



Fueling the AI transformation

Four key actions powering
widespread value from AI,
right now in Germany.

Deloitte's State of AI in the Enterprise | 5th Edition report | German Cut
December 2022



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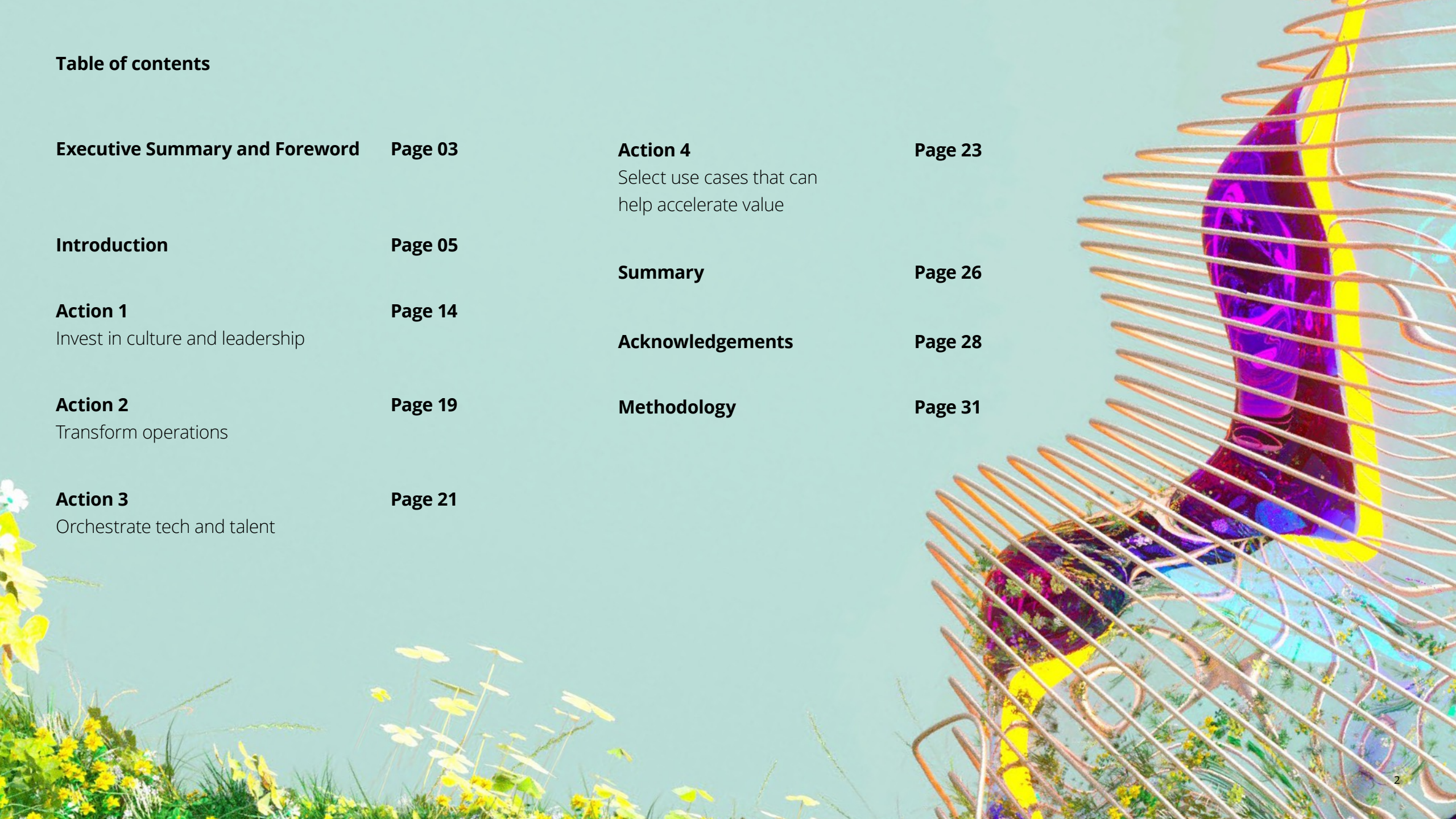
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Executive Summary

This year, Germany contributes a disproportionately high number of organizations associated with the strongest AI outcomes (Transformers), ranking 3rd out of the 13 countries surveyed. However, this position seems to be volatile for two fundamental reasons.

Firstly, most of the German Transformers are barely fulfilling these criteria. This means their place is not secure in the high-paced domain of AI and they can easily fall back behind global competition. Secondly, our survey results show that many German companies seem to have skipped building the foundations for sustainably leveraging AI, which can be seen in the above-average criticality of challenges reported by German respondents.

This report explores Germany's position deriving tailored insights on the four key actions that many business leaders are taking to harness AI's potential and drive value across their enterprises:

Invest in culture and leadership

German organizations are falling far short of global findings when it comes to the importance of cultural initiatives. Many challenges, including an executive vision of AI or a less reserved attitude of the workforce when it comes to human-machine collaboration, can be addressed by realizing the importance of establishing an AI-ready culture.

Transform operations

To ensure an ethical and quality-oriented application of AI, the entire operating model may need to be changed to accommodate the unique capabilities of intelligent machines. Workflows and roles should be re-evaluated to manage risk and achieve new value.

Orchestrate Tech and Talent

On the flip side of the culture and leadership coin, companies must develop their AI strategies in a tight talent market, with growing off-the-shelf platforms, tools and accelerators that can jump-start a company's transformation.

Select use cases that accelerate value

AI is fueling transformations across all industries, and many leaders have begun to unlock the use cases that drive the most value within their given context. The important takeaway is to orchestrate a strategy of both near-term and long-term differentiated applications of AI.



Foreword

The era of value

In recent years, we have navigated unprecedented disruption in the economy and society at large. A global pandemic. Rapidly changing supply chains. Shifting employee needs. Unexpected geopolitical conflicts. And the general recognition that none of us can continue to do business as usual.

When it comes to managing these challenges, artificial intelligence can play a unique and powerful role. As we watch these rapid shifts occur, we see the opportunities in current challenges. We are also encouraged that we find ourselves living in a time when data infrastructure and processing power offer the necessary foundations to fuel truly transformational applications and rapid innovation of artificial intelligence (AI).

Today's race is no longer about adopting AI or automating processes for efficiency. It is now about realizing value, driving outcomes, and

unleashing the potential AI holds to drive new opportunities for our businesses, for our employees and for our society in general. It is about resolving the constraints of how we have done business before.

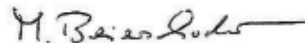
The fifth edition of our annual State of AI in the Enterprise research explores just that: how businesses are forging a path to a new future, one filled with unrealized sources of value. In it, we explore how business leaders are harnessing AI's potential and driving value at scale across their enterprises. In this supplement to our main report, we explore the perspective of Germany to see where German companies lead and what they lack in relation to four tailored actions. Whilst this report can be read alone, we highly recommend exploring Deloitte's global **State of AI in the Enterprise, 5th Edition**, as the valuable insights therefrom are not repeated here.

This year again, we clearly state that we are early on in the Age of With™—an era defined by humans with machine collaboration—while we see signs that businesses are ever closer to realizing AI opportunity and applying next-level human cognition. Our findings suggest that even though German companies are well-positioned in some areas, other areas might be a cause for concern.

We hope that this report supports your business in not only realizing the potential of AI, but also in imagining how much further it can take you.



