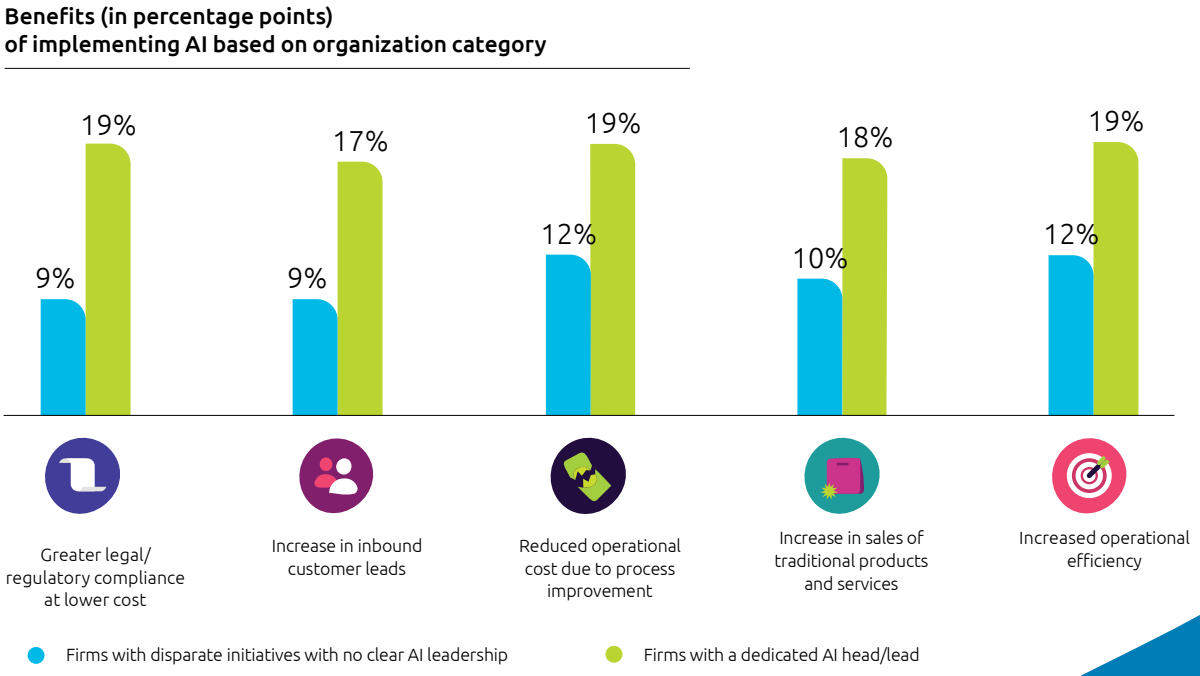
Getting started with an AI strategy and roadmap: key steps

Start by identifying your AI leadership

The journey begins with identifying a leader to spearhead AI initiatives: ideally a CXO who reports to the CEO. As Figure 15 shows, organizations with a dedicated AI head outperform firms with no clear leadership (and all AI initiatives running disparately) in several benefit areas. For instance, firms with a dedicated AI lead observed a 17% increase in inbound customer leads using AI vis-a-vis just 9% increase for firms having no clear AI leader. Only about a third (37%) of organizations implementing AI have a dedicated AI head or lead in their firm.

For Michael Schrage, research fellow at the MIT Sloan School's Initiative on the Digital Economy, leadership is critical in AI: **"What I have observed in companies that do AI well is they have a policy and process around data governance and treating data as an asset. They also have either key problems or business cases that lend themselves to known structures for AI and machine learning algorithms. They view AI as an enabler. Basically, they are not just well-managed, they are well led."** Part of the challenge for leaders is to set a compelling strategic vision while harnessing the creativity of employees.

