The art of AI maturity

Advancing from practice to performance

From insights to action, the path to extraordinary value starts here.

accenture

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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."[1]

Today, so much of what we take for granted in our daily lives stems from machine learning. Every time you use a wayfinding app to get from point A to point B, use dictation to convert speech to text, or unlock your phone using face ID … you'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.
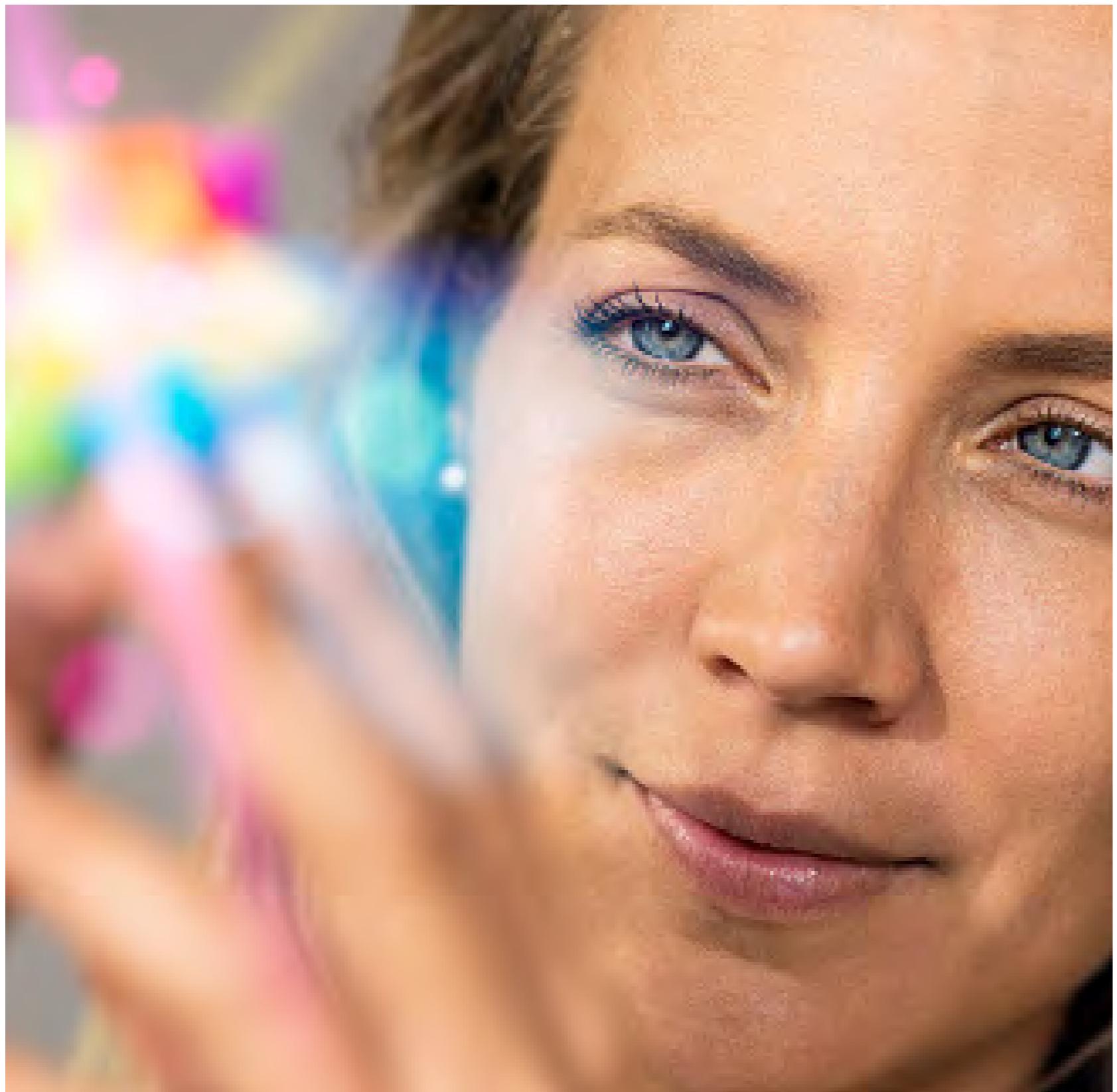
In fact, only 12% of firms have advanced their AI maturity enough to achieve superior growth and business transformation, according to Accenture's extensive analysis of approximately 1,200 companies globally. We call them the "AI Achievers."

Another 25% of firms are somewhat advanced in their level of AI maturity, while the remaining 63% (the majority) are still mostly testing the waters.

This journey to AI maturity has been in high gear for years. 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 analysis by Accenture.

12%
of firms have advanced their AI maturity enough to achieve superior performance and growth.

63%
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 will increase rapidly and significantly, more than doubling from the current 12% to 27% by 2024.

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

AI maturity: Why it matters

AI maturity: Why it matters

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

So, it's no surprise that in 2021, 46% of CEOs (of the world's 2,000 largest companies by market capitalization) mentioned AI on their earnings calls.[2]

Our survey of over 1,600 C-suite executives and data-science leaders from the world's largest organizations found that nearly 75% of companies have integrated AI into their business strategies and reworked their cloud plans to achieve AI success.
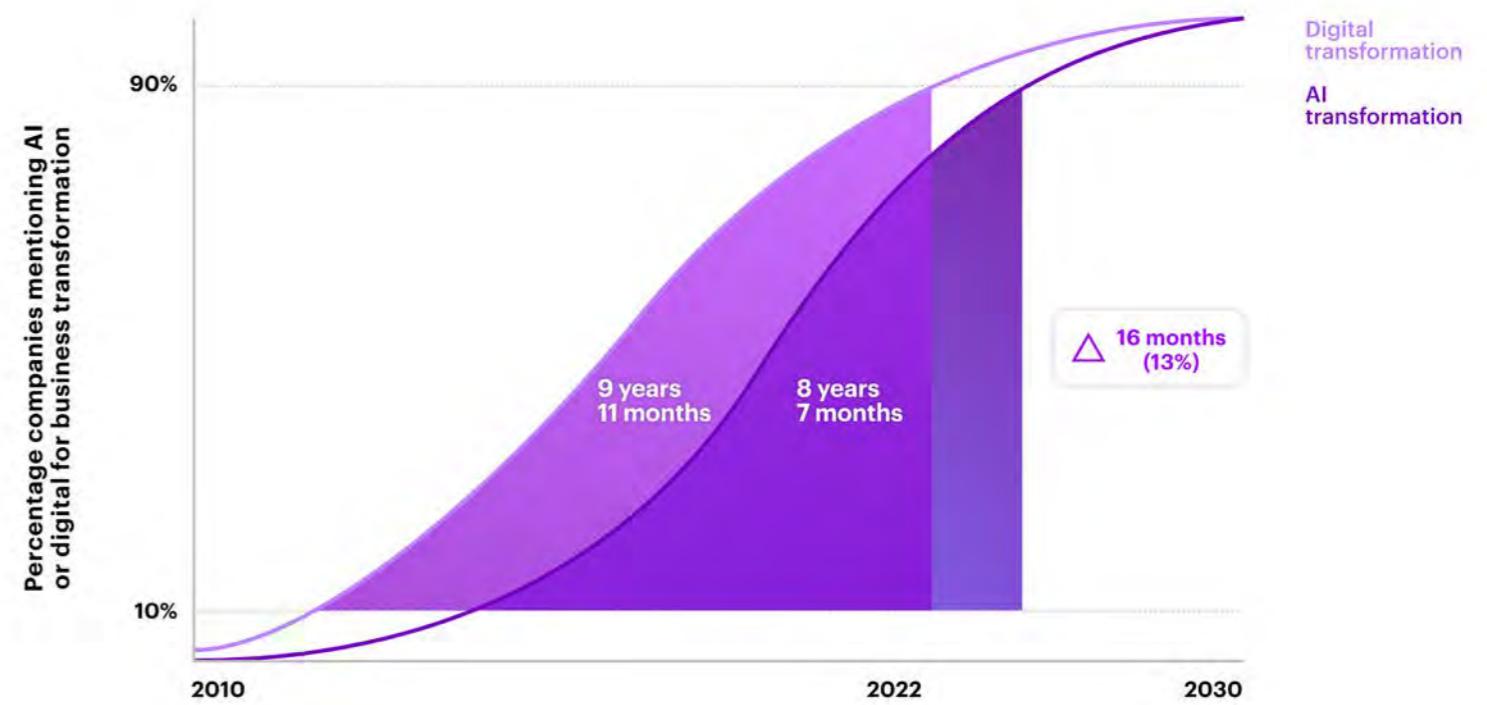
And companies are putting those plans into practice: Nearly a third (30%) of all AI pilot initiatives are subsequently scaled to deliver wide-ranging outcomes, from accelerating R&D timelines for new products to enhancing customer experiences.

