



Create More Business Value from Your Organizational Data

Embrace Organic Integration of AI across the Business

SCALEXM.AI

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Navigating this InfoBrief

Click on titles or page numbers to navigate to each section.

This paper was created based on data collected from Gartner , IDC and Forrester Research

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Executive Summary

We have entered the domain of AI-augmented work and decision-making across all functional areas of a business, from front to back office. This White Paper presents various research on the global use, impact, and value creation of artificial intelligence (AI) and machine learning (ML) across industries and functional markets. It also provides recommended practices for tech buyers to ensure accelerated and consistent value delivery.



AI adoption and spend continue to rise.

AI adoption has increased three times since 2019, and 25% of the AI initiatives and 36% of AI models are now reported to be in production.

Organizations plan to spend 4% more on AI initiatives in 2022 than in 2021. 2020 had the largest spend so far, with large organizations averaging \$134 million annually. Budget is largely centralized in IT, and AI initiatives are primarily managed by a center of excellence.



AI is disrupting virtually every business process in every industry.

Around 50% of survey respondents plan to use AI across business functions in the next 12 months. AI-powered automation is expected to take center stage. Recent breakthroughs in natural language processing (NLP) using transfer learning and reinforcement learning techniques are accelerating the adoption of recommendation and optimization engines.



Innovation and sustainability are the top benefits.

Early adopters reported 35% improvement in innovation and 33% improvement in sustainability by investing in AI over the past three years. Customer and employee retention were each reported to have 32% improvement from AI investments.



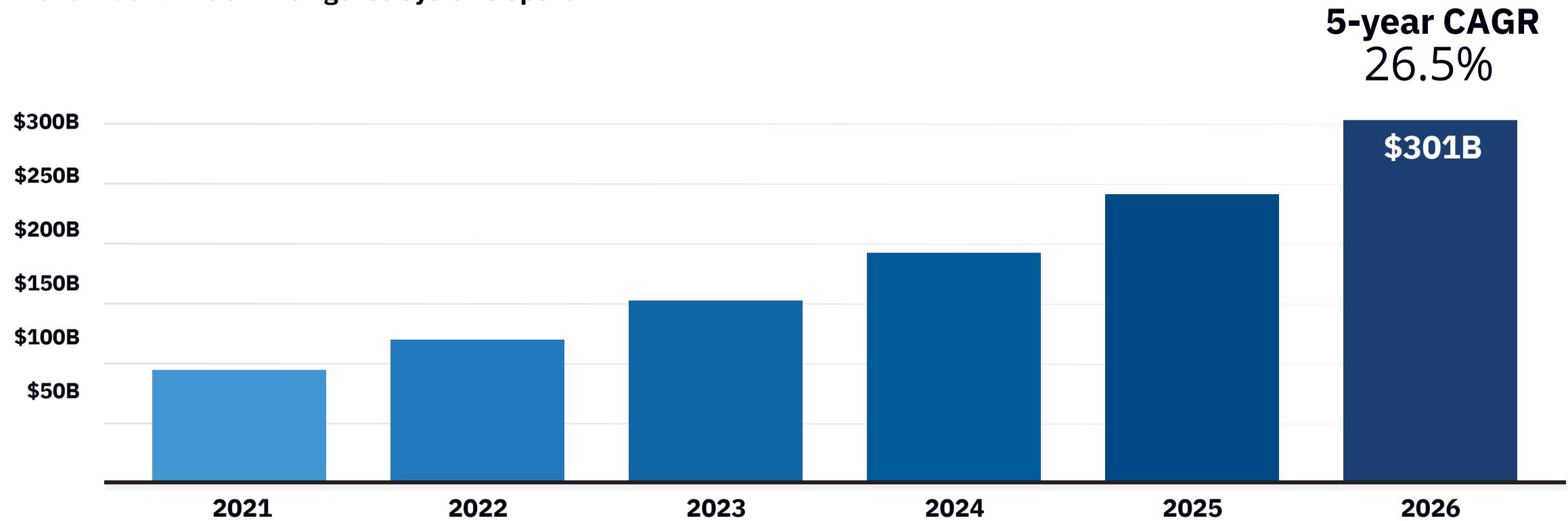
The talent gap, AI governance, and quality training data are challenges for AI deployments.

The skills shortage, not just of data scientists and machine learning developers but also of business practitioners who understand the implications and use of AI, remains a big issue. Reskilling and training is an investment priority, along with the democratization of AI tools and technologies.

Upcoming regulations to ensure responsible AI deployments have increased the need for governance, and adequate volumes and quality of training data continue to be an inhibitor.

Global Spending on AI to Exceed \$301 Billion by 2026

Worldwide Artificial Intelligence Systems Spend



Source: 's Worldwide Artificial Intelligence Spending Guide, August 2022

Efficiency, Customer Experience Are Key AI Business Objectives

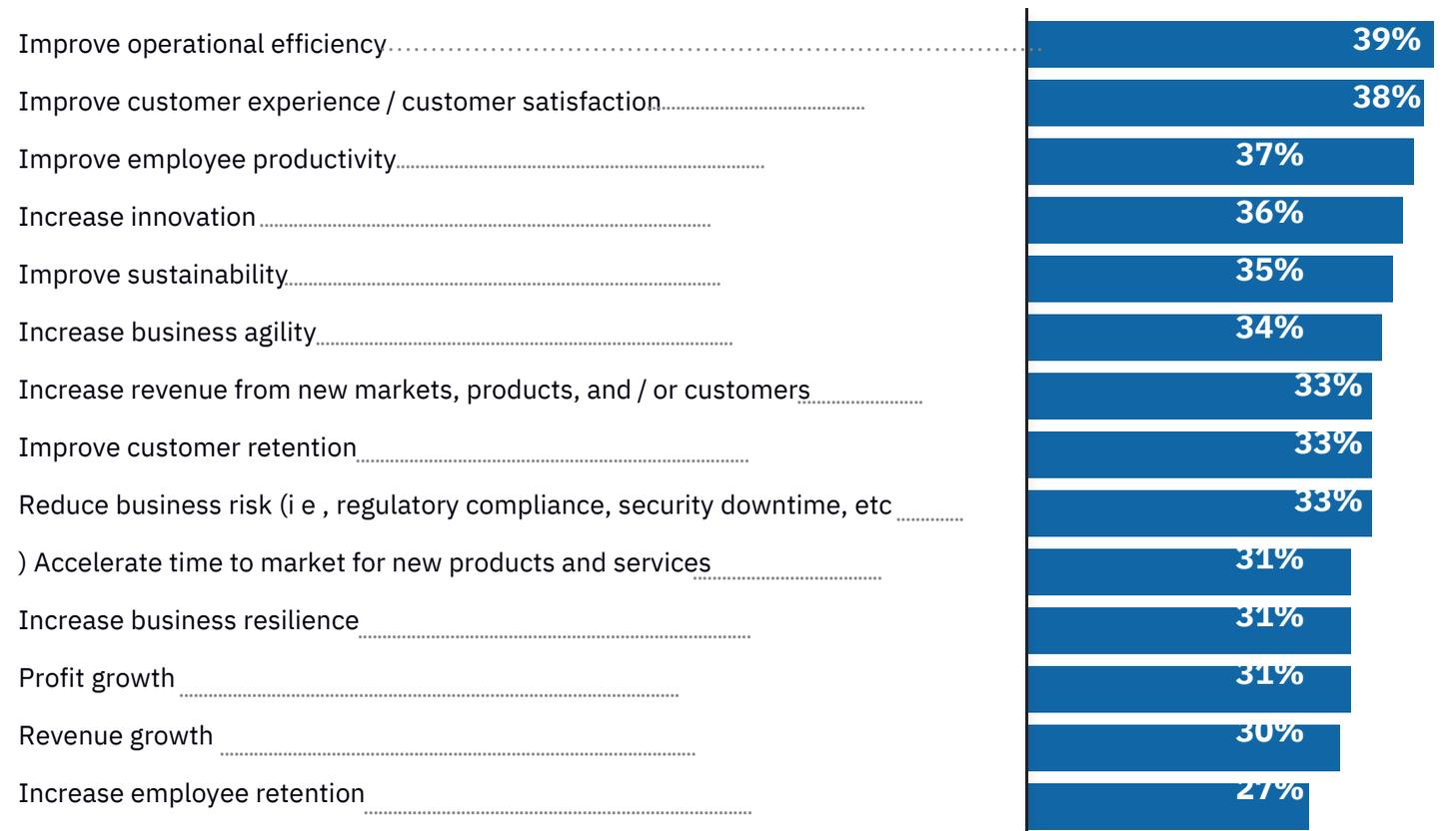
Unprecedented digital transformation over the past two years has ushered in an increasingly digital-first economy. AI/ML are at the forefront, helping organizations future-proof, digitalize, and permanently reduce the cost of doing business.



