

The art of AI maturity

Advancing from practice to performance

Europe

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The art of AI maturity – Europe perspective

Foreword

Even in a post-pandemic world, European markets are still being tested by ongoing war, an energy crisis and rising inflation. But we have seen how human ingenuity and perseverance combined with technology can help in pulling through the most difficult of times.

One technology in particular, artificial intelligence (AI), has been applied in more ways than ever—such as advancing medical research, delivering faster patient care, managing supply chain crises and innovating direct-to-consumer value chains. Most importantly, AI enables speed to insights, so clients can make faster and better-informed decisions.

By 2019, AI adoption was already in high gear in Europe, but the transformational journey to maturity in AI is accelerating

as the investment in cloud grows. So, it is no surprise that half (49%) of European business leaders mentioned AI in their earnings calls last year—and often saw share prices increase, too. It's also not a stretch to suggest that AI will emerge as a crucial component of the EU Commission's digital future agenda. But there is still a long way to go.

Though AI adoption has gained momentum, our research shows that only 11% of EU companies can be categorised as AI achievers (companies leveraging AI's full potential).

How to get there?

Advancing AI maturity requires building multiple capabilities, both foundational and strategic. The tenets that will help European companies progress in their AI

transformation journey include a strong cloud foundation to scale AI, alignment of strategy and sponsorship, AI talent and culture, and the responsible deployment of AI.

The good news is that the groundwork has already been laid—with 72% of organisations having reworked their strategy and cloud infrastructure plans to achieve AI success. The upcoming EU AI regulations will also formalize standards for AI development and deployment, which should further strengthen investors' trust in the value of AI.

In the next few years, with AI technologies becoming more prevalent, the share of AI Achievers in Europe will increase significantly. And as Europe forges ahead in the face of crisis, AI is set to play a

critical role in alleviating sustainability concerns, trade imbalances, supply chain issues, and regulation changes while enabling companies to not only survive, but also thrive.

As Winston Churchill once said, "Never let a good crisis go to waste."

AI, when used strategically, can bring meaningful change for people, the planet and profit centers. Only those organizations which invest in maturing their AI capabilities will be resilient enough in the face of challenges to stamp their impact on our collective futures.



Joseph Depa

Senior Managing Director,
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Executive summary

In fewer than 70 years, artificial intelligence (AI) has evolved from a scientific concept to a societal constant.

Computer scientist John McCarthy coined the term “artificial intelligence” in 1955, proposing that “every aspect of learning ... can in principle be so precisely described that a machine can be made to simulate it.”

McCarthy’s vision seems almost inevitable today, because so much of what we take for granted in our daily lives stems from machine learning (ML). Every time we use a wayfinding app to get from point A to point B, use dictation to convert speech to text or unlock our phones using face ID, we’re relying on AI. And companies across industries are also relying on—and investing in—AI to drive logistics, improve customer service, increase efficiency, empower employees and so much more.

Despite these ever-expanding use cases, when it comes to making the most of AI’s full potential and their own investments, most organizations are barely scratching the surface.

In fact, in Europe, only 11% of firms have advanced their AI maturity enough to achieve superior growth and business transformation. We call them AI Achievers.

Another 25% of firms are somewhat advanced in their level of AI maturity, while the remaining 64% (the majority) are still mostly testing the waters in Europe, according to Accenture’s extensive analysis of approximately 1,200 companies globally.

This journey to AI maturity has been in high gear for years because the business case is clear. Pre-pandemic (2019), AI Achievers already enjoyed 50% greater revenue growth on average, compared with their peers. And in 2021, among executives of the world’s 2,000 largest companies (by market capitalization), those who discussed AI on their earnings calls were 40% more likely to see their firms’ share prices increase—up from 23% in 2018, according to our analysis.

11%

of firms have advanced their AI maturity enough to achieve superior performance and growth.

64%

of firms are still testing the AI waters.



What do AI Achievers do differently?

While there's clearly a science to AI, our findings demonstrate there is also an art to AI maturity. Achievers are not defined by the sophistication of any one capability, but by their ability to combine strengths across strategy, processes and people.

Here are five ways AI Achievers master their craft:

- 1. Their top leaders champion AI as a strategic priority for the entire organization.**
- 2. They invest heavily in talent to get more from their AI investments.**
- 3. They industrialize AI tools and teams to create a strong AI core.**
- 4. They design AI responsibly, from the start.**
- 5. They prioritize long- and short-term AI investments.**

Our machine learning models suggest that the share of AI Achievers in Europe will increase rapidly and significantly, nearly tripling from the current 11% to 29% by 2024.

In short, advancing AI maturity is no longer a choice. It's an opportunity facing every industry, every organization and every leader.

The art of AI maturity

AI maturity: Why it matters

AI maturity: Why it matters

There is a growing consensus that AI is absolutely essential to competitive advantage.

Our survey of C-suite executives and data-science leaders from the world's largest organizations found that nearly 72% of companies in Europe have integrated AI into their business strategies and reworked their cloud plans to achieve AI success.

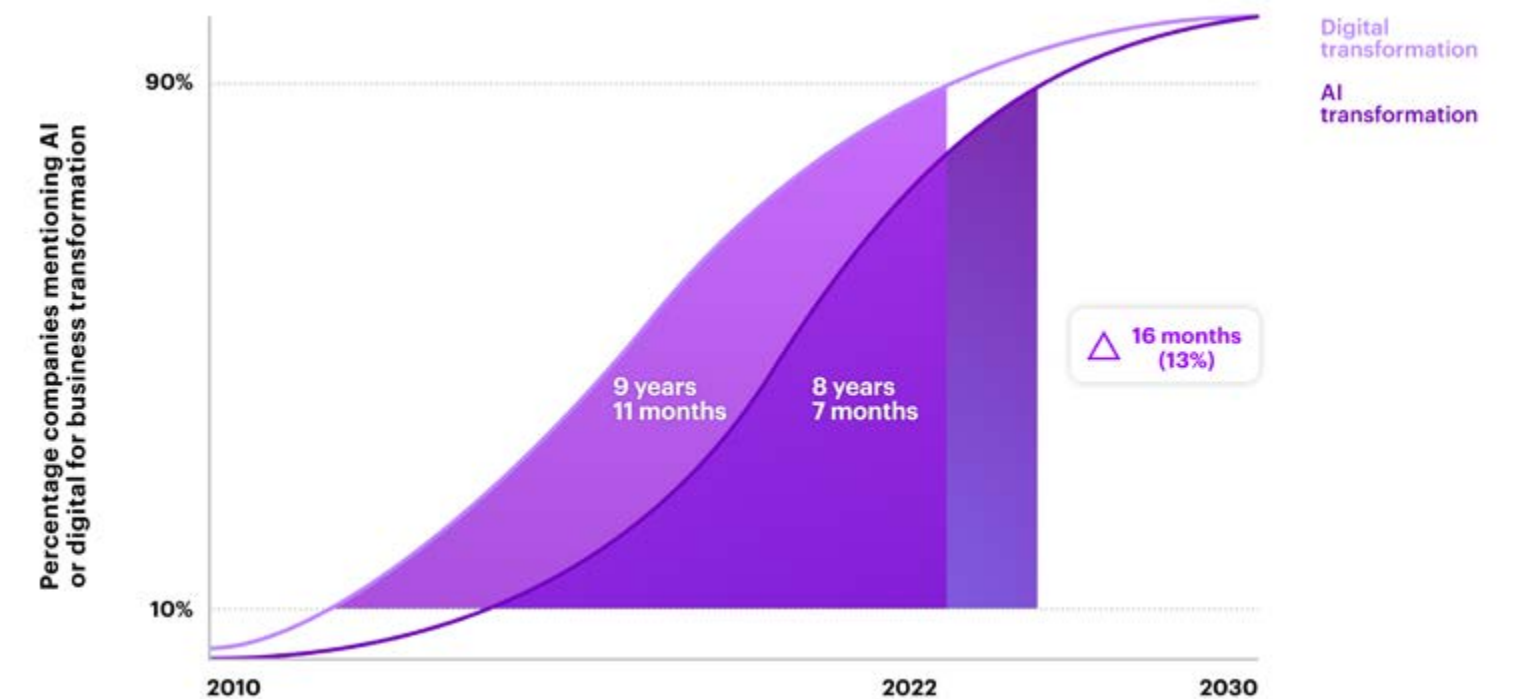
And companies are putting those plans into practice: Globally, nearly one-third (28%) of all AI pilot initiatives are subsequently scaled to deliver wide-ranging outcomes, from accelerating R&D timelines for new products to enhancing customer experiences.

In Europe, companies leading the way are already seeing the results—39% said that the return on their AI initiatives exceeded their expectations, while only 1% said the return didn't meet expectations.

AI, accelerated

With early successes building confidence in AI as a value-driver, we estimate that, globally, AI transformation will happen much faster than digital transformation—on average, 16 months faster (Figure 1).

