

AI: From Data to ROI

If the COVID-19 crisis has revealed anything to business leaders, it's the dire need for modern, intelligent decision making. But even as businesses embrace AI, high ROI is not guaranteed. Here's what works for accelerating AI outcomes, from where to invest and how much to spend, to the returns you can expect, according to our recent research.

In our global study, almost two-thirds of senior executives – regardless of industry or region – see AI as highly important to the future of their businesses.

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Introduction: AI Meets Its Moment

So far this year, the world has been faced with the COVID-19 pandemic, social unrest, economic upheaval and vast uncertainty. Amid the chaos, individuals and organizations have desperately sought anything that provides a glimmer of insight into an unknowable future. That's why 2020 will also be known as the tipping point for artificial intelligence (AI).

Our groundbreaking research, conducted during the outbreak, reveals executives are turning *en masse* to AI to make better, more intelligent decisions, especially when much of the information and decision models needed are fast-changing or unknown. In our global study of 1,200 companies, conducted in conjunction with ESI ThoughtLab, almost two-thirds of senior executives – regardless of industry or region – see AI as highly important to the future of their businesses (see methodology, page 28).

From the early days of the pandemic, it became painfully clear to most businesses that they didn't have the data they needed to make intelligent decisions in the face of chaos. Even now, their data isn't always current, accurate or relevant enough to be of use to them, and it's hard to interpret. Their forecast models, which were previously "good enough" are now way off-target. Many realize they can no longer trust their old decision systems.

It's no wonder, then, that businesses have little interest in returning to the old ways of working. Over the next three years, twice as many businesses expect to be in the advanced stages of AI maturity vs. today, and annual spending increases will nearly double from 4.6% to 8.3%.

However, while AI ultimately offers significant ROI, it can be difficult to achieve and does not come overnight. While currently more than half of businesses are seeing positive returns on their AI investments, the average ROI is just 1.3%. Further, with potentially high upfront costs in data modernization, technology adoption and people development, it can take 17 months on average to realize positive payback.

To make it a game-changer and generate value, businesses must have the right data, plan, applications, skills and use cases, and they must focus on real business objectives and problems to solve. For beginners, the challenges can include limited AI skills and inflexible IT infrastructures; as companies scale AI across their organizations, other hurdles appear, including managing risks and ethics, and embedding AI into day-to-day business processes. Data modernization is a continual stumbling block; in fact, businesses spend about 35% of their AI budgets on data modernization, according to our study.

Ultimately, though, even organizations in the early stages of AI adoption are achieving a variety of business goals, including improved productivity, profitability, employee engagement and customer satisfaction. More mature AI adopters are achieving even more growth-oriented benefits, such as increased revenue, improved decision-making, greater market share and enhanced innovation.

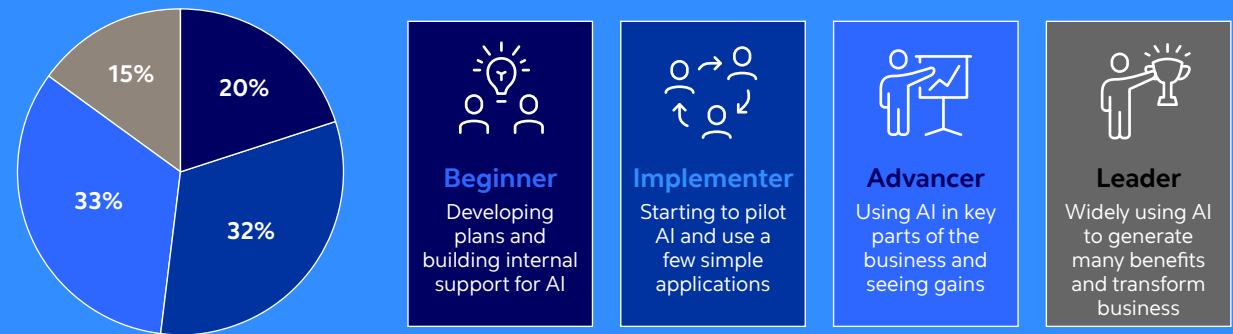
In the following pages of our ebook, executives will find an evidence-based roadmap for supercharging their business performance with AI. It's our hope that these insights will light a path through the chaos of today and help businesses prepare for a better tomorrow.

Assessing leaders vs. laggards

A prime objective of our research was to determine what constitutes an AI leader. To answer this, we assessed respondents along two key dimensions: level of AI implementation and the benefits from AI investments.

Just 15% of businesses are at the highest stage of AI maturity (what we call leaders), while about one-third are just behind them (advancers). Just over half are in the early stages of AI development (a beginner or implementer). As we see in the pages that follow, these percentages will radically shift in three years' time.

Organizations by AI maturity



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 1

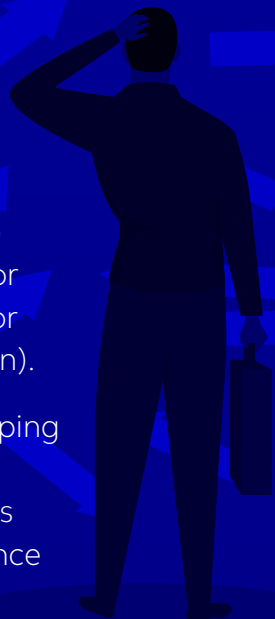
All Eyes on AI

A close-up of a human eye, rendered in a monochromatic blue color scheme. The eye is the central focus, with a futuristic, glowing blue digital overlay that resembles a camera lens or a data interface. The overlay consists of concentric circles and radial lines, creating a sense of depth and technological sophistication. The background is a soft, out-of-focus blue, suggesting a digital or virtual environment.

Seeking order in chaos

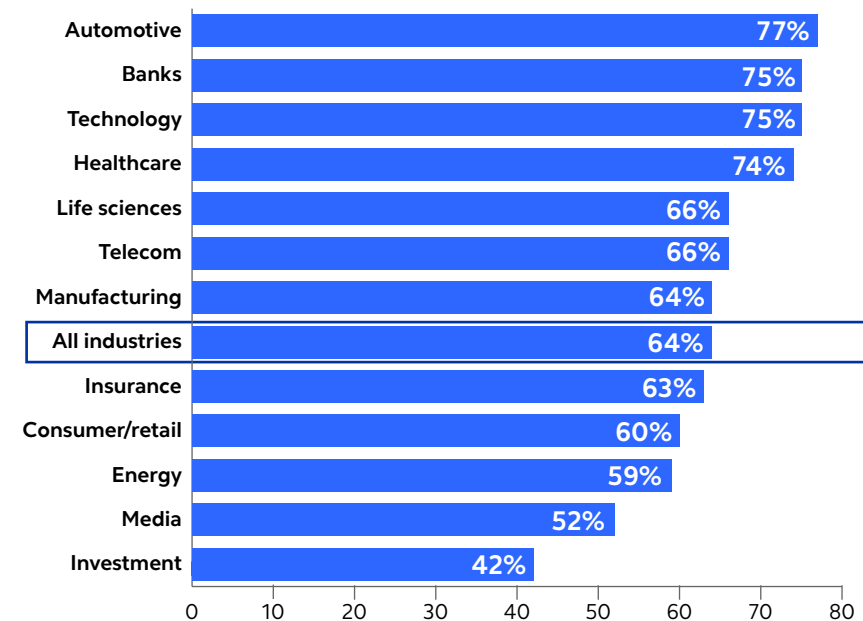
The pandemic cast a spotlight on the need for AI. A decisive majority – 64% – of executives in our study believe AI is considerably or very important for the future of their business (see Figure 2). That figure jumps to 98% for respondents at the highest levels of AI maturity, and to 85% for the largest organizations in our study (revenue over \$20 billion).