The companies leading the way are already seeing the results—42% 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 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
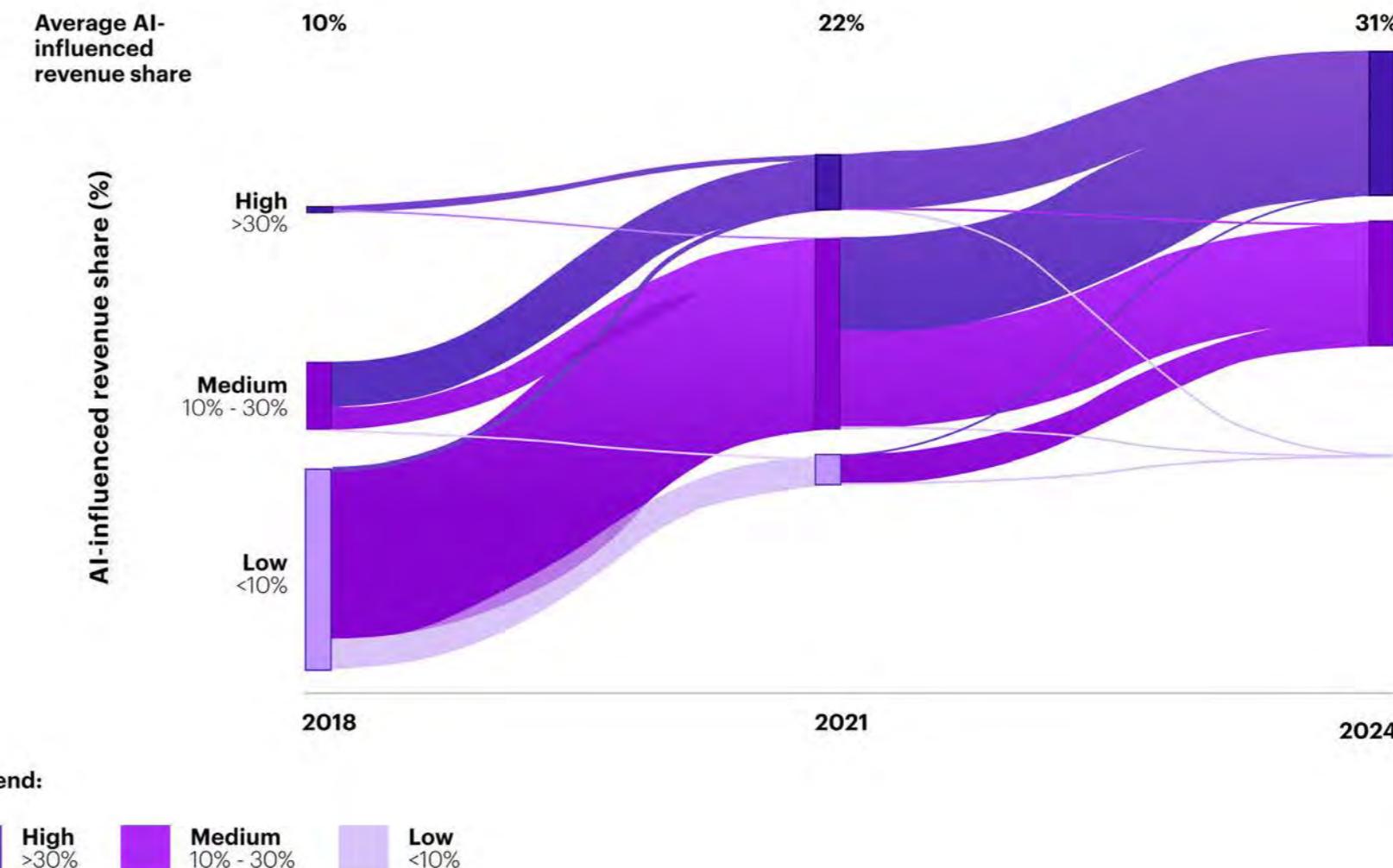
Source: Accenture Research

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.

The incentive to move quickly is strong. 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 roughly triple between 2018 and 2024 (Figure 2).

Given the evidence, it's easy to see why companies plan to increase and accelerate their AI investments. In 2021, 19% of companies dedicated >30% of their tech budgets to AI development. By 2024, 49% of companies intend to.

Figure 2: Evolution of companies' AI-influenced revenue share from 2018 to 2024*

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

Source: Accenture Research
Note: *2024 = projected

*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.

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 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—to give companies a strong competitive advantage. (See pages 36 and 37 for key capability descriptions.)