Figure 1: We project that AI transformation will take less time than digital transformation



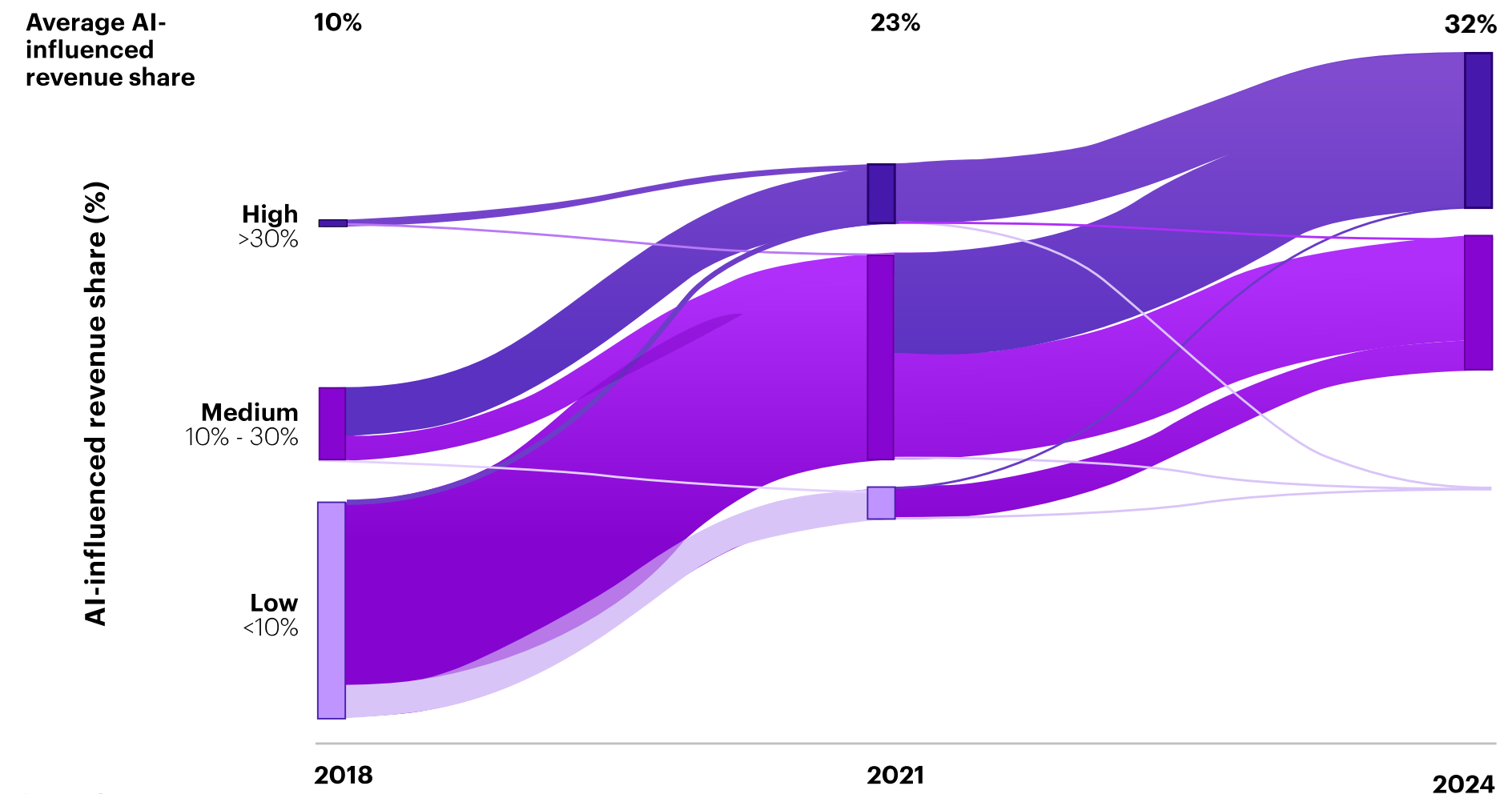
Source: Accenture Research

Note: Our estimate is derived from a natural language processing analysis of investor calls of the world's 2,000 largest companies (by market cap), from 2010 to 2021, that referenced "AI" and "digital" in tandem with "business transformation," respectively. Data was sourced from S&P earnings transcripts.

There is strong incentive to move quickly. We found, for example, that the share of companies' revenue that is "AI-influenced" more than doubled between 2018 and 2021, and is expected to triple by 2024 (Figure 2).

Given the evidence, it's easy to see why companies plan to increase and accelerate their AI investments. In 2018, Achievers in Europe devoted 14% of their total technology budgets to AI, while in 2021 they devoted 27%. In 2024, they expect to devote 33%.

Europe : Evolution of companies' AI-influenced revenue share —2018, 2021, and 2024*



Legend:
■ High >30%
■ Medium 10% - 30%
■ Low <10%

Note: Color indicates the achieved AI-influenced revenue threshold within each time period.

Source: Accenture Research

Note: *2024 = projected, N = 528

*Definition of "AI-influenced" revenues:

a. Sales of existing products and services made possible through better AI-driven insights on customers, supply chain, channels; b. Sales of new products and services made possible by human + AI, c. Higher prices through dynamic pricing ML algorithms. These sales include some cannibalization and net new revenues. In contrast, this definition is excluding higher efficiencies in production operations thanks to AI.

The art of AI maturity

AI maturity: What it is



AI maturity: What it is

If most organizations are racing to embrace AI, why are some seeing more value than others?

To uncover strategies for AI success, Accenture designed a holistic AI-maturity framework. Fittingly, our analysis itself was conducted using AI.

We applied machine learning models to unravel massive survey datasets and uncover drivers of AI maturity that would have been impossible to detect using more traditional analytical methods (more on the methodology appears in the Appendix).

Our research found that AI maturity comes down to mastering a set of key capabilities in the right combinations—

not only in data and AI, but also in organizational strategy, talent and culture. Together, these capabilities give companies a strong competitive advantage. (See pages 37 and 38 for key capability descriptions.)

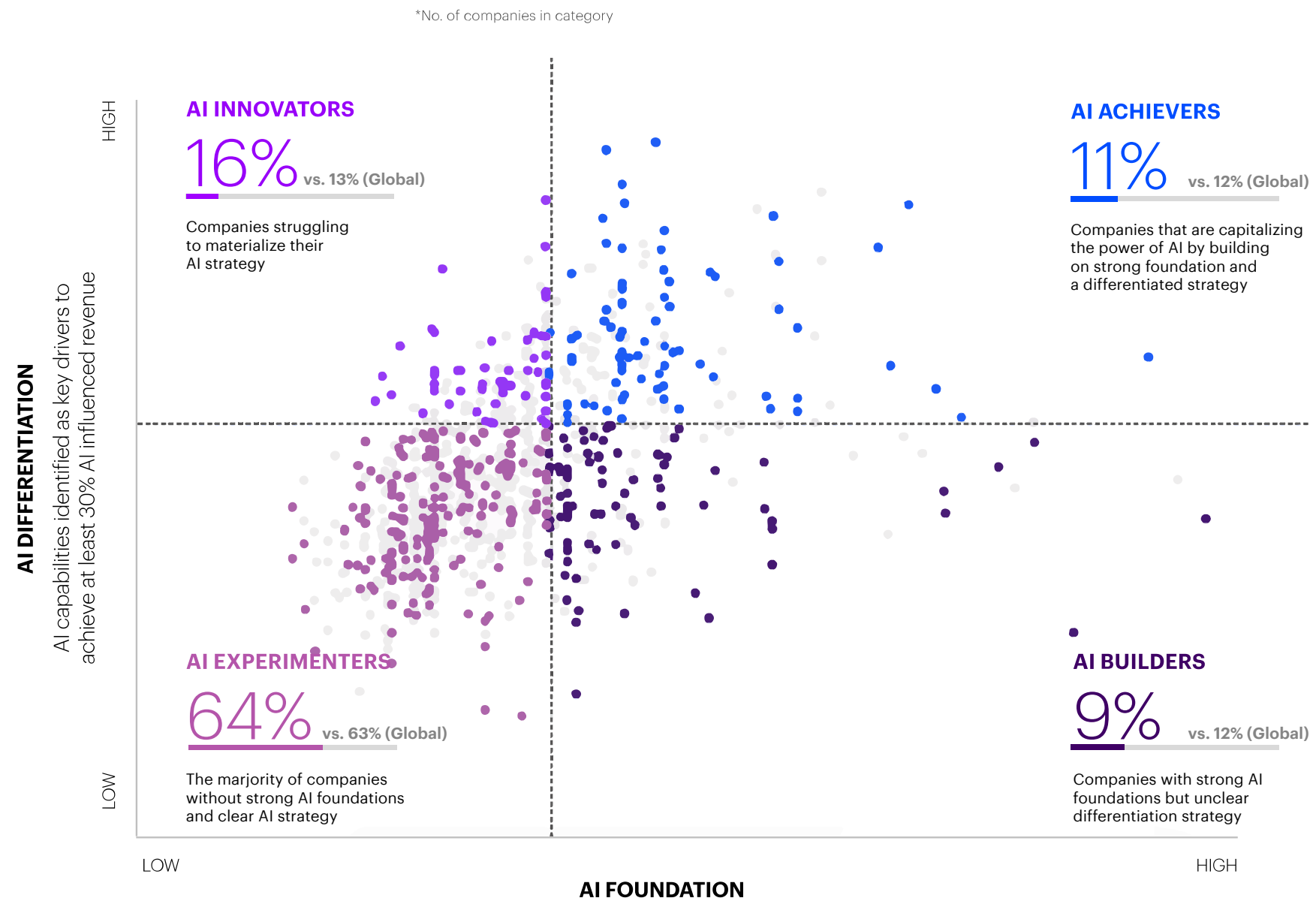
Foundational AI capabilities—like cloud platforms and tools, data platforms, architecture and governance—are required to keep pace with competitors. Just as important are “differentiation” AI capabilities, like AI strategy and C-suite sponsorship, combined with a culture of innovation that can set companies apart.

AI maturity measures the degree to which organizations have mastered AI-related capabilities in the right combination to achieve high performance for customers, shareholders and employees.

The companies that scored best in both categories are the AI Achievers. AI Builders, meanwhile, show strong foundational capabilities and average differentiation capabilities, and AI Innovators show strong differentiation capabilities and average foundational capabilities. Achievers, Builders and Innovators collectively represent just 36% of surveyed organizations—Achievers accounted for 11%, Builders for 9% and Innovators for 16% (Figure 3). A fourth group we’re calling AI Experimenters—those with average capabilities in both categories—make up the majority (64%) of those surveyed.

Achievers, Builders and Innovators tend to have more resources (such as technology, talent and patents) than Experimenters to deliver on their AI visions and to transform their organizations. Examples can be found across a wide range of industries: healthcare, financial services, life sciences, utilities, retail, energy and more. Even so, only 10% of the world’s 2,000 largest firms by market cap can be classified as Achievers. This suggests that, even with strategic investments, large firms may struggle to make the large foundational and cultural shifts needed to become AI Achievers.