As the world went online, many businesses had difficulty grasping the continuously shifting dynamics that ensued. Predictive models failed to account for the sudden and ongoing changes to customer, market and supply chain behaviors. The experience shifted AI into high gear.



AI is crucial across industries

Percent of respondents rating AI as having high importance.



Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 2

A surge in AI maturity

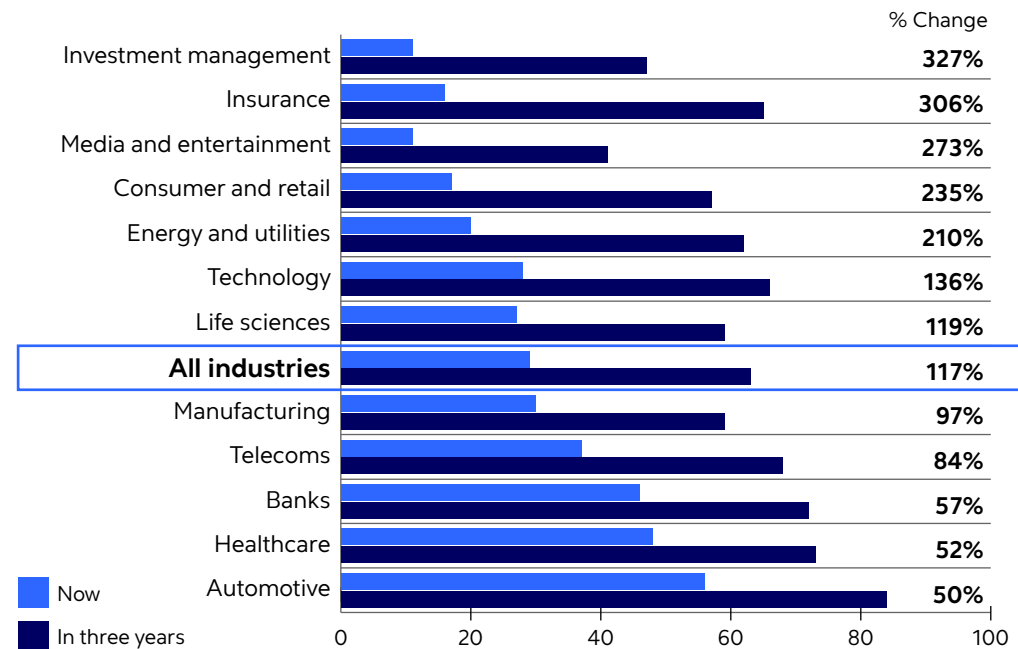
Most companies, however, are in the early stages of AI adoption, with just 29% of respondents across industries at a maturing or advanced level in implementing AI (see Figure 3). Most AI projects are in pilot or early deployment stages, and even among AI leaders, just about one-quarter of AI projects are now in widespread deployment.

This will change dramatically, however, in the next three years, when the percent of businesses that expect to be at a maturing or advanced stage of AI adoption will more than double to 63%. In industries that are in the earlier stages of their AI journey – such as insurance, wealth and asset management, and media and entertainment – the increase will be fourfold.

Currently, the sectors with the highest percentage of AI leaders are the automotive, healthcare and banking industries. While the auto industry isn't often the first sector that comes to mind when it comes to AI (beyond self-driving cars), automakers' use of AI is far-ranging, including driver-assist features, connected vehicles, manufacturing, quality control and product design. [General Motors](#), for example, is using AI-driven “generative design” to shave unnecessary weight from car parts, while [Volkswagen](#) is increasing the precision of its market forecasts with AI analytics, pulling in data on household income and customer preferences.

Two-thirds of businesses in most industries will reach advanced levels of AI maturity

Percent of respondents at a mature or advanced stage of AI.



Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 3

AI across industries

We're working with businesses across industries to drive modern decisioning.



Financial services: When a global financial services organization wanted to reduce its fraud risk, we worked with the organization to develop a machine-learning system that flags potential fraud in near-real-time. The technology compares scanned images of handwritten checks against a growing database of checks previously identified as fraudulent. It then flags potential counterfeits while deposit transactions are in process. The system has demonstrated 50% savings on fraud losses and is forecast to reduce annual fraud losses by \$20 million.



Insurance: We worked with an industry-leading P&C insurer that wanted to improve the quality of its call-center customer interactions. We helped this carrier develop an AI-driven analytics platform that automates call monitoring and enables agents to respond more empathetically and effectively to customers during calls. The system was taught to recognize agents' progress through a 40-point checklist for each call, as well as improve agents' real-time response to customers through speech analytics, which interprets word choice, diction and tone. Agents have improved the customer experience through personality profiling and conversation cues.



Healthcare: A leading healthcare services provider wanted to proactively identify potential drug-seeking behavior in order to reduce addiction among its patients. We developed an AI-driven machine-learning solution that analyzes data from three sources: physicians' notes from patient visits recording their impressions of a patient's behavior, appearance and diagnoses; the drugs the patient had previously been prescribed; and the behaviors and symptoms caused by each drug. The system uses text analytics and advanced machine learning to generate system alerts when a pattern of at-risk behavior is identified. This enables caregivers to intercede with patients in real time and take corrective actions. Using the system, the health provider has identified 85,000 at-risk patients and anticipates a potential \$60 million reduction in care costs.



Life sciences: A biotech company wanted to improve patient adherence to medication regimes. We developed a solution that uses AI, machine learning and natural language processing to pull insights from case notes that reveal what motivates patients to start, discontinue and switch use of medications. Using these insights, the company was able to identify adherence roadblocks and improve patient support through more effective KPIs, recommendations and documentation.