Figure 15. Organizations with a dedicated AI leader garner higher benefits than standalone initiatives with no clear leader



37%

Share of organizations implementing AI that have a dedicated AI leader

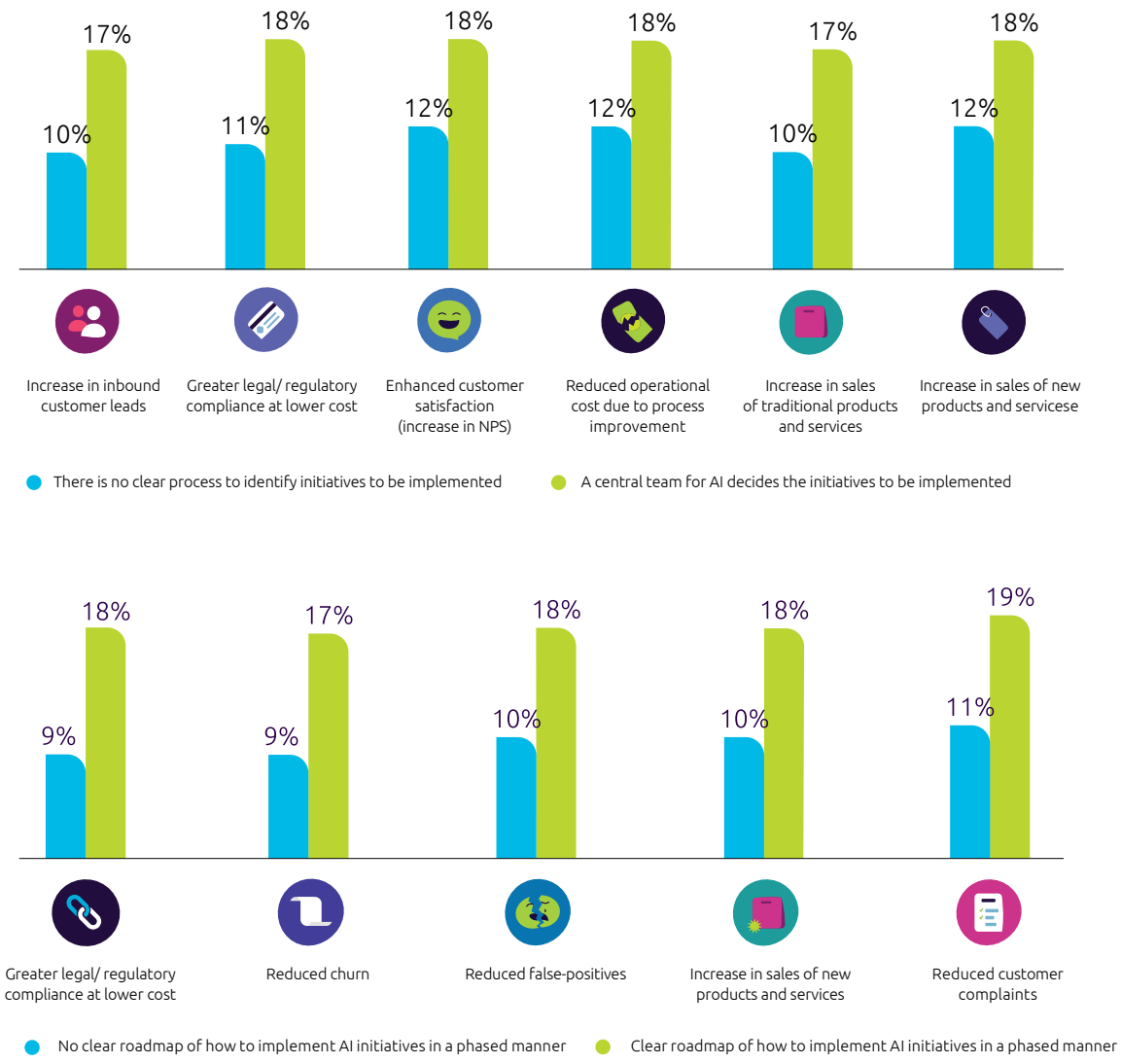
Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Set up a governance structure for AI initiatives to drive greater benefits

A clear governance framework is essential to secure AI's full potential. Our analysis shows that a central governing body for AI implementation increases benefits in multiple areas (see Figure 16). However, only about 37% of organizations implementing AI have a central team that decides which AI initiatives will be implemented.

