

A photograph of three people in a dimly lit office environment, looking intently at a computer screen. The person in the foreground is a woman with blonde hair, resting her chin on her hand. Behind her are two men, one with glasses. The screen displays some data or code. The overall mood is focused and professional.

# Adopting AI in organizations

The journey towards constant change



November 2020

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This report is based on insights gained from both qualitative and quantitative research.

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## Methodology

In the qualitative phase we conducted 16 in-depth interviews with AI and advanced analytics experts from Sweden and the UK, in a range of industrial sectors, including IT and technology, telecommunications, banking and finance, insurance and FinTech. The interviews also included experts from governmental organizations and suppliers of AI and advanced analytics tools.

The quantitative phase consisted of an online survey of 2,525 white-collar AI/analytics decision makers in the US, Germany, the UK, India and China. The surveys were divided equally among the countries, in order to reach a target quota of 500 white-collar AI/advanced analytics decision makers from each country.

On a per-country basis, quotas were further subdivided, surveying at least 250 technical managers with the responsibility of introducing AI or advanced analytics technologies into their companies, and 250 operational managers tasked with using AI or advanced analytics in their operational processes.

These respondents were sampled from panels of online business professionals. To reach the above specified quotas, a total of 10,024 full-time professionals, in companies with at least 100 employees, out of whom 6,781 were white-collar decision makers, were sampled. In order to avoid country-specific effects and biases, a mix of panel sources were used. The targeted audience was identical in each country, with

no pre-existing background information about AI or advanced analytics that could influence the sampling from each panel.

Compared to the other countries, China was over-represented in the 1,000 to 10,000 employee company range (meaning that comparatively fewer respondents were from either smaller or larger companies). Furthermore, there were more respondents from the manufacturing and processing sector in China. However, we believe these differences may reflect structural differences rather than improper sampling methods. No weighting has been applied to the sample.

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# Implementing AI

## – hype and reality

The hype around artificial intelligence (AI) has been hard to ignore. There are endless articles on what the technology can do to revolutionize business, how data can be turned to profitable predictions, and how to future-proof organizations by being AI-driven.

However, becoming AI-driven has proven rather tricky, and the expected return on investment (ROI) has been slow to materialize. Again, business media and consultancy firms address these challenges in well-authored articles and reports on how to evaluate the data, attract the most talented data scientists and get employees to love the new machines; but few describe what challenges decision makers really face when trying to implement AI, or how these can be overcome.

This report shares insights from research in 5 countries involving 2,525 managers in organizations that have implemented AI and advanced analytics, as well as those that are only now starting to; the findings are surprising.

### **Adopting AI is a cultural journey**

Increasing productivity is a key driver for companies to adopt any new technology, and it was also the highest-ranking reason for implementing AI or advanced analytics, selected by 62 percent of the respondents in our survey.

The ability of companies to adopt new technology has a strong cultural component. In order to fill our quotas of 500 AI/advanced analytics decision makers per country, to our astonishment we had to sample over 3,000 respondents in the UK but only around 700 respondents in China. Overall, the quotas were easier to fill in Asia and harder to fill in the Western countries.

One reason for this may be differences in general attitudes towards technology. Analysis of Ericsson ConsumerLab time series data shows that back in the year 2000, 16 percent of respondents in China and India agreed to the statement “I’m always looking for the latest technology

product available”, compared to only 10 percent in the UK, Germany and the US. In 2020, 27 percent agreed to that statement in China and India but still only 17 percent in the UK, Germany and the US. In other words, the Western countries have just barely reached the level of tech interest that the Asian countries had two decades earlier.

This pattern is echoed among white-collar decision makers in our survey, with 78 percent having employed AI or advanced analytics in China compared to only 24 percent in the UK. Although Western countries appear to be trailing behind in the AI adoption curve, there may still be time to catch up. Our further analysis indicates that the more advanced you become in using AI or advanced analytics, the harder it gets as increasingly more challenges are encountered. And, crucially, most of the challenges lie in the people/culture dimension.



The ability of companies to adopt new technology has a strong cultural component

# Key findings

This report divides companies into three categories: AI-leaders, AI-followers and AI-beginners. But being an AI-leader is only the starting point towards data-driven change.

## Key findings

Ninety-nine percent of all respondents have faced AI/advanced analytics implementation challenges in their unit and 91 percent have had challenges across all three categories studied; technology, organization and people/culture.