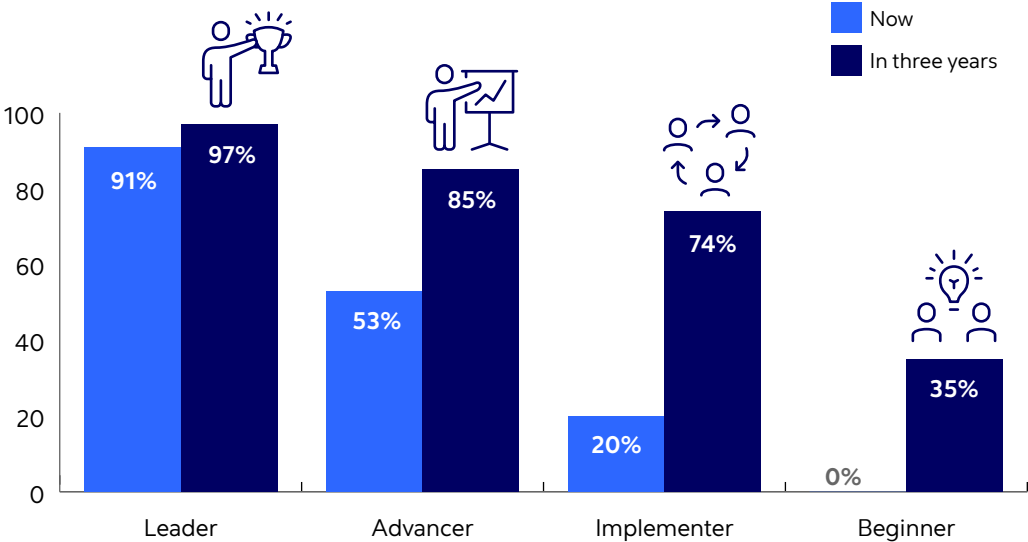
It's All About the Data (But Not Just Any Data)



Modernizing data = AI maturity

Nearly all AI leaders have mature data modernization practices

Percent of respondents who say they're maturing or advanced in data management.



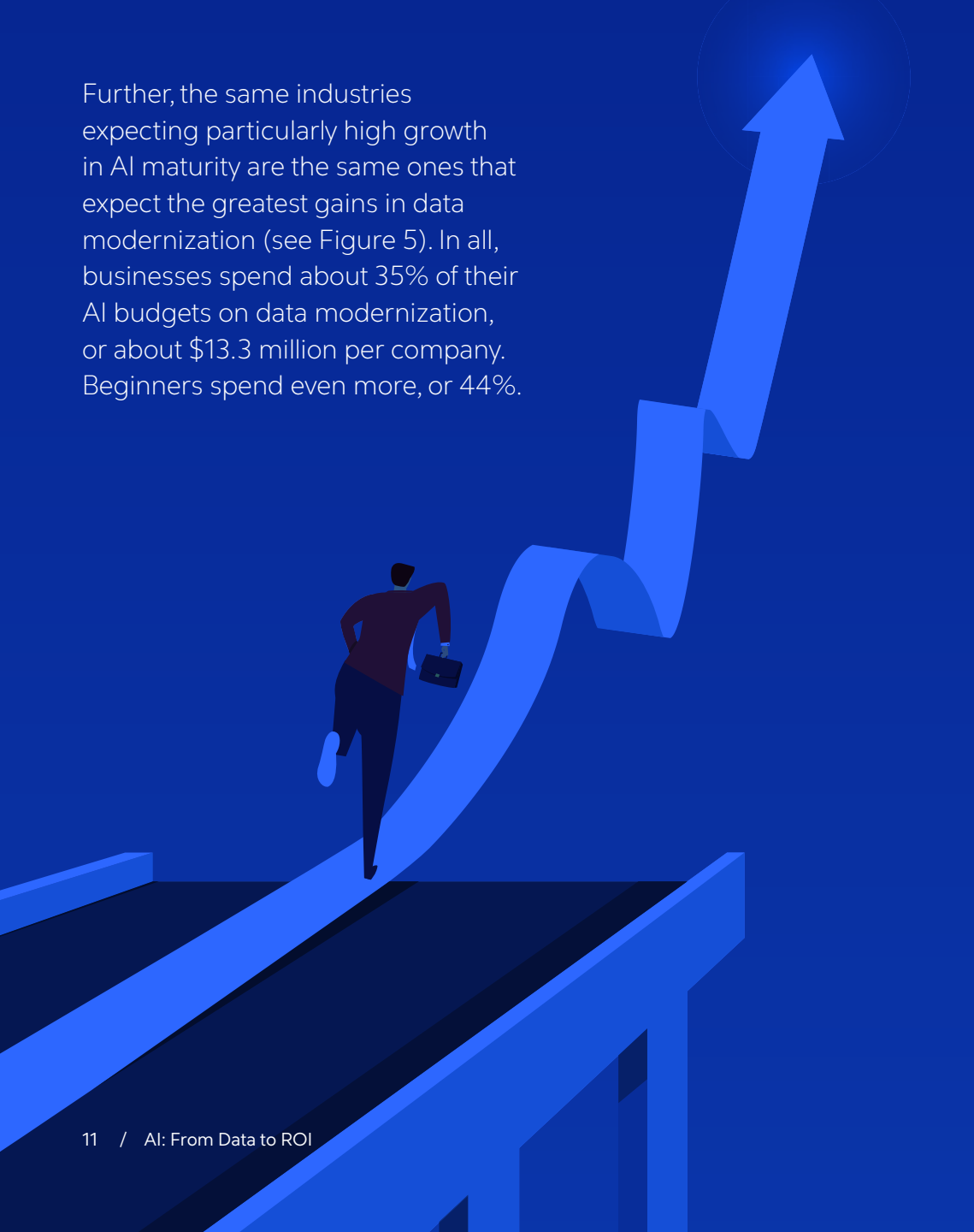
Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 4

It's clear from our study that there's an inextricable link between AI maturity and data management (what we call "data modernization"): the work involved with ensuring the accessibility, reliability and timeliness of data for AI and analytics. **Nine out of 10 AI leaders say they're in the maturing or advanced stages of data management, while literally none of the AI beginners rate themselves that way (see Figure 4). At the same time, having a proper IT architecture and data modernization processes in place was the most important lesson learned for beginners (60%).**

What's more, more than half of healthcare, banking and auto manufacturing businesses – the industries with the highest percentage of leaders in them – have already made significant progress in modernizing their data, and an overwhelming majority expect to by 2023.

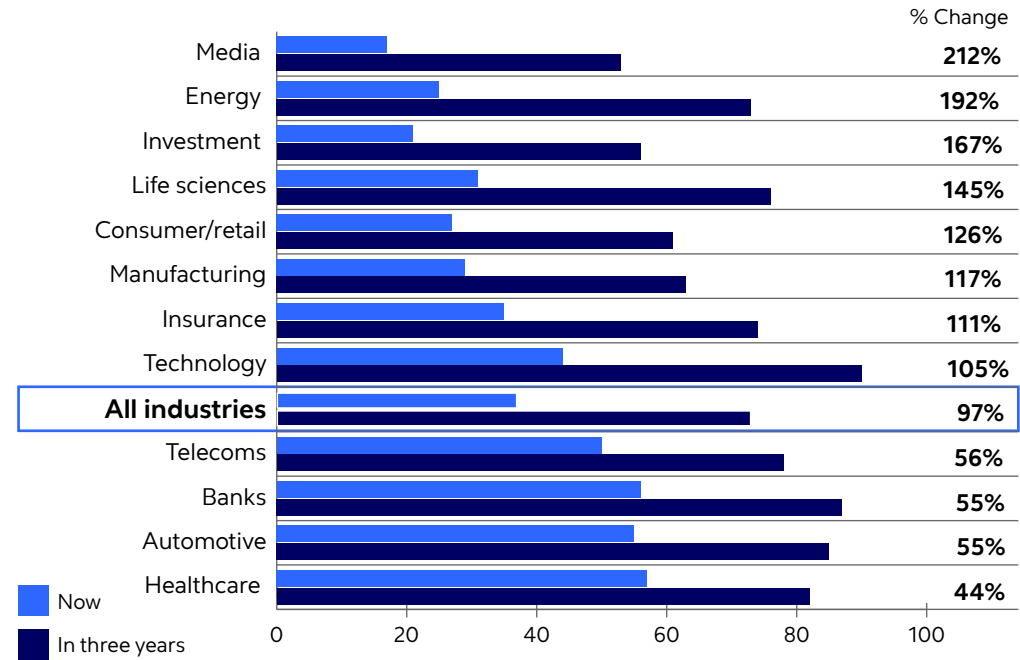


Further, the same industries expecting particularly high growth in AI maturity are the same ones that expect the greatest gains in data modernization (see Figure 5). In all, businesses spend about 35% of their AI budgets on data modernization, or about \$13.3 million per company. Beginners spend even more, or 44%.