n = 2,053, Source: 's AI StrategiesView 2022, May 2022

Q. What are the primary business objectives for using AI for your projects / initiatives?

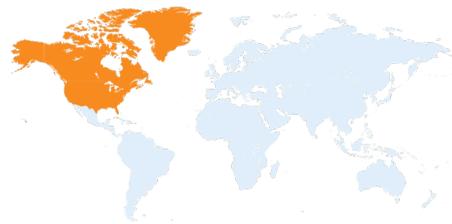
AI Business Objectives (global responses)



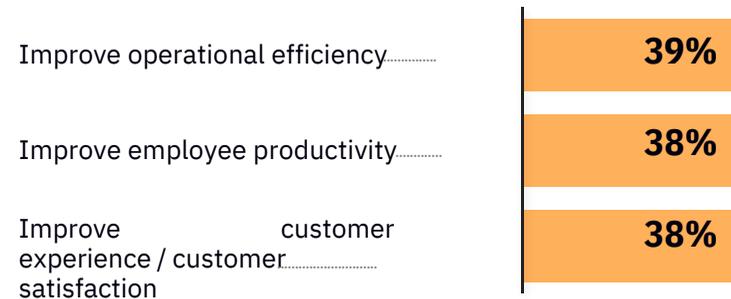
Most Regions Pursuing Efficiency and Customer Experience

Improving operational efficiency is the top objective for North America and the Europe, Middle East, and Africa region. Increasing revenue from new markets is the priority in Asia/Pacific.

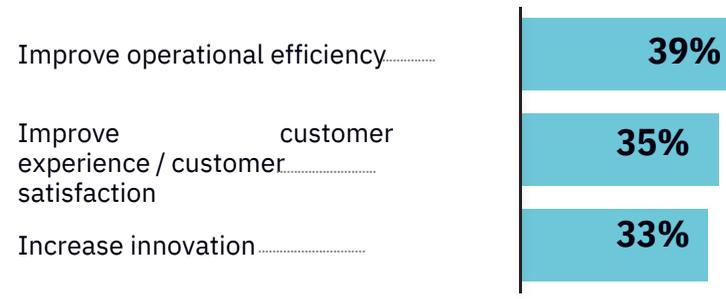
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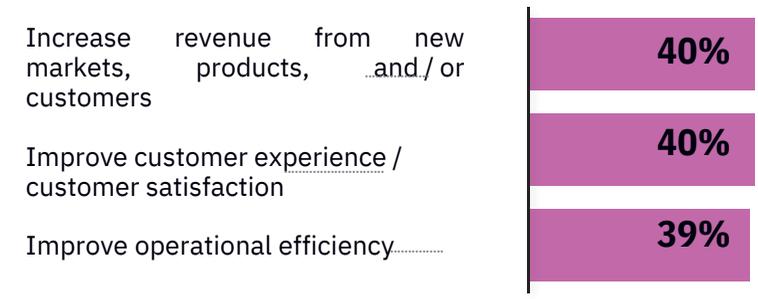
NORTH AMERICA



EUROPE, MIDDLE EAST AND AFRICA



ASIA PACIFIC



n = 2,053, Source: 's AI StrategiesView 2022, May 2022

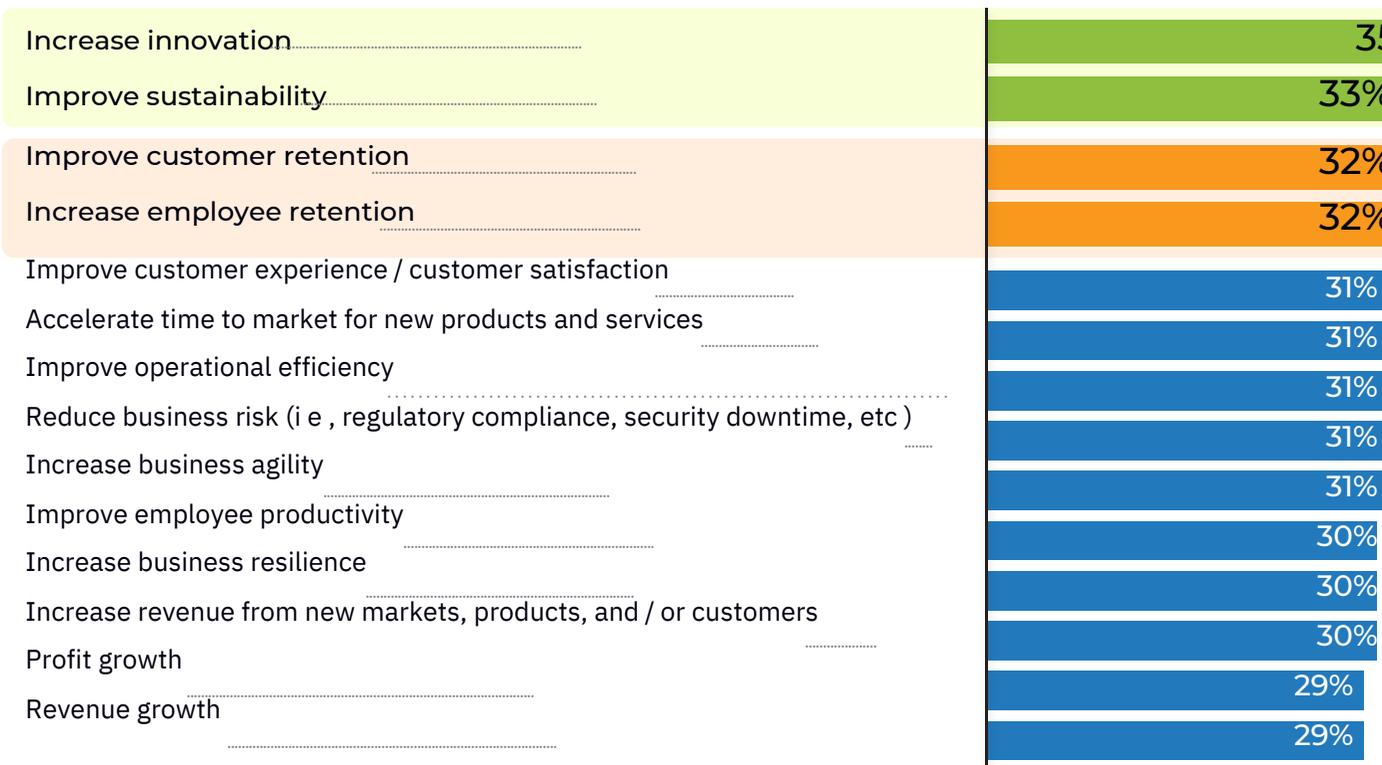
AI Projects and Initiatives Offer Superior Business Outcomes