The share of initiatives facing challenges goes up with increasing maturity: the more you learn, the harder it gets.

Eighty-seven percent faced more people/culture challenges than tech or organizational challenges. Similarly, 94 percent have deployed more people/culture solution strategies than strategies from other categories.

In this advanced sample, many are AI-leaders – 49 percent say that AI or advanced analytics tools have been fully implemented in their companies. However, this is not the end of their journey. AI-leaders plan to invest more than previously in AI or advanced analytics over the next 18 months.

As many as 69 percent of AI-leaders foresee a constant flow of new AI/advanced analytics applications in their companies – new applications that, in turn, drive more process change and reorganization.

A full 63 percent of AI-leaders say that focus will shift from producing products and services to producing AI algorithms and models. At that post-transformational stage, the company may settle into a stable situation where the only constant is data-driven change.



Almost half of the AI/analytics managers surveyed were classified as AI-leaders

# Three levels of AI maturity

This report aims to understand the journey of implementing AI and advanced analytics in business operations today, the problems that have been encountered on the way, and the strategies managers are considering in order to resolve the issues.

To fully understand this journey, we have targeted companies which have already started to adopt AI and advanced analytics. In this advanced sample, many have come quite far in their implementation process. As many as 49 percent of respondents said that AI or advanced analytics tools had been fully implemented in their companies and were thus classified as AI-leaders. Another 41 percent stated that AI or advanced analytics tools were partially implemented, indicating that they were AI-followers. The final 10 percent answered that they were currently implementing such tools, implying that they were AI-beginners. In order to better understand these companies, we asked respondents to

grade their maturity using six questions. These ranged from whether AI/advanced analytics projects are regularly used as best practice examples – to which 70 percent of AI-leaders agreed, but only 37 percent of the AI-beginners – to whether projects always have an executive sponsor and a dedicated budget, to which 66 percent of the AI-leaders said yes, but only 45 and 44 percent of the AI-followers and AI-beginners respectively. Not only did the AI-leaders score highest on all 6 questions, but 30 percent also agreed to all 6. At the other extreme, one-quarter of the AI-beginners did not agree to a single statement. Furthermore, we tested their maturity on a set of four data-sharing statements, ranging from the

use of external data, to the sharing of data internally and externally, as well as having an understanding of licenses governing data use. Of the AI-leaders, 35 percent agreed to all 4 statements, whereas only 13 percent of the AI-followers did so. By comparison, 60 percent of the AI-beginners agreed to none or just a single statement.

Finally, a similar pattern is seen in the number of AI or advanced analytics initiatives in the respondents' units, with 64 percent of AI-leaders having done between 11 and over 100 projects, 60 percent of the AI-followers being in the 6 to 20 range and 49 percent of the AI-beginners having initiated 5 or fewer projects in their units.



Many have come quite far in their implementation process

# AI super sectors

If you were to look for a company of AI-leaders, which industry sector would you first look to? You probably have a preconceived notion that companies like Google and Facebook are leading the race towards data-driven automation. If so, you are likely right.

In our study, one-third of all white-collar AI and advanced analytics decision makers were from the IT and technology sector, indicating that respondents from many other sectors were screened out due to not having AI or advanced analytics initiatives in their organizations. This makes sense as during the internet revolution in the late 1990s productivity growth was higher in the industries producing the new technology.

From the perspective of sector share, IT and technology leads, with 61 percent of the respondents as AI-leaders, with financing and banking following closely at 58 percent.

Some might not view financing and banking as cutting-edge when it comes to technology, but it is commonly ranked as a knowledge-intensive sector along with IT. On the other hand, the share of AI-leaders in the manufacturing and processing industry is only 33 percent.

When it comes to country maturity among companies which are already on the AI journey, your preconceptions may once again prove valid. In any case, the US has the highest share of AI-leaders at 58 percent. What is worth noting here is that although the UK is again somewhat lagging behind, China is just one notch better, with 47 percent share of AI-leaders.