This includes foundational AI capabilities—like cloud platforms and tools, data platforms, architecture and governance—that are required to keep pace with competitors. It also includes "differentiation" AI capabilities, like AI strategy and C-suite sponsorship, combined with a culture of innovation that can set companies apart.
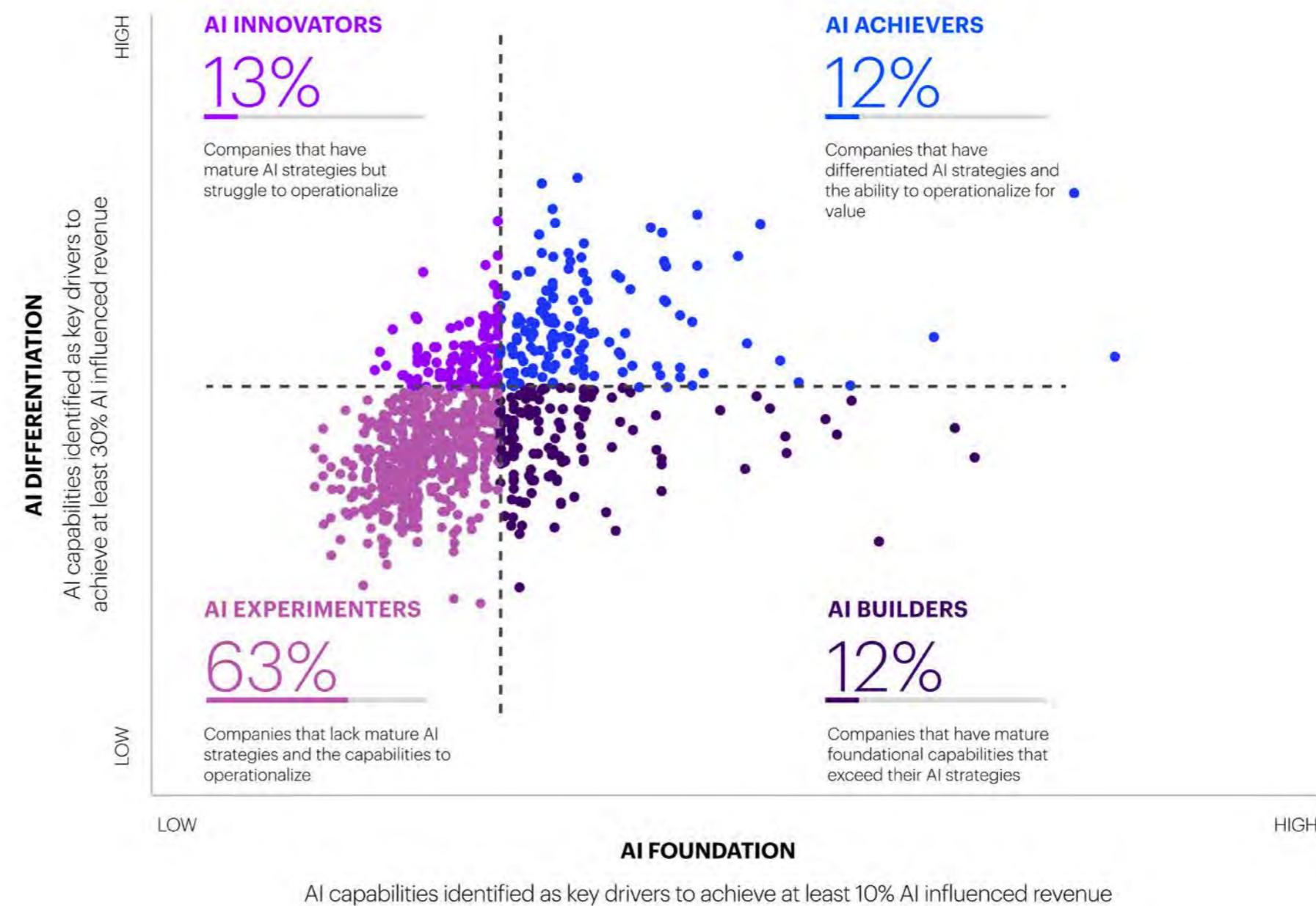
AI maturity measures the degree to which organizations have mastered AI-related capabilities in the right combination to achieve high performance for customers, shareholders and employees.

The companies that scored best in both categories are the AI Achievers. AI Builders show strong foundational capabilities and average differentiation capabilities, while AI Innovators show strong differentiation capabilities and average foundational capabilities.

Achievers, Builders and Innovators collectively represent just 37% of surveyed organizations—Achievers accounted for 12%, Builders for 12% and Innovators for 13% (Figure 3).

A fourth group we're calling AI Experimenters—those with average capabilities in both categories—make up the majority (63%) of those surveyed.

Figure 3: Only 12% of organizations are AI Achievers

AI INNOVATORS
13%
Companies that have mature AI strategies but struggle to operationalize

AI ACHIEVERS
12%
Companies that have differentiated AI strategies and the ability to operationalize for value

AI EXPERIMENTERS
63%
Companies that lack mature AI strategies and the capabilities to operationalize

AI BUILDERS
12%
Companies that have mature foundational capabilities that exceed their AI strategies

HIGH

LOW

AI DIFFERENTIATION
AI capabilities identified as key drivers to achieve at least 30% AI influenced revenue

LOW

HIGH

AI FOUNDATION
AI capabilities identified as key drivers to achieve at least 10% AI influenced revenue

Source: Accenture Research analysis based on a sample of 1,200 companies

For the world's 2,000 largest firms by market cap, the percentage of Achievers was even smaller: 10%. These numbers suggest that large firms may struggle to make the large foundational and cultural shifts needed to become AI Achievers.

Taken together, Achievers, Builders and Innovators tend to have more resources (such as technology, talent and patents) 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.

AI, applied
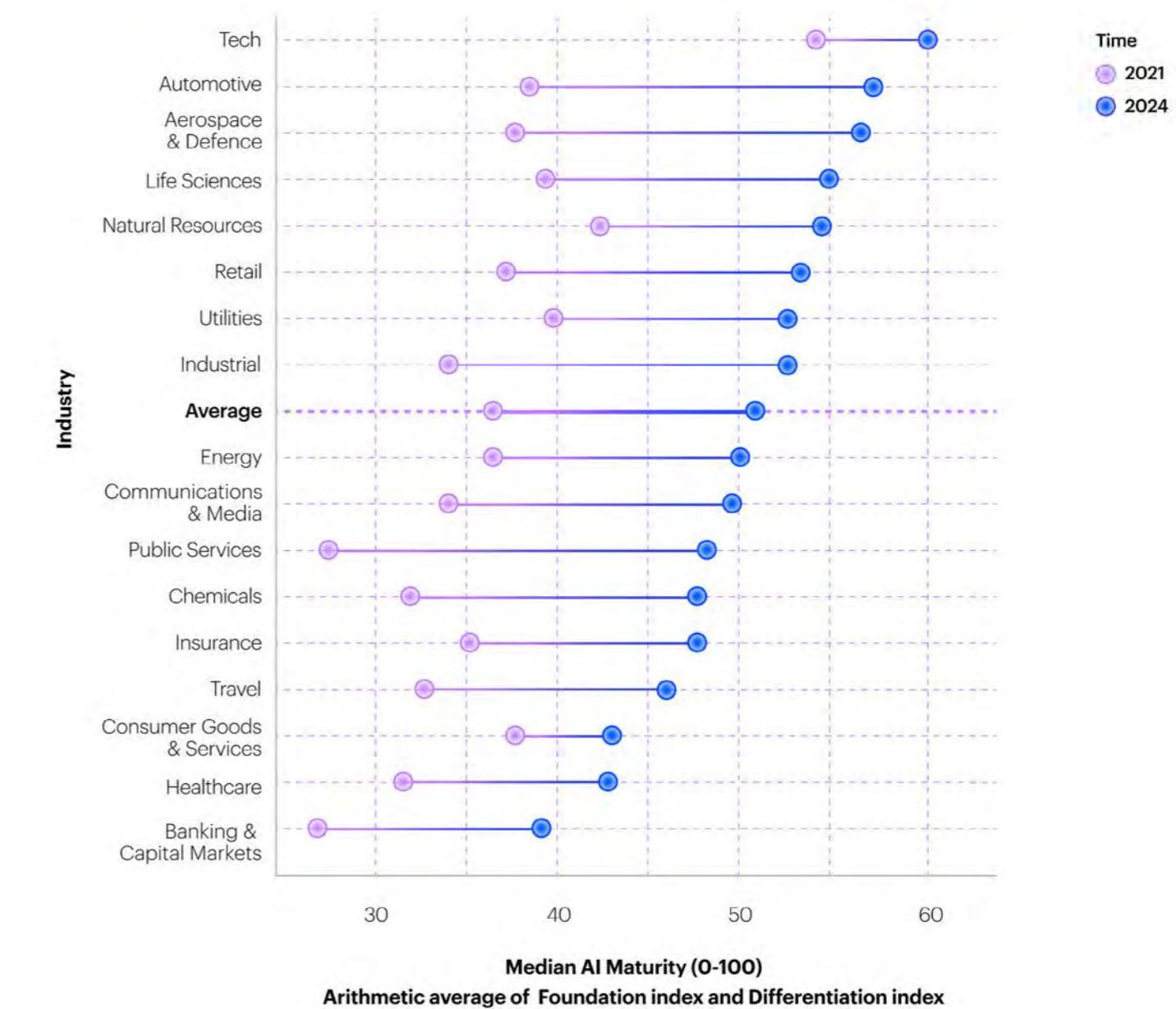
While industries like tech are currently far ahead in their respective AI maturity, the gap will likely narrow considerably by 2024 (Figure 4). Automotive is betting on a big surge in sales of AI-powered self-driving vehicles. Aerospace and defense firms anticipate continued demand for