Similarly, organizations with a clear roadmap perform better than organizations that score low on roadmap clarity. Fidaa Chaar, Global Head of Client Services, Société Générale, says: **"Implementing AI is a strategic decision. So it should first be a top-down decision. But a top-down decision not about the business case, but about the intention of the company. You then need to gather the right use cases and ideas using a bottom up approach. So, decisions and communication top down, but gathering of ideas and real-life use cases bottom up."**

Figure 16. Mature governance drives greater benefits



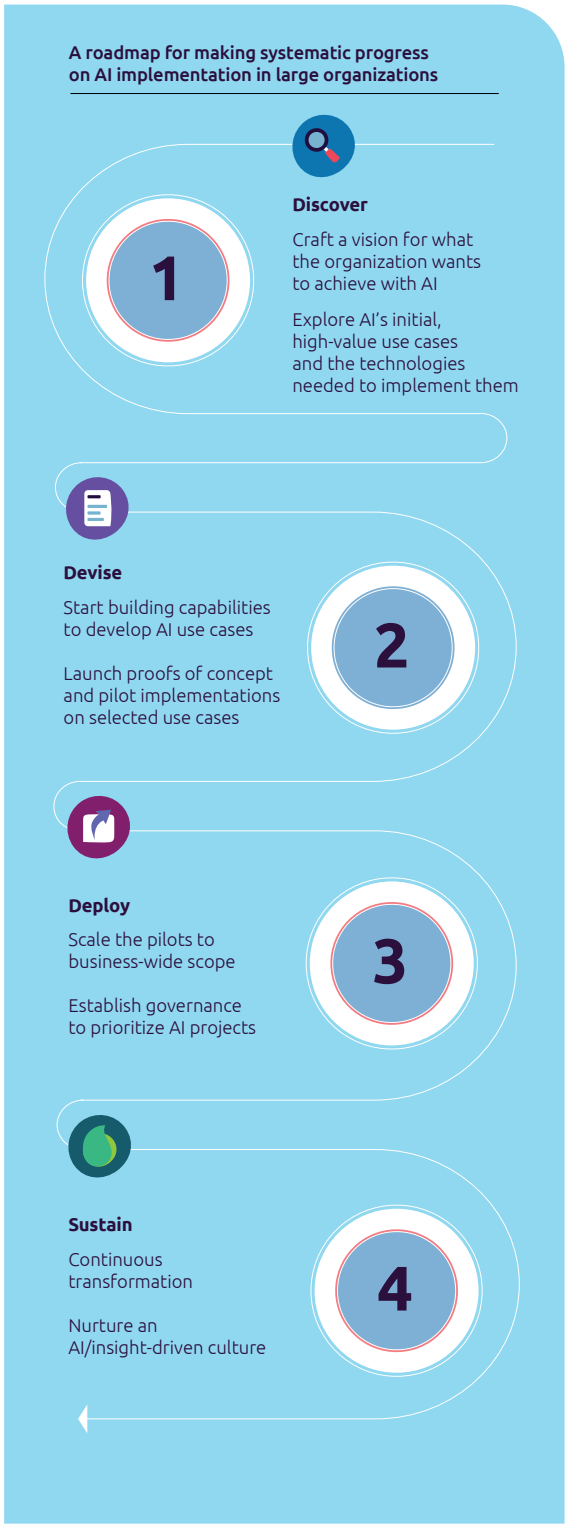
Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Win over employee trust and support by allaying their concerns

As organizations look to harness the power of AI, they must overcome a number of challenges (see Figure 17). The main cultural issue to sway is employee concerns about the impact of AI on jobs. In our survey, 61% of organizations believe that the majority of their employees worry about AI's role in potential job losses. It makes employees anxious about working with machines or AI applications and fuels resistance to change—another major hurdle in AI implementation.

Leaders avoid falling into this trap by openly communicating with employees and involving them at each step in the journey. They demonstrate how AI will augment employees' work and how training and other programs will increase their comfort level with the technology. For instance, Michael Natusch, Global Head of AI at Prudential, told us: **"We are running a training program for employees from all BUs to learn Alexa programming skills. The primary objective is not to develop AI solutions, but we are trying to increase the level of confidence that our colleagues have with AI. We hope to build an understanding of what those things can, and cannot do, as both of them are obviously equally important."**