"Most companies have boards with high average age; they grew up in another world. Companies that were born in the last 20 years think in data-driven terms, whereas incumbents need to rethink. And that is really hard."  
**Head of AI strategy, banking industry**

Figure 1: Sector maturity

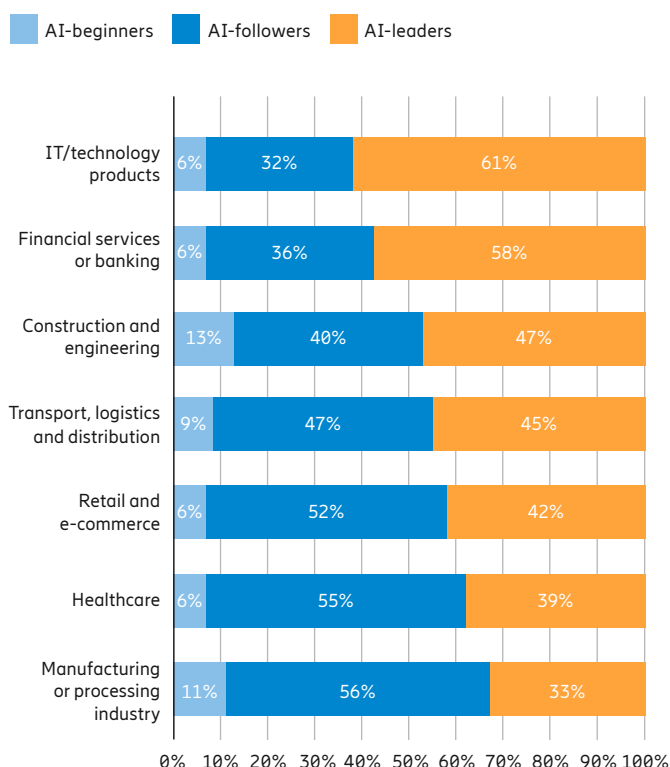
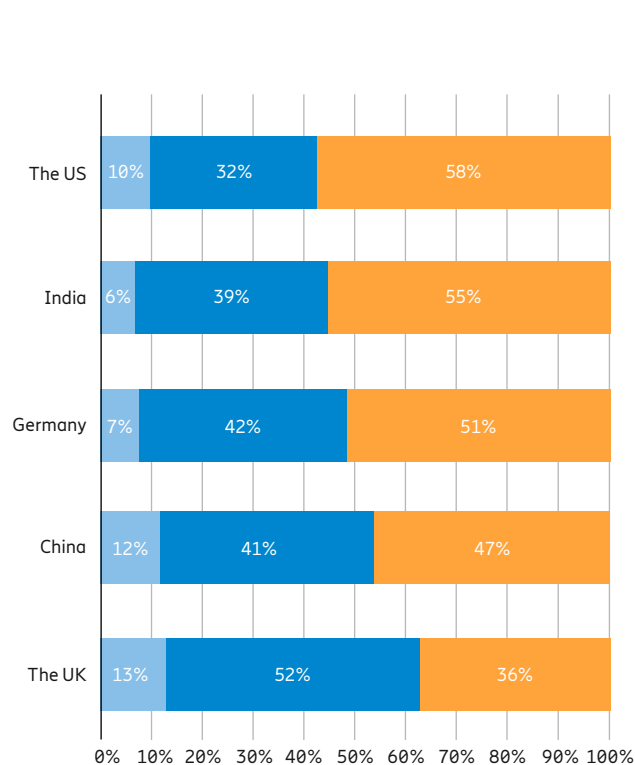


Figure 2: Country maturity



Base: 2,525 white-collar AI/analytics decision makers in the US, Germany, the UK, India and China



# The more you learn, the harder it gets

Given that nearly all AI and advanced analytics managers in this survey say they are involved in multiple initiatives, it appears that change never comes in isolation.

In fact, as many as 57 percent state that they have had between 6 and 20 initiatives involving AI or advanced analytics in their unit during the last 5 years. More than half have also started a new initiative in the last year, and although the less mature have started significantly more initiatives during the year, the differences are not exceptionally large. If anything, the important differences are among the older initiatives, with the AI-leaders having 18 percent that commenced 4–5 years ago, compared to only 8 and 2 percent respectively for the AI-followers and AI-beginners.