Dr. Björn Bringmann

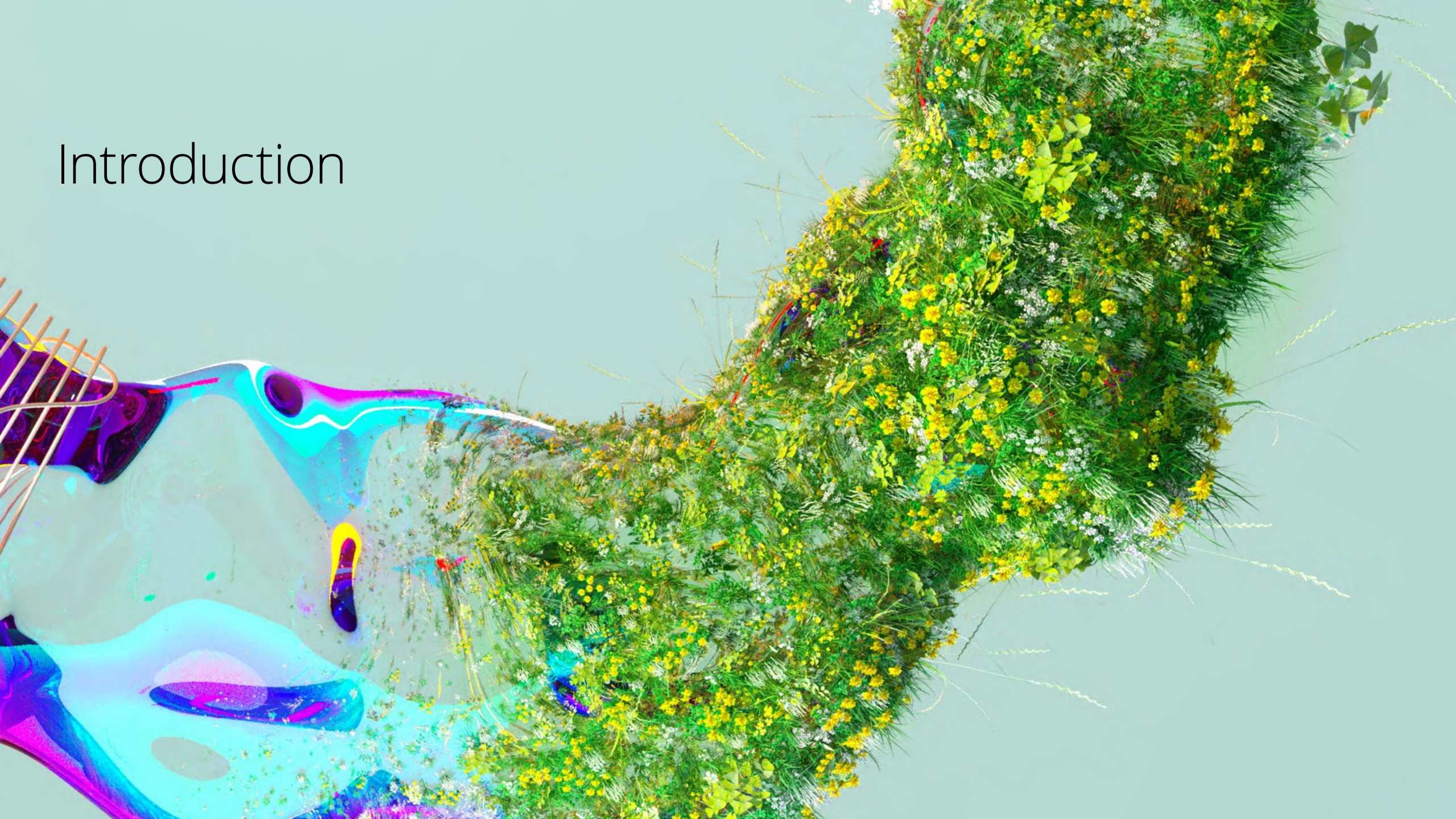


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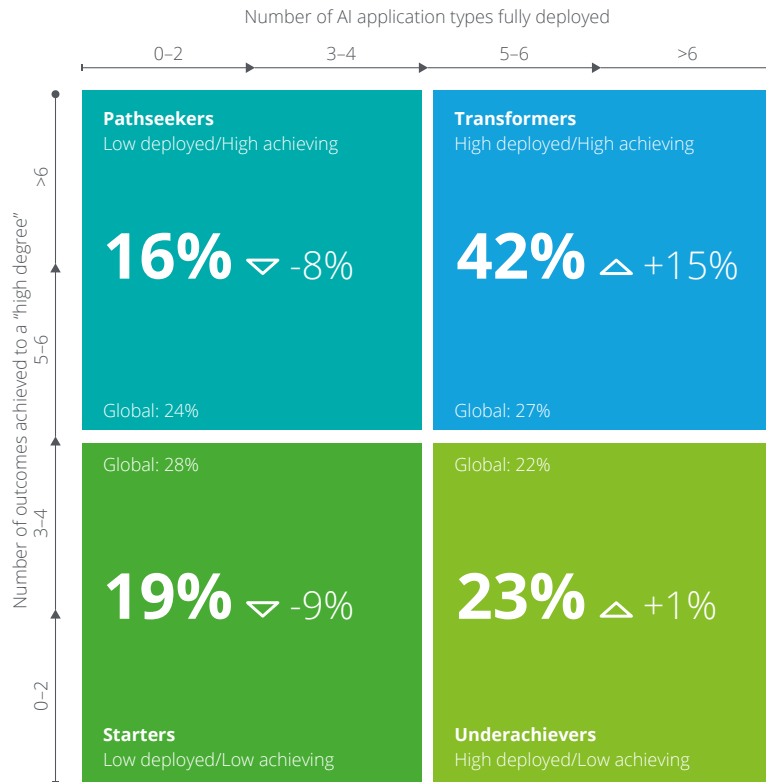
Introduction



Introduction

Spotlight on Germany

The elephant in the room is the question whether the high share of 42% Transformers in Germany vs. 27% globally, ranking Germany 3rd of 13, is also indicative of a high, sustainable AI maturity in German companies. Now you can take the blue pill and stop reading here and celebrate the 3rd place or you take the green pill and read the following pages going into a deeper analysis.



Germany N=150

Global N=2,620

* Percentages do not add to 100%, owing to rounding.

Our analysis model

The same model as in Deloitte's global State of AI in the Enterprise, 5th edition, was used. Slight adjustments in comparison to the 4th edition from 2021 were made in order to reflect increasing AI activity in the market.

Transformers

(High deployed/High achieving): Transforming but not fully transformed, this group has identified and largely adopted leading practices associated with the strongest AI outcomes.

Pathseekers

(Low deployed/High achieving): This group has adopted capabilities and behaviors that are leading to success but in fewer initiatives. In other words, they are making the right moves but have not scaled multiple forms of AI to the same degree as Transformers

Underachievers

(High deployed/Low achieving): A significant amount of development and deployment activity characterizes this group; however, they haven't adopted enough leading practices to help them effectively achieve more meaningful outcomes.

Starters

(Low deployed/Low achieving): Getting a late start in building AI capabilities seems to characterize this group; they are least likely to demonstrate leading practices behaviors.

Introduction

Quo vadis, Germany?

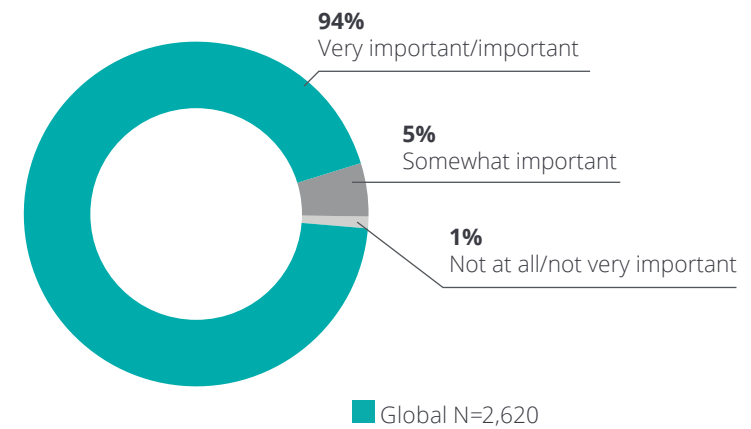
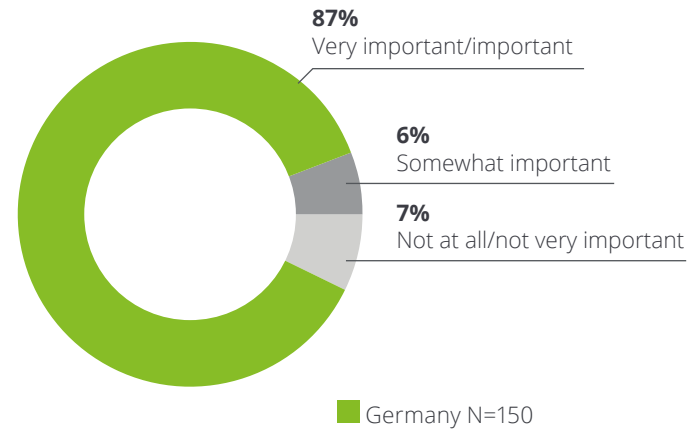
The first direct insight is that most German Transformers are positioned just on the classification border. While it is enough to reach the finish line in a fixed race, this is not the case when everyone else is continuously making progress and thus continuously pushing the finish line forward. Therefore, resting is not an option.

The AI market continues to advance rapidly, and 94% of leaders across industries consistently reported how important this technology is to their future. However, German companies are at the bottom with only 87% considering AI solutions as important in the next 5 years.

The same reluctance can be seen when comparing AI investments. On average, 76% of the respondents globally reported an increase in AI investments, compared with 70% of the German respondents. On the other hand, with 6%, twice as many respondents in Germany reported a planned decrease in AI investments compared with only 3% globally.

Considering this apparent reluctance to invest and see the relevance, there are risks lurking that German organizations will fail to harness more potential of AI, compared with international competitors who see AI technology as a key to success over the next years and do invest accordingly.