Q. What percentage improvement due to investing in AI projects/initiatives has your organization seen annually over the past three years for the following business outcomes?
Improvements Attributed to AI (global responses)

Globally, early adopters reported 35% improvement in innovation and 33% in **sustainability** by investing in AI over the past three years

Customer and employee retention each saw a 32% improvement.

n = 2,053, Source: 's AI StrategiesView 2022, May 2022



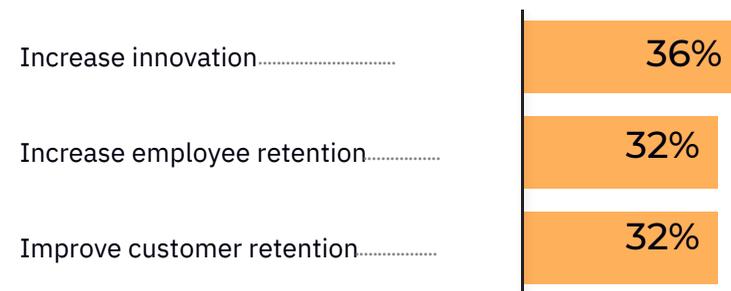
AI Projects and Initiatives Offer Superior Business Outcomes (continued)

While North America and Asia / Pacific businesses had the greatest gains in innovation, EMEA businesses said faster time to market and reduced business risks were their top successes.

Q. What percentage improvement due to investing in AI projects/initiatives has your organization seen annually over the past three years for the following business outcomes?



NORTH AMERICA



EUROPE, MIDDLE EAST AND AFRICA



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n = 2,053, Source: 's AI StrategiesView 2022, May 2022

A Diverse Set of AI Use Cases

Today, firms prioritize operations and automation, along with computer vision and chatbots.

In two years, firms will prioritize AIOps, augmented intelligence, and discovery and analysis applications.



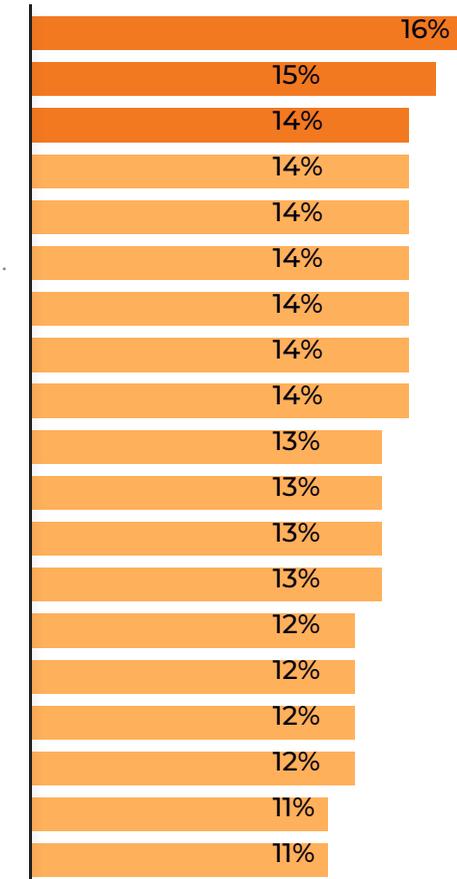
n = 1,705, Source: 's AI StrategiesView 2022, May 2022

Q. What kinds of AI solutions is your organization investigating, building, or planning to deploy in the next two years? (choose all that apply)

Improvements Attributed to AI (global responses)

- AIOps.....
- Augmented intelligence.....
- Discovery and analysis applications.....
- Intelligent task or process automation.....
- Preventive maintenance.....
- Computer vision (e.g., facial recognition, advanced driver.....
- assistance) Chatbots/conversational AI/virtual agents/.....
- digital assistants.....
- Life-cycle management (versioning, models upgrade.....
- management) Prediction/forecasting.....
- Smart robots.....
- Augmented analytics.....
- Embedded intelligence.....
- NLP (entity extraction, topic detection, text summarization,.....
- etc.) Predictive throughput.....
- AR/VR.....
- Intelligent payments.....
- Recommendation engines (next best action or offer).....
- Semantic/entity linkage/enterprise knowledge graph.....
- technologies Best fit candidates

NEXT TWO YEARS



AI Solutions Are Deployed Across Business Functions

AI-powered automation is expected to take center stage in the next wave of enterprise automation as optimizations move from reactive to predictive and proactive.

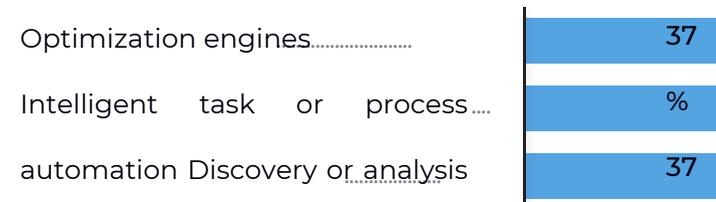
Better understanding and classification of unstructured data and processes can lessen the burden of manually analyzing and orchestrating actions. Without AI, data discovery associated with automation is mostly limited to structured processes and structured data.

Recent breakthroughs in NLP using transfer learning and reinforcement learning are accelerating the adoption of recommendation and optimization engines.

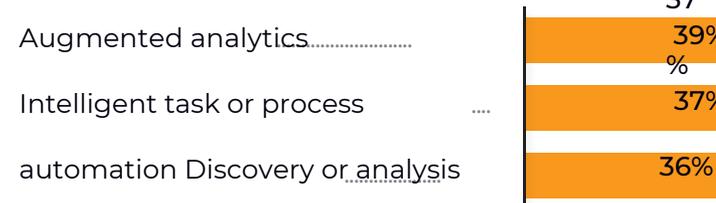
n = 1,920, Source: 's Industry AI Path 2021, June 2021

