InData Labs

Technology trends 2025:

AI AND BIG DATA ANALYTICS

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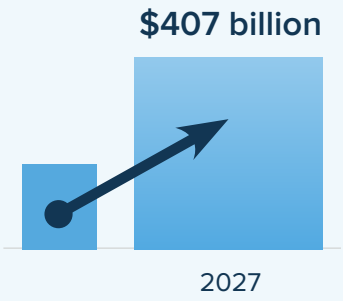
As we move into 2025 and beyond, the integration of Artificial Intelligence (AI) and Big Data Analytics is poised to reshape industries, drive innovation, and enhance decision-making processes across various sectors.



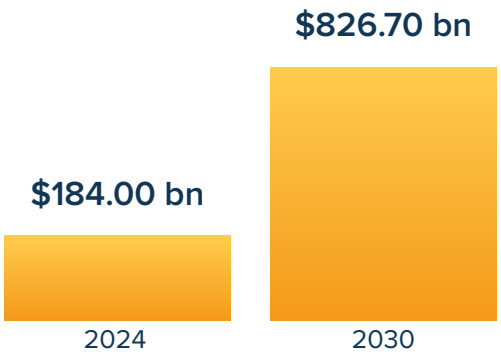
Artificial intelligence stands at the forefront of global innovation as a beacon of certainty and data excellence. According to Markets and Markets, AI market size is expected to reach $407 billion by 2027.

"Artificial Intelligence is the key to unlocking the full potential of organizations, enabling them to harness data-driven insights, enhance operational efficiency, and foster innovation. In today's competitive landscape, leveraging AI is not just an advantage; it is essential for sustained success."

Marat Karpeko
Co-Founder and the Chairman of the Board at InData Labs

AI AND BIG DATA ANALYTICS:
Then. Now. Future.

The adoption of Artificial Intelligence has accelerated significantly from 2020 to 2024, driven by advancements in technology, increased investment, and a growing recognition of AI's transformative potential across various industries. Here's an overview of this remarkable growth, supported by key statistics.

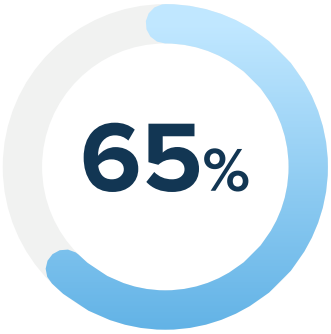


Market Expansion

According to Statista, the global AI market was valued at approximately US$184.00bn in 2024 and is projected to reach over US$826.70bn by 2030, growing at a compound annual growth rate (CAGR) of around of 28.46%. This dramatic increase highlights the escalating investment in AI technologies, including machine learning, natural language processing, and robotics.

Industry Adoption Rates

A survey by McKinsey in 2024 indicated that 65% of organizations reported to start using GenAI. This widespread adoption reflects a growing awareness of AI's potential to enhance productivity and efficiency.



+35%

Investment Trends

According to Crunchbase data, in 2024 VC investors poured close to $53 billion on fresh capital in the AI sector year-to-date, or 35% more than in the entire 2023. Major tech companies, including Google, Microsoft, and Amazon, have also significantly increased their AI spending, further fueling growth in the sector.

Use Cases Across Sectors

AI applications have expanded across various industries. AI is transforming a wide range of industries by automating processes, enhancing decision-making, and improving efficiency. Below are key AI use cases across various sectors:

Finance:

Fraud Detection: AI algorithms analyze transactions in real-time to identify suspicious behavior and prevent fraud in financial transactions.

Credit Scoring and Risk Management: AI can analyze vast amounts of financial data to assess creditworthiness and predict loan defaults more accurately than traditional methods.

Algorithmic Trading: AI-based systems use machine learning to identify market trends and make high-frequency trading decisions, optimizing returns for investors.

Chatbots and Customer Service: AI-powered virtual assistants help customers with inquiries, reducing human workload and providing 24/7 support.

Healthcare:

Medical Imaging and Diagnostics: AI analyzes medical images (like X-rays, MRIs, and CT scans) to detect anomalies, assist in diagnosis, and recommend treatment plans.

Drug Discovery and Development: AI models predict how different molecules interact, speeding up drug discovery and identifying potential treatments more efficiently.

Personalized Medicine: AI uses genetic and health data to recommend tailored treatment plans, improving patient outcomes.

Predictive Healthcare: AI analyzes patient data to predict health events like heart attacks, strokes, or complications, enabling proactive treatment and better patient management.

Virtual Health Assistants: AI chatbots provide health advice, reminders for medication, and mental health support, improving accessibility to healthcare services.