Figure 3: Only 11% of organizations are AI Achievers



Source: Accenture Research analysis based on a sample of 1200 global companies of which 422 are from Europe (including Germany, France, Spain, Italy and UK)

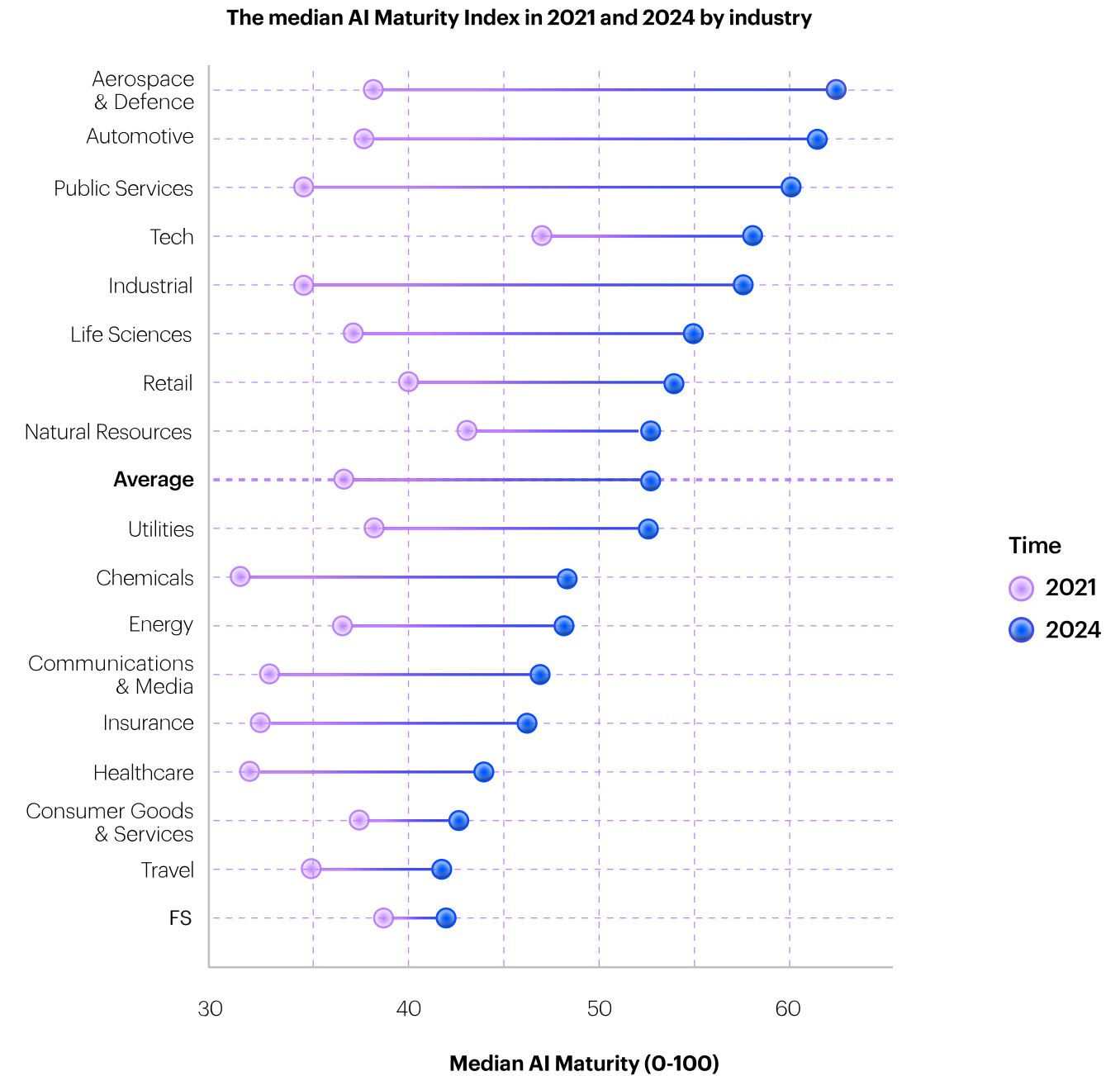
AI, applied

While industries like tech are currently far ahead in their respective AI maturity, the gap will likely narrow considerably by 2024 (Figure 4). Automotive is betting on a big surge in sales of AI-powered self-driving vehicles. Aerospace and defense firms anticipate continued demand for AI-enabled remote systems. And the life sciences industry will expand its use of AI in efficient drug development.

For industry laggards like financial services and healthcare, a range of factors may be contributing to their relatively low AI maturity—including legal and regulatory challenges, inadequate AI infrastructure and a shortage of AI-trained workers.

Still, there is room for growth in AI adoption across all industries and an enormous opportunity for those organizations that choose to seize it.

Figure 4: Levels of AI maturity by industry, 2021 and 2024*



N = 422 | Source: Accenture Research

Note: *2024 = estimated scores. Industries' AI maturity scores represent the arithmetic average of their respective Foundational and Differentiation index.

AI, applied across industries

- **A European telecommunications company** transformed into a next-generation telco by redesigning and implementing a new architecture and platform in the cloud. Its new tech offered real-time insights and a 360-degree view of each customer, which led to a hyper-personalized customer experience, greater agility and a more invigorating retail market.
- **A major mass-market retail brand** enabled advanced AI and computer vision to maximize revenue, optimize inventory distribution and reduce food waste. The company was able to track the freshness of natural produce and determine when items needed to be removed from shelves, alter storage temperatures to ensure longevity of food, and use different types of packaging, thereby saving millions of dollars.
- With the target of becoming climate neutral by 2040, **the city of Vienna**, Austria, is looking to accelerate the use of sustainable and environmentally friendly photovoltaic (PV) systems in several large-sized plants. By integrating all PV assets into a single cloud-based system, real-time insights and advanced analytics are enabling plants to run optimally with early detection of anomalies and faults.
- **An Italian banking group, Banca Sella**, wanted to optimize its client credit product prices accurately and automatically based on customer and market changes. The company used an AI-powered pricing tool with data-driven pricing guarantees to ensure custom solutions for their clients while ensuring adequate margins.
- **A global semiconductor company** leveraged an AI-powered cloud-based platform that uses natural language processing, deep reinforced learning and Microsoft Azure Databricks to enhance customer service and satisfaction, as well as to optimize business processes to lower costs and increase revenues.
- **In the public sector, Metro de Madrid**, one of the world's oldest urban rail systems, deployed AI algorithms to sift through mountains of data—on everything from air temperature at individual stations to train frequency and passenger patterns—to reduce its annual energy intake by 25%.

The art of AI maturity

AI Achievers advance from
practice to performance

AI Achievers advance from practice to performance

AI Achievers thrive when it comes to traditional performance metrics.

Pre-pandemic (2019), they already enjoyed 50% greater revenue growth, on average, versus their peers. And today, they're 3.5 times more likely than Experimenters to see their AI-influenced revenue surpass 30% of their total revenues.

These companies are going above and beyond, deploying AI solutions to solve problems, spot opportunities and outperform their peers. What sets the AI Achievers apart?

Mastery of multitasking

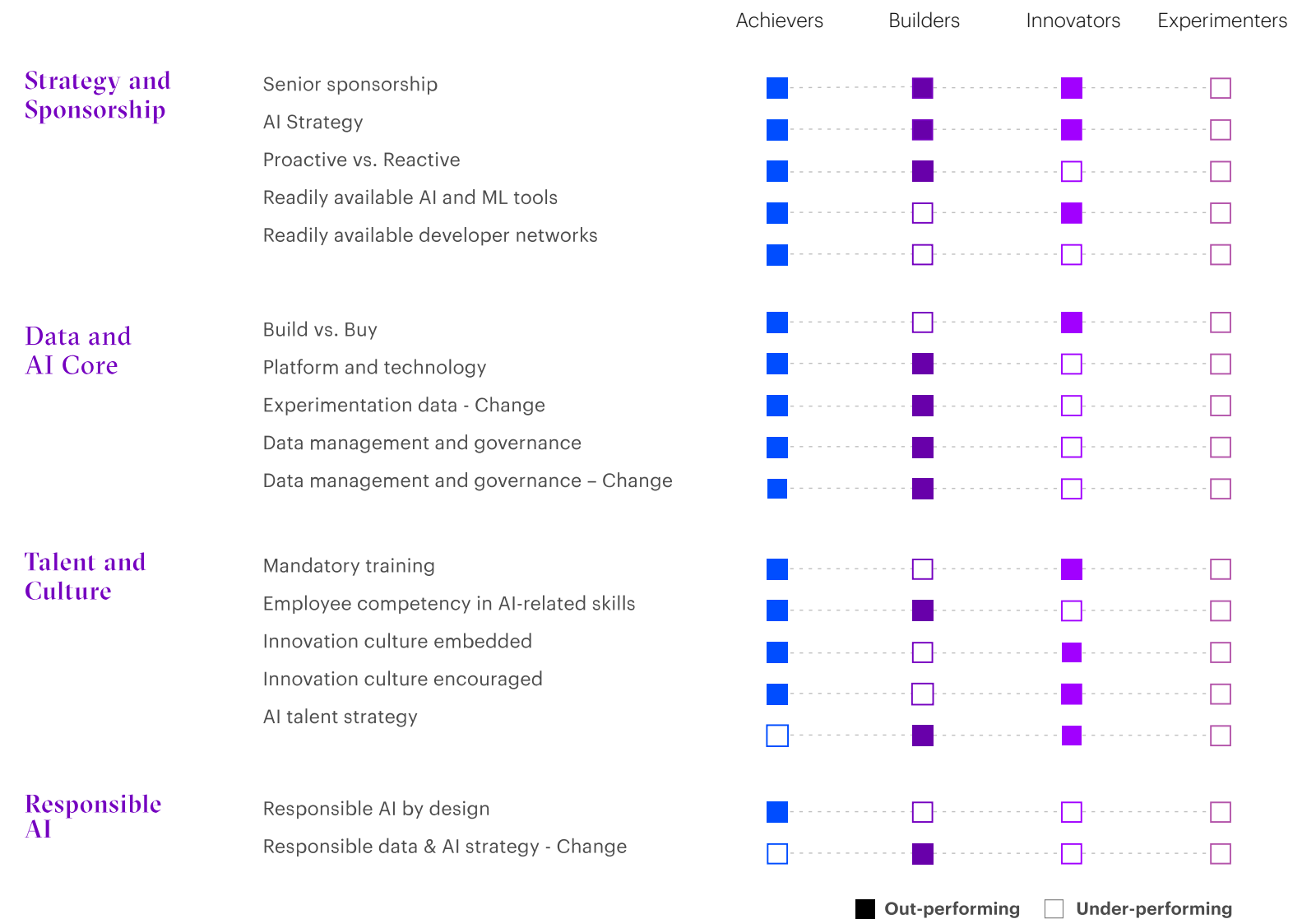
When compared with all other groups, AI Achievers demonstrate high performance across a combination of capabilities.

They are not defined by the sophistication of any one individual capability, but by their ability to maximize strengths across strategy, processes and people (Figure 5).

By comparison, Innovators typically excel at securing senior sponsorship and embrace training for all employees, but they lack the foundational capabilities required to support AI at scale.