% of Respondents Working on Use Cases Below

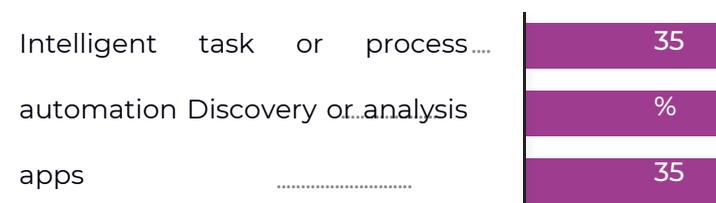
IT operations



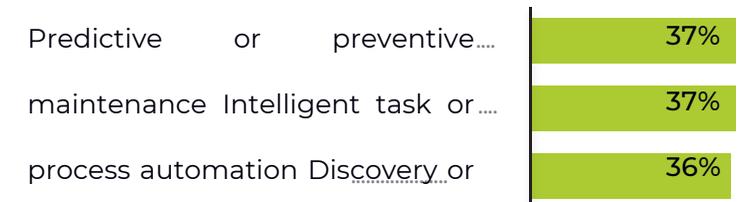
Finance/accounting



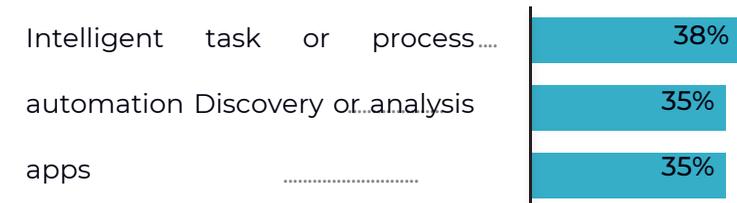
Mgmt./maint. of physical assets



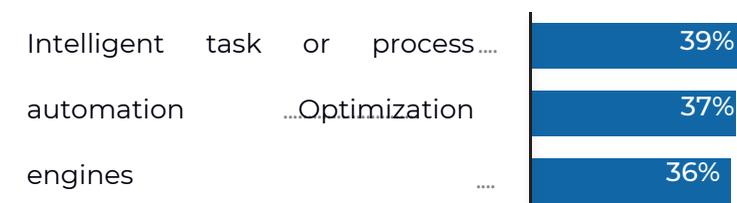
Fraud/risk management



Supply chain



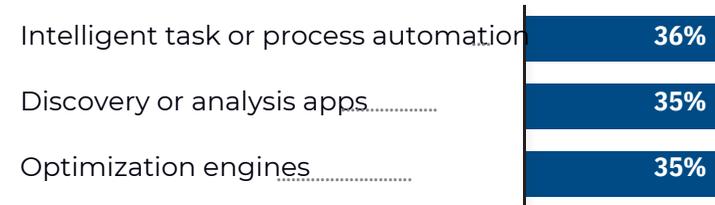
R&D/engineering



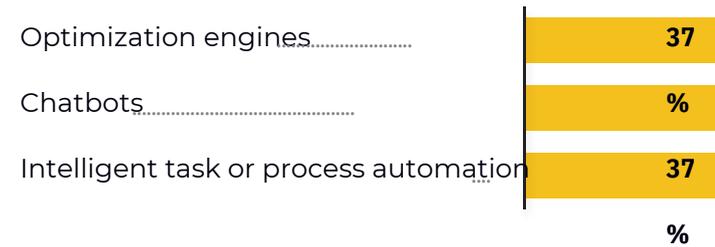
AI Solutions Are Deployed Across Business Functions (continued)