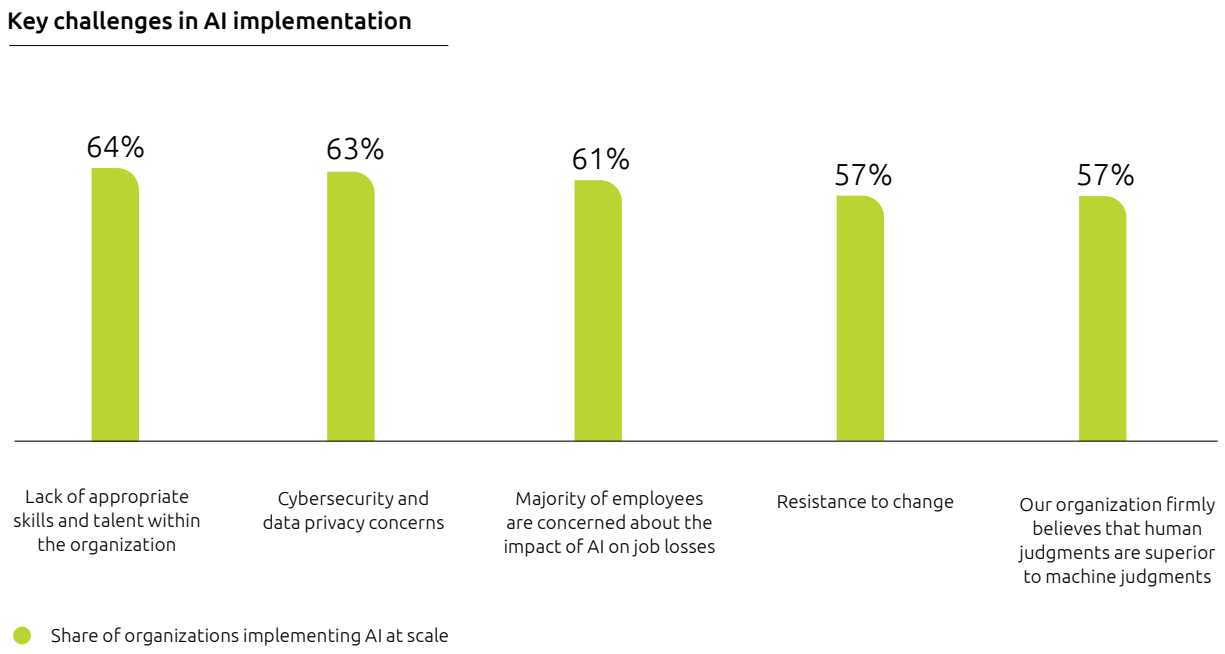
Our recent research on digital culture in organizations found that cultural issues are the biggest hurdles to digital transformation.[14] According to Jonas Albertson, Managing Director of Atlas Copco: **"By far the biggest challenge is not technology. In fact, it is the change management of the people."** Michael Schrage, research fellow at the MIT Sloan School's Initiative on the Digital Economy, adds: **"There are human issues that have nothing to do with the capabilities of the technology and everything to do with the culture of the organization and the quality of its leadership."**



17% vs. 10%

Increase in inbound customer leads observed by firms with a central governannceteam vs. no clear governannace for AI initiatives

Figure 17. People and cultural issues dominate the top challenges in AI implementation



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Prepare enterprise data and skills to harness AI's full potential