But if change never comes singly, neither does misfortune — at least if that is taken to imply implementation challenges with AI or advanced analytics, as 99 percent of all respondents have faced such challenges in their unit. Given that AI is a relatively new technology, it would be easy to assume that

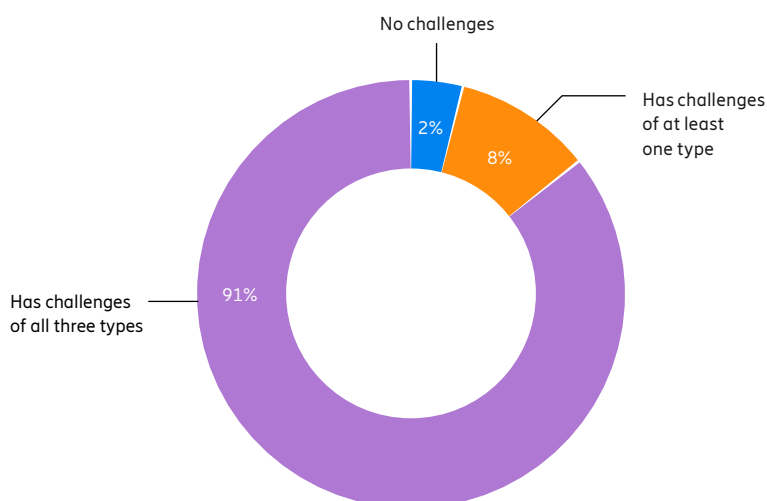
most of these challenges are technology related, but that turns out not to be the case. Instead, as many as 91 percent of the respondents have had challenges across all three categories we have studied: the first is technology, for instance cost and usability of tools; the second is organization, for instance organizational structure and budget processes; third is people/culture, for instance employee expectations and behavior.

Although surprising, this diversity should be seen in the light of many advanced economies becoming so-called “knowledge economies”, where it is widely recognized that investments in intangible assets, such as vocational training and organizational development, have become more important.

But maybe the most eye-opening insight, relating to implementation challenges, is that the longer you run an initiative, the more likely you are to run into trouble.

Hence, among those whose most recent initiative was 4–5 years ago, a full one-third report that 75 percent or more of the initiatives they have started have been met with challenges. There can be several reasons why complexity increases over time. Many AI systems evolve and — unlike a traditional software package that stays the same until it receives an upgrade — need to be continuously managed. They are also becoming part of an evolving ecosystem where different models and systems interact or exchange data and information, making maintenance increasingly complex over time. Further proof is that the share of initiatives that face problems is only 49 and 50 percent respectively among the AI-beginners and AI-followers, but as high as 59 percent among the AI-leaders. There is simply no way of avoiding this counter-intuitive conclusion: the more you learn, the harder it gets.

**Figure 3: Ninety-one percent have had concurrent implementation challenges of technology, organization and people/culture origin**



“I think many believe it is a lot like software, that you build something and then it’s done.”  
**Senior Management Consultant,  
technology industry**

# Human, we have a problem

In this study, we have investigated challenges in three categories; technology, organization and people/culture. And, as mentioned, 91 percent of respondents said they had faced challenges spanning all three.

What might be even more interesting is that as many as 87 percent faced more people/culture challenges than challenges in other categories. Given that AI and advanced analytics have a high-tech image, this might seem surprising. However, even more surprisingly, only a single percent of respondents had faced more tech challenges than challenges in other categories.

But, if you have an engineering background and are reading this, there is some consolation. We also asked respondents to select the top 3 critical challenges they are facing and 3 of the 10 highest ranked concerns are indeed from the technology category – relating

to high cost, need for specialized equipment and data structure issues.