% of Respondents Working on Use Cases Below

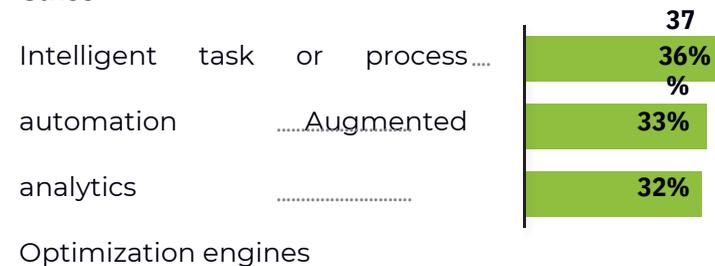
Commerce



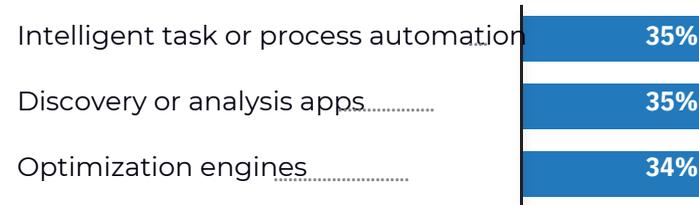
Customer service and support



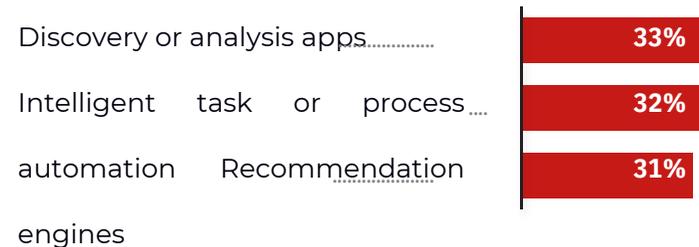
Sales



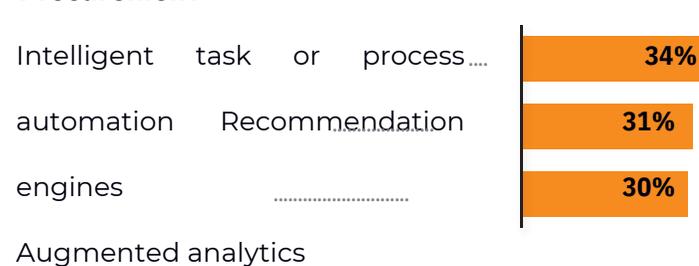
Service delivery



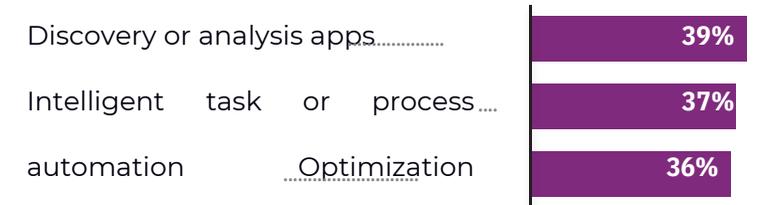
Marketing



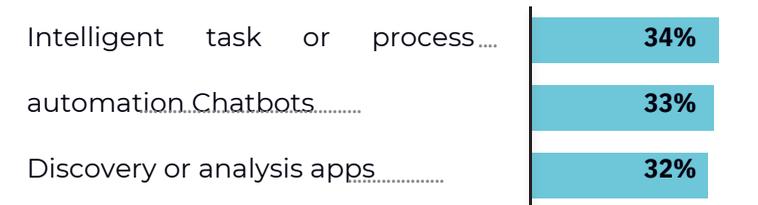
Procurement



Manufacturing operations



Human resources



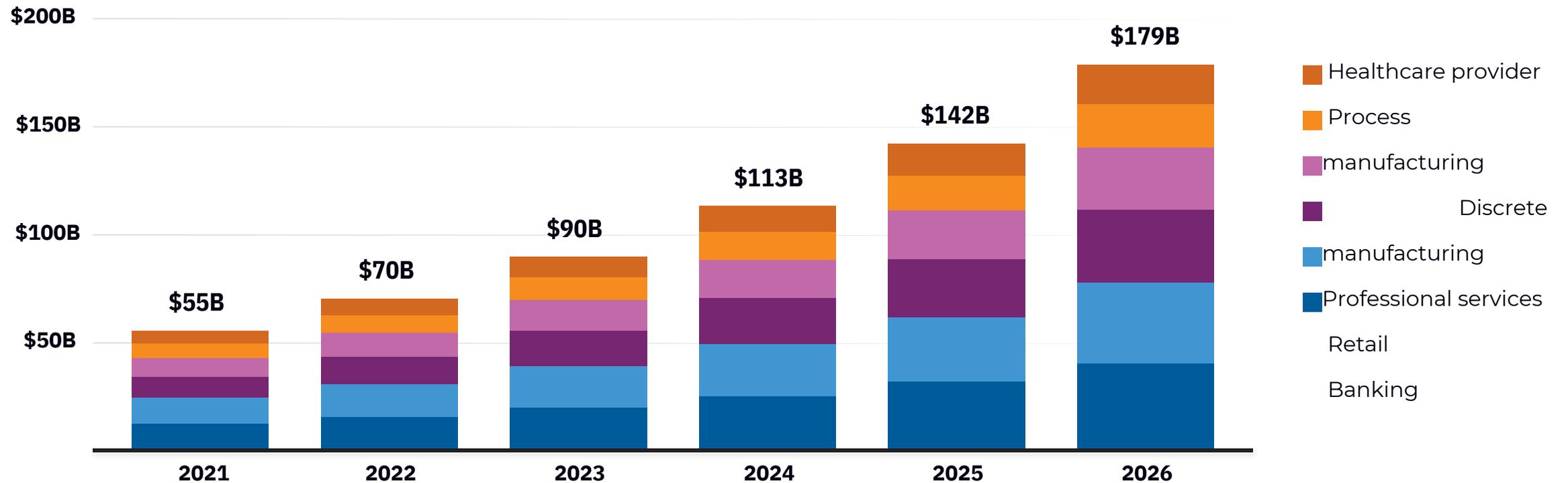
n = 1,920, Source: 's Industry AI Path 2021, June 2021

AI Spending by Industry

Banking, retail, professional services, and manufacturing will account for more than half of global IT spending on AI in 2026.

Top Industry based on Spend, 2021

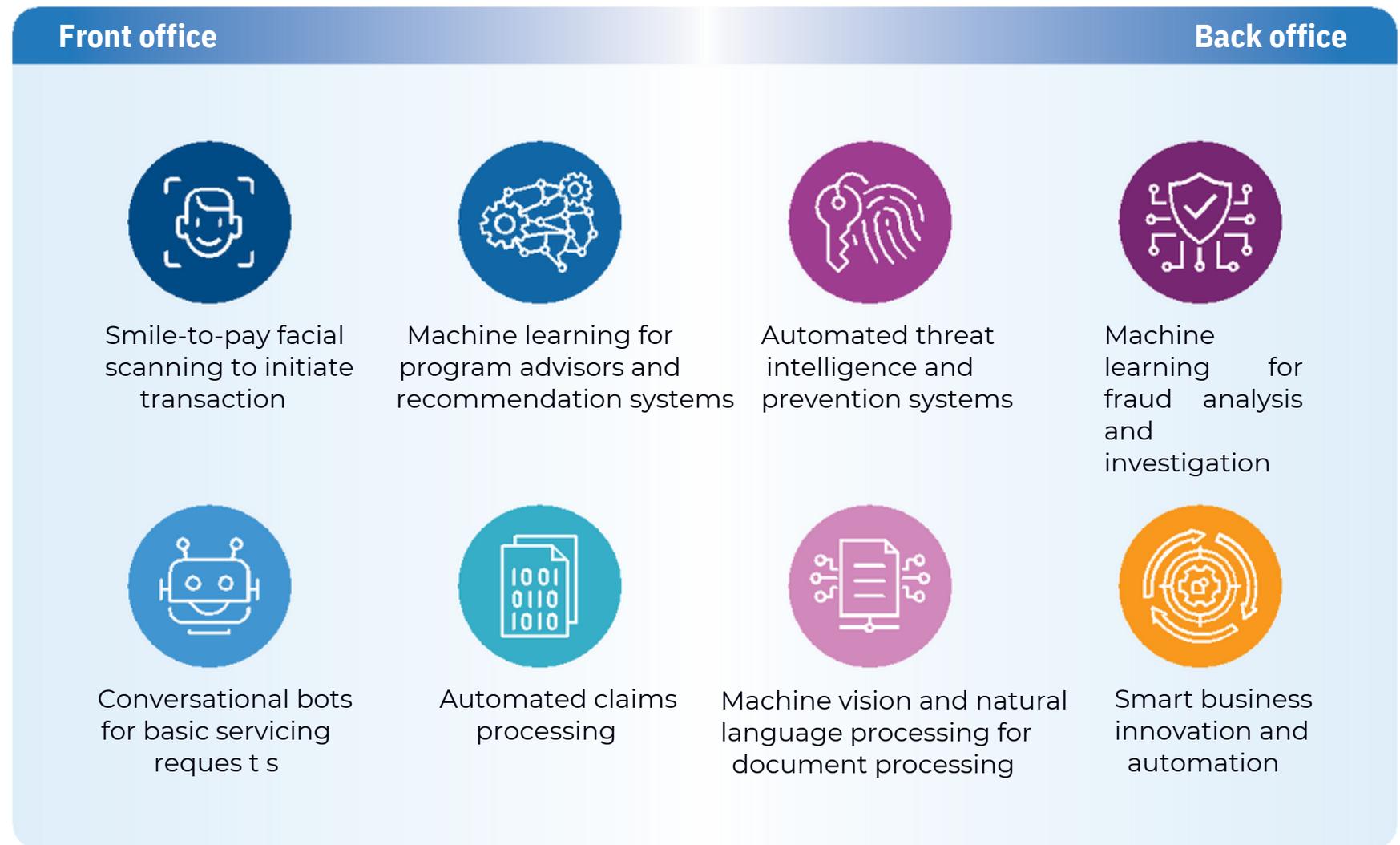
(value — constant \$B)



Source: 's Worldwide Artificial Intelligence Spending Guide, August 2021

AI in Financial Services

Financial institutions are expanding AI to improve customer experiences and back-office processes. The industry is expected to spend over \$10 billion in 2023.



AI in Manufacturing

Manufacturing is expected to spend over \$8 billion in AI in 2023.

Manufacturers are cutting downtime, ensuring high-quality products, and improving operational efficiency AI offers actionable insights into each level of design and manufacturing Through predictive learning, AI identifies product or equipment failures well in advance This helps reduce idle time and improves productivity Computer vision AI and machine learning tools are bringing revolutionary changes for quality assessments

Operational efficiency		Customer experience	
 <p>Quality checks and predictive maintenance</p>	 <p>Predict equipment failure and prevent accidental shutdowns</p>	 <p>Digital twin/advanced digital simulations to design and test equipment virtually</p>	 <p>Customer management with personalized experiences, quicker response times, more-informed decisions</p>
 <p>Accurately predict product demand; automate supply, demand, and inventories functions</p>	 <p>Optimize warehouse management and logistics operations</p>	 <p>AI-powered robots for repetitive tasks, safer workplace, and improved productivity</p>	 <p>Forecast product prices; competitive pricing yields more profits</p>

AI in Other Industries

Retail



- Automated customer service agents
- Expert shopping advisors and product recommendations
- Price optimization
- Cashierless checkout
- Supply and logistics, fleet management

Federal government



- Intelligent case management of application and delivery of benefits
- Intelligence systems: defense, terrorism, investigations
- Urban, transportation, or environmental monitoring and planning

Insurance



- Program advisors and recommendation systems
- Smart business innovation and automation
- Automated claims processing
- Financial crime management

Life sciences



- Clinical trial management and recruitment
- Pricing and revenue management
- Drug discovery
- Automated human resources

Education



- Adaptive learning
- Student engagement tracking and analysis
- Financial aid management and compliance

Telecommunications



- Automated threat intelligence and prevention systems
- Smart networking
- Automated customer service agents

Data Is Foundational to AI

Unstructured data remains largely untapped. Master data and transactional data remain the highest percentages of data types processed for AI / ML solutions across geographies.