Importance of AI solutions for organizations' overall success

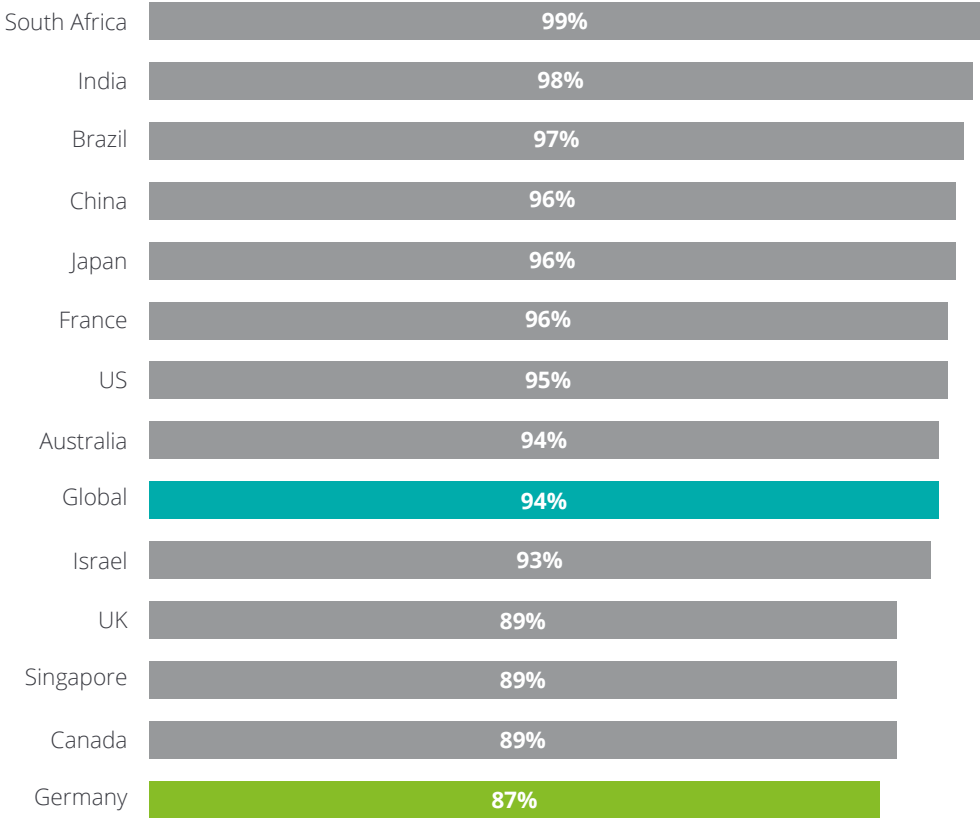


70% in Germany report that their AI investment will increase in the next fiscal year, compared with **76% globally**.

Introduction

Importance of AI solutions -

(Respondents selecting "Important" / "Very important")



Germany N=150

Global N=2,620



Introduction

Findings show that challenges weigh harder in Germany

Survey respondents reported varying challenges depending on the stage of AI implementation. When starting new AI projects, the most reported challenge is proving AI's business value both globally (37%) and in Germany (48%). As organizations attempt to scale up their AI projects, German respondents reported challenges as more complex than their global counterparts. Most notably, 68% see managing AI-related risks as a challenge compared with 50% globally. The only challenge that German respondents consider less complex compared with their global counterparts is "proving the business value" with 33% and 40% of the respondents, respectively. This hints towards an interesting process in German organizations. When an organization is starting out with implementing AI applications, the biggest challenge is proving the business value and choosing the right AI technologies. Once an organization has passed the initial stage, proving the business value is no longer a huge challenge. The huge challenges then become an ongoing executive commitment, the identification of most beneficial use cases, and the maintenance of AI applications.

This emphasizes the outstanding importance of clear leadership and focused investment that a successful AI transformation requires. A major part of building an AI-fueled organization requires discipline and focus to maintain systems and algorithms so that they can continue to generate ongoing value instead of noise. Such discipline and focus lead to a vigilant discovery and understanding of all associated challenges that may not be obvious in the early stages of an AI initiative.

Top 3 challenges in starting projects in Germany

48%
Challenges proving business value

39%
Choosing the right AI technologies

33%
Insufficient funding for AI technologies

Top 3 challenges in starting and scaling projects in Germany

31%
Lack of alignment between developers & business

29%
Insufficient funding for AI technologies

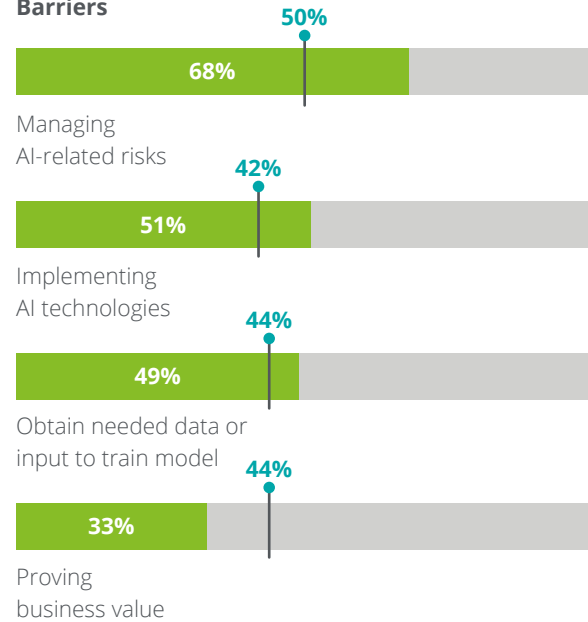
28%
Lack of maintenance after initial launch



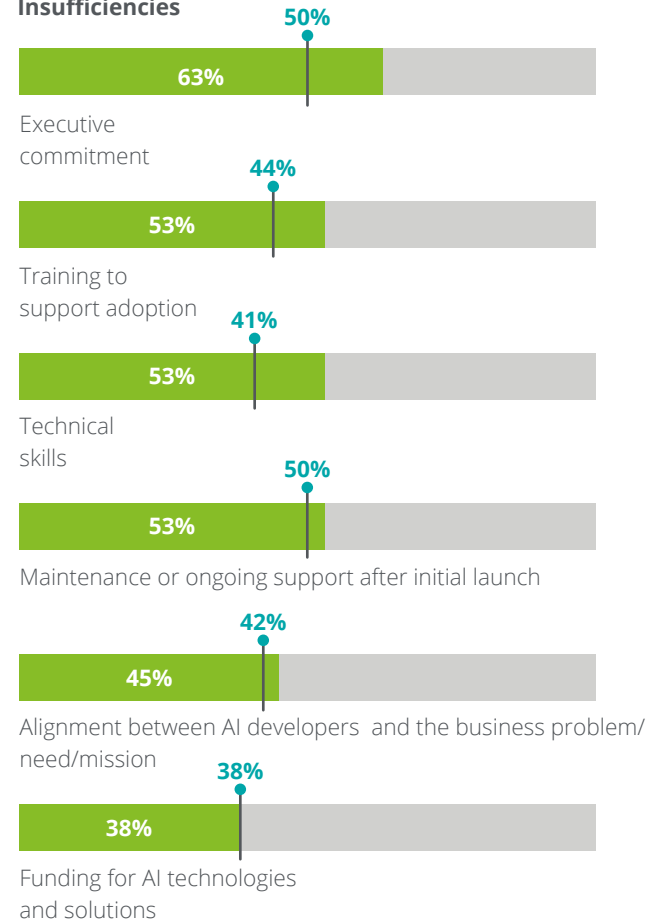
Introduction

Challenges in scaling AI initiatives

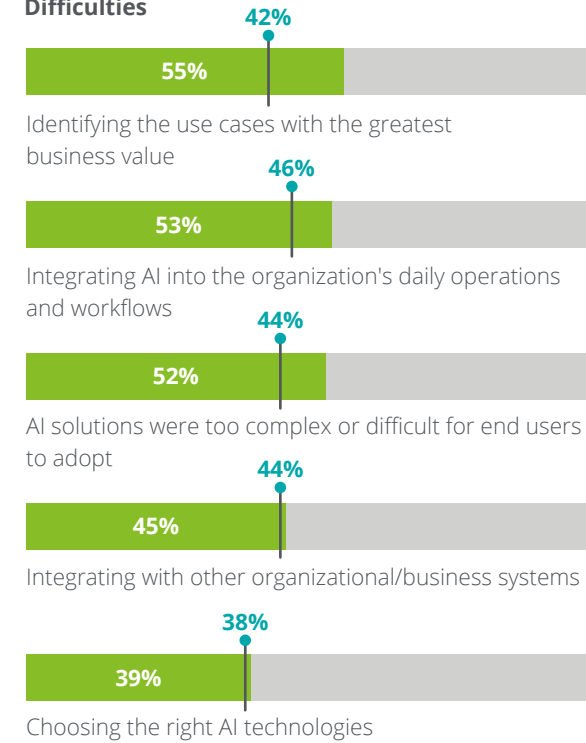
Barriers



Insufficiencies



Difficulties



■ Germany N=150
■ Global N=2,620

Introduction

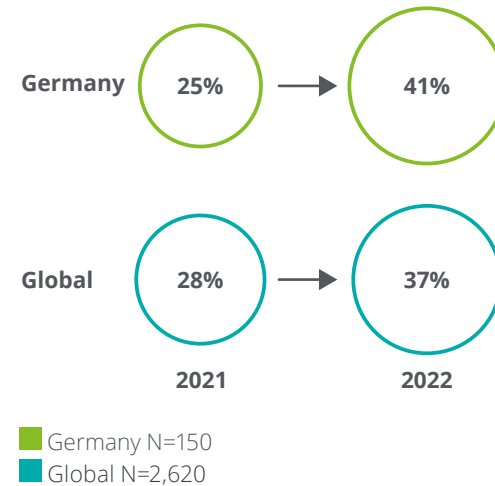
Seeing results

Interestingly, 87% of the global respondents and 81% of the German respondents reported that they calculate the length of the payback period to fall within the expected timeline or even more quickly than expected. While on the one hand this indicates an increased understanding of implementation requirements, it could also suggest that the vision for AI may be too focused on cost savings, and that the transformational opportunities that AI can offer, which often have less predictable timelines, are being overlooked or ignored.