AI-enabled remote systems. And the life sciences industry will expand its use of AI in efficient drug development. Still, there is enormous room for growth in AI adoption across all industries and an enormous opportunity for those organizations that choose to seize it.

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.

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

The median AI Maturity Index in 2021 and 2024 by industry

(Industry vs Median AI Maturity (0-100), Arithmetic average of Foundation index and Differentiation index; Time: 2021, 2024)

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

- One **food delivery service** uses deep learning to guide drivers to the best delivery routes. AI models analyze more than 2,000 variables, from the latest food ordering trends to traffic conditions, to make real-time recommendations.

- **A large chemicals and energy firm** is using drones and AI-powered computer vision to monitor its equipment and remote locations. The upshot: More frequent inspections at lower cost to the company and fewer safety risks for its maintenance workers.

- **A Middle East-based telco** uses AI-driven virtual assistants—which can communicate in different Arab dialects as well as in English—to deftly handle some 1.65 million customer calls each month.

- A large **Australian telco** deployed AI to quantify the effectiveness of its individual marketing initiatives. The firm was able to measure some 4,000 different marketing metrics and, in the process, has created a world-class marketing performance insights capability, with a range of strategic and tactical applications. The telco is using insights gained from Marketing Mix Modeling (MMM) to optimize the allocation of marketing spend, messaging and media.

- A **leading solar-panel installer** is using satellite photos and deep-learning algorithms to create fully automated rooftop-installation plans and price estimates. In addition to offering end customers an industry-first ability to self-design their systems, the company expects its AI-led design efforts to ultimately lower the firm's sales costs by 25%.

- 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 electricity prices—to reduce its annual energy intake by 25%.

- A **major US-based beverage bottler** used AI to consolidate data sources and measure the effect of promotions on different retailers and markets, boosting the bottler's annual sales by 3%.

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 combine 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

		Achievers	Builders	Innovators	Experimenters
Strategy and Sponsorship	Senior sponsorship	■	■	■	☐
	AI Strategy	■	■	■	☐
	Proactive vs. Reactive	■	■	☐	☐
	Readily available AI and ML tools	■	☐	■	☐
	Readily available developer networks	■	☐	☐	☐
Data and AI Core	Build vs. Buy	■	☐	■	☐
	Platform and technology	■	■	☐	☐
	Experimentation data - Change	■	■	☐	☐
	Data management and governance	■	■	☐	☐
	Data management and governance – Change	■	■	☐	☐
Talent and Culture	Mandatory training	■	☐	■	☐
	Employee competency in AI-related skills	■	☐	■	☐
	Innovation culture embedded	■	☐	■	☐
	Innovation culture encouraged	■	☐	■	☐
	AI talent strategy	■	■	■	☐
Responsible AI	Responsible AI by design	■	☐	☐	☐
	Responsible data & AI strategy - Change	☐	■	☐	☐

■ Out-performing
☐ Under-performing

Source: Accenture Research

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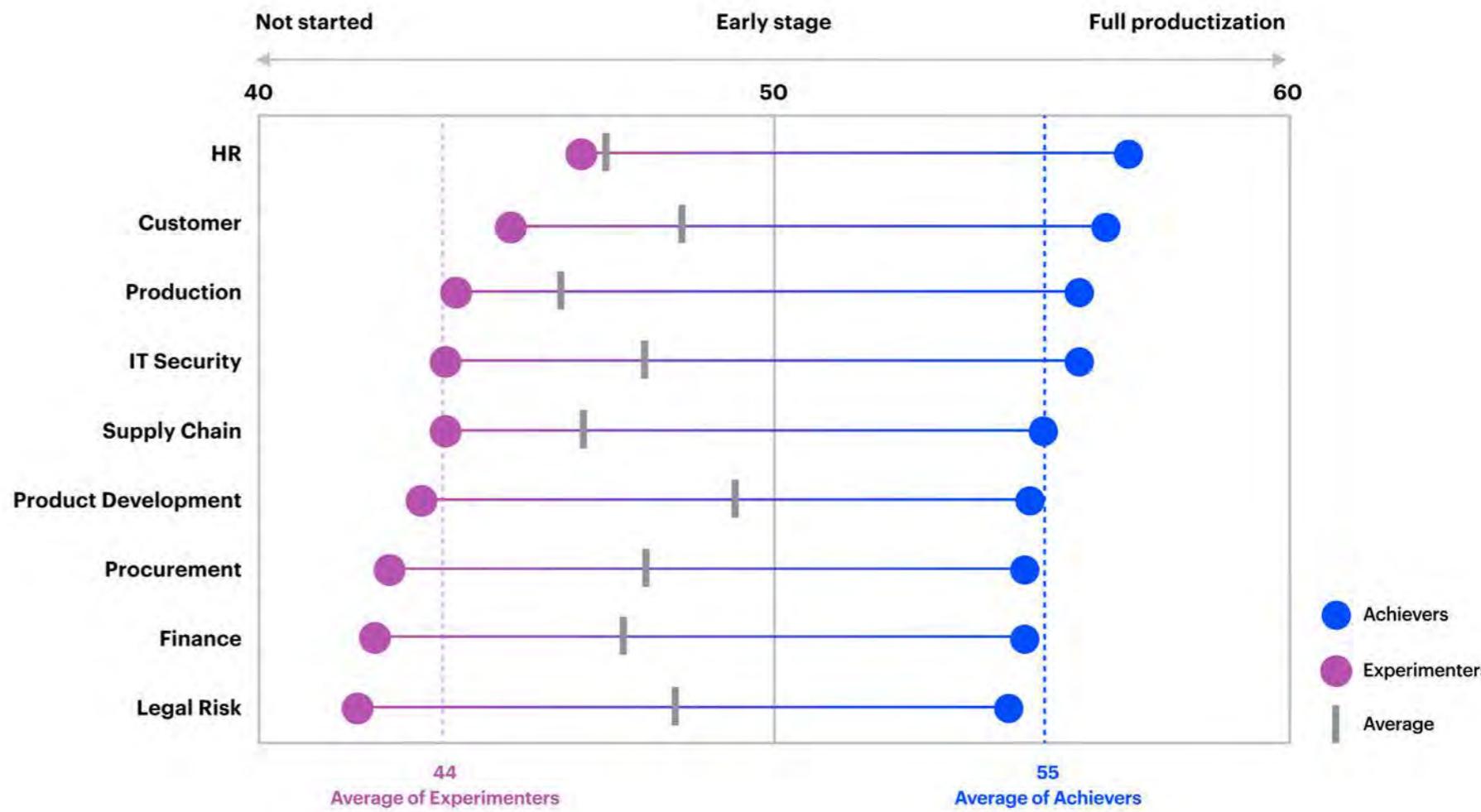
Turning pilots into production

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 are 25% more likely to scale AI pilots across the enterprise compared with Experimenters.