- ◀ Unstructured or semistructured data processing is highest in Asia/Pacific .
- ◀ Asia/Pacific and North America process the highest percentage of multimedia and streaming data files.

n = 2,053, Source: 's AI StrategiesView 2022, May 2022

Q. Thinking of your data environment, select all the types of data that are being processed by your organization’s AI / ML solution.

Transactional data (journal entries, purchase orders, invoices, payments, work orders, time cards, payroll, sales, etc.).....

Master data (customers, partners, suppliers, employees, products, financial assets, accounts, locations, etc).....

Social media data (Twitter, LinkedIn, Facebook, etc)

Enterprise blockchain data (Hyperledger, Ethereum, R3 Corda, etc)

Streaming data (clickstreams, stock prices, events, IoT data, etc)

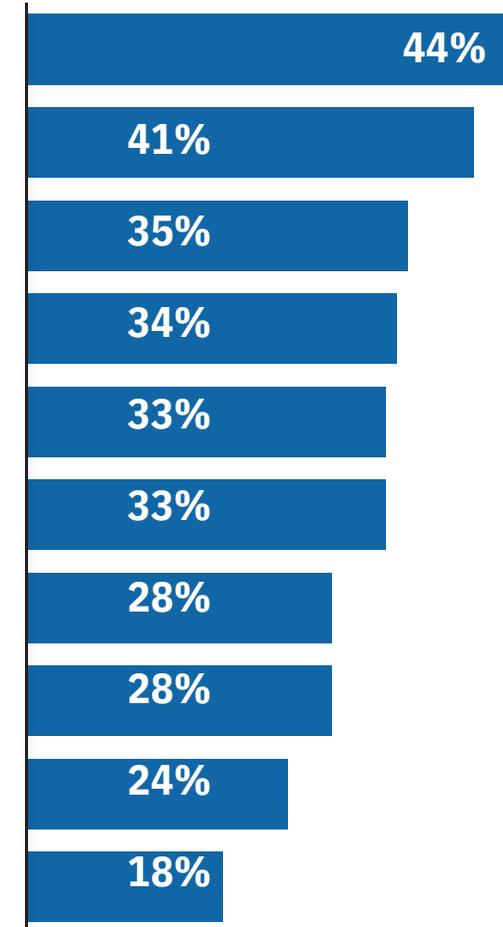
Business-to-business data exchange (EDI, XML, HL7, PIPs, etc)

Unstructured or semistructured data (documents, spreadsheets, drawings, etc).....

Multimedia files (video, audio, image, etc)

Spatial data (GIS, mapping, etc)

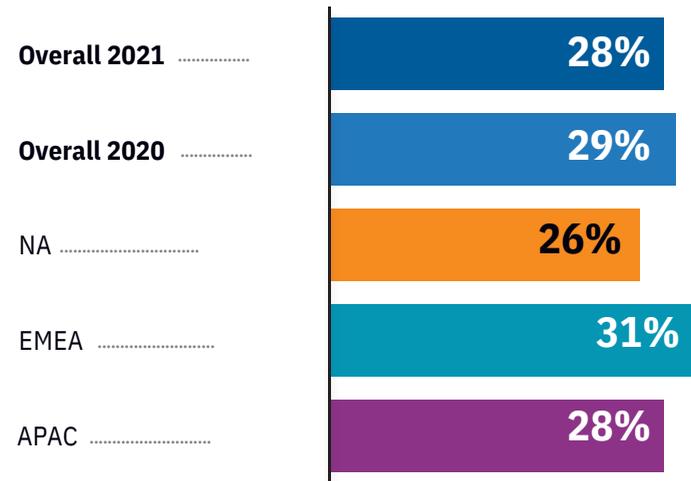
Synthetic data



Companies Experiencing AI Failure

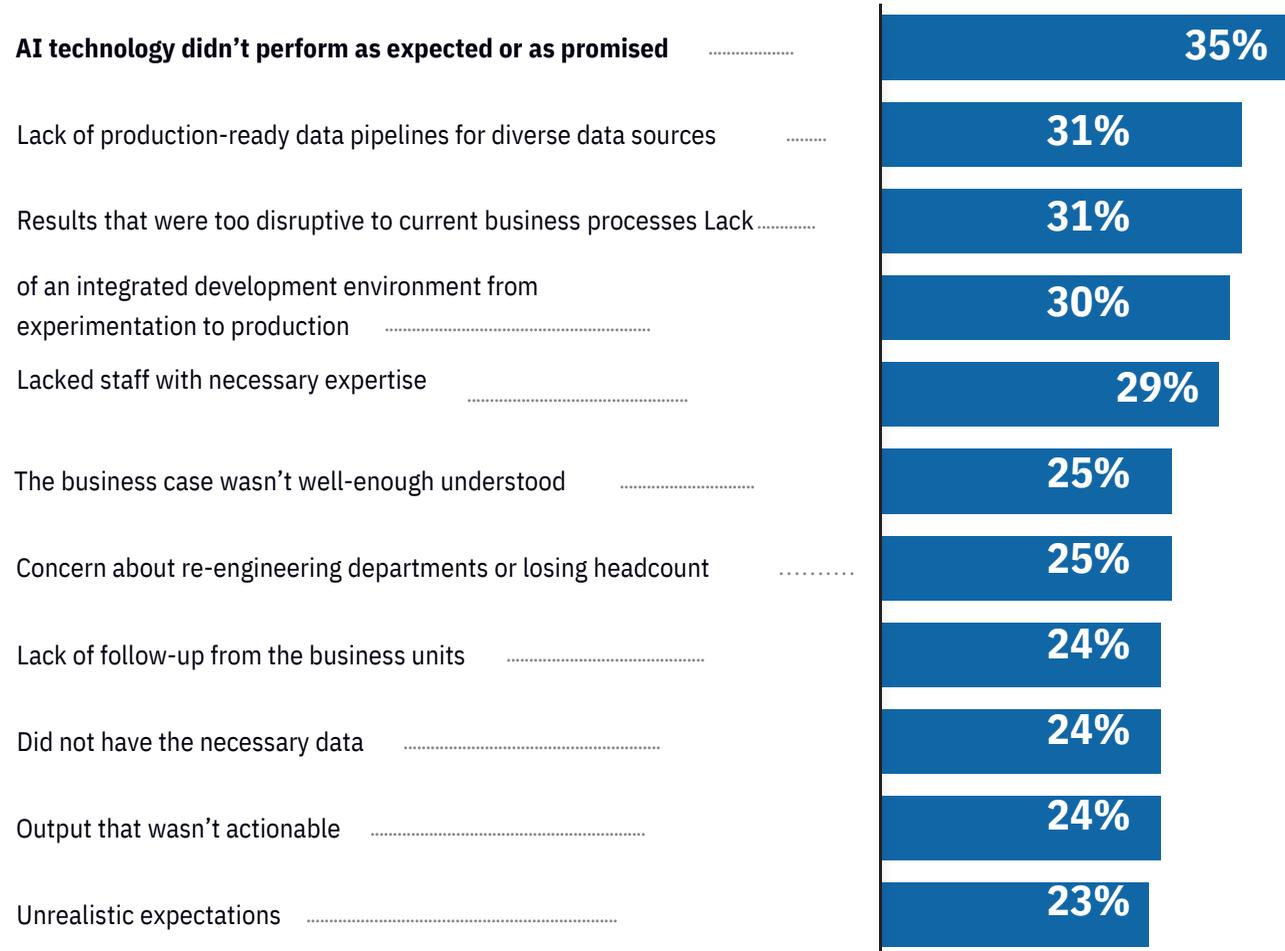
In all three regions, the top reason for AI project failure was technology not performing as expected.