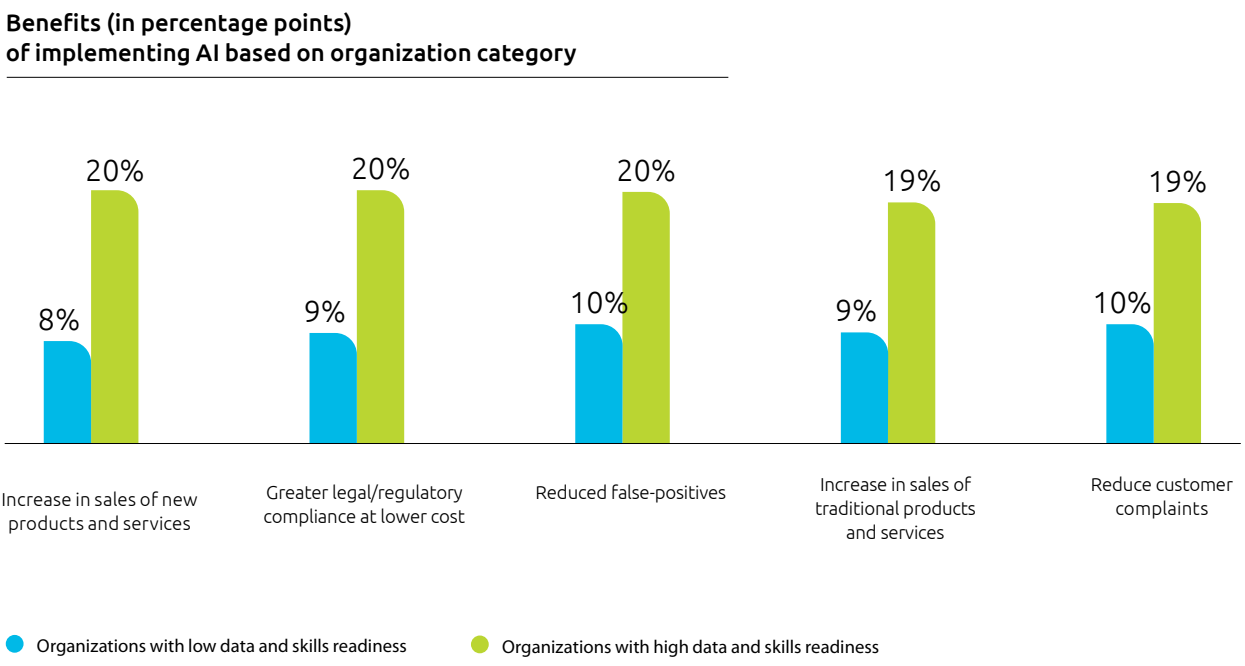
Building a team of AI specialists who can conceptualize AI use cases, code, and implement them, is vital. Nearly two-thirds of organizations (64%) consider the lack of skills to be the biggest challenge to AI implementation. Ashwini Ashokan, CEO and Co-founder Mad Street Den—a computer vision and Artificial Intelligence startup—says: **"I do not think the world has enough people that know how to build AI. There is an extreme scarcity of talent right now."**

Similarly, the availability of data to train and test AI systems is critically important. Insufficient or irrelevant data jeopardizes the accuracy of AI applications, rendering them unreliable and unusable. Senior Director, Marketing at an open source deep learning platform benefits puts it as: **"For a company to be successful, I think I will always go back to having a data science team and having the readiness for data and for data analysis. I believe organizations who only look at their current business model without even paying attention to data, usually lag behind."** Chris Nicholson, Co-founder and CEO, Skymind—a data analysis and machine intelligence start-up—agrees: **"Leaders understand that AI is much more than just tuning an algorithm, so you have got to be gathering the data that is relevant to your problem."**

Our research shows that organizations with the right combination of data and skills derive significantly greater benefits from AI than those who have yet to develop them (see Figure 18).

"I would say leaders truly understand the differentiating value of AI, because they have already brought in people that understand the principles of AI and understand how to potentially apply AI to their organization. The big differentiator is that leaders are already investing in data science and while others are not." reflects Stephen Epstein, VP Product Marketing, Digital Reasoning—a cognitive computing and AI startup.

Figure 18. Having the required data and skills within the organization is paramount to driving critical AI benefits



Source: Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

Pursue rapid experimentation and scale the successful use cases to the organizational level

The key finding of our research is that organizations deploying AI at scale are reaping its benefits. However, selecting the right use cases to scale is key. Organizations can start by experimenting with pilots and launching them on selected use cases in one or more of the following modes:

- Incubating the projects in an innovation lab or AI technology center of excellence
- Working with the startup ecosystem
- Working with technology partners to leverage their innovation network.