Builders, on the other hand, excel at creating data and AI platforms, but they tend to be weaker at cultivating AI fluency and the innovation culture that is needed to drive adoption.

Figure 5: AI Achievers outperform in nearly all capabilities



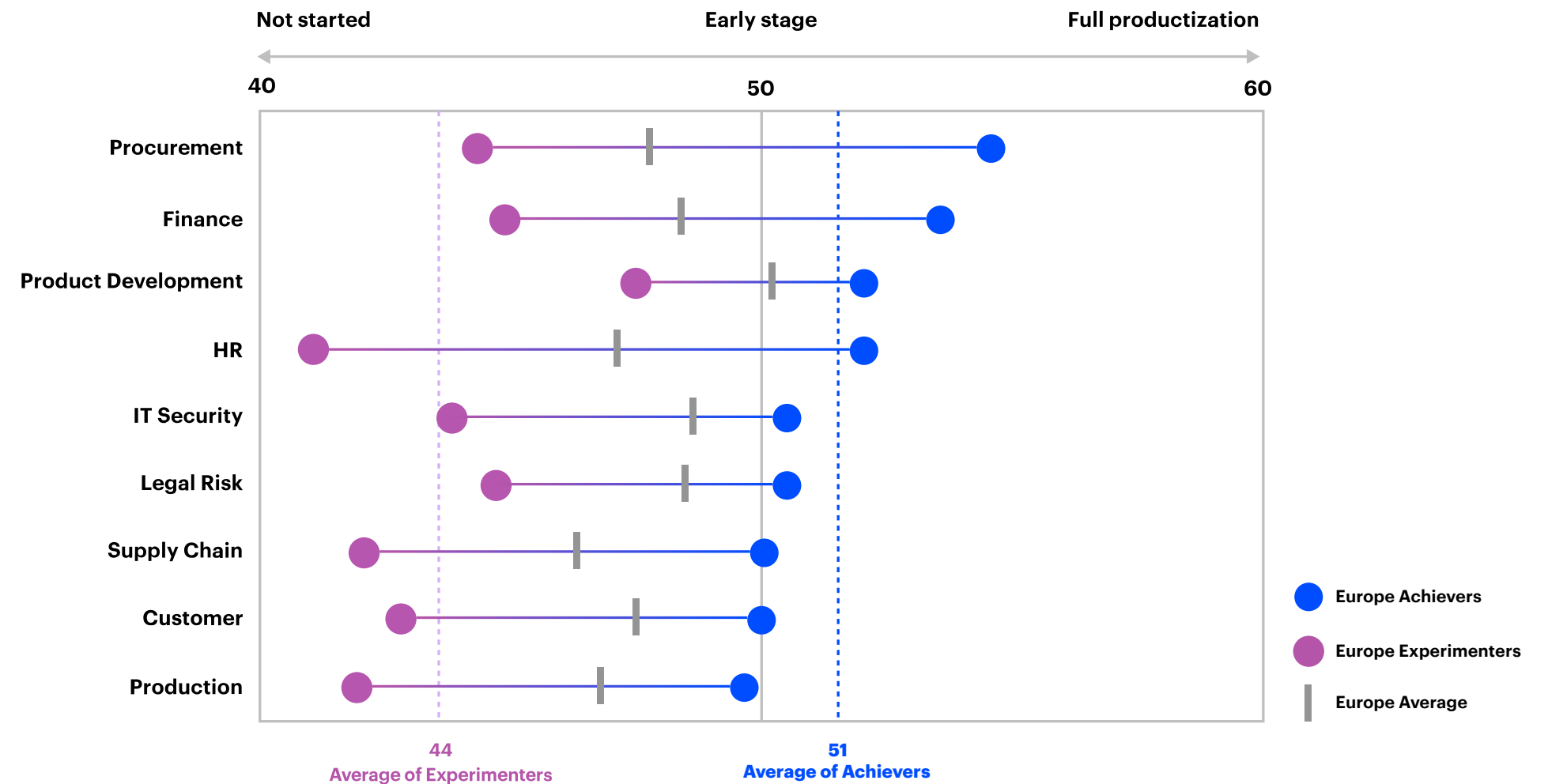
Source: Accenture Research

Note: Each cube represents one of the 17 key capabilities. The cube is highlighted when the AI profile is outperforming against peers (higher than the average across all companies in terms of % of companies reaching the mature level).

Turning pilots into production

Achievers have largely moved beyond the AI investment “tipping point,” going from experimenting with new AI in isolation to applying AI at scale to solve critical business problems (Figure 6). Achievers in Europe are 15% more likely to scale AI pilots across the enterprise compared with Experimenters.

Figure 6: Achievers excel at turning AI pilots into production



Source: Accenture Research

Note: Score 0-100, ranging from 0 = AI use case not started, 50 = AI use in early stage, 100 = having AI programs in place for full productization. The chart shows the difference in terms of average score for AI use cases of different functions, between Achievers and other firms. Those differences are statistically significant after controlling for industry, geography, and company size; see Appendix for more details.

The art of AI maturity

How AI Achievers master their craft

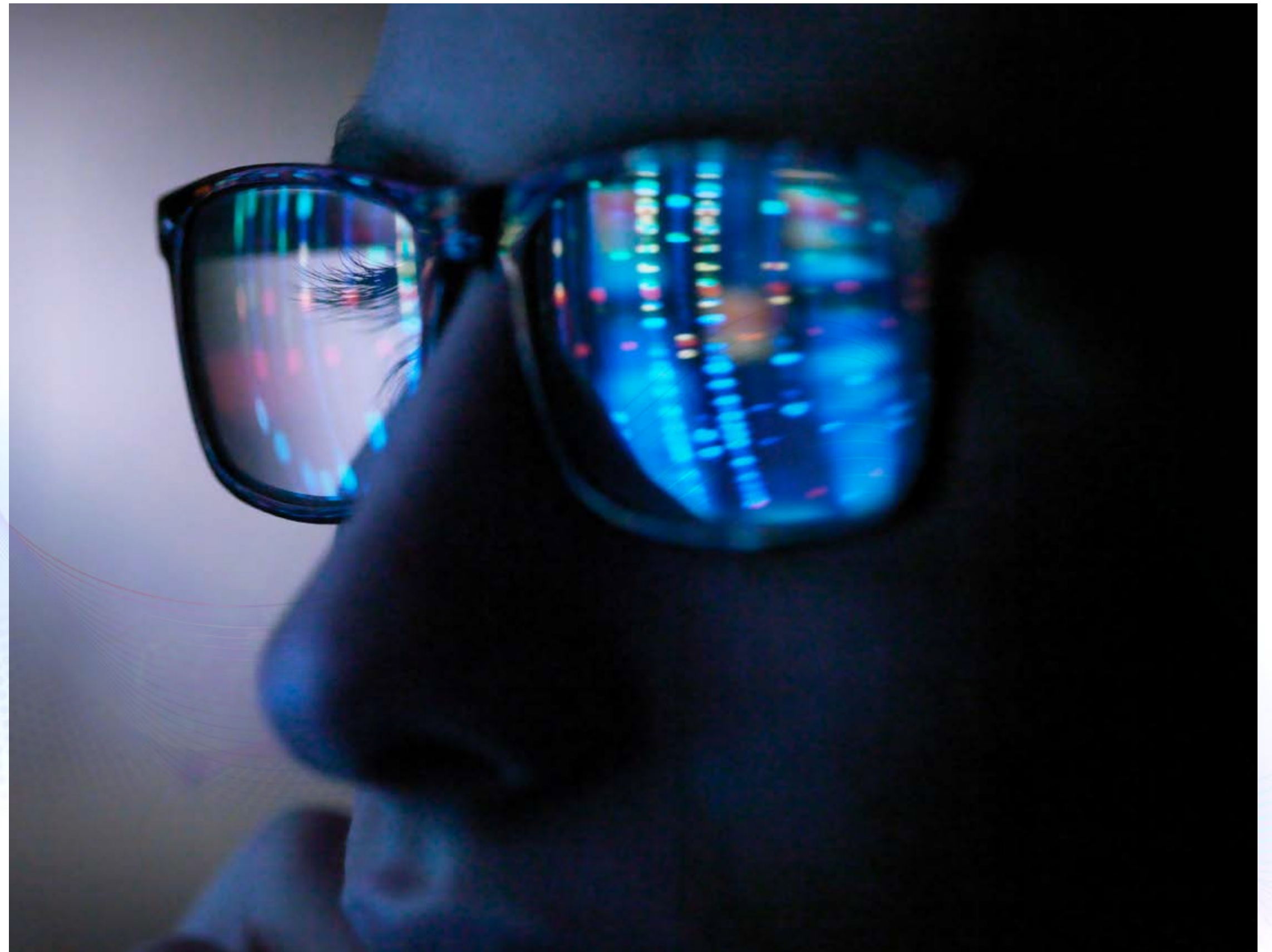
Five success factors

How AI Achievers master their craft

Today's AI Achievers have set the standard and are poised to remain leaders. While there is clearly a science to AI, Achievers have shown us there is also an art to AI maturity—and demonstrated that excellence in areas like vision and culture are just as critical as algorithmic integrity.

It's worth noting that the potential for AI-mature organizations will evolve along with the technology itself. In other words, high performance today will ultimately become business-as-usual tomorrow.

Our research uncovered five key success factors used by AI Achievers today that companies can employ to stay ahead of the competition.



Success Factor 01

Champion AI as a strategic priority for the entire organization, with full sponsorship from leadership

Companies can create strong AI strategies, but unless those strategies receive enthusiastic support from the CEO and the rest of the C-suite, they're likely to flounder.

Achievers are more likely to have formal senior sponsorship for their AI strategies: We found that 78% of Achievers in Europe have such sponsorship, compared to 56% of Experimenters.

Our research also suggests that the best AI strategies tend to be bold, even when they have modest beginnings. Bold AI strategies help spur innovation. For CEOs of Achievers, creating a culture of innovation is itself a deliberate, strategic move—one that is used as a vehicle for experimentation and learning across the organization.

In fact, 41% of Achievers in Europe embed innovation in their organizational strategies, while just 33% of Experimenters do.





"In the last five years, we started to use AI as one of our main drivers in the business. [Today] it's becoming critical. I would say, between 0 and 10, [AI] has become something like an 8." —CEO of a German automotive parts and equipment manufacturer

To encourage such end-to-end innovation, Achievers implement systems and structures that help employees showcase their innovation experiments and seek constructive feedback from leadership. For instance, Achievers tend to be the first to embrace new tools that encourage their employees to experiment and innovate.