% of respondents that noted AI failure



n = 2,053, Source: 's AI StrategiesView 2022, May 2022

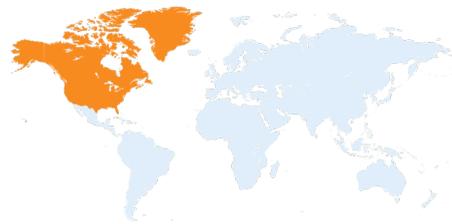
Please indicate the reasons why your AI projects have failed.
(Reasons AI projects failed (global response))



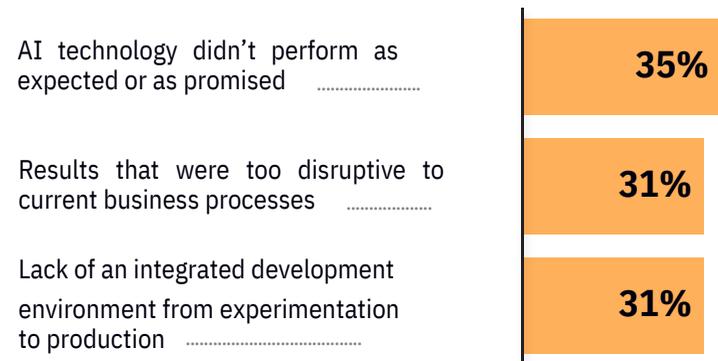
Companies Experiencing AI Failure (continued)

The percentage of AI initiatives that failed is higher in EMEA and APAC compared to North America.

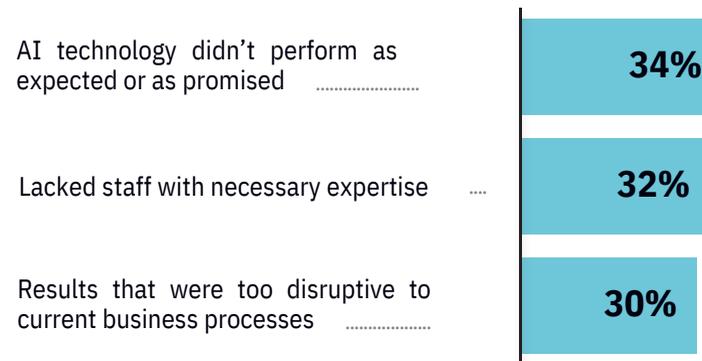
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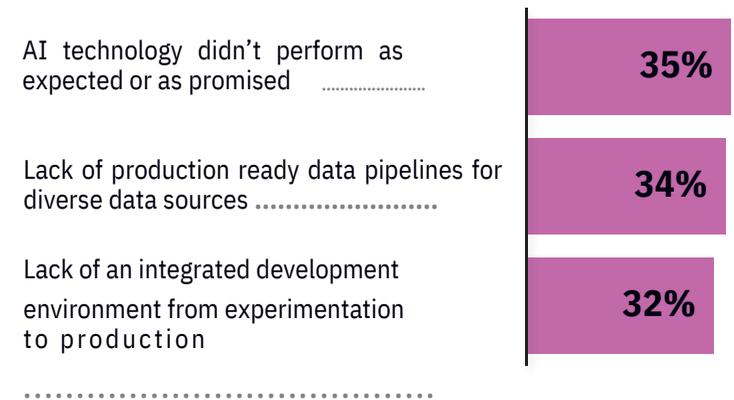
NORTH AMERICA



EUROPE, MIDDLE EAST AND AFRICA



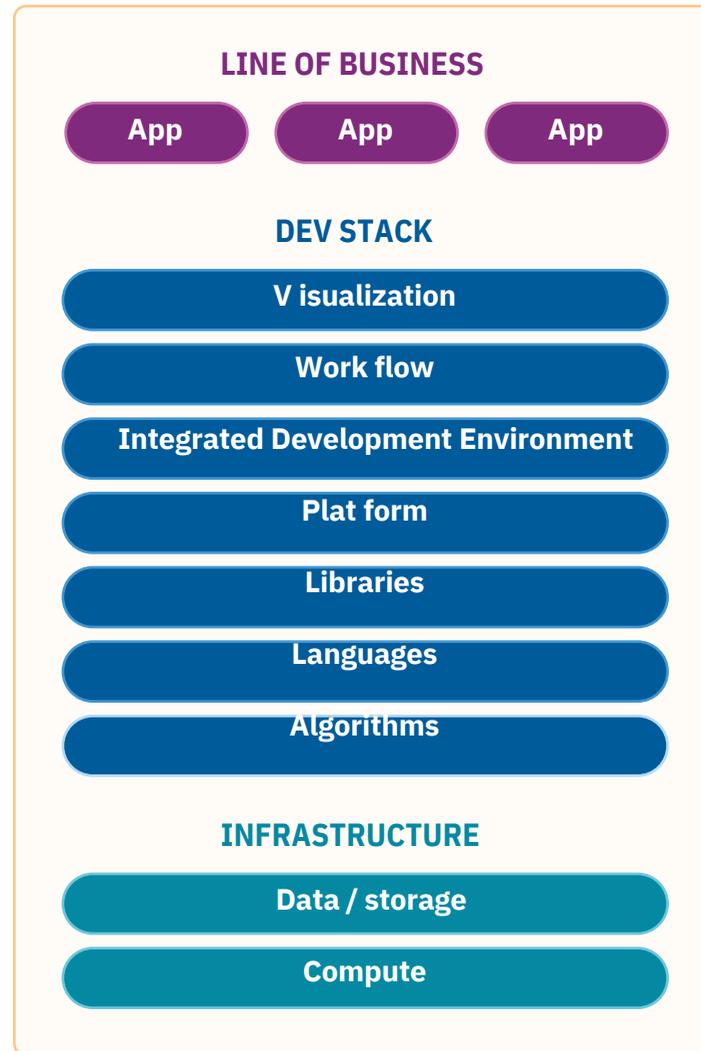
ASIA PACIFIC



n = 2,053, Source: 's AI StrategiesView 2022, May 2022

The AI Life-Cycle Software Ecosystem

- ▶ Focus moves up from infrastructure management
- ▶ Model life cycle management
- ▶ How to move models from experimentation to production?
What are the challenges of
- ▶ running models in production?
How to ensure model performs as expected?
- ▶ How to provide the feedback loop?
- ▶



Collaboration, Deployment, Monitoring, Feedback

- Work flow
- Feature store
- Explainability
- Compliance / Auditability
- Agility / Reusability
- Drift / Retrain / Tune / Rollback

InfraOps, Flexibility, Portability

- Heterogenous compute
- Data operations
- Hybrid cloud / multicloud
- Containerization

Source: 's Worldwide AI Life-Cycle Software Market Shares, 2021: Machine Learning Accelerates, July 2022

The Importance of Automated Machine Learning

Automated machine learning (AutoML) plays a critical role in empowering data practitioners and knowledge workers and helps simplify operations across the AI life cycle. predicts that by 2024, most organizations will leverage codeless development tools for at least 30% of their AI / automation initiatives, helping to scale digital transformation and democratize AI.