Take product development as an example: **Procter & Gamble (P&G)** uses "explainable AI" algorithms to harness its proprietary data and formulation models and recommend product improvements. If, for example, the company wants to increase the foam in its dishwashing liquid without changing the price, in-house software developers can now ask the explainable AI to recommend a replacement ingredient. If, however, that new ingredient modifies the liquid's color, developers can then instruct the AI to search for a new ingredient—and so on and so forth.

P&G also relies on AI to generate product formulations that are more likely to perform as expected, resulting in less physical testing of new products. The payoff is lower product-development costs, as well as the ability to better tailor products for specific markets and launch them faster.

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 average scores 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.

Focusing beyond financial metrics

Achievers also develop strong relationships with customers—by building trust, reducing churn and boosting the quality and safety of offerings. Our stakeholder performance model showed with high statistical significance that Achievers score 8% higher than Experimenters on customer experience (see Appendix for more on methodology).

Additionally, they double down on their commitment to sustainability by, for instance, rigorously measuring and reducing their greenhouse gas emissions, consuming water and other natural resources more economically and using AI responsibly.

Accenture's Sustainable Technology survey of more than 500 multinational companies found that of the surveyed

firms that managed to reduce emissions from their operations, 70% used AI to achieve those reductions. Likewise, of the surveyed companies that made strides in measuring and disclosing their carbon footprints more transparently, 75% used AI to make such progress.

One **US-based utility company** conducts remote monitoring of its extensive grid infrastructure via satellites, drones and other surveillance tools. With the help of advanced analytics, machine learning and computer vision, the company is able to quickly identify and prioritize areas for maintenance, improve public safety and mitigate the effects of climate change.

The stakeholder performance model revealed the value-creation gap between Achievers and other companies is significant when it comes to sustainability.

# How AI Achievers master their craft
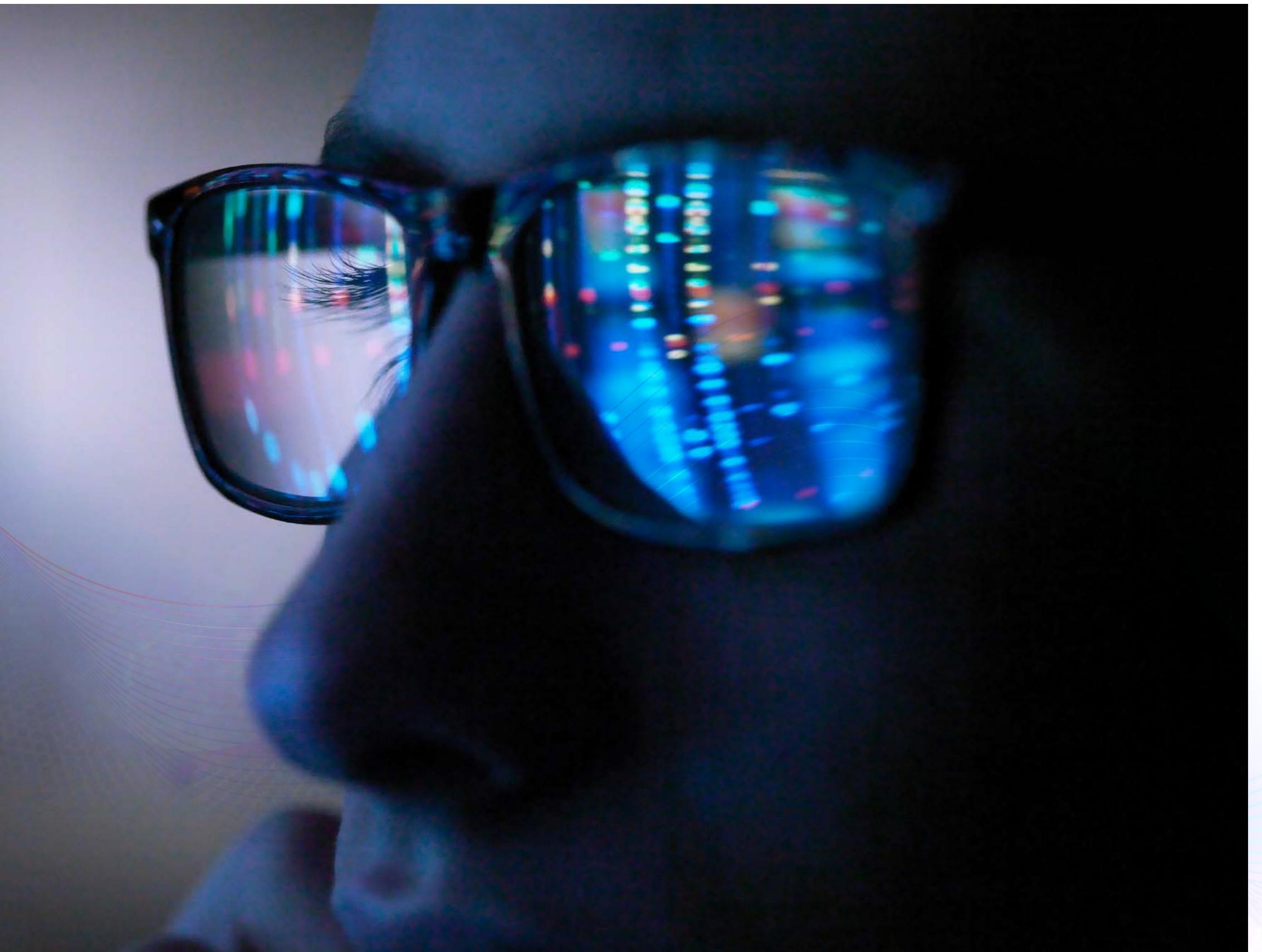
Five success factors

How AI Achievers master their craft

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

Today's AI Achievers have set the standard and are poised to remain leaders. While there is clearly a science to AI, they've shown us there is also an art to AI maturity.

They have demonstrated that excellence in areas like vision and culture are just as critical as algorithmic integrity. Our research uncovered five key success factors for AI Achievers.

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, competing with other initiatives for attention and resources.

Achievers are more likely to have formal senior sponsorship for their AI strategies: we found that 83% of Achievers have such sponsorship, while only 67% of Builders and just 56% of Experimenters have it.