Industries expecting to accelerate their AI maturity will also surge in data modernization

Percent of respondents who say they're maturing or advanced in data management now and in three years.



Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 5

Data that matters

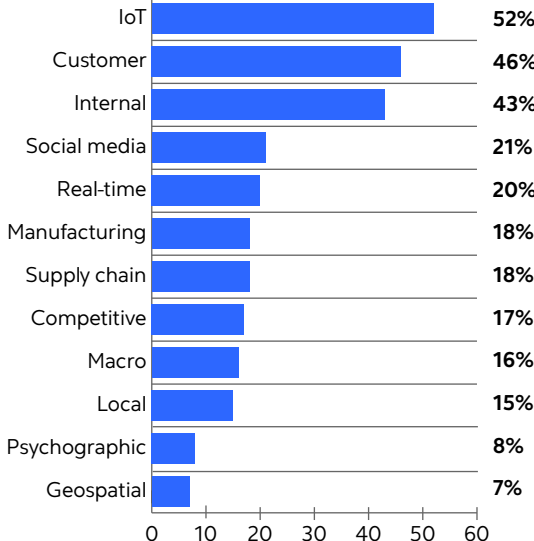
Increasingly, businesses are finding the most easily accessible data sets aren't enough to make the most intelligent decisions. By 2023, we'll see businesses pulling from wider and more diverse data sets for AI-driven insights (see Figure 6).

Today, IoT, customer and internal information are the main types of data integrated into AI applications. In many cases, this is simply because of the sheer volume of accessible data generated by sensors and customer interactions. But other forms of data are where the greatest insights often lie, particularly when such data is combined.

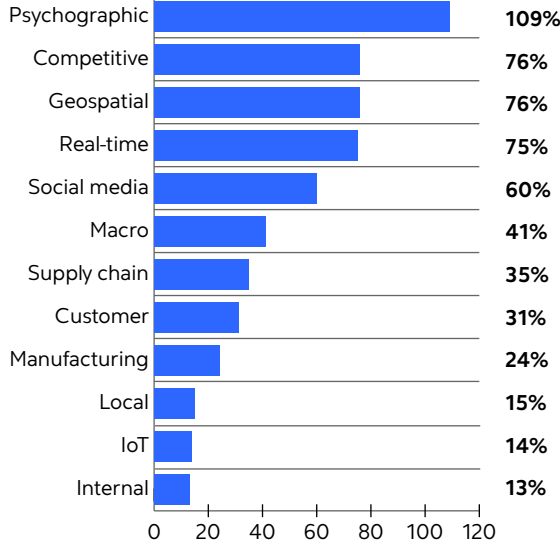
For example, we worked with a home goods store that wanted to know where people went when they left the store. By combining geospatial data with other data, we discovered that 30% of people go to McDonald's. That insight became very valuable for cross promotions.

Data sources will expand greatly in three years


Data used for AI today
Percent of respondents integrating each type of data into their AI applications.



Fastest growing over three years
Percent growth in the use of each type of data.



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 6



Further, during the pandemic, global brands will see different regions of the country and the world open for business at different paces. For one of our clients, that has meant continually adjusting its product mix, product placement and product sourcing as supply and demand conditions change unpredictably, region by region.

We're using machine learning to refine our analytic models to predict the effects of everything from ongoing infection rates to regional weather conditions on future sales and demand trends. This data includes medical information from leading healthcare providers, as well as historical internal data, such as same-store sales. At each step, we're using our agile analytics methods to make sure we deliver the analytics the business needs most as the recovery from the pandemic unfolds.

Over the next three years, companies will double their use of psychographic data and ratchet up their reliance on competitive, geospatial and real-time data by about 75%. No AI program is complete without "voice of the customer data" gleaned from sources such as social media and call center analytics. While much of that data is generally lost or overly summarized, it's essential to extract insights from that data and get them to relevant business teams.

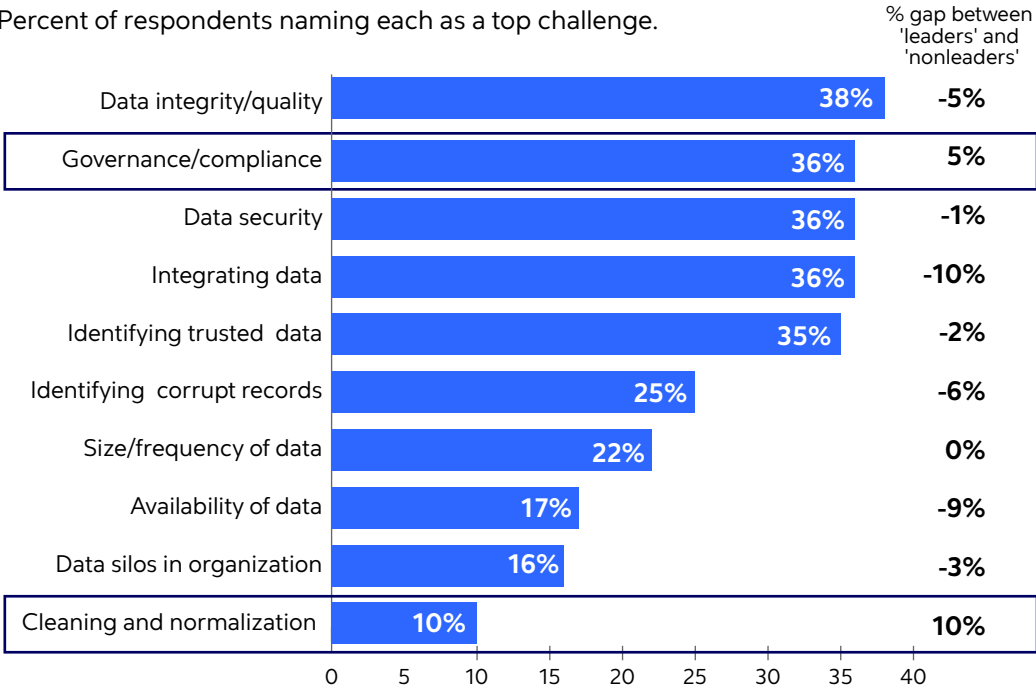
Perishability and other data challenges

With data modernization comes challenges – most of which don’t ease up to any great degree as maturity increases (see Figure 7). This makes sense, given that advanced AI maturity also means more scaling of pilot solutions, more use of diverse data sets and a greater shift toward modernizing data (i.e., through the use of data lakes and the cloud) vs. simply managing data (i.e., with databases and storage).