Many organizations have started setting up big data platforms and operations in the last few years. Organizations should also consider leveraging some of these systems and processes to speed up AI experimentation. Once the value from a use case has been established, it must be scaled to the organizational level to maximize its potential. Senior Director, Marketing at an open source deep learning platform, provides some clues on how to scale pilots, **"Digital transformation is actually a long journey. Organizations typically start from micro services that tackle a smaller problem. And then people use these micro services as foundation to build up bigger services, to serve a bigger use case and that's how they move on with AI implementations."**

Conclusion

For the business community, Artificial Intelligence has spent a frustratingly long time in hype mode. These complex and cutting-edge technologies promised to deliver so much, but for a long time real evidence of their concrete application in a business context proved elusive. This is now changing. With explosive data growth, increasing computer processing power, and strengthening AI technology foundations, leading businesses are putting AI into practice, generating enviable results. We hope you have found this thought-piece a useful and practical guide for taking this technology from hype into reality and creating a long-term, sustainable approach to generating concrete value from AI.

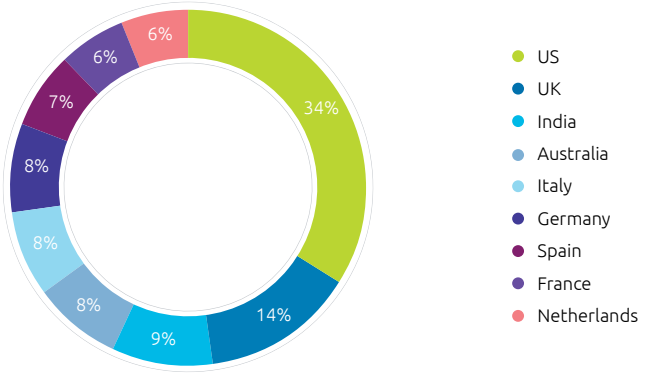
Research Methodology

Our research drew on quantitative and qualitative techniques. Between March and June 2017 we surveyed 993 respondents from companies implementing AI across a range of sectors and countries:

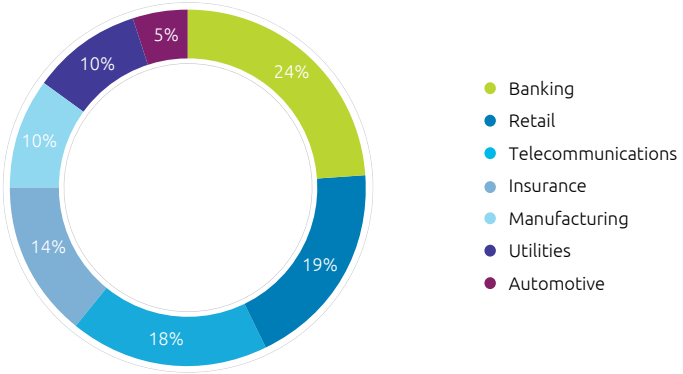
- Automotive, Banking, Insurance, Manufacturing, Retail, Telecommunications, and Utilities
- The United States, United Kingdom, Australia, France, Germany, India, Italy, the Netherlands, and Spain

We also conducted interviews with academics and industry leaders, examining the impact of AI, implementation challenges, and emerging best practices.

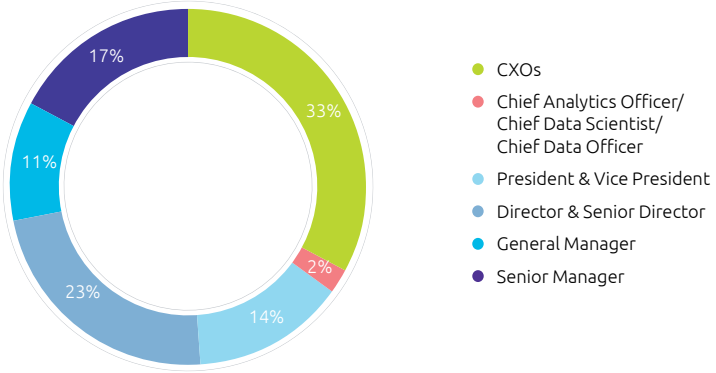
Respondents by geography



Respondents by sector



Respondents by role



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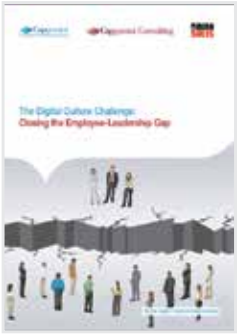

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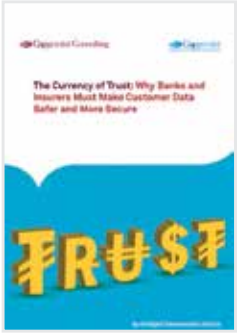