Our research also suggests that the best AI strategies tend to be bold, even when they have modest beginnings. Bold AI strategies, in turn, help spur innovation.

And for the 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, 48% of Achievers 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. Five years ago, AI was not critical at all … [but today] it's becoming critical. I would say, between 0 and 10, [AI] has become something like an 8."[3]

CEO of a German automotive parts and equipment manufacturer

For instance, **Lendlease Digital** (part of multinational Lendlease Group) hopes to produce architectural blueprints for buildings using generative design and AI, then use those blueprints to manufacture actual buildings in factories—fitting together all the pieces like LEGO sets.

The company's bold vision starts at the top, led by the CEO of Lendlease Digital, William (Bill) Ruh.

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.

We found that 16% of Achievers are already using platforms that allow workers to easily pose questions and share ideas with colleagues across the company—compared to 4% of Experimenters. That number will only grow as these companies expand their pools of AI talent.

83%
of Achievers have CEO and senior sponsorship.

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—compared with just 56% of Builders and 51% of Experimenters— 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.

Nearly half (44%) of Achievers have employees with consistently high AI skills competencies, while Innovators (33%) and Experimenters (30%) have significantly 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.

In 2018, US utility **Exelon** established an Analytics Academy. This training upskilled employees like Jeffrey Swiatek, who, at the age of 41, transitioned from his longtime role as a maintenance worker into a higher-paying position as a quantitative engineer. Swiatek has since used his training to write predictive software that saved Exelon an estimated $1 million over eight years on equipment maintenance.[4]

Japanese e-commerce giant **Rakuten** established an "AI Promotion Department" in 2016 to accelerate efforts to infuse AI into the company's 70+ diverse businesses. By 2018, the department helped turn more than 30 AI pilot projects into successful offerings.[5]

And a leading **Southeast Asian oil and gas firm** built an AI-powered, "gamified" learning platform to expand employees' digital fluency. It also created a cloud-based performance reviewer that scrutinized a decade's worth of employee data to recommend workers best suited for various digital roles. The innovation saved the firm's HR department significant time filling positions. It also reduced scope for managerial bias in promotional decisions and helped workers assess and close digital-skills gaps.

78%

of Achievers have mandatory AI trainings for most employees, from product development engineers to C-suite executives.

Success Factor 03

Industrialize AI tools and teams to create an AI core
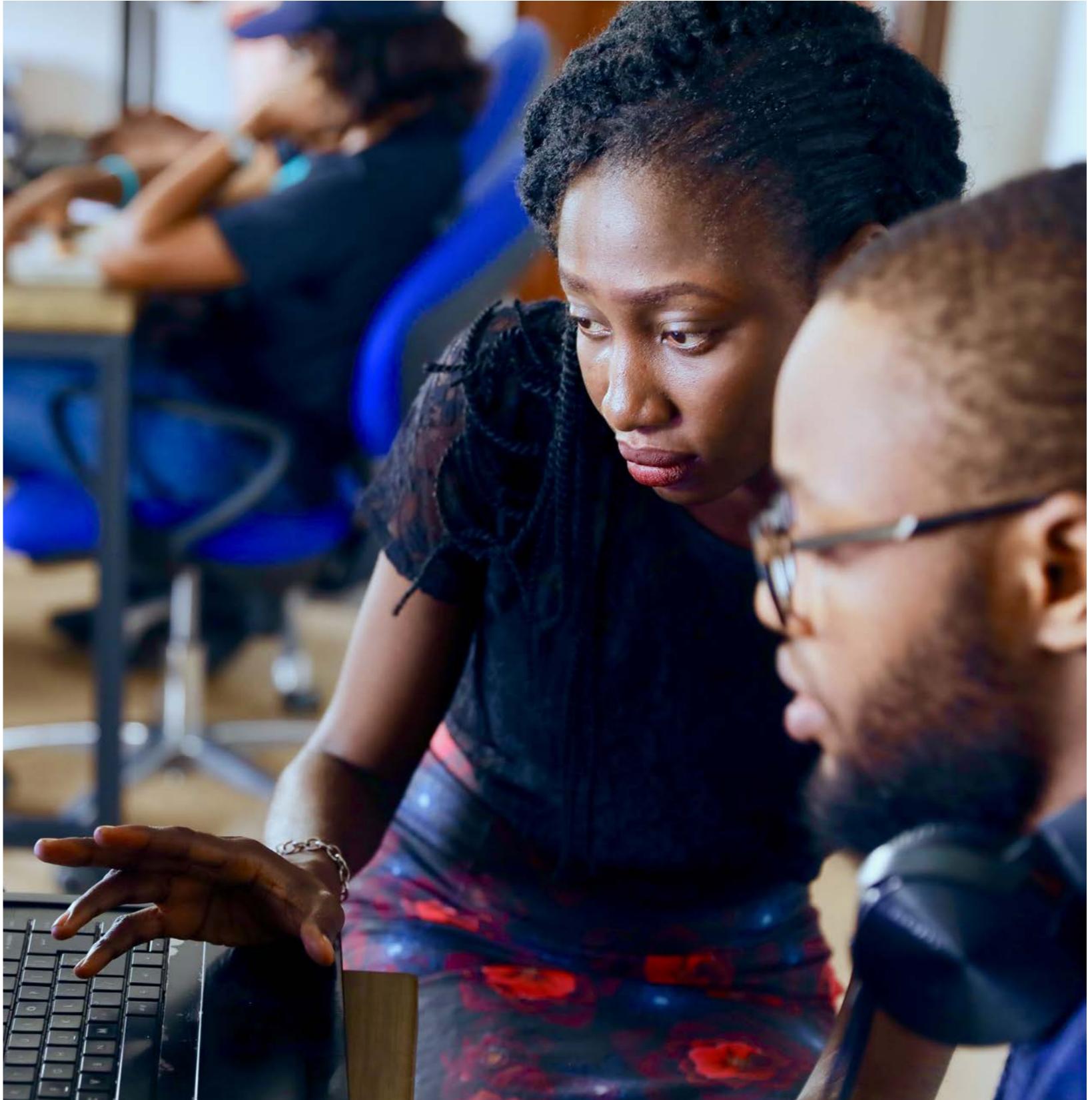
Another priority for Achievers involves building an AI core: an operational data and AI platform that taps into companies' talent, technology and data ecosystems, allowing firms to balance experimentation and execution. An AI core helps organizations productize their AI applications and integrate AI 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, 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 are also 32% more likely, on average, than Experimenters to either develop custom-built machine learning applications or work with a partner that offers solutions-as-a-service. Achievers are also more likely than Innovators to use AI for innovation, tapping into readily available developer networks that can swiftly productionize and scale successful pilots.

A major insurer used to rely on its employees to manually administer claims—a tedious process that cost over $500 million annually—even before the firm's billion-dollar payouts to policyholders. The company explored native cloud-storage systems and AI more aggressively, with the goal to store, analyze and track images and other unstructured data to support claims processing. By industrializing its AI tools and teams, the company targeted efficiency gains of 5% in its first year alone, with longer-term cost savings of more than $100 million annually.

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.

To strengthen their AI cores, Achievers often collaborate with external experts to stay on top of of breakthroughs in science and engineering. In 2020, for example, **American Express** partnered with the Indian Institute of Technology Madras to create a Data Analytics, Risk and Technology laboratory at the prestigious university.[6] Such innovation ecosystems help Achievers develop AI apps tailored specifically to their needs.