Compliance, for example, becomes more difficult as organizations scale their AI solutions around the world, and cleaning and normalizing data becomes twice as difficult for leaders compared with non-leaders as they leverage richer data sets. Identifying trusted data continues to be a challenge as businesses turn to third-parties for external data, as does ensuring data integrity as businesses work to ensure ethical algorithmic decisions. In short, as AI gets used for more powerful business outcomes, the responsibility grows to meet ever higher standards.

Top 10 data challenges

Percent of respondents naming each as a top challenge.



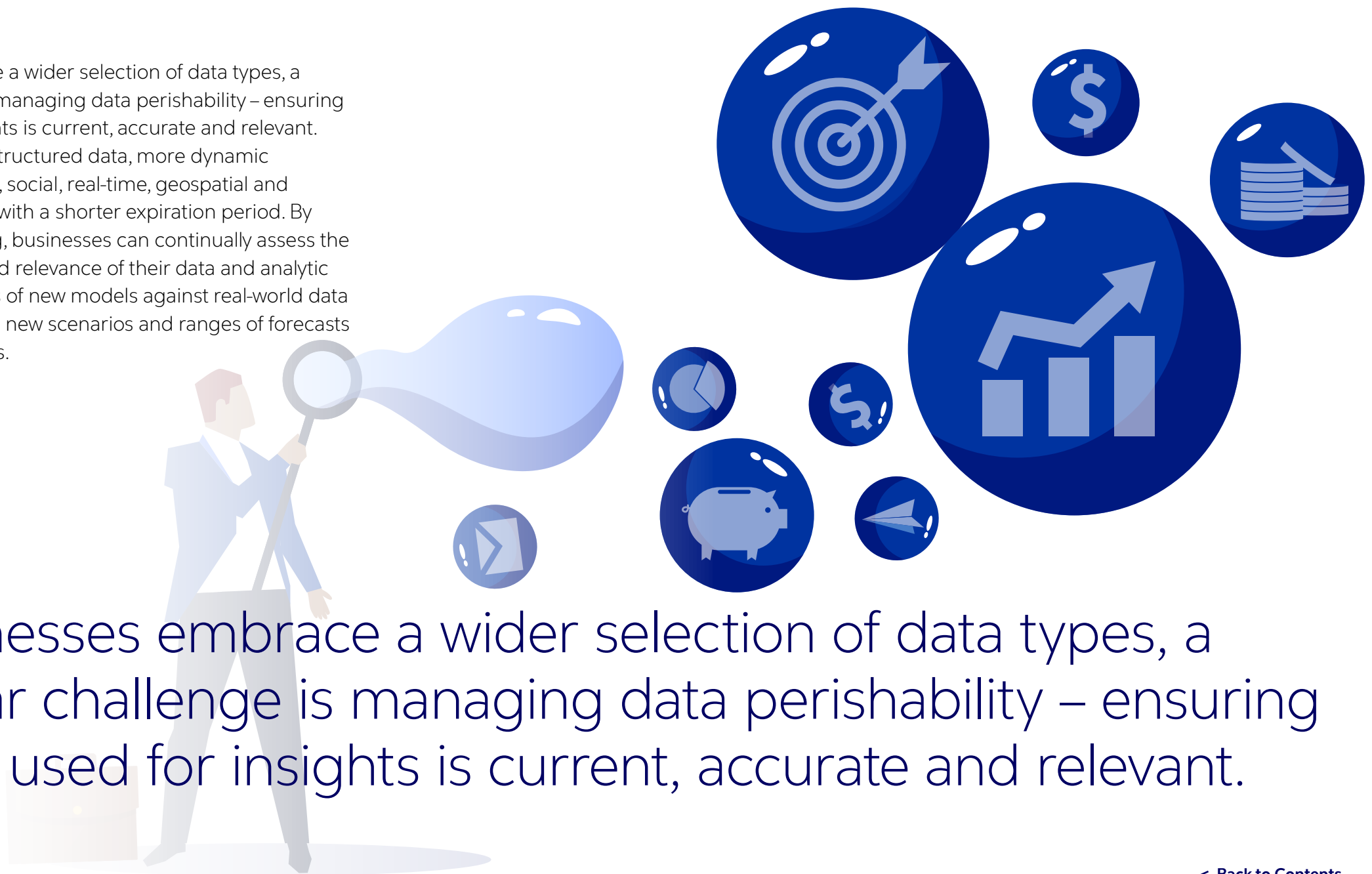
Note: Multiple responses permitted.

Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 7

As businesses embrace a wider selection of data types, a particular challenge is managing data perishability – ensuring the data used for insights is current, accurate and relevant. Unlike ERP and other structured data, more dynamic data types – such as IoT, social, real-time, geospatial and psychographic – come with a shorter expiration period. By using machine learning, businesses can continually assess the timeliness, accuracy and relevance of their data and analytic models, testing millions of new models against real-world data to continuously provide new scenarios and ranges of forecasts for changing conditions.



As businesses embrace a wider selection of data types, a particular challenge is managing data perishability – ensuring the data used for insights is current, accurate and relevant.

What and Where to Spend



AI spending is on the rise

On average, companies expect to increase their spending on AI by a factor of two. While companies increased their AI investments by 4.6% on average over the last year, that will accelerate to an 8.3% increase in annual AI spending over the next three years (see Figure 8).

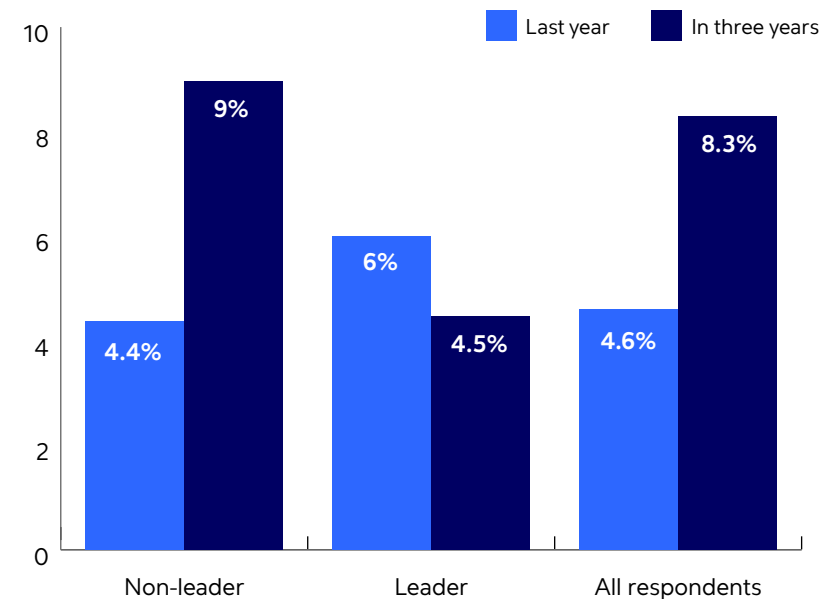
A closer look reveals that it's the non-leaders accounting for the spending increases. While non-leaders expect to double the rate of their AI investment – from a 4.4% increase over the last year to 9% annually over the next three years – AI leaders expect to trim their spending growth, from 6% over the last year to 4.5% over the next three years. Yet since leaders say they are spending 2.6 times others in absolute dollars, they still expect to outspend their non-leader counterparts.