For instance, **a global multinational home appliance manufacturer** wanted to capitalize on its data-driven value potential by reshaping the organization. With a three-year business and data strategy to transform the supply chain, sales and manufacturing, and improving forecasting

and pricing through an intelligent pricing system, the company successfully pushed for a more efficient supply chain and improved aftersales revenue.

We found that 6% of Achievers in Europe are already using platforms that allow workers to easily pose questions and share ideas with colleagues across the company—compared to 2% of Experimenters. That number will only grow as these companies expand their pools of AI talent.

78%
of Achievers have
CEO and senior
sponsorship.

Success Factor 02

Invest heavily in talent to get more from AI investments

With a clear AI strategy and strong CEO sponsorship, organizations are more likely to invest heavily in creating data and AI fluency across their workforces. While AI proficiency must start at the top, it can't end there.

We found, for example, that 78% of Achievers in Europe have mandatory AI trainings for most employees, from product development engineers to C-suite executives.

Because Achievers prioritize efforts to build AI literacy in their workforces, it's no surprise that their employees are also more proficient in AI-related skills. This makes it much easier to scale human and AI collaboration and ensure that AI permeates the organization.

One-third (33%) of Achievers in Europe have employees with consistently high AI skills competencies, while Innovators (32%) and Experimenters (30%) have fewer such employees, on average. Furthermore, Achievers have employees with higher competencies in almost all data- and AI-related skills.

Achievers also develop proactive AI talent strategies to stay at the forefront of industry trends. In addition to hiring, this could mean partnering with or acquiring specialist companies to fill critical roles (such as data or behavioral scientists, social scientists and ethicists). It also means having a plan to get these diverse, multidisciplinary workers to collaborate, create and sustain maximum value from the company's data-science capabilities.



What does this look like in practice?

A European government agency wanted to provide more trusted AI services with fair AI practices to support job seekers. The agency went about defining their ethical principles, establishing an ethics governance body and a playbook to identify 'responsible AI ways of working' and ensuring every product and service for job seekers was deployed with the fair and ethical use of artificial intelligence.

A global financial services firm, BBVA, enabled its digital journey with AI to create intelligent data-driven banking operations for greater agility and productivity. By synchronizing and speeding its digital journey with AI, automation and analytics, BBVA improved its customer experience. It also enhanced its talent strategy by focusing on new growth opportunities, upskilling and security opportunities to ensure over 30% reduction in costs.

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Success Factor 03

Industrialize AI tools and teams to create an AI core

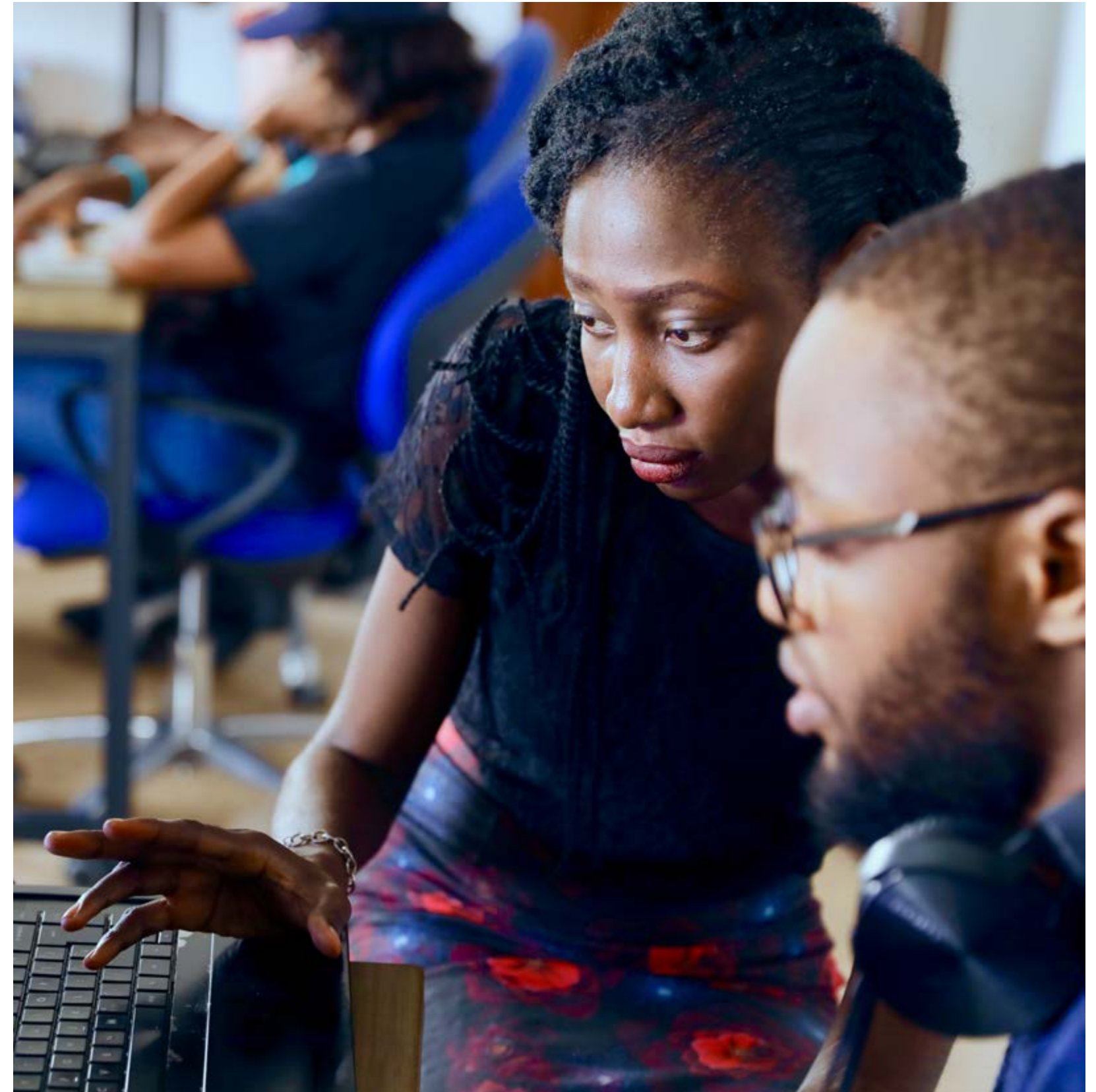
Another priority for Achievers involves building an AI core: an operational data and AI platform that taps into company talent, technology and data ecosystems, allowing firms to balance experimentation and execution. An AI core helps organizations productize their AI applications and integrate AI into other applications, which makes differentiation with AI more seamless.

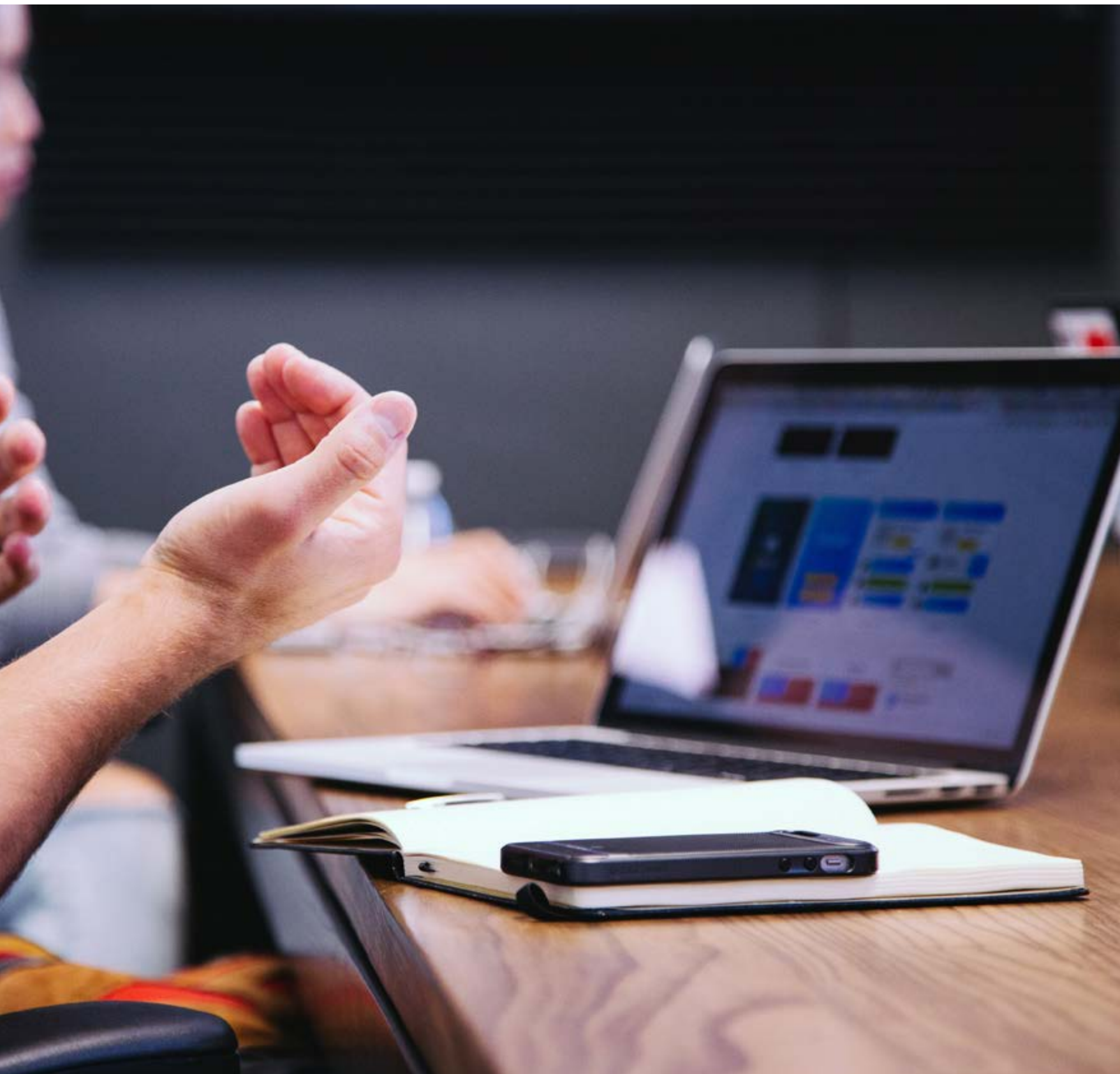
An AI core also works across the cloud continuum (e.g., from migration to innovation), provides end-to-end data capabilities (foundation, management and governance), manages the machine learning lifecycle (workflow, model training, and model deployment) and provides self-service capabilities. AI cores are, in turn, managed by dedicated interdisciplinary teams of machine

learning engineers, data scientists, data-domain experts and systems engineers.