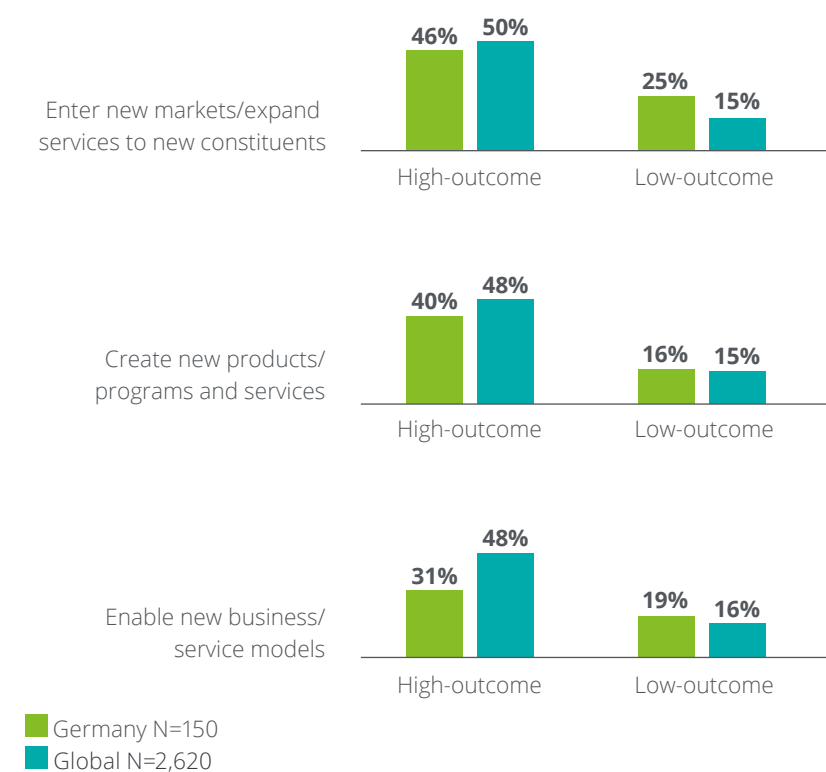
This is further underscored when looking at the importance of reduced costs as an outcome. German respondents reported reduced costs now to be the best achieved outcome, rising from 25% in 2021 to 41% this year, increasing significantly more than on the global scale. In contrast, German respondents were less likely to report outcomes more focused on transformational opportunities, such as enabling new business/service models, as achieved to a high extent, decreasing from 29% in 2021 to 25% in 2022. When organizations prioritize efficiency, more transformational outcomes, such as revenue generation or business innovation, can fall by the wayside.

That said, some organizations have begun to find a path. Respondents from this year's global and German high-outcome organizations (Transformers and Pathseekers) were significantly more likely to report revenue-generating results – such as entering new markets/ expanding services to new constituents.

Lower costs – “Achieved to a high degree”

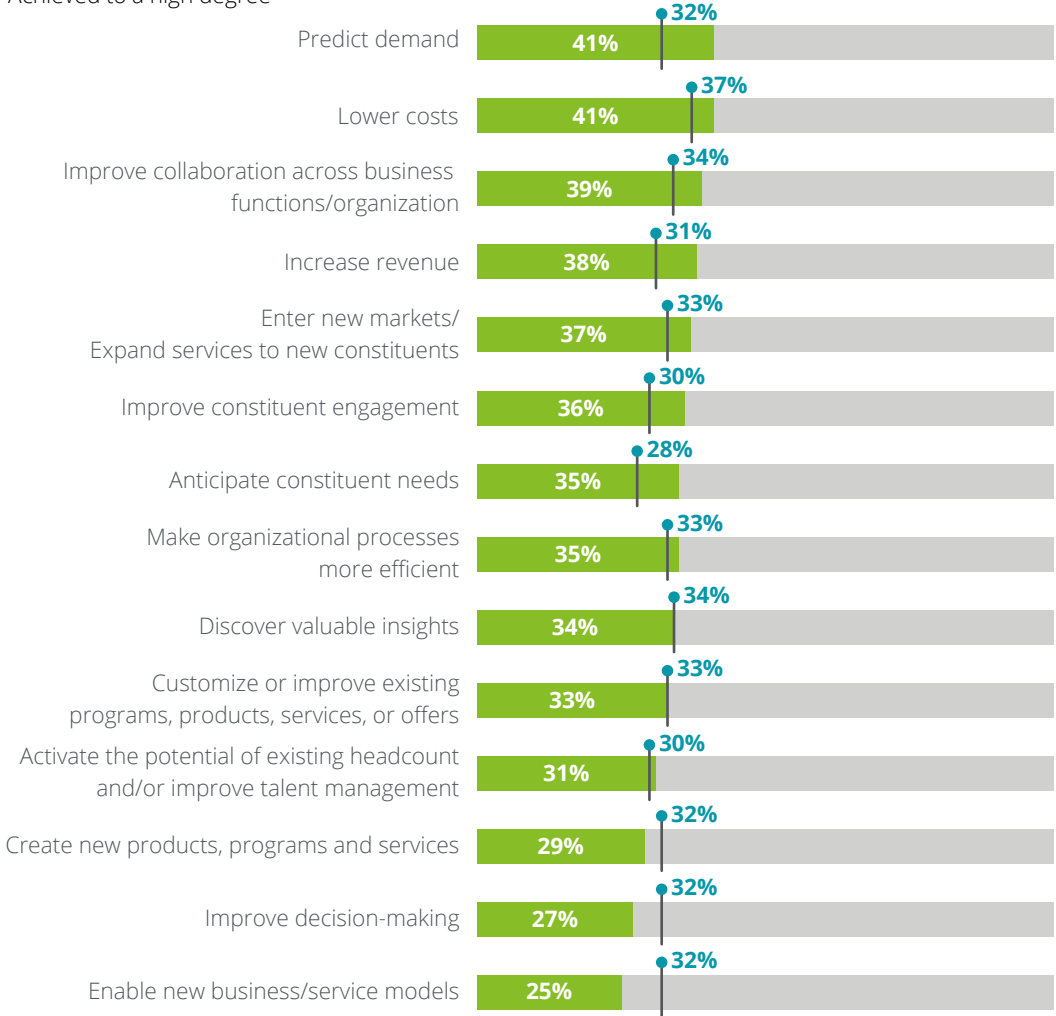


Revenue-generating outcomes – High- vs. Low-outcome organizations (Selecting “Achieved to a high degree”)



Introduction

Outcomes -
 "Achieved to a high degree"



Germany N=150
 Global N=2,620



Rewards can be lucrative for organizations that overcome current challenges.

AI has entered the era of value creation. Based on our analysis of the behaviors and responses of respondents from surveyed high-outcome and low-outcome (Starters and Underachievers) organizations, the remaining report contains detailed recommendations or the actions leaders should consider to improve outcomes of their AI efforts.