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 a separate Accenture study of 850 C-suite executives, we sought to gauge attitudes towards 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.

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: designing, developing and deploying AI with good intention to empower employees and businesses, and to fairly impact customers and society—allowing companies to engender trust and scale AI with confidence.
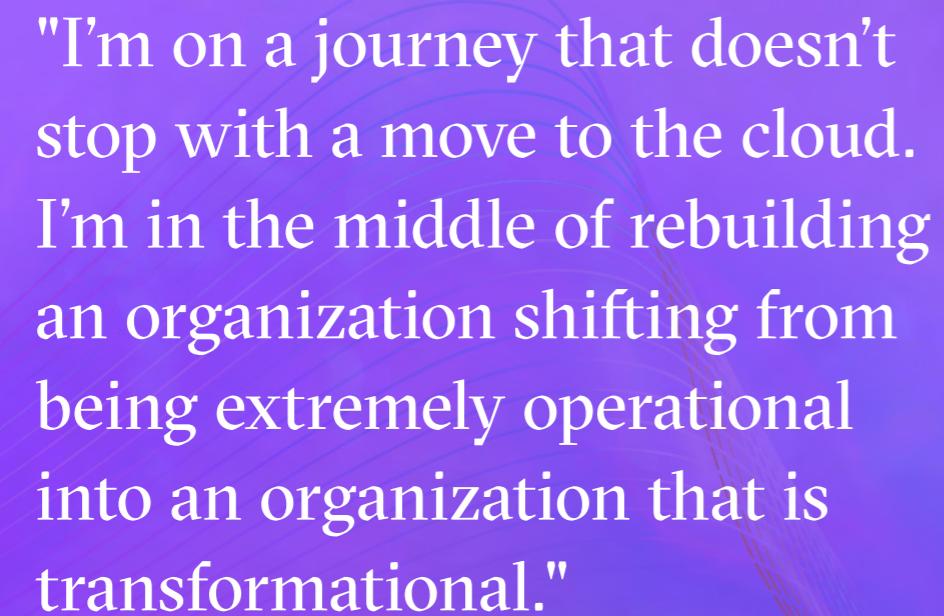
For companies, the upshot of being responsible by design is an improved ability to meet future requirements, better mitigate risks and create sustainable value for themselves and their stakeholders.

For instance, the **Monetary Authority of Singapore (MAS)**, the country's central bank and financial regulator, recognized the benefits that AI can provide to financial firms. Yet MAS was also wary of the threat posed to firms and markets by the illegal and/or unethical use of AI. To guard against this, MAS helped launch the Veritas initiative together with the financial industry, which aims to support the responsible use of AI in the finance industry.

The initiative has, among other achievements, produced a practical methodology and toolkit—the first of its kind—that offers detailed guidance on how to use AI leveraging the FEAT principles, i.e. fair, ethical, accountable and transparent.

Novartis is creating effective accountability mechanisms and risk-management controls to keep AI-powered operations and services aligned with the company's core values. In addition, notes Klaus Moosmayer, Novartis' Chief Ethics, Risk and Compliance Officer, it's designed to, "provide … a clear framework for ethical use of AI—enabling [employees] to challenge their own decisions and biases."[7]

Even though only 6% of the companies surveyed had already implemented responsible AI practices, 42% of surveyed companies aspire to do so by the end of 2024.

"I'm on a journey that doesn't stop with a move to the cloud. I'm in the middle of rebuilding an organization shifting from being extremely operational into an organization that is transformational."

Francesco Tinto, global CIO, SVP, Walgreens Boots Alliance

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.

We found that in 2018, Achievers devoted 14% of their total technology budgets to AI, while in 2021 they devoted 28%. In 2024, they plan to devote 34%.

Achievers also understand that their AI investment journey doesn't have a finish line. There is, 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.

As part of its efforts to create a more data-driven organization that can offer customers highly personalized digital service, **Walgreens Boots Alliance** migrated from legacy databases to advanced cloud databases and analytics, and built some 100 high-value AI products that create detailed customer profiles and help the company better optimize inventory and prices. The company has been committed to its data- and AI-led transformation since 2020 and doesn't intend to slow down anytime soon.

The share of AI Achievers will increase rapidly and significantly, more than doubling from the current 12% to 27% by 2024.

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.[8] Then the pandemic hit. For many organizations, enterprise-wide transformation was an urgent 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.

Other organizations should be asking questions to assess their 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 will lead the change, and some 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?

"AI, for us, is really the technology that we're pushing...We want to make sure that AI and machine learning is embedded in everything we do."