To build AI cores, Achievers harness the power of internal and external data, making that data trustworthy and storing it in a single enterprise-grade cloud platform—complete with appropriate usage, monitoring and security policies.

To extract value from their data quickly and effectively, Achievers in Europe are also 1.7 times more likely, on average, than Builders to either develop bespoke machine learning applications or work with a partner that offers solutions-as-a-service. Achievers are also more likely than Innovators to tap into readily available developer networks that can swiftly productionize and scale successful pilots.





A European energy company created a digital factory to help empower employees to use analytics and AI-driven insights in their daily jobs. Among other initiatives, the digital factory trains field engineers to work with, and improve, machine learning models. The factory also provides mandatory data and AI training to all managers, as well as reskilling and upskilling support to the firm's entire workforce. Thanks to the organization's increased investment in AI-savvy talent, its business department now receives new, AI-powered apps within five months of initiating their development—compared with an 18-month wait, on average, before the digital factory was built. More broadly, by 2025, the company expects its digital factory to boost its bottom line by \$1.5 billion annually.

A pay-TV broadcaster faced with declining sales (of their legacy satellite-based offering) and shifting sports broadcast rights launched an internet-connected television service. The company invested in real-time updates for executives and a strong feedback mechanism to become a super aggregator of content, products and services, giving it the edge to compete with streaming SVOD services, TV manufacturers and in-home devices.

Success Factor 04

Design AI responsibly, from the start

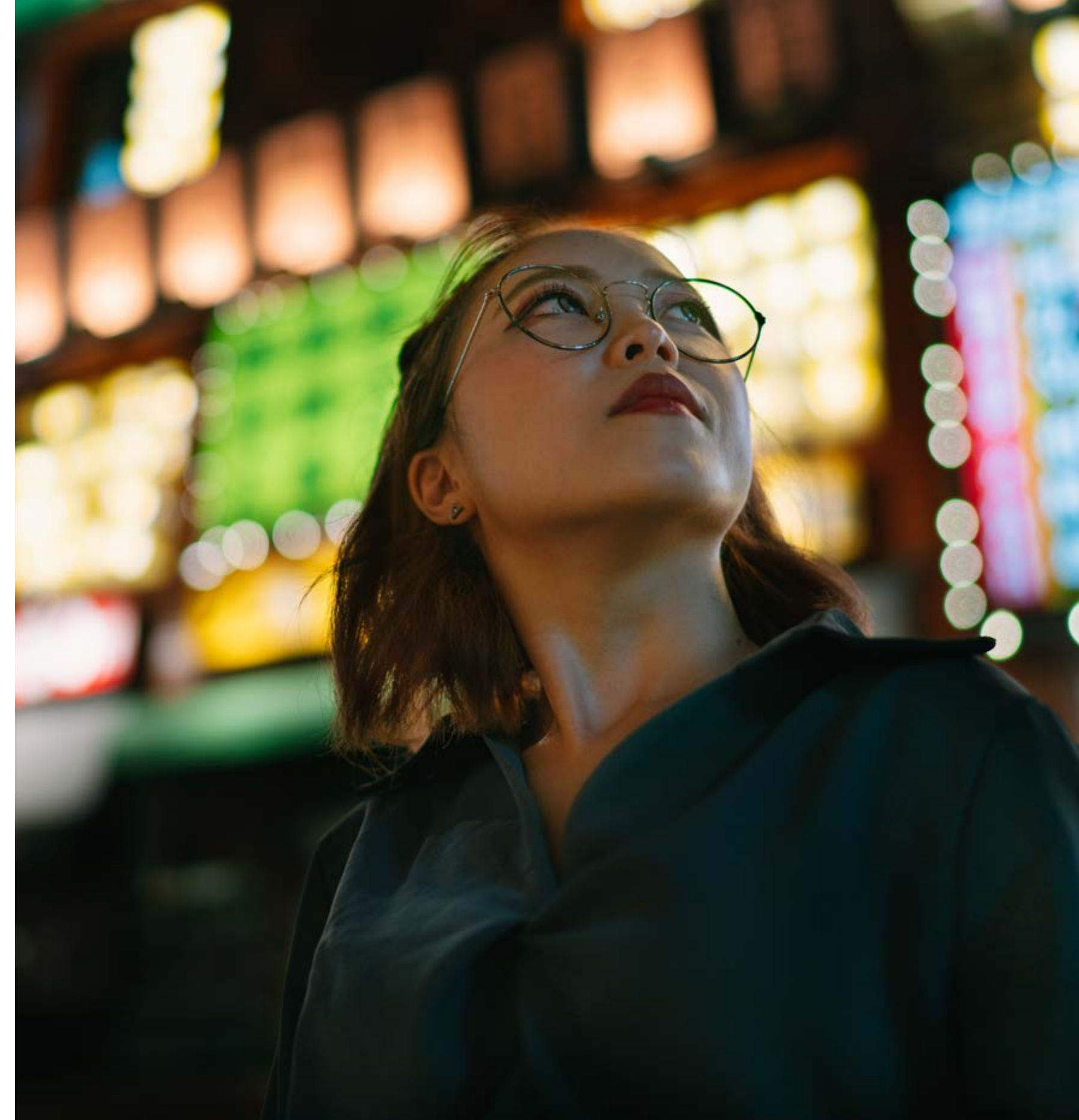
As companies deploy AI for a growing range of tasks, adhering to laws, regulations and ethical norms is critical to building a sound data and AI foundation.

The potential for regulatory changes in many countries makes the challenge even more daunting. In Europe, the EU AI Act (AIA) will most likely be adopted before the end of 2023. Once the act is approved, companies looking to use, buy or sell AI services will need to consider the requirements of this law. Although the EU AIA offers a two-year grace period to organizations before enforcing associated rules, it has been observed that major organizations may end up taking two years to establish enterprise-wide compliance programs anyway.

In a separate Accenture study of 850 C-suite executives, we sought to gauge attitudes toward AI regulation and assess

organizations' readiness to comply. Nearly all (97%) respondents believed that regulation will impact them to some extent, and 77% indicated that compliance is a company-wide priority. Interestingly, many organizations view AI regulation as a boon rather than a barrier to success. The ability to demonstrate high-quality, trustworthy AI systems that are "regulation ready" will give first movers a significant advantage in the short- and long-term, enabling them to attract new customers, retain existing ones and build investor confidence.

In Europe, 6% of organizations have built their responsible AI foundation and put their principles into practice, ready to accommodate near-term and ongoing regulatory changes. Meanwhile, 69% of organizations have some dimensions in place but haven't operationalized a robust responsible AI foundation.



Globally, Achievers are consciously applying responsible AI with greater urgency than their peers. Achievers are 53% more likely, on average, than Builders and Innovators to be responsible by design. This means they are not only designing, developing and deploying AI with good intention to empower employees and businesses, but also fairly impacting customers and society. Achievers, then, engender trust and scale AI with confidence.

For all companies, the upshot of being responsible by design is an improved ability to meet future requirements, better mitigate risks and create sustainable value for themselves and their stakeholders.

For instance, **Allied Irish Banks (AIB)** was looking to apply theoretical approaches to tackling algorithmic bias to real-world retail banking scenarios. A combination of analytics experts, designers, data scientists, and business and compliance experts collaborated in enabling AIB to affirm confidence in their decision-making models and deliver trustworthy banking for their customers.

A large telecommunications company at the forefront of AI investments enabled compliance with responsible AI guidelines in all its collaborations with key workstreams. The project has provided a framework to guide RAI governance, and a playbook to guide the development of RAI and make it actionable.

Even though only 5% of the companies surveyed had already implemented responsible AI practices, 40% of surveyed companies aspire to do so by the end of 2024.

We found that in 2018, Achievers in Europe devoted 14% of their total technology budgets to AI, while in 2021 they devoted 27%. In 2024, they plan to devote 33%.

Success Factor 05


Prioritize long- and short-term AI investments

To avoid being left behind, most companies need to aggressively increase their spending on data and AI. One reason Achievers get more out of AI is simply because they invest more in it.

Achievers also understand that their AI investment journey doesn't have a finish line. There is, as they frequently note, no "peak AI." These companies know they have only scratched the surface of their AI transformations and that the quality of their investments matters just as much as the quantity. For Achievers, continued investment largely involves expanding the scope of AI to deliver maximum impact, while "cross-pollinating" AI solutions and redeploying resources in the process.

In a quest to reach climate neutrality by 2040, **the Municipality of Vienna** is committed to investing more than

€4 billion to increase renewable energy production (which includes photovoltaic energy, district heating and district cooling, and public transport). Accenture and Wiener Netze developed a strategic digital twin for the city with a planning tool that will enable data-driven decisions regarding the upkeep and development of critical infrastructure and public policies. By computing and visualizing the demand for each building in Vienna, based on parameters such as heating, cooling and the upgrading of thermal insulation, the company was able to scale massively. The company was able to visualize the energy demand in an interactive 3D city model that aids decision making for stakeholders, infrastructure planners and politicians. To date, the initiative has seen 10 data sources connected, more than 140,000 buildings visualized, and 2.1 billion simulated energy demand values per year.

A woman is shown in profile from the chest up, her arms raised in a gesture of triumph or achievement. She is illuminated by a soft, purple light that creates a glowing effect around her hair and skin. The background is dark, making the purple light stand out. The overall mood is one of success and aspiration.

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The art of AI maturity

Practice makes progress



Practice makes progress

The concept of using AI to solve business problems isn't new.

By 2019, there was evidence that scaling AI beyond proofs of concept had a significant impact on ROI. Then the pandemic hit. For many organizations, enterprise-wide transformation was a means of survival. For others, it quickly became a catalyst to thrive.