Action 1

Invest in culture and leadership

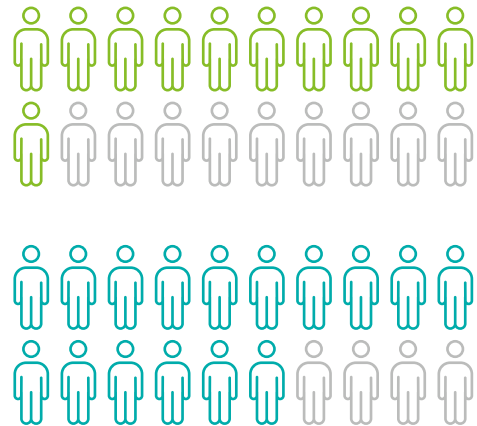


Action 1 | Invest in culture and leadership

Culture is a key to success, but German organizations deem it less important

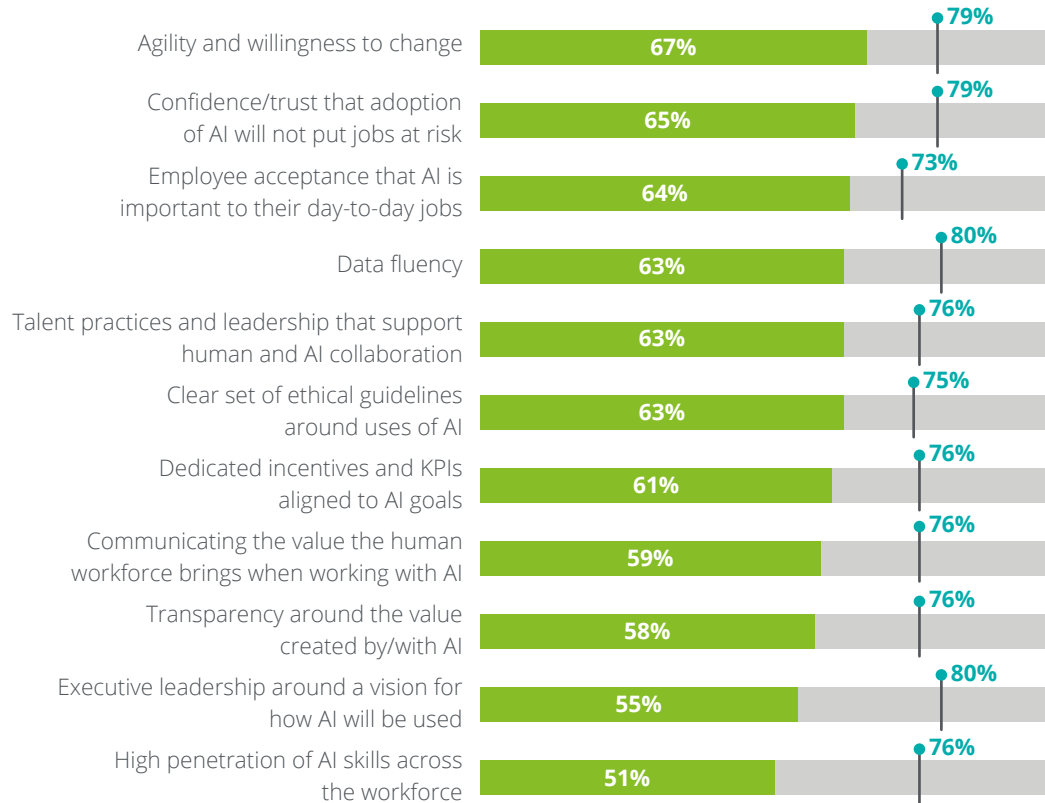
When it comes to a successful AI deployment and adoption, leadership and culture matter greatly. Globally, 77% of the respondents classify incentives to develop an AI-ready culture as important. In contrast, it is only 61% of the respondents in Germany. In fact, our findings show German organizations to be last in 6 out of the 11 questions. Most notably, only about half of the respondents in Germany (55%) see executive leadership around a vision of how AI will be used in the organization as important, compared with 80% globally. It is therefore hardly a surprise that German respondents identified the lack of executive commitment as the number two challenge when scaling AI projects, just after managing AI-related risks.

Executive leadership around a vision for how AI will be used – “Extremely important” / “Slightly important”



Germany N=150
Global N=2,620

Cultural initiatives – “Extremely important” / “Slightly important”

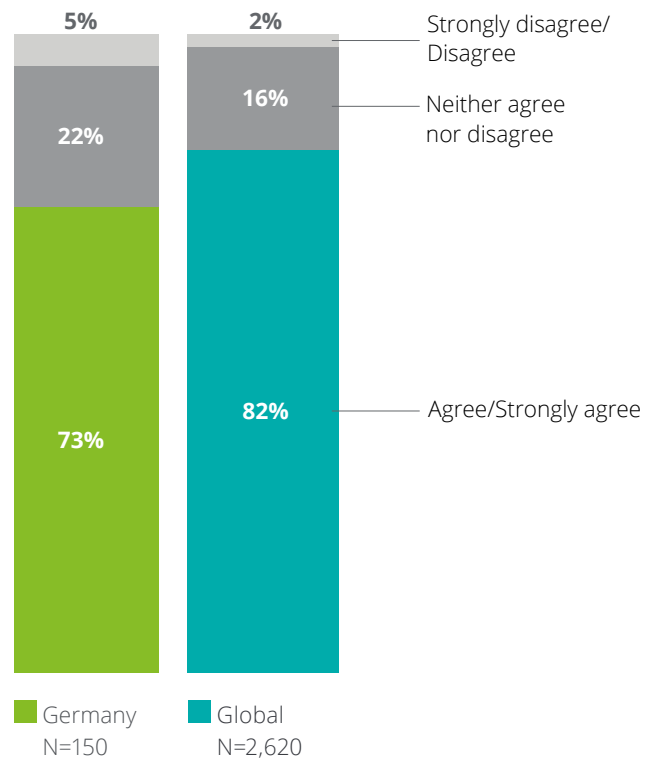


Germany N=150
Global N=2,620

Action 1 | Invest in culture and leadership

German companies have to work hard to close increasing deficits in workforce optimism

Do respondents believe that working with AI technologies will enhance their performance and job satisfaction?



The failure to realize the importance of investing into culture can have a major impact on how AI is seen by the workforce. Globally, 82% of the respondents believe that working with AI technologies will not only enhance their performance but also their job satisfaction, compared with only 73% in Germany. In addition, Germany ranks at the bottom, with 70% compared with 85% globally, when respondents were asked whether AI empowers people to make better decisions. Given the overall findings on cultural initiatives, this begs the question as to whether German organizations follow a culturally sustainable approach to AI.

“People always underestimate the change management aspect, what’s going to be required. They think it’s always going to be easier.”

Organizational design consultant



Action 1 | Invest in culture and leadership

Actively addressing AI-related risks is essential

The responses regarding risk management support this hypothesis. While lack of explainability and transparency in AI decisions, poor data privacy or consent management, and safety concerns about AI systems, among others, all loom large as ethical risks that affect all surveyed organizations, Germany is standing out. In fact, 68% of the German respondents consider managing AI-related risks as a major inhibitor in scaling projects, which is the highest percentage across all countries, with a global average of 50%. Thus, tackling AI-related risks can have a major impact on an organization's AI efforts.

However, despite the higher agreement across German respondents on the importance of managing AI-related risks, the survey shows that German organizations are not taking the necessary steps to manage those risks. When asked if AI risk management is aligned with the organization's broader risk management efforts, only 24% of the German respondents agreed, compared with 33% globally.

Furthermore, German organizations seem not to consider ethical risks when it comes to AI. A closer look at the concerns of the workforce, in particular, reveals a lot of room for improvement in Germany. Half of all German organizations are concerned about the elimination of jobs due to AI, compared with 38% globally. Additionally, the global findings show that 41% are concerned about the manipulative power of AI, compared with 52% across the German respondents. Trustworthy AI™¹ ultimately hinges on ensuring that rigorous processes as well as checks and balances are in place. To that end, organizations can often achieve better outcomes when they adopt an ethical AI framework that aligns with Trustworthy AI principles.

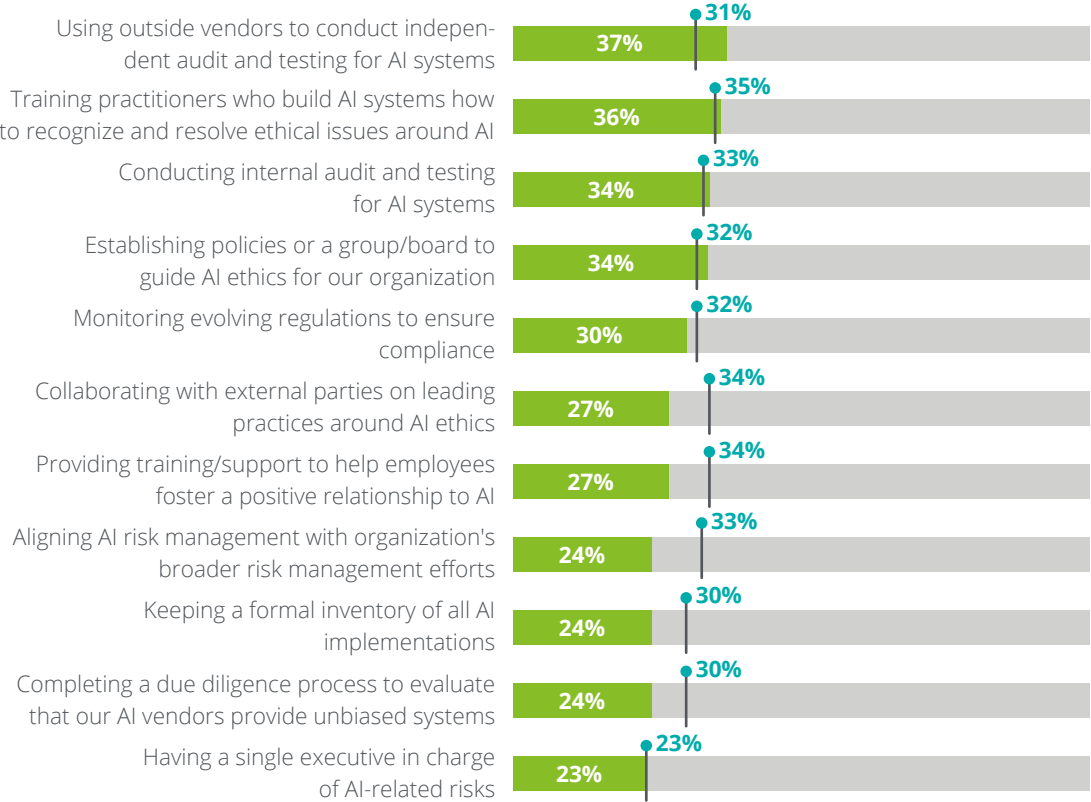
The failure to address the changes in the company culture impedes progress, and this year's survey shows the first indications that investments in an AI-ready culture are neglected. The ultimate goal should be to use AI for human benefit, and not to create discomfort or even worse.