Francesco Tinto, global CIO, SVP, Walgreens Boots Alliance

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

Category	Key questions
Strategy and Sponsorship	• 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?
Data and AI Core	• 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?
Talent and Culture	• 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?
Responsible AI	• 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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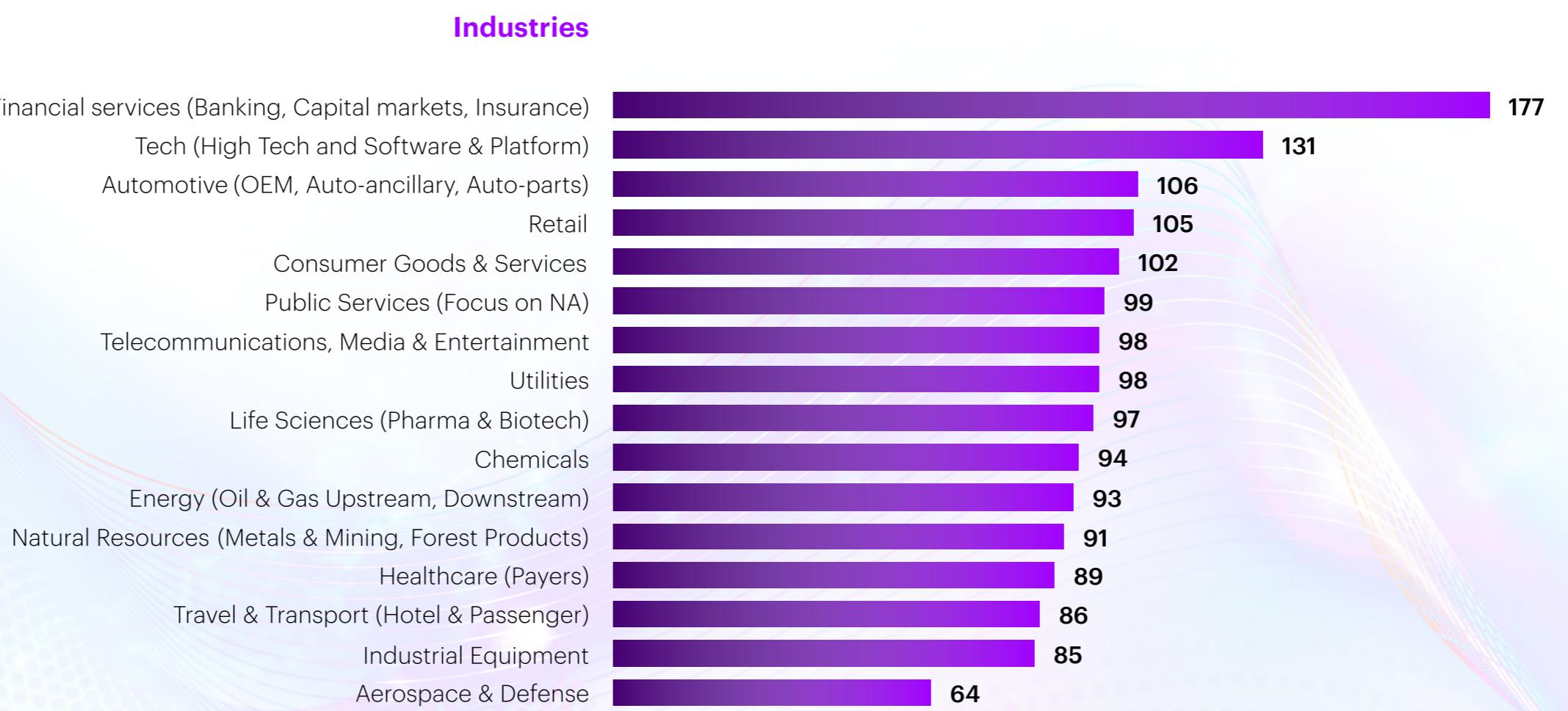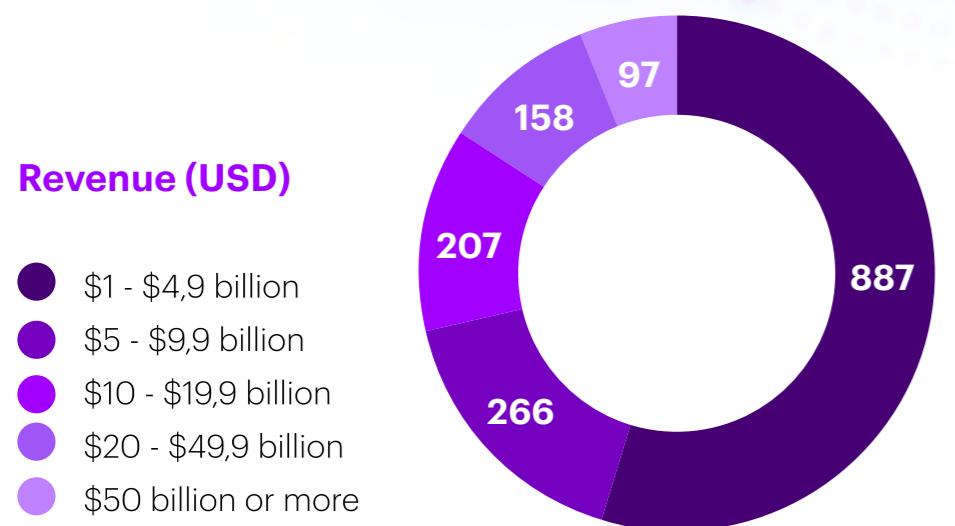
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About the research
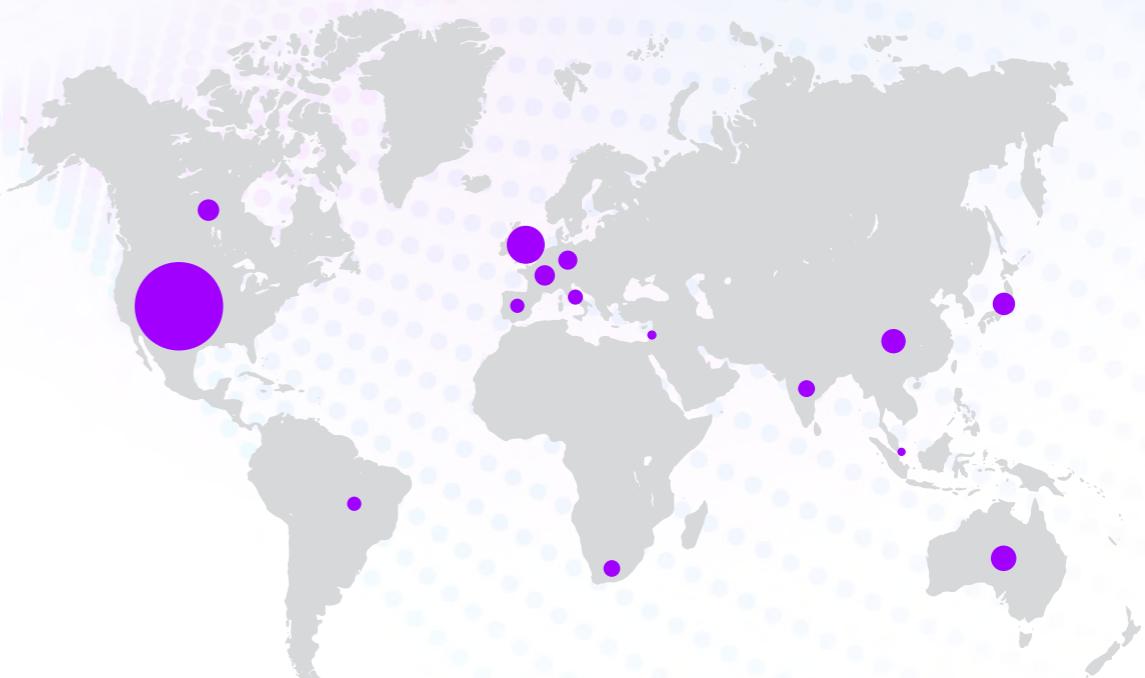
Accenture surveyed 1,615 executives (including CEOs, C-Suite, CAIO's and Data Science Leaders) from the world's largest organizations (with revenues greater than $1 billion). The survey was carried out across 15 countries and 16 industries, and fielded between August and September, 2021.

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.

Industries

Industry	Value
Financial services (Banking, Capital markets, Insurance)	177
Tech (High Tech and Software & Platform)	131
Automotive (OEM, Auto-ancillary, Auto-parts)	106
Retail	105
Consumer Goods & Services	102
Public Services (Focus on NA)	99
Telecommunications, Media & Entertainment	98
Utilities	98
Life Sciences (Pharma & Biotech)	97
Chemicals	94
Energy (Oil & Gas Upstream, Downstream)	93
Natural Resources (Metals & Mining, Forest Products)	91
Healthcare (Payers)	89
Travel & Transport (Hotel & Passenger)	86
Industrial Equipment	85
Aerospace & Defense	64

Revenue (USD)

- $1 - $4,9 billion — 887
- $5 - $9,9 billion — 266
- $10 - $19,9 billion — 207
- $20 - $49,9 billion — 158
- $50 billion or more — 97

Countries

Australia (**116**)
Brazil (**65**)
Canada (**98**)
China (**111**)
France (**93**)
Germany (**87**)
India (**77**)
Israel (**42**)

Italy (**69**)
Japan (**102**)
Singapore (**38**)
South Africa (**76**)
Spain (**65**)
UK (**173**)
US (**403**)

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.

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).

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

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 Capabilities$_{it\text{-}1}$ and ΔCapabilities$_{it}$ as AI foundational capabilities; Capabilities Interactions$_{it,t\text{-}1}$ 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: Revenue growth$_i$ = $\beta_0 + \beta_1 X_i + \beta_2$ 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.

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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.

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