AI Achievers are thriving. Across industries, they've moved past cloud migration to innovation. They've capitalized on cloud's scale and computing power to tap into new data sources and AI technologies that are widely available. But AI isn't their secret to superior performance. It's how they're approaching AI that makes them different. They've established that AI maturity is as much about people as it is about technology. As much about strategy as it is about implementation. As much about responsibility as it is about agility.

While Achievers are advanced relative to their peers, they'll set new standards for high performance as their own maturity evolves.

Every organization should be asking questions to assess its own AI maturity. To help get started, Figure 7 has some sample questions for C-suite leaders, according to Accenture's AI maturity assessment. There are also tools available to help benchmark AI maturity and establish clear paths to progress and performance.

As AI technologies become more prevalent, the future of all businesses is going to look very different—some companies will lead the change, while others will be subjected to it.

Those who transform will be the ones whose teams master the art of AI maturity, using cloud as the enabler, data as the driver and AI as the differentiator.

How can AI help you differentiate?

Figure 7: AI maturity assessment: sample questions for C-suite leaders

Category	Key questions
<p>Strategy and Sponsorship</p>	<ul style="list-style-type: none"> • Does your C-suite have clear accountability for data and AI strategy and execution? • How do you identify potential value, and how are business cases prioritized—considering the potential risks and alignment with the overall strategy of the organization? • Are you allocating enough delivery resources to build AI products and services in-house, and are you able to get the most out of your ecosystem partners?
<p>Data and AI Core</p>	<ul style="list-style-type: none"> • To what extent do you have a cloud platform and technology strategy that supports your AI strategy? • Do you have an effective, enterprise-wide data platform, as well as strong data management and governance practices, to meet business needs? • Are you using data science and machine learning teams effectively across the lifecycle of AI development?
<p>Talent and Culture</p>	<ul style="list-style-type: none"> • Is your data- and AI-literacy strategy aligned to your business objectives? • To what extent have you prioritized data and AI fluency for senior leaders, business stakeholders and employees across your organization? • Do you have a holistic talent model to scale, differentiate, retain and develop AI talent (diverse, dedicated teams of machine learning engineers, data scientists, data-domain experts and data engineers)? • How are you institutionalizing a data and AI culture within your organization?
<p>Responsible AI</p>	<ul style="list-style-type: none"> • Do you have an enterprise-wide framework to help you operationalize responsible data and AI from principles to practice? • Are you applying a consistent and industrialized responsible data and AI approach across the complete lifecycle of all your AI models? • Are you methodically tracking the evolution of AI-related laws and regulations across the different jurisdictions in which you operate, while anticipating and preparing for future changes?

Source: Accenture Research

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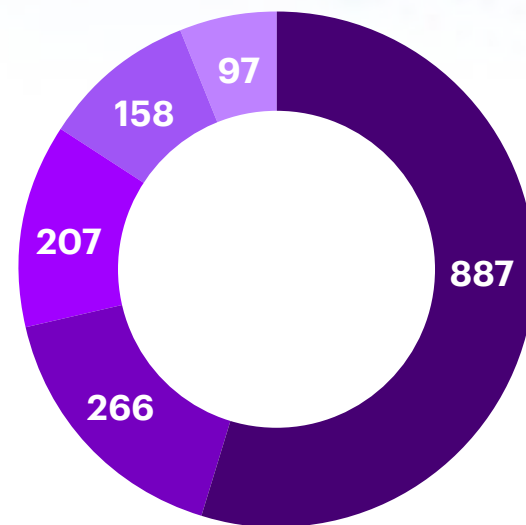
About the research

Accenture surveyed 1,615 executives (including CEOs, C-Suite, CAIO's and Data Science Leaders) from the world's largest organizations (with revenues greater than \$1 billion). The survey was carried out across 15 countries and 16 industries, and fielded between August and September, 2021. In this report we have highlighted the AI maturity trends in Europe.

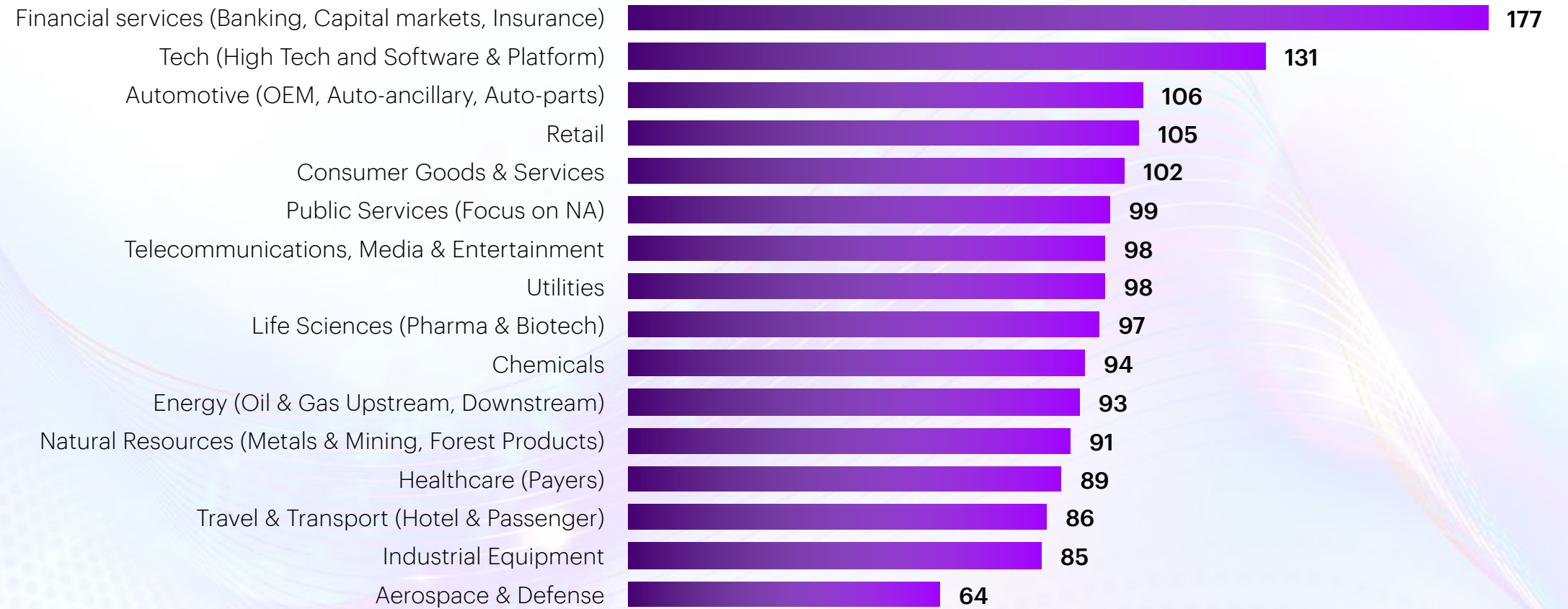
Survey includes those organizations who have at least agreed upon some basic AI strategy and have begun implementing relevant tools, to those who have a core AI strategy in place.

Revenue (USD)

- \$1 - \$4,9 billion
- \$5 - \$9,9 billion
- \$10 - \$19,9 billion
- \$20 - \$49,9 billion
- \$50 billion or more

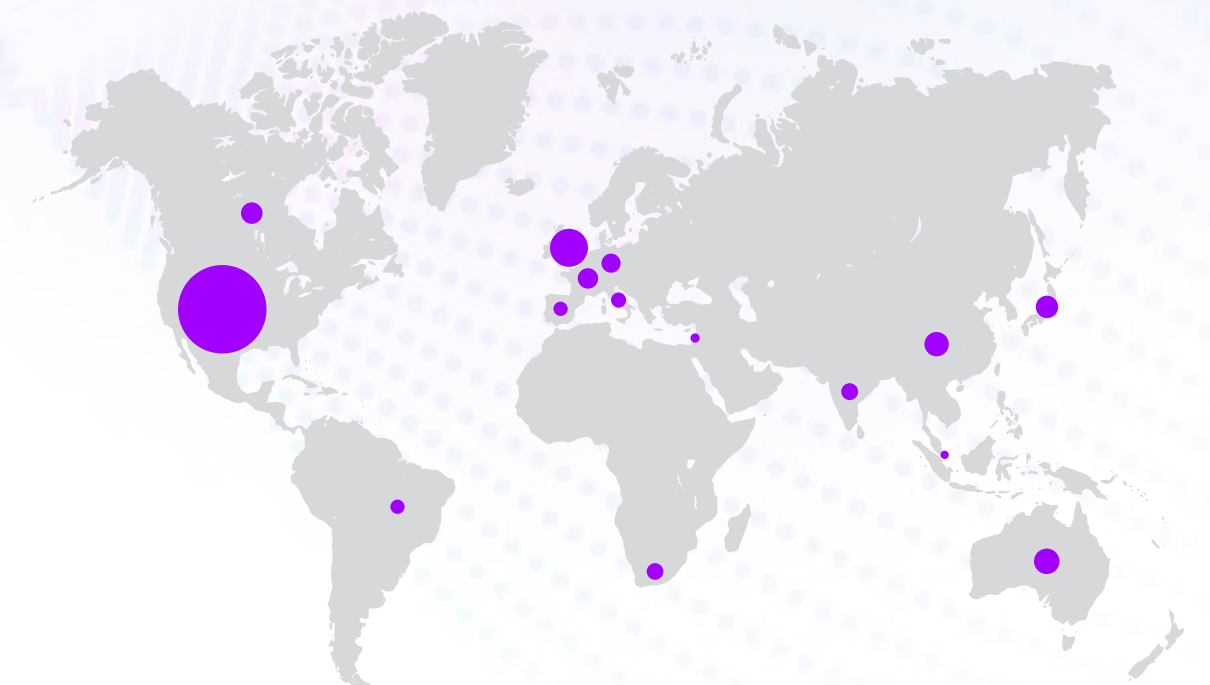


Industries



Countries

- | | |
|-----------------|-------------------|
| Australia (116) | Italy (69) |
| Brazil (65) | Japan (102) |
| Canada (98) | Singapore (38) |
| China (111) | South Africa (76) |
| France (93) | Spain (65) |
| Germany (87) | UK (173) |
| India (77) | US (403) |
| Israel (42) | |



Appendix

Survey

From August to September 2021, Accenture surveyed 1,615 C-suite executives at 1,176 of the world's largest companies—present in 16 industries and headquartered in 15 countries. In this report, we have highlighted the AI maturity trends in Europe. In this report we have highlighted the AI maturity trends in Europe Market.