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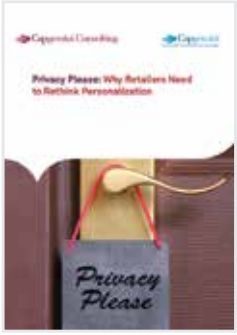

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About the Authors

Christopher Stancombe
Executive Vice President
christopher.stancombe@capgemini.com
Christopher is Head of Industrialization and Automation at Capgemini. He leads Capgemini's response to demand in areas such as artificial intelligence, cognitive computing, machine learning and robotics making sure that they are well defined and become a key part of our business vocabulary. Chris is passionate about providing relevant, practical advice to clients on how an intelligent approach to automation can deliver real business value.

Jerome Buvat
Global Head of Research and Head,
Capgemini Digital Transformation Institute
jerome.buvat@capgemini.com
@JeromeBuvat
Jerome is the head of Capgemini's Digital Transformation Institute. He works closely with industry leaders and academics to help organizations understand the nature and impact of digital disruptions.

Amol Khadikar
Manager, Capgemini Digital Transformation Institute
amol.khadikar@capgemini.com
@amolkhadikar
Amol is a manager at the Digital Transformation Institute. He keenly follows the role played by mobile, software, and data science in digitally transforming organizations.

Subrahmanyam KVJ
Senior Manager, Digital Transformation Institute
subrahmanyam.kvj@capgemini.com
@Sub8u
Subrahmanyam is a senior manager at the Digital Transformation Institute. He loves exploring the impact of technology on business and consumer behavior across industries in a world being eaten by software.

Ron Tolido
Executive Vice President, Global CTO,
Insights & Data
ron.tolido@capgemini.com
@rtolido
Executive Vice President and Global CTO, Capgemini Insights & Data. Director, The Open Group. Certified Master Architect. Lead author of Capgemini's TechnoVision trend series. Digital Transformation ambassador. Guest lecturer executive master programs of Nyenrode and TIAS business schools. Based in the Netherlands, Mr. Tolido currently takes interest in the new data landscape, cognitive and AI systems, API management, digital strategy, enterprise architecture, DevOps, application rationalization, disruptive technology and – above all – radical simplification.

Anne-Laure Thieullent
Vice President, Capgemini Insights & Data
annelaure.thiellent@capgemini.com
@ALThieullent
Anne-Laure is Vice President and Global Head of Manufacturing, Automotive, and LifeSciences for Capgemini's Insights & Data practice. She advises Capgemini customers on how they should put Big Data technologies to work for their organization. Her passion is to bring technology, business transformation and governance together and take customers to where they want to be as data-driven and innovative companies. She spent the first 10 years of her Capgemini adventure delivering Enterprise Data Warehouse solutions on Teradata for a variety of customers, including the 3 main French telco operators.

Apoorva Chandna
Senior Consultant, Capgemini Digital Transformation Institute
apoorva.chandna@capgemini.com
@ChandnaApoorva
Apoorva is a senior consultant at the Digital Transformation Institute. She keenly follows digital disruptions and evaluates impact of emerging technologies on business.

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dti.in@capgemini.com
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Learn more about us at

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Global

Marc Chemin
marc.chemin@capgemini.com

Ron Tolido
ron.tolido@capgemini.com

Christopher Stancombe
christopher.stancombe@capgemini.com

Xavier Chelladurai
xavier.chelladurai@capgemini.com

France

Anne-Laure Thieullent
annelaure.thieullent@capgemini.com

Olivier Auliard
olivier.auliard@capgemini.com

India

Rangaramanujam AV
rangaramanujam.av@capgemini.com

Jyoti Chamania
jyoti.chamania@capgemini.com

US

Ben Gilchriest
ben.gilchriest@capgemini.com

Germany

Volker Darius
volker.darius@capgemini.com

Kai-Oliver Schäfer
kai-oliver.schaefer@capgemini.com

Netherlands

Frank Wammes
frank.wammes@capgemini.com

Canada

Alexis Zamkow
alexis.zamkow@capgemini.com

Australia

Saugata Ghosh
saugata.ghosh@capgemini.com

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