52% in Germany are concerned about the manipulative power of AI, compared with **41% globally**.

50% in Germany fear AI eliminating jobs compared with **38% globally**.

Action 1 | Invest in culture and leadership

What is your organization currently doing to actively manage the risks around your AI implementations?

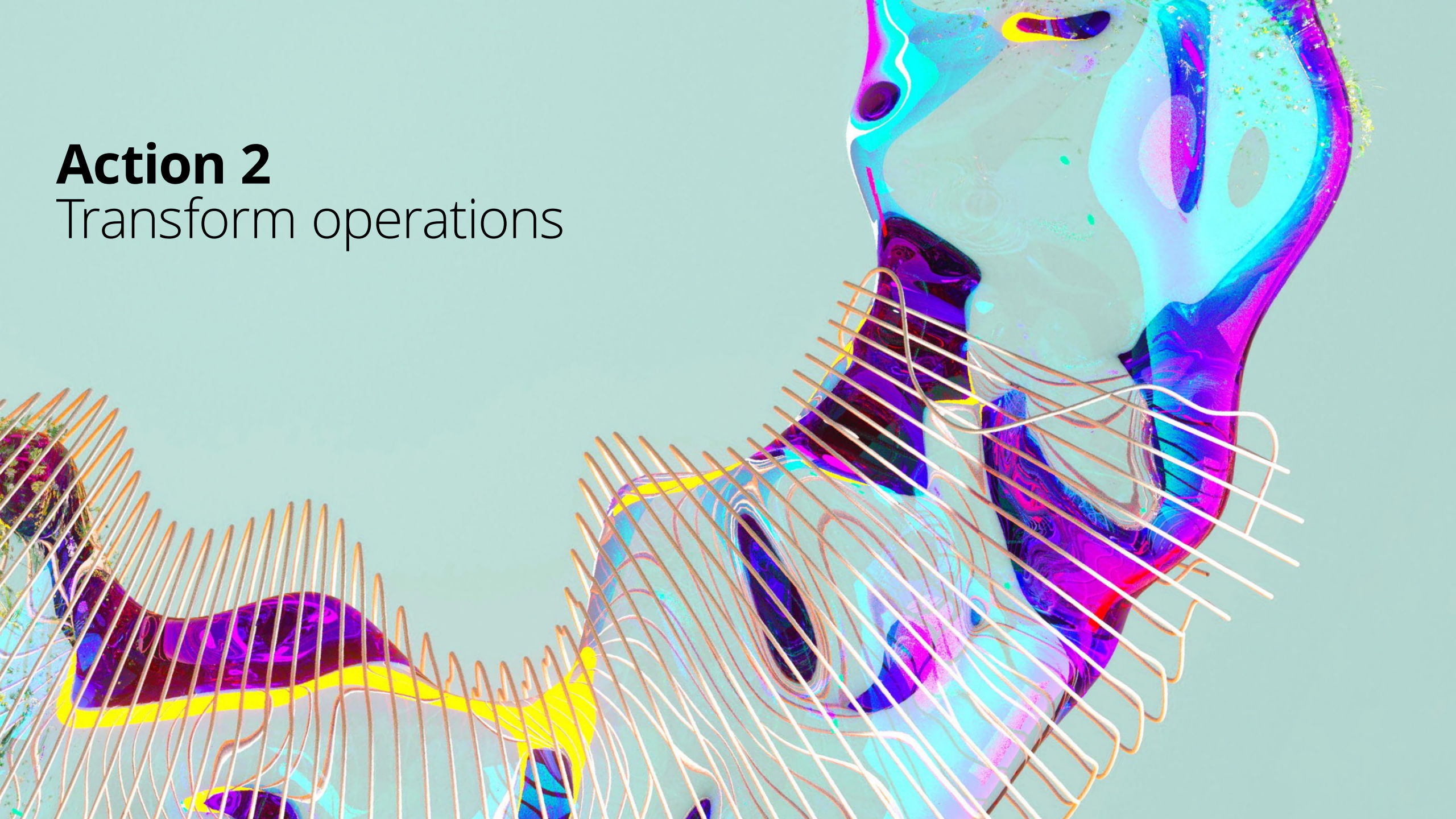


Germany N=150
Global N=2,620



Action 2

Transform operations



Action 2 | Transform operations

If you're not changing how you work, you're leaving value on the table

As AI has become fundamental to success, a large number of organizations are redesigning their business operations around AI—a key step to ensure adoption as well as quality and ethical use. Despite this, most organizations still have far to go to achieve maturity in this area, and there has not been a lot of significant improvement reported since the last edition of the survey.

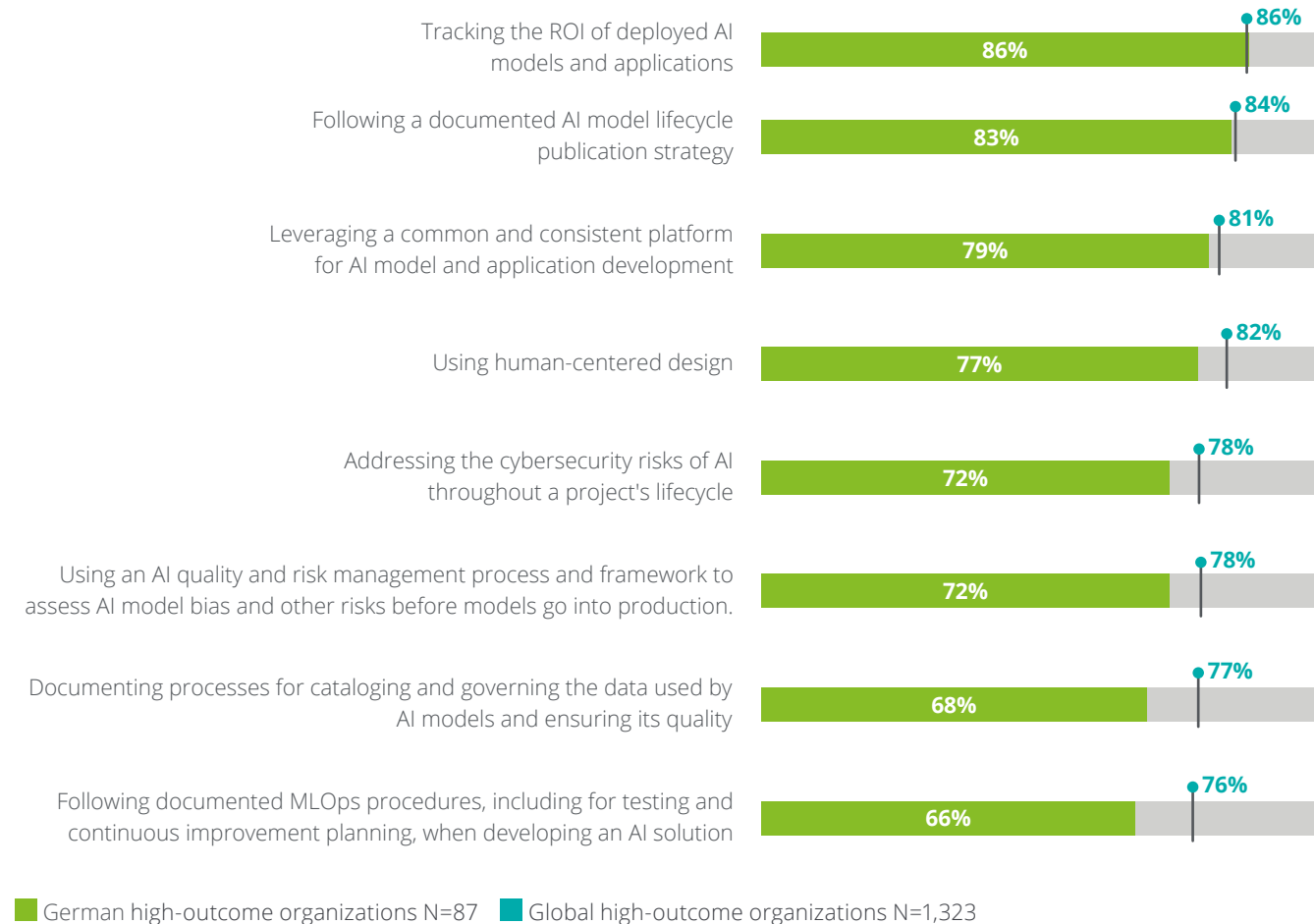
Despite evidence that establishing clear processes and redefining roles to deliver quality AI will result in improved outcomes, there has been little growth in the market in terms of adopting such practices according to survey respondents in either of the last two State of AI surveys. While the value of MLOps is evident, the percentage of respondents, both globally and in Germany, reporting to 'always' or 'usually' follow a documented MLOps procedure is still shy of 70%. This would seem to be especially concerning, considering this number drops to only around 1/3 in both cases considering only respondents reporting to 'always' using MLOps.