Some sectors plan to ramp up spending at more than twice the rate of last year: media, investment management, and consumer and retail.

While spending expectations may be moderated due to budgetary pressures during the pandemic, it's very likely that businesses will feel similarly pressured to invest in AI to navigate the COVID crisis with modern decisioning.

The rise and fall in AI spending rates

Percent increase in AI spending, last year and in three years.



Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 8

Where to spend: tech vs. people

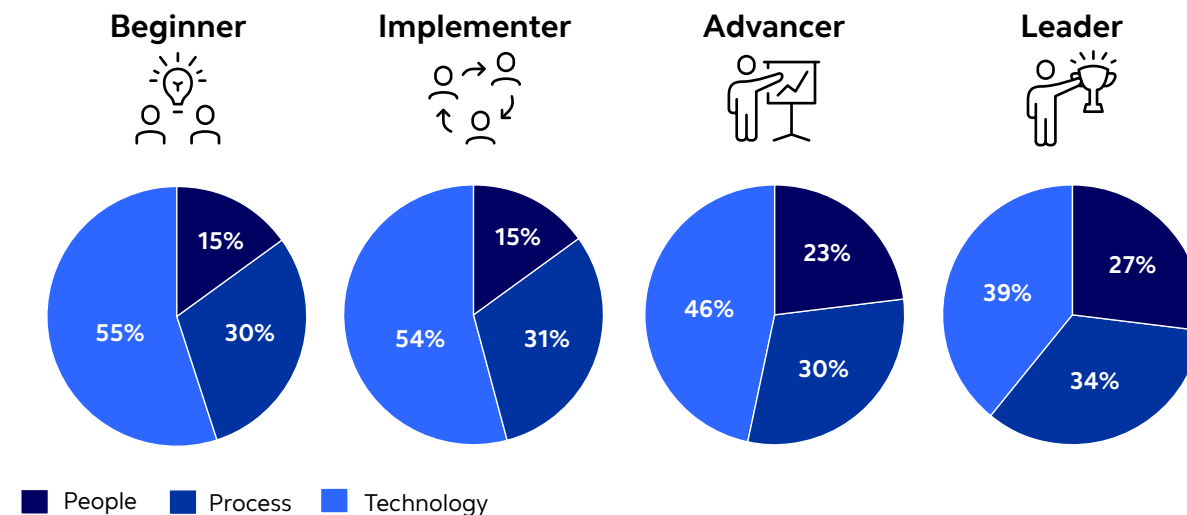
When companies start out in AI, they spend over half of their AI budgets on technology and only 15% on people. But as they mature, a greater share of their spending goes to training and hiring people to achieve their goals (see Figure 9).

In fact, AI leaders invest almost twice as much of their budget in people as AI beginners. They know that AI excellence goes beyond using the latest AI technology. It requires hiring the best talent, training staff on AI, investing in external partnerships, and building a culture of collaboration between analytics teams and business units.

While many people assume that technology spend will be high, the technologies themselves are commoditizing reasonably quickly. Companies that invest in the education of their own teams will go further.

With AI maturity comes a shift in spending toward people

Percent of budget invested today in people, process and technology.



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 9

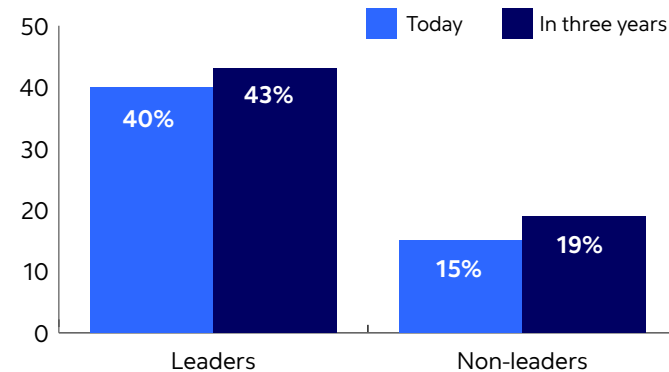
Which technologies to master

Leaders in our study reveal the path ahead for where to spend on AI technologies. Already, leaders spend 40% of their AI budget on advanced AI technologies, such as machine learning, deep learning, computer vision and natural language processing, whereas non-leaders are more focused on basic AI technologies, such as data management, digital assistants and robotic process automation. In the next three years, leaders will increase that to 43% – more than double what their non-leader counterparts plan to spend on these technologies (see Figure 10).

Deep learning will be particularly valuable as AI adoption expands, since it will provide businesses with the ability to find meaning in diverse sets of unstructured data. NLP will be a game-changer for businesses. Over the last few years, there have been huge advances in voice recognition, whether it is to capture different accents or build capabilities into more devices.

Spending will shift to advanced AI

Percent of budget allocated to advanced AI technologies vs. basic AI.



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 10

Start with internal use cases and move the focus outward

Identifying the right use cases is critical for maximizing ROI. In fact, 77% of companies generating the highest returns from AI do this one thing well. Use cases vary by industry and are best selected in close conjunction with business teams.

Leaders are well ahead of non-leaders in the number of use cases implemented and scaled across their enterprise. Nine out of 10 report having largely or fully implemented AI in the 19 functional areas included in the study (see Figure 11).

When you examine the areas of greatest difference between leaders and non-leaders, it becomes clear that the trajectory moves from improving internal functionalities to more outward-facing endeavors as maturity grows. For instance, in addition to applying AI to connected devices and customer service (34%), non-leaders are mainly focused on improving internal functionalities such as IT operations (26%), data security (23%) and customer analysis (24%).

Meanwhile, the gap between leaders and non-leaders is high in outward-facing functions, such as distribution and logistics, supply chain, business development and marketing. Leaders will reap the benefits of driving growth as they're well ahead in applying AI to R&D and innovation.

Choosing use cases

Percent of respondents who have largely or fully implemented AI in each function.



Response base: 1,200

Source: ESI ThoughtLab/Cognizant

Figure 11

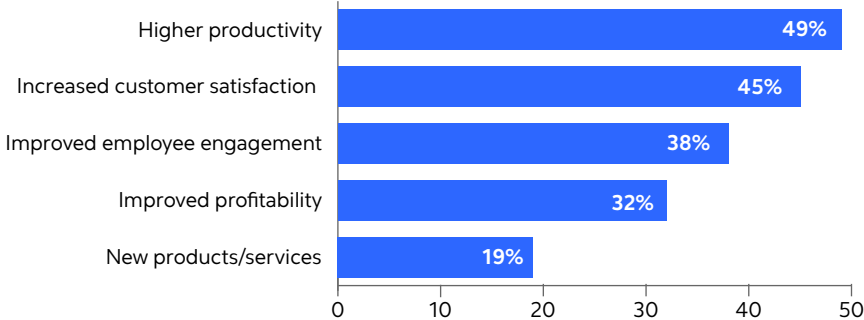
Outcomes shift as maturity grows

Because non-leaders are more focused on internal operations, it stands to reason that they're also more intent on looking for value in those areas. That's why we see non-leaders reporting value creation in areas such as increased productivity, profitability, employee engagement and customer retention (see Figure 12).