To make the data amenable for machine learning, an expert may have to apply appropriate methods for:

- ◀ Data preprocessing
- ◀ Feature engineering
- ◀ Feature extraction
- ◀ Feature selection

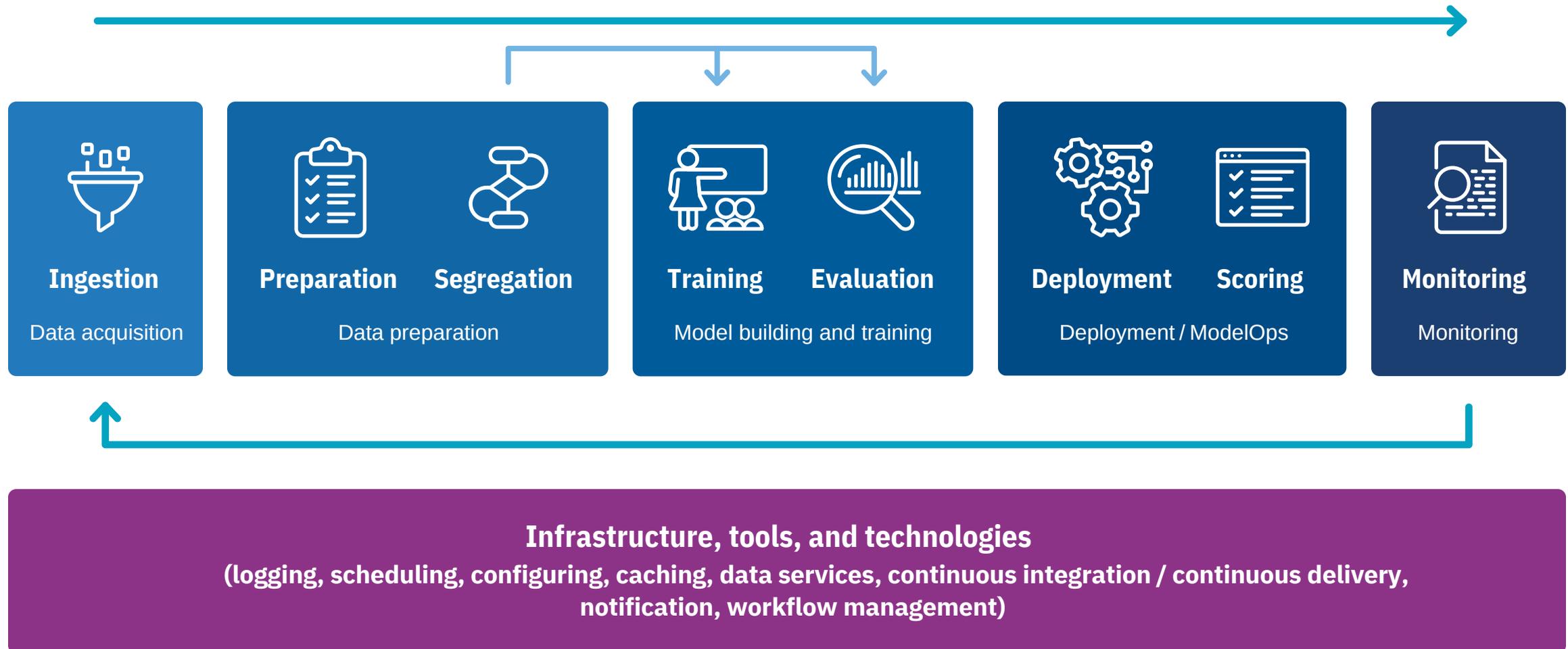
After these steps, practitioners must then:

- ◀ Select the algorithm
- ◀ Optimize hyperparameters
- ◀ Maximize the predictive performance of their model

If deep learning is used, the architecture of the neural network must also be chosen by the machine learning expert.

Each of these steps may be challenging, resulting in significant hurdles to using machine learning. AutoML aims to simplify these tasks and make the practice of machine learning more efficient for data practitioners.

The Workflow of Automated Machine Learning



Essential Guidance

AI, ML, and NLP are changing brands around the globe across multiple industry sectors. AI helps organizations realize superior business outcomes, such as better customer and employee experience, innovation, competitiveness, and higher margins. Although adoption is rapidly expanding, project failure rates remain high. Organizations worldwide must evaluate their vision to address the inhibitors for success, unleash the power of AI, and thrive in the digital era.



People

Lack of skilled staff hinders AI adoption at scale. Evaluate third-party services for needs you can't meet in-house while focusing internal efforts on proprietary requirements. Establish a portfolio of expertise that extends beyond data science. AI is largely about data and algorithms; however, "math" alone does not ensure success. Consider the role of data scientists along with knowledge workers and industry expertise. Empowering knowledge workers will accelerate time to value.



Process

AI creates business value but also has unintended consequences. Establish clear policies for data privacy, decision rights, accountability, and transparency. Have proactive and ongoing risk management and data governance performed jointly by IT and those in business and compliance.



Technology

Consider whether to build, buy, or outsource AI capabilities. An off-the-shelf solution that meets requirements with some customization can be cost-efficient and mitigate a skills gap. To build, look for a flexible platform that can quickly scale up and down to meet demand. Instead of implementing distinct solutions to handle small tasks, embrace the platform approach to support consistent experiences and standardization.



Data readiness

To ensure better ROI, select a responsible AI / ML platform with support for all data types and collaboration. Embrace an intelligent data fabric that automates and enforces universal data and usage policies across hybrid data and cloud ecosystems. Automate how data is discovered, cataloged, and enriched. Automate how users access, update, and unify data across distributed cloud landscapes without moving or replicating data.

- **Partner with a trusted and innovative supplier** that can support your short and long-term business drivers and goals in an agile and efficient fashion

Explanation of Terms

Artificial intelligence for IT operations (AIOps)

AIOps combines IT automation and best practices for operations with technologies like artificial intelligence (AI), machine learning (ML), or other analytics technologies. AIOps can speed up, simplify, and automate IT operations processes and tasks by importing and analyzing observability data and events.

Computer vision (CV)

A branch of artificial intelligence that lets computers and systems get useful information from digital images, videos, and other visual inputs.

Failure

AI projects that never made to production due to various reasons, such as unrealistic expectations, the AI technology didn't perform as expected, output wasn't actionable, etc.

Improvement in sustainability

Methods used to reduce the carbon footprint or the compute resources for the development. It could also refer to improving sustainability from climate risk and intelligence.

In production

AI projects that have been successfully deployed and are now being leveraged by end users and are realizing business value.

Integrated development environment (IDE)

A type of software application that gives computer programmers all the tools they need to make software. An IDE usually has at least a source code editor, build automation tools, and a debugger.

Sustainability

A company's strategy to reduce negative environmental impact resulting from their operations. Practices are typically analyzed against environmental, social, and governance (ESG) metrics.

Conclusion

Leverage AI to Reduce Costs

We're living in a world of tight P&L scrutiny, but that does not mean it's the time to deprioritize AI investments.

See why savvy businesses will double down on their commitment to AI projects to run faster and more efficiently.

Check out some of the work we do for our customers.

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