Unsurprisingly, the survey shows that high-outcome organizations (Transformers and Pathseekers), both globally and in Germany, were significantly more likely to adopt operational leading practices than low-outcome organizations. Interestingly, however, high-outcome organizations in Germany are lagging behind their global counterparts. Most notably, only 66% of the high-outcome organizations follow MLOps procedures in Germany, compared with 76% globally. This discrepancy continues with organizations following processes for cataloging and governing the data used by AI models, with 68% and 77%, respectively.

This indicates that even high-outcome organizations in Germany are falling behind their global counterparts. They are at risk to accumulate technical debt which is known to seriously inhibit progress after a brief initial advantage perceived.

Operational leading practices German vs. global High-outcome organizations

(Respondents selecting "Usually" or "Always")



Action 3

Orchestrate tech and talent



Action 3 | Orchestrate tech and talent

Technology and talent acquisition come together in the era of AI

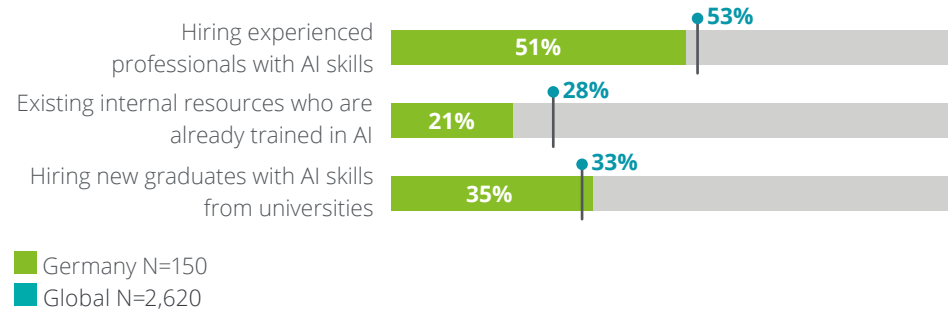
One of the major changes that AI presents to any organization is the need to plan technology and talent investments in tandem, looking at each as a source of critical skill sets – a human with machine collaboration.

When looking at different ways how AI solutions are obtained by organizations, our survey shows an interesting but not surprising trend. High-outcome organizations that employ more types of AI applications tend to have a higher percentage of AI applications built in-house, compared with organizations with fewer AI applications. This suggests that organizations that strive to be AI-fueled are growing an in-house talent pool, allowing them to build tailored AI solutions in order to further extend their competitive advantage with AI.

However, the ability of an organization to achieve differentiated tools and applications with AI still hinges in large part on the new talent it is able to bring in-house. Respondents globally and in Germany agree that hiring experienced professionals is the primary way to obtain AI skills for an organization. This however is a challenge due to the shortage of skilled AI talent, which has been well documented in particular².

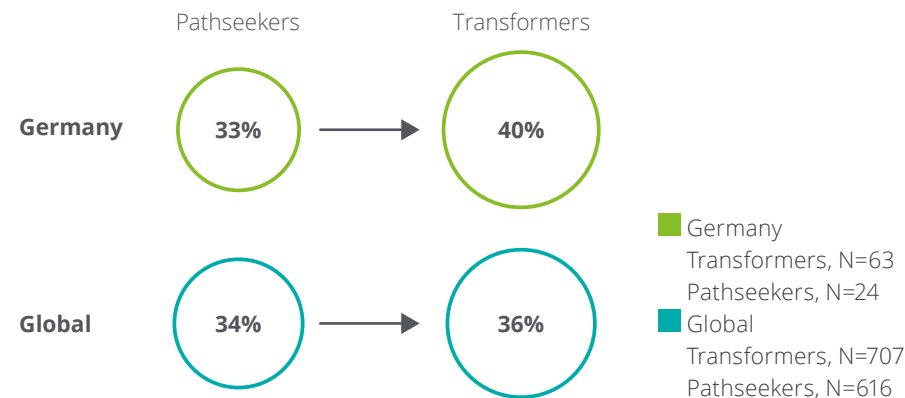
Digging further into alternatives of where AI skills come from, our survey shows German and global responses to be aligned, except in the following two areas. With only 21% of respondents, Germany can rely much less on existing internal employees trained in AI than the global average of 28%. On the other hand, Germany ranks highest regarding hiring new university graduates with 35%, compared with 25% globally. This further underscores Germany's ability to produce highly sought-after talent – the next generation of professional workers.

Ways to acquire AI talent



Ways to acquire AI solutions: Transformers vs. Pathseekers

(Respondents selecting "Build in-house")



Action 4

Select use cases that can help accelerate value



Action 4 | Select use cases that can help accelerate value

The value contribution from AI applications differs globally and is expected to change everywhere

Across organizations, AI is implemented in a wide range of domains and industry processes. The specific context of an industry influences the way AI investments are pursued. Industry-specific insights and detailed case studies can be found in Deloitte's global **State of AI in the Enterprise, 5th Edition**, (pages 28 et seq.).

When respondents were asked to rank the AI applications that will drive the most value over the next 3-5 years and 5-10 years, an interesting trend has become visible. Most AI applications that are considered important in the coming 3-5 years are also considered as value drivers in the next 5-10 years. German respondents see chatbots as the main value driver in the next years, without a close runner-up. The value drivers reported globally, on the other hand, are more evenly spread across multiple applications, such as intelligent robotics, intelligent automation, and natural language processing. However, for some AI applications, the findings show that this is likely to change over the next years. The contribution of intelligent automation is estimated to decrease both in Germany and globally. This indicates a saturated market, with a rise in newer technologies such as voice agents or computer vision. German respondents in particular expect a large increase in value creation through computer vision in the coming years.

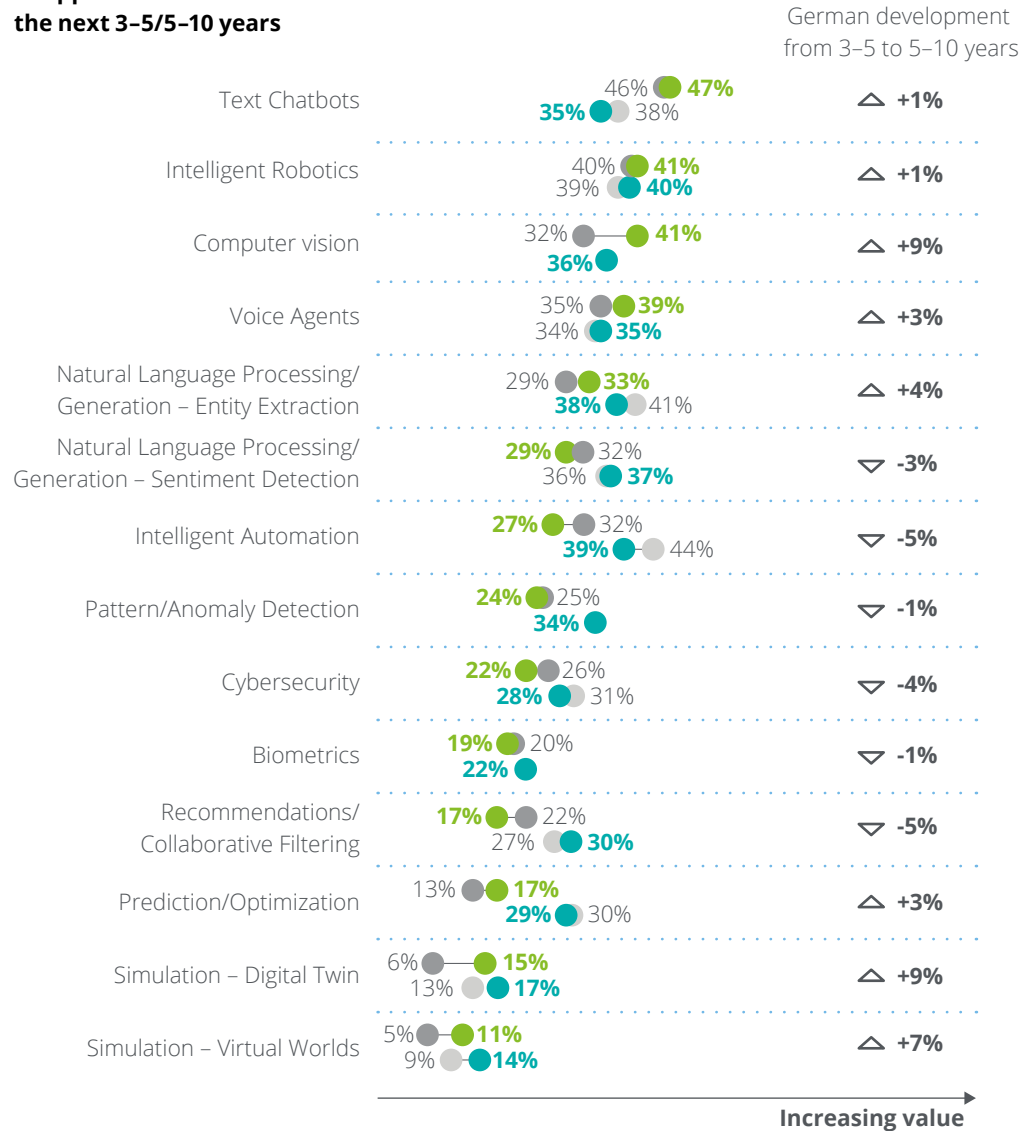
A rather unsettling trend is that cybersecurity both globally and in Germany is seen as a smaller value driver in the future. Combining this with the finding that only 36% of organizations globally always address cybersecurity risks of AI throughout a project lifecycle,

this goes to show an area where additional awareness is required. Without addressing cybersecurity risks and acknowledging the importance of this topic, the acceptance and future development of AI solutions might be at risk.