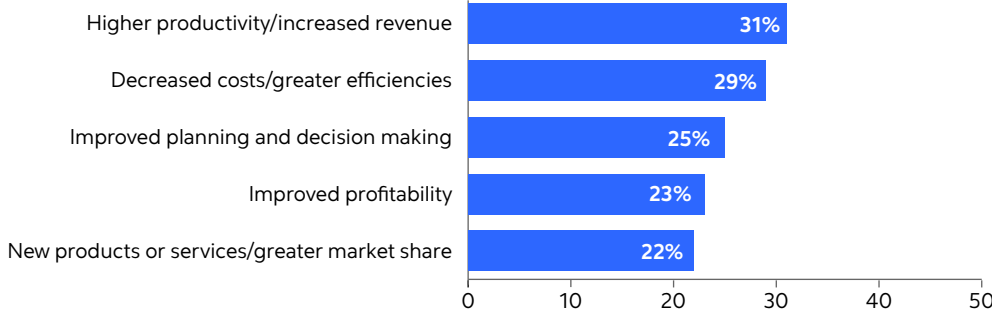
Meanwhile, as businesses grow in maturity, the focus shifts toward driving a growth strategy. As such, leaders are seeking – and often finding – value in the areas of increased revenue, greater market share, and new products and services. Importantly, one-quarter of leaders (vs. just 16% of non-leaders) are focusing their AI efforts on modern decisioning, which will be vital for navigating the pandemic and beyond. As we see on the next page, intelligent decision-making is also an area of high ROI.

Top five benefits of AI

Percent of non-leaders realizing each benefit of AI.



Percent of leaders realizing each benefit of AI.



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 12

Customer experience is a high-return place to start

Most businesses are seeing positive returns on the 19 AI areas included in our study. The area generating a positive ROI for the largest percentage of companies is customer service and experience, followed by IT operations and planning/decision making (see Figure 13).

Other activities to note are pricing and business models, brand management and reputation, and distribution and logistics. The percentage of businesses with positive returns in these areas is particularly high given that fewer are focusing their efforts there.

Underperforming areas include sales and business development, finance and auditing, fraud detection, and marketing and promotions.



The ROI of AI across functions

Percent of respondents seeing positive returns in each area.



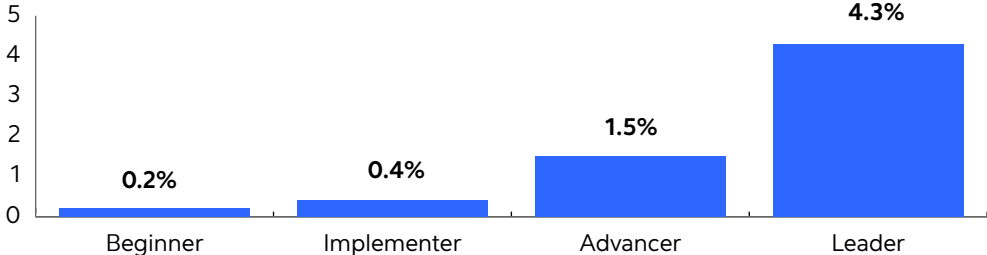
Response base: 1,200
 Source: ESI ThoughtLab/Cognizant
 Figure 13

ROI increases with AI maturity

So much hope has been invested in AI to pull businesses through today’s chaotic environment that it’s easy for expectations to exceed reality when it comes to ROI. As our study shows, achieving ROI on AI initiatives takes time, smart deployment and the ability to scale.

On average, businesses have seen an ROI of just 1.3% from their AI investments. However, that varies considerably based on AI maturity (see Figure 14). Businesses in the first half of their AI journey hardly break even. It is only when companies are advanced in AI and more widely implementing it across their organizations that they start to see the fruits of their labor.

Average ROI by maturity level



Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 14

Leaders report an average ROI of over 4.3%, with nearly 40% reporting an ROI of over 5%. All leaders report positive returns, while no beginners or implementers post returns over 5%.

Generating ROI from AI is a slow-burning process. With the average payback period at 17 months (see Figure 15), it clearly takes time to identify the appropriate business case, acquire and prepare the right data, and then build, test, refine and deploy working models. Management teams will want to set realistic targets that consider not just the short-term financial gains from AI, but also the longer-term strategic benefits.

Being realistic about payback times

Typical payback period	Percent of respondents
Less than six months	5%
Six months to less than one year	38%
One year to less than two years	37%
Two years to less than three years	17%
Three years or more	3%

Response base: 1,200
Source: ESI ThoughtLab/Cognizant
Figure 15

How to Accelerate the ROI of AI

A futuristic city street at night, illuminated by vibrant blue and orange light trails. In the center, a traffic light is visible, with the right-turn arrow illuminated in red. The background shows a blurred cityscape with buildings and streetlights, creating a sense of motion and modern technology.

Driving ROI from AI

To succeed at using AI to drive modern decisioning, executives should consider the following best practices uncovered by our research:



Begin with pilots, but then scale AI applications across the enterprise. Companies starting out should focus on working closely with business teams to identify use cases and demonstrate their value through pilots. It's important to identify multiple use cases, since some AI initiatives will fail.

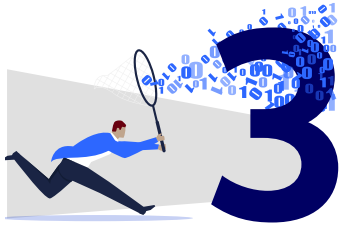
Once pilots succeed, it's essential to follow through. The real value of AI is not in the models themselves, but in a company's ability to scale them across their organizations. It's telling that 75% of organizations with high ROI have scaled AI across businesses units.



Use a hybrid organizational structure to scale AI initiatives. Beginners often start out with a centralized approach to AI, with a core of data scientists. But these efforts struggle because the teams are often not sponsored by the business lines, which are the ones with many of the ideas. These central service teams are slow and ultimately collapse under their own weight. Business people, on the other hand, tend to work in a decentralized way. AI teams need to be close to them, as well as the HR leader, the marketing leader, the supply chain leader, the ops leaders. AI should be seen as a service to them, not something that's centrally controlled.

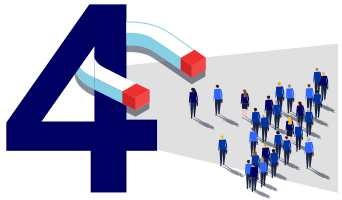
For example, we recently worked with a company that realized its supply chain predictive models didn't work anymore due to COVID-19. They immediately put data scientists in with the supply chain team and deployed new models in just two weeks. The models went into production quickly because they were tied to a business outcome and the people responsible for those outcomes.