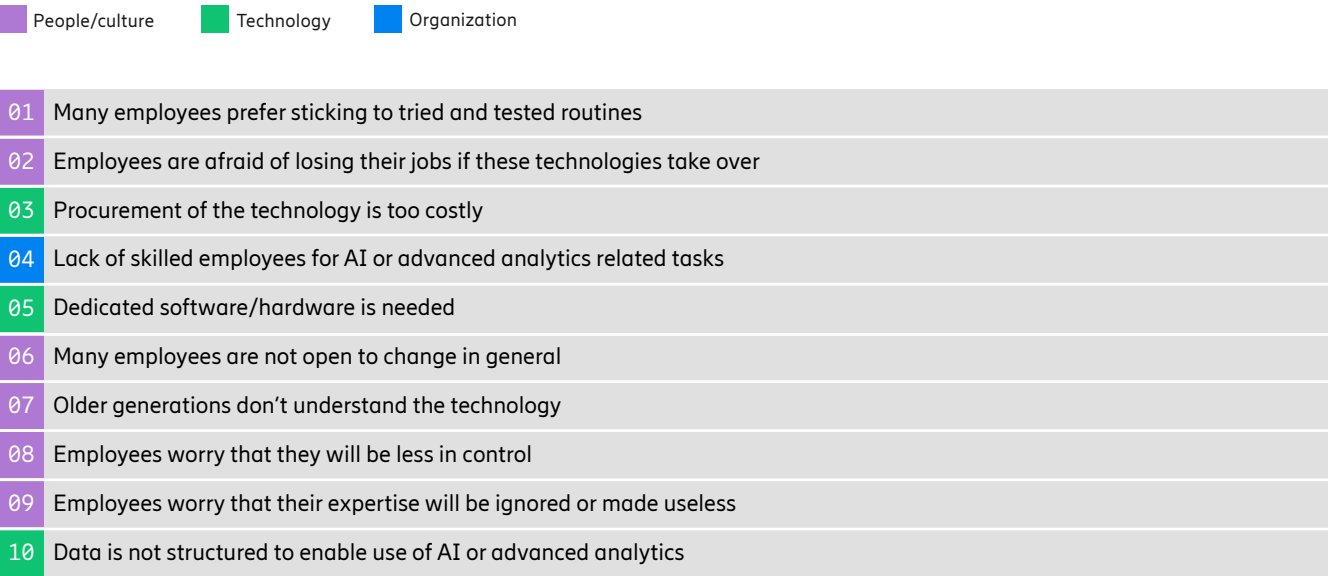
Still, 6 of the 10 most critical challenges are about people/culture, relating to fear of change and job loss as well as lack of skill. Lack of skill is also the theme of the only organizational challenge rated as critical. The sample in this study was divided equally between technical managers whose responsibility was to introduce AI or advanced analytics tools, and operational managers tasked with using AI or advanced analytics in operational processes. Although these two management groups exhibited few differences overall, they did differ in terms of ranking of critical challenges. Whereas technical managers ranked

"Salespeople should not take initiatives on their own because the idea is to trust the system. It can be difficult to embrace, as it is not always fun to be guided by algorithms."  
**CTO, technology industry**

challenges from all categories in their top five list, all five highest ranked critical challenges for operational managers were in the people/culture category.

In other words, adopting AI or advanced analytics is very much a cultural journey, at least in terms of the challenges you are likely to face.

Figure 4: Ranking of critical challenges





# Human, we have a strategy

Given that most challenges companies face when implementing AI or advanced analytics are in the people/culture category, it seems only logical that the solution strategies they try to employ are in the same category.

An almost negligible 3 percent use more tech solution strategies than strategies from other categories, and an overwhelming 94 percent have deployed more people/culture solutions than strategies from other categories. However, when it comes to ranking of importance, technology solutions fare somewhat better, with 4 of the top 10 strategies deemed most effective coming from that category.

Still, the highest ranked tech strategy is about improving usability, tying it to the people/culture solution strategies that are related to educational measures to better use the tools and accept the changes they bring. As seen in Figure 5, the other three top ranked tech strategies are about improving data input and output, tying them to the previously identified critical challenge about data structure issues.

The only organizational solution strategy ranking among the top 10 was building cross-functional teams.

There were also some differences in ranking between tech managers and operations managers, with technical managers, unsurprisingly, ranking technical strategies higher but still focusing on strategies from the people/culture category.

**Figure 5: Ranking of effective solution strategies**

■ People/culture
 ■ Technology
 ■ Organization

01	Set up technology workshops, training sessions or educational courses for employees
02	Encourage employees to develop new skills tied to AI or advanced analytics
03	Educate employees on benefits of work routine change
04	Improve usability of tools
05	Set up data management policies to ensure proper handling of data within the company
06	Improve access to data sources
07	Use "shadow" projects where employees try out AI or advanced analytics and compare with current work practice
08	Try to improve relevance and quality of output
09	Build cross-functional teams
10	Present AI or advanced analytics using proofs of concept and demos



It's natural that challenges from the people/culture category will have people/culture-focused solutions

# The long and winding road

Although 49 percent on average answer that the transformation needed to become a fully AI or advanced analytics driven organization will happen within the year, it is actually a much smaller number that stands out.

Just 13 percent of respondents say that they will never complete such a transformation as they have entered a process of constant change. Adding to that, another 17 percent expect a completion date from 4 up to as much as 16 years into the future, meaning that 3 in 10 foresee a long process of change. Furthermore, that figure increases to 45 percent for the AI-beginners, making the barrier to starting a first initiative in a company a daunting prospect.