Action 4 | Select use cases that can help accelerate value

AI applications that will drive the most value over the next 3-5/5-10 years



5-10 years

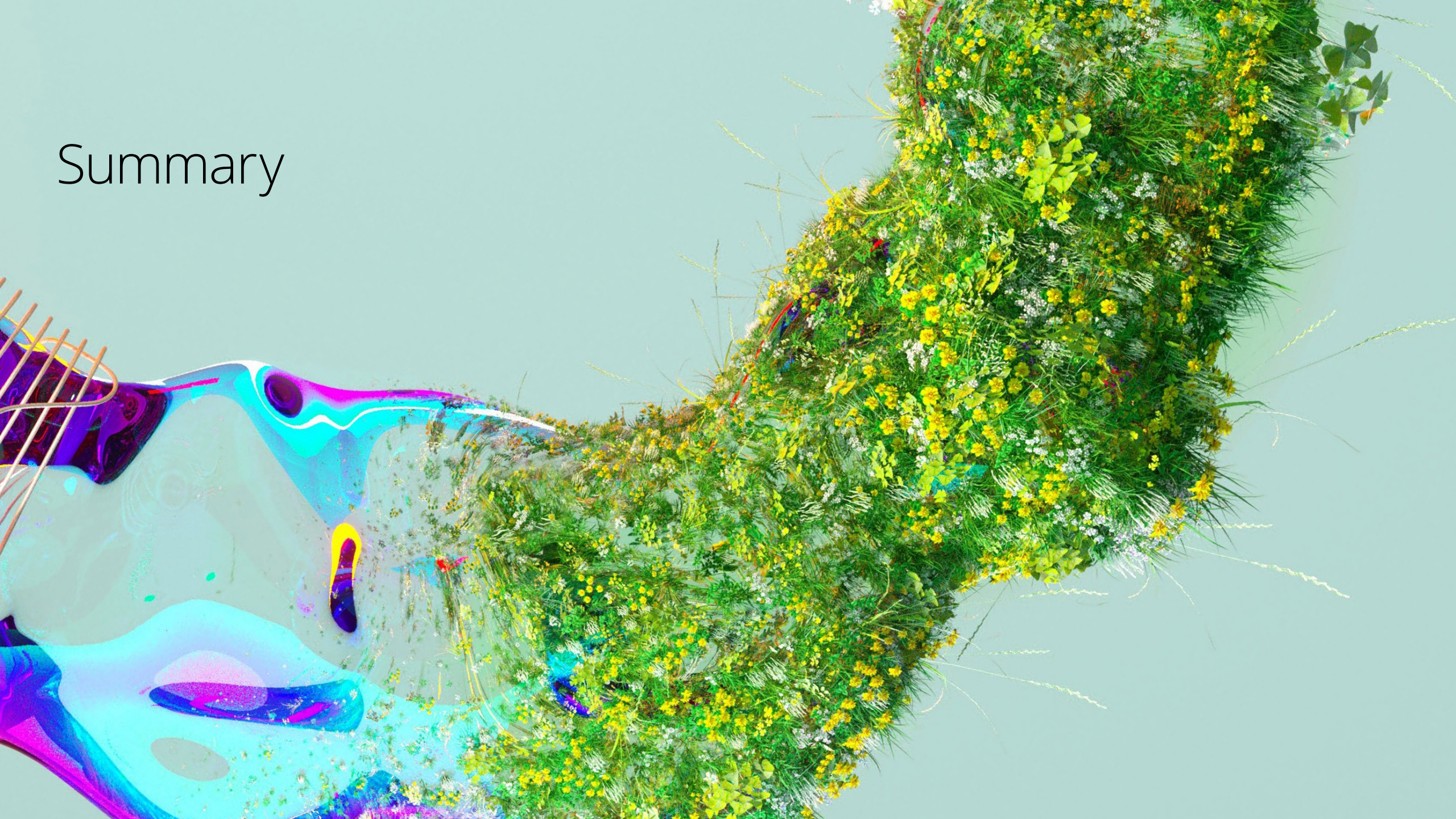
- Germany N=150
- Global N=2,620

3-5 years

- Germany
- Global



Summary



Summary

German organizations should take AI-ready culture & leadership along with operational leading practices to heart

This year, Germany contributes a disproportionately high number of organizations associated with the strongest AI outcomes (Transformers), ranking 3rd out of the 13 countries surveyed. Despite this large contribution, this report has shown many remaining gaps that even Germany's high-outcome organizations should address. Surprisingly, aspects that receive international recognition as key incentives designed to achieve sustainable success in the field of AI tend to be neglected by German organizations. This report unravels two major shortcomings that German organizations should take to heart.

Firstly, the survey shows that German organizations are lagging far behind their global counterparts in culture and leadership around AI. However, according to our survey, actively driving culture and leadership around AI is key to the sustained success of AI-fueled organizations. Moreover, respondents reported significantly less usage of operational leading practices, especially MLOps, in German organizations. Since these practices are widely considered to be

essential to build and deploy AI ethically and at scale, addressing these shortcomings should help establish a solid foundation allowing for a competitive edge fueled by AI.

If the actions outlined in this report are performed, Germany will be ready to continue to benefit from the advancement of AI. With continued persistence and by harnessing the increasing potential of AI, real value can be brought to organizations, customers, and employees.



"If you believe this is fundamental to the success of what your business is going to be, you don't layer [its leadership] deep into the organization."

AI/ML head of strategy and operations
Global Technology company

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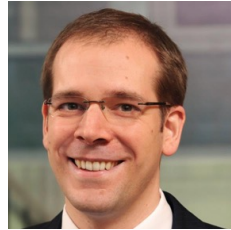
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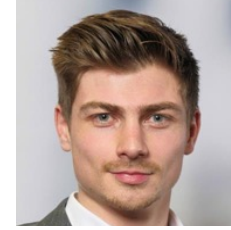
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Methodology



Methodology

To obtain a global view of how AI is transforming organizations, Deloitte surveyed 2,620 global business leaders between April and May 2022. Thirteen countries were represented: Australia (100 respondents), Brazil (115 respondents), Canada (175 respondents), China (200 respondents), France (130 respondents), Germany (150 respondents), India (200 respondents), Israel (75 respondents), Japan (100 respondents), Singapore (100 respondents), South Africa (75 respondents), the United Kingdom (200 respondents), and the United States (1,000 respondents). All participating companies have adopted AI technologies and are AI users. Respondents were required to meet one of the following criteria: being responsible for AI technology spending or approval of AI investments, developing AI technology strategies, managing or overseeing AI technology implementation, serving as an AI technology subject matter specialist, or making or influencing decisions around AI technology. To complement the blind survey, Deloitte conducted qualitative telephone interviews with 15 AI specialists from various industries.

Analysis model

In line with last year's report, we developed an analysis model defining four profiles of organizations based on the frequency of full-scale AI deployments and the outcomes achieved through AI initiatives. For full-scale AI deployments, we calculated the cumulative frequency of respondents who selected "deployed" (achieved at least one full-scale deployment) among the 0–14 types of AI applications. Similarly, we calculated cumulative frequency by counting the number of outcomes achieved to a "high degree" among the 0–19 potential outcomes achieved by respondents. This established the following profile groups of respondents:

- Transformers (Global: 27%, N=707; Germany: 42%, N=63) have achieved five or more high full-scale AI deployments and at least five outcomes to a high degree in their AI initiatives. They are considered the leader group, the most "AI-fueled," within our survey respondents.
- Pathseekers (Global: 24%, N=616; Germany: 16%, N=24) have achieved fewer than five high full-scale AI deployments but still achieved at least five outcomes to a high degree through their AI initiatives.
- Underachievers (Global: 22%, N=570; Germany: 23%, N=35) have achieved five or more high full-scale AI deployments but still achieved fewer than four outcomes to a high degree through their AI initiatives.
- Starters (Global: 28%, N=727; Germany: 19%, N=28) are still developing or exploring AI deployments and have achieved fewer than five full-scale AI deployments. They have achieved fewer than five outcomes to a high degree through their AI initiatives.

*Percentages do not add to 100, owing to rounding.





Endnotes

¹ Deloitte, "Trustworthy AI, Bridging the ethics gap surrounding AI," accessed September 27, 2022.

² Kyle Wiggers, "Survey finds talent gap is slowing enterprise AI adoption," VentureBeat, April 19, 2021.

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