Once the organization grows its AI maturity, it can start establishing standards. How do you know when you're using [responsible AI](#)? How do you eliminate bias? What tool sets are appropriate? How do you integrate third-party data? Which partners do you need? These types of decisions are better served centrally but executed locally as you scale.



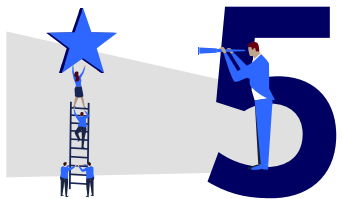
Get your data right. Nine out of 10 AI leaders are advanced in data modernization. That's why 35% of beginners and 74% of implementers plan to have sophisticated data modernization systems in place by 2023. Ensuring your data is in good shape isn't enough; businesses should also bring in a richer

set of data, such as psychographic, geospatial and real-time data, which drives higher AI performance. At the same time, organizations should integrate fast-growing data formats into their AI applications, such as high-dimensional, video, audio and image.



Solve the human side of the equation. AI is not just about technology; it's also about people. Tellingly, AI leaders spend 27% of their AI budget on people, almost twice the percentage that AI beginners and implementers spend. It's critical to hire AI talent that can understand business needs and create solutions, not just build models. Eighty-three percent of

businesses in our study with high ROI have been successful at developing and acquiring the right people. It's also important to consider other people issues when adopting AI. Before scaling projects, businesses should put an HR plan in place to address jobs that may be disrupted.



Adopt a culture of collaboration and learning. About 85% of businesses that generate large AI returns ensure close collaboration between AI experts and business teams. Also, 83% of high performers are advanced at developing and acquiring AI talent, and nearly nine out of 10 excel at providing

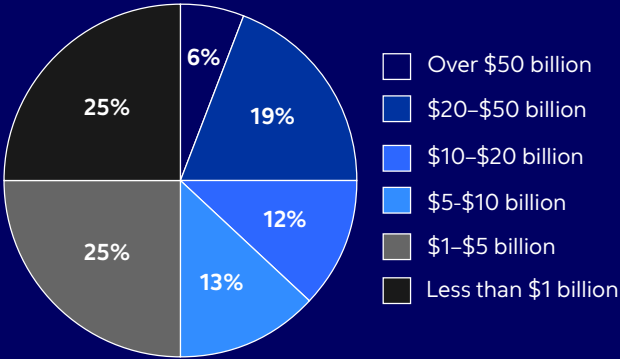
non-data scientists with the skills and tools to use AI on their own. AI leaders are also more likely to have chief AI and analytics officers in place and multiple executives working together to lead AI initiatives.

Methodology

ESI ThoughtLab conducted a comprehensive benchmarking survey of executives at 1,200 companies across 12 industries and 15 countries. It was carried out over the phone in March and April 2020. Respondents had superior or excellent knowledge of the use of AI within their organizations. A full 85% were C-level executives, and the rest report directly into the C-suite.

The study examined AI investments, plans, practices and performance results at respondents' organizations. It included quantitative questions to allow ESI ThoughtLab economists to develop a rigorous AI maturity framework, analyze performance results, benchmark practices, and measure the ROI on AI investments.

Percent of respondents by revenue



(Percentages don't always add to 100% due to rounding.)

Respondents by industry

Automotive	8%
Energy/utilities	8%
Investment	8%
Life science	8%
Banks	8%
Healthcare	8%
Manufacturing	8%
Technology	8%
Consumer	8%
Insurance	8%
Media	8%
Telecom	8%

Respondents by function

Technology CIO, CTO, CDO	24%
Finance CFO, CRO and investment	17%
Management CEO, DOO	15%
Marketing CMO, CPO, CCO	13%
Direct report	8%
Strategy & innovation CSO, CIO	7%
Other C-level CHRO, etc	7%
Business head business units, divisions	7%

Respondents by geographic region

Asia Pacific 31%	
Australia China/Hong Kong SAR India	Japan Singapore
Europe 33%	
France Germany Netherlands	Nordics* Switzerland UK
Latin America 8%	
Brazil Mexico	
North America 27%	
Canada U.S.	



About the author

Bret Greenstein

Global Vice-President and Head of Digital Business AI & Analytics Practice, Cognizant

Bret Greenstein is Global Vice-President and Head of Cognizant Digital Business's AI & Analytics Practice, focusing on technology and business strategy, go-to-market and innovation, helping clients realize their potential through digital transformation. Prior to Cognizant, Bret led IBM Watson's Internet of Things offerings, establishing new IoT products and services for the Industrial Internet of Things. He built his career in technology and business leadership across a range of roles throughout IBM in software, services, consulting,

strategy and marketing, and served as IBM's CIO for Asia-Pacific. He has worked globally in these roles, including living in China for five years, working with clients and transforming IBM's IT environment. Bret holds patents in the area of collaboration systems. He holds a bachelor's degree in electrical engineering and a master's degree in manufacturing systems engineering from Rensselaer Polytechnic Institute. He can be reached at Bret.Greenstein@cognizant.com | www.linkedin.com/in/bretgreenstein/.

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About Cognizant Artificial Intelligence Practice

As part of Cognizant Digital Business, Cognizant's Artificial Intelligence Practice provides advanced data collection and management expertise, as well as artificial intelligence and analytics capabilities that help clients create highly personalized digital experiences, products and services at every touchpoint of the customer journey. Our AI solutions glean insights from data to inform decision-making, improve operations efficiencies and reduce costs. We apply Evolutionary AI, Conversational AI and decision support solutions built on machine learning, deep learning and advanced analytics techniques to help our clients optimize their business/IT strategy, identify new growth areas and outperform the competition. To learn more, visit us at cognizant.com/ai.

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Cognizant (Nasdaq-100: CTSI) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 194 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://twitter.com/Cognizant).

About ESI ThoughtLab

ESI ThoughtLab is an innovative thought leadership firm that creates fresh thinking and actionable insights through rigorous research and evidence-based analysis. It specializes in using the latest quantitative and qualitative tools to examine the impact of technology on companies, cities, industries, and business performance. ESI ThoughtLab is the thought leadership arm of Econsult Solutions, a leading economic consultancy.

The ESI ThoughtLab report "Driving ROI Through AI" was the source for the data and much of the analysis in this ebook.

To learn more, visit esithoughtlab.com.

ESI THOUGHTLAB

Cognizant

World Headquarters

500 Frank W. Burr Blvd.
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277

European Headquarters

1 Kingdom Street
Paddington Central
London W2 6BD England
Phone: +44 (0) 20 7297 7600
Fax: +44 (0) 20 7121 0102

India Operations Headquarters

#5/535 Old Mahabalipuram Road
Okkiyam Pettai, Thoraipakkam
Chennai, 600 096 India
Phone: +91 (0) 44 4209 6000
Fax: +91 (0) 44 4209 6060

APAC Headquarters

1 Changi Business Park Crescent,
Plaza 8@CBP # 07-04/05/06,
Tower A, Singapore 486025
Phone: + 65 6812 4051
Fax: + 65 6324 4051