As a group AI-leader managers are substantially better-off, with as many as 69 percent saying they are set to be fully AI/advanced analytics driven within the year. However, this is not the end of the journey for them, at least when it comes to the sought-after efficiency gains, as they still reported a substantially higher number of challenges than others.

Instead the AI-leader managers more firmly believe that cross-pollination of ideas is needed. For instance: 68 percent of them say that planned job rotation of staff across different functional areas is important, compared to 47 and 40 percent of the AI-follower and AI-beginner managers respectively. Furthermore, 72 percent of AI-leader managers say cross-functional work groups or teams are important – something that was also identified as a critical solution strategy.

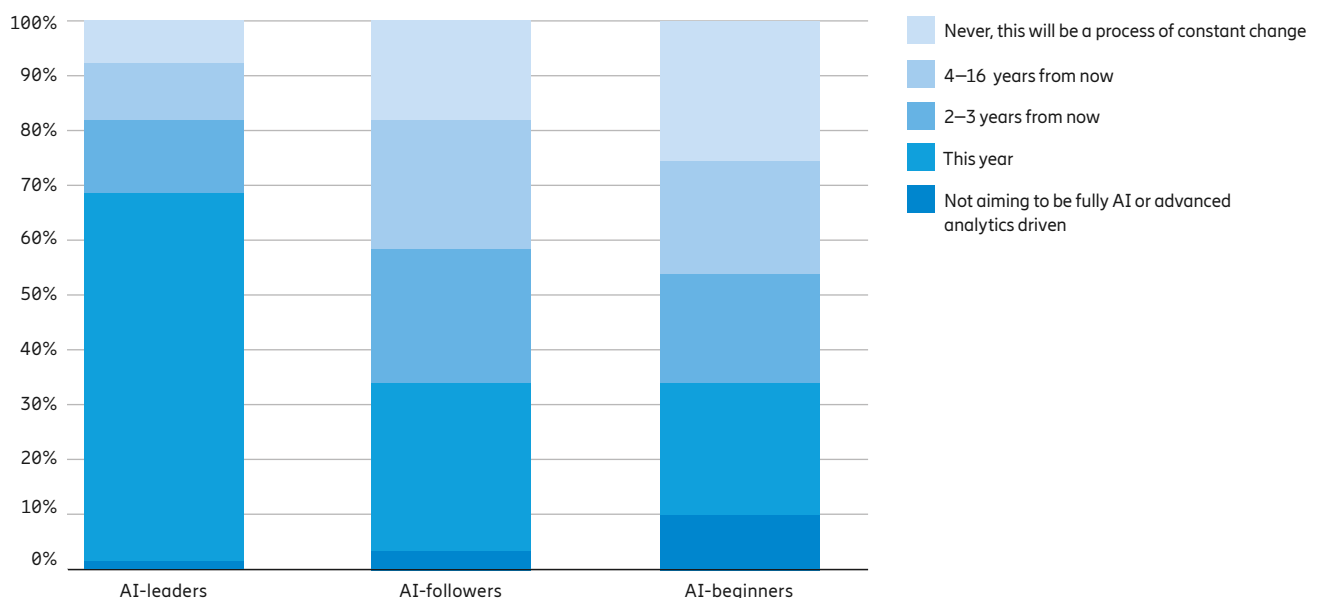
Finally, 75 percent of the AI-leaders plan to invest more than previously in AI or advanced analytics over the next 18 months, compared to only 52 percent of the AI-followers – proving that they are far from done. In fact, 7 in 10 of the AI-leader managers plan to make those investments more widely than previously, indicating that

they are anticipating even more fundamental changes that could impact all aspects of company operations going forward.

This begs the question – what will a company look like after its transformation is truly complete?

“Organizations that are successful manage to establish collaborations – cross-functional teams with people from IT, data scientists, data engineers, business area managers and product owners.”  
**Senior Management Consultant, technology industry**

**Figure 6: When will transformation be complete?**



Base: 2,525 white-collar AI/analytics decision makers in the US, Germany, the UK, India and China

# Post-transformation: a new stability

Though the challenges and solution strategies identified here might not differ substantially from previous industrial revolutions, their consequences may be of a totally different kind.