Interviews and case studies

We interviewed 25 CEOs, Chief Data Officers and Chief Analytics Officers. We also interviewed Renée Richardson Gosline (Senior Lecturer at MIT Sloan School of Management and Principal Research Scientist at MIT's Initiative on the Digital Economy) and Christine Foster (Chief Commercial Officer at The Alan Turing Institute), as well as numerous AI experts at Accenture. Through research and client work, we also developed over 40 company case studies on AI transformation.

Design thinking

We ran a MURAL session with more than 15 senior data scientists to validate our AI maturity model.

Economic modeling and data science

To assess companies' AI maturity, as well as other measures of performance, we took the following steps:

1. Identified key capabilities of AI maturity

We sought to understand the key capabilities that contribute to reaching both an "entry" level of AI maturity (i.e. deriving at least 10% of revenues from AI-influenced initiatives from 2018 to 2021) and a higher level of AI maturity (i.e. deriving more than 30% of revenues from 2018 to 2021). To do this, we built two machine learning models that account for more than 80 capabilities that contribute to the two different levels of AI maturity (see box below).

$$R_i = \beta_0 + \beta_1 X_{it} + \beta_2 \text{Capabilities}_{it-1} + \beta_3 \Delta \text{Capabilities}_{it} + \beta_4 \text{Capabilities Interactions}_{it,t-1} + e_{it}$$

R_i represents the level and evolution of a company's AI-influenced revenues (sustaining at >10%, reaching >30%)
With i = company, t = 2021 and $t-1$ = 2018, X_{it} includes controls for industry, firm size and company location (country).

The model is a linear probability Lasso model, a K-fold cross-validation with 10 folds performed.

2. Defined "foundational" and "differentiation" capabilities

In our models, we classified $\text{Capabilities}_{it-1}$ and $\Delta \text{Capabilities}_{it}$ as AI foundational capabilities; $\text{Capabilities Interactions}_{it,t-1}$ are—as the name suggests—capabilities with interaction, with strong senior sponsorship and a well-defined AI strategy. We classified these interaction terms as AI differentiation capabilities.

From our models, we discovered that AI foundational capabilities have stronger explanatory power in the first model of "sustaining at >10%" than

AI differentiation capabilities; in the second model of "reaching over >30%", AI differentiation capabilities have stronger explanatory power. In other words, AI foundational capabilities are essential to building the necessary foundation for organizations to enter the AI race. Meanwhile, AI differentiation capabilities are key for organizations to reach the next level of AI maturity.

3. Built the AI maturity index

We built two indexes that measure companies' AI foundational capabilities and AI differentiation capabilities, respectively, as identified by our two models. An overall AI maturity index is built as the arithmetic average of both AI foundational index and AI differentiation index, which is indicative of their probability of achieving high AI-influenced revenue. The median maturity index of all companies is 36/100.

4. Constructed AI profiles based on foundational and differentiation capabilities

The AI foundational capabilities and AI differentiation capabilities indexes were then used to construct a matrix. We used the top quartile as a threshold on both axes to cluster all the companies from the survey into four groups:

- **AI Achievers**—the top quartile on both foundational and differentiation median maturity index: 64/100
- **AI Builders**—the top quartile on foundational but not on differentiation median maturity index: 44/100
- **AI Innovators**—the top quartile on differentiation but not on foundational median maturity index: 50/100
- **AI Experimenters**—all remaining companies median maturity index: 29/100

5. Measured Achievers' financial premium

To assess AI Achievers' financial performance, we used data from S&P Capital IQ to build the following regression model: $\text{Revenue growth}_i = \beta_0 + \beta_1 X_i + \beta_2 \text{AI Achiever} + e_i$ (i = company, AI Achiever as the dummy variable, and X_i including controls for industry, firm size, and company location).

6. Measured Achievers' stakeholder performance

To assess Achievers' stakeholder performance in the areas of customer experience, sustainability, workforce, and supply chain, we built scores from 0-100 in these respective areas using data from FactSet, Arabesque, Oxford Economics, and S&P Capital IQ, which measure companies' performance against their industrial peers. The difference between Achievers and other companies is highly statistically significant ($p < 0.01$) for customer experience and sustainability. The following offers more detail on each area.

- Customer experience reflects how companies strengthen their sales pipeline by developing strong customer relationships; our measures include consumer trust, customer churn, product quality and safety, and an overall customer-centric mindset.
- Sustainability reflects how companies strengthen their commitment to environmental stewardship; our measures include greenhouse gas emissions, ecological management, resource use, water and waste efficiency, and various environmental solutions.
- Financial reflects how companies deliver profitable growth and operate efficiently.
- Workforce/employee experience reflects how companies unlock their workforces' full potential; our measures include compensation, employment quality, employee turnover, occupational health and safety, and training and development.
- Supply chain reflects how companies manage risks associated

with their supplier networks and inventory levels; our measures include supplier diversification, supplier risk, and inventory management.

7. Measured the speed of AI transformation vs. the speed of digital transformation

To understand how fast companies undergo AI transformation compared to digital transformation, we used the frequency of mentions of both terms on companies' earnings calls as a proxy. To do this, we performed a natural language processing analysis of investor calls of the world's 2,000 largest companies (by market capitalization), sourced from the S&P earnings transcripts database. (Note: Our analysis included 744 companies with a consistent history of earnings calls during 2010-21.) Finally, we built predictive S-Curve models that estimated the time, henceforth, that it would take for 90% of such companies to mention the aforementioned terms on their earnings calls.

Key Capabilities

Strategy and Sponsorship

1. **Senior Sponsorship:** Organizations have an AI strategy that is developed by the Chief Analytics Officer, Chief Data Officer, Chief Digital Officer or an equivalent. The CEO and the Board actively sponsor and share accountability for the strategy and associated AI initiatives.
2. **AI Strategy:** Organizations not only have a core AI strategy aligned to the overall business strategy, but they also dedicate tools and tactics to execute it and continuously track their performance against that strategy.
3. **Proactive vs. Reactive:** Organizations have the resources (such as technology, talent and patents) to proactively define and demonstrate how AI can create value vs. apply AI

as a reaction to a need. They're first-movers instead of fast followers in terms of applying AI for business value.

4. **Readily Available AI and ML tools:** Organizations work with an ecosystem of technology partners to access machine learning models and tools to help innovate new products and services.
5. **Readily Available Developer Networks:** Organizations tap into an ecosystem of technology partners to access developer networks that support the development of new products and services.

Data and AI Core

6. **Build vs. Buy:** Organizations develop custom-built AI applications or work

with a partner who offers solutions-as-a-service, vs. purchase "off-the-shelf" AI solutions with little-to-no customization.

7. **Platform and Technology:** Organizations apply the necessary cloud, data and AI infrastructure, software, self-serve capabilities and industry best practices, and they adopt the latest tools available from platform and technology partners.
8. **Experimentation Data—Change:** Organizations improved their use of experimentation data between 2018 and 2021, effectively translating into a higher data and AI maturity. Experimentation data is the use of internal and external data to design new models and generate new insights. To do that, organizations use enterprise-grade cloud platforms to

keep data clean and trustworthy, and to support decision making at greater speed and scale.

9. **Data Management and Governance:** Organizations scale their data management and governance practices to increase data quality, trust and ethics across entities —e.g. by implementing master data management and ensuring security, compliance and interoperability.
10. **Data Management and Governance—Change:** Organizations improved their data management and governance practices between 2018 and 2021, effectively translating into a higher data and AI maturity.

Talent and culture

- 11. Mandatory AI Training:** Organizations enforce AI-specific training programs to improve AI fluency, which are tailored for senior leadership and specific functions, e.g. salesforce, product engineers, etc. They also create deliberate opportunities for employees to learn and apply AI in their roles.
- 12. Employee Competency in AI-Related Skills:** Organizations regularly measure the competency level of employees to determine where further training is needed to improve overall acumen. They measure and build expertise in critical areas like coding, data processing and exploration, business analytics, domain and business acumen, machine learning, visualization and more.

- 13. Innovation Culture Embedded:** Organizations ensure innovation is part of the day-to-day work environment. They encourage mindsets, behaviors and routines that all serve as a vehicle for experimentation, collaboration and learning from ideation to product development to market launch.
- 14. Innovation Culture Encouraged:** Organizations promote and reward innovative mindsets and behaviors including entrepreneurship, collaboration and thoughtful risk-taking.
- 15. AI Talent Strategy:** Organizations have an AI talent strategy—hiring, acquiring, retention—that evolves to keep pace with market or business needs. They also have an AI talent roadmap for hiring diverse AI-related roles, beyond

just ML engineers—such as behavioral scientists, social scientists, and ethicists.

Responsible AI

- 16. Responsible AI:** Organizations have an industrialized, responsible approach to data and AI across the complete lifecycle of their AI models—an approach that can meet changing regulatory requirements, mitigate risks, and support sustainable, trustworthy AI.
- 17. Responsible AI—Change:** Organizations have improved their responsible data and AI practices between 2018 and 2021, effectively translating into a higher data and AI maturity.

References

¹ <https://news.stanford.edu/news/2011/october/john-mccarthy-obit-102511.html#:~:text=John%20McCarthy%2C%20a%20professor%20emeritus,He%20was%2084>

² Accenture Research analysis of the world's 2,000 largest companies by market capitalization mentioning AI in their earnings calls. Formula is based on CEOs of companies that had earnings call in 2020, and CEO was present at the call, and CEO mentioned AI. 46% of these CEOs mentioned AI in their earnings calls, in 2021 up from ~35% in 2017.

³ Accenture Interview

⁴ <https://www.nytimes.com/2020/07/13/business/coronavirus-retraining-workers.html>

⁵ <https://global.rakuten.com/corp/careers/topics/engineering3/>

⁶ <https://economictimes.indiatimes.com/tech/software/american-express-sets-up-data-analytics-risk-technology-lab-in-iit-madras/articleshow/77925793.cms>

⁷ <https://www.novartis.com/about/strategy/data-and-digital/artificial-intelligence/our-commitment-ethical-and-responsible-use-ai>

⁸ <https://www.accenture.com/us-en/insights/artificial-intelligence/ai-investments>

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About Applied Intelligence

Applied Intelligence is Accenture’s approach to scaling AI for clients by embedding AI-powered data, analytics and automation capabilities into business workflows, accelerating time to value with a powerful global alliance, innovation and delivery network that can deploy and scale AI within any market and industry.