Whereas the introduction of machines has made it possible for unskilled workers to substantially increase their productivity and salaries, and the introduction of information technology has enabled semi-skilled workers to perform more complex tasks, the perspective here is that the middle ground is about to disappear.

Among the AI-leaders, 64 percent agree that AI and advanced analytics will allow them to mainly employ experts. Simultaneously 59 percent say that it will allow them to mainly employ low-wage workers. As a consequence there may be less need for those who make up the bulk of the workforce today. In addition, 36 percent of AI-leaders say that a main reason for adopting AI and advanced analytics into their companies is indeed workforce reduction.

But how will work life be for those who remain in these truly data-driven companies? According to 65 percent of AI-leaders, most employees will be using AI and advanced analytics, and well over 6 in 10 see constant change ahead, when it comes to both processes and organization.

Furthermore, as many as 69 percent foresee a constant flow of new AI/advanced analytics applications in their companies – new applications that, in turn, drive more process change and reorganization. In other words, post-transformation, the company will settle into a stable situation of constant data-driven change.

Finally, one more thing needs to be highlighted in order to emphasize how fundamentally and even mind-bogglingly different these companies will eventually become: in order to remain competitive, their employees will gradually let go of the category expertise they once possessed, and the core focus of such companies will move away from the production of products and services. A full 63 percent of AI-leader managers say that the focus instead will shift to producing AI algorithms and models – in essence automating product and service development.

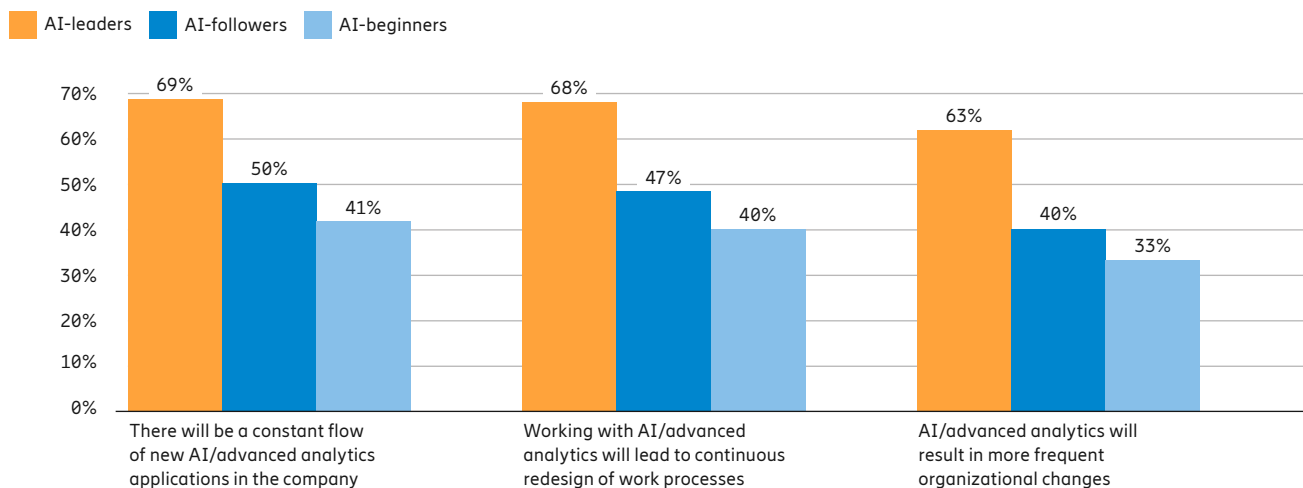
Imagine a top management strategy meeting where no one fully understands what products or services the company will produce in three years' time, or even what industry the company will be in. That will all

be left for the AI algorithms to decide. We are already seeing the start of this: in the Ericsson ConsumerLab 10 Hot Consumer Trends 2017 report, we concluded that more than two out of five early adopters of consumer technology were interested in having the biggest IT companies provide them with all the products they needed, across all product categories.

As more companies become data-driven, in the sense that the modeling of data rather than human management drives their offerings and strategies, the whole idea of industry verticals may become meaningless when companies move freely between them.

"Applications tend to make marginal improvements. It is difficult to find applications that allow for major changes. This is where scalability comes in. It is about developing many applications where each makes small improvements."  
**Chief product owner,  
banking industry**

**Figure 7: The stable situation of change: constant change is here to stay**





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