Retail:

Inventory Management: AI helps predict stock levels, optimize product assortment, and prevent stockouts or overstock by analyzing sales data and consumer trends.

Dynamic Pricing: AI algorithms adjust prices in real-time based on factors like demand, competition, and customer preferences to maximize revenue and sales.

Customer Experience: AI-powered chatbots and virtual assistants provide personalized shopping experiences, answering customer queries and offering product suggestions.

Store Layout Optimization: AI analyzes customer movement patterns in physical stores to optimize product placement and improve in-store shopping experiences.

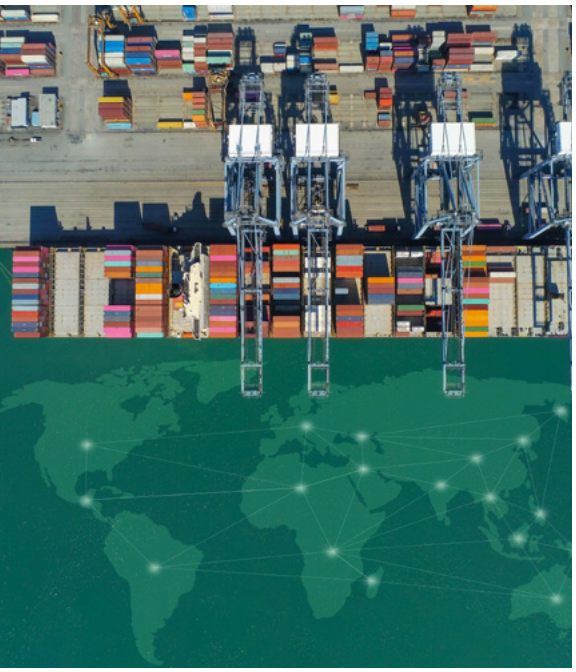
E-commerce:

Product Recommendations: AI-driven recommendation engines suggest products to customers based on their browsing history, preferences, and purchase behavior.

Visual Search: AI allows customers to upload images and find similar products online, enhancing the shopping experience and improving conversion rates.

Customer Support Chatbots: AI-powered bots assist customers with order tracking, returns, and product queries, improving customer service and operational efficiency.

Logistics and Delivery Optimization: AI helps e-commerce companies optimize warehouse operations and delivery routes to improve efficiency and reduce delivery times.



Logistics:

Route Optimization: AI-powered algorithms analyze real-time traffic, weather, and historical data to determine the most efficient delivery routes, reducing fuel consumption and delivery time.

Predictive Maintenance: AI predicts when vehicles or machinery are likely to fail, allowing for proactive maintenance and reducing downtime.

Demand Forecasting: AI uses historical data to forecast demand, helping logistics companies optimize their inventory and reduce overstock or stockouts.

Warehouse Automation: AI-driven robots and drones can automate sorting, packaging, and inventory management within warehouses, reducing human error and labor costs.

Marketing:

Personalization: AI analyzes consumer behavior to offer personalized product recommendations, targeted ads, and tailored marketing content, improving customer engagement and conversion rates.

Customer Segmentation: AI segments customers based on purchasing behavior, demographics, and preferences, allowing for more effective marketing campaigns.

Sentiment Analysis: AI evaluates customer feedback, social media posts, and reviews to gauge public sentiment toward products, brands, and campaigns.

Predictive Analytics: AI models predict future customer behavior, enabling marketers to anticipate trends, preferences, and needs, driving proactive marketing strategies.

Manufacturing:

Predictive Maintenance: AI helps predict when equipment will need maintenance, reducing unplanned downtimes and extending the life of machinery.

Quality Control: Machine learning algorithms analyze images and sensor data to identify defects or quality issues in products during manufacturing.

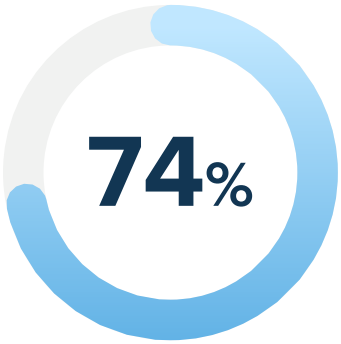
Supply Chain Optimization: AI can predict demand fluctuations and supply chain disruptions, helping manufacturers optimize inventory, production schedules, and shipping.

Robotics and Automation: AI-driven robots perform repetitive tasks, improve precision, and increase production efficiency in manufacturing plants.

AI's ability to process large amounts of data, learn from patterns, and make decisions is revolutionizing these industries, driving efficiency, reducing costs, and enhancing customer experiences.

Public Perception and Readiness

A report from PwC indicated that public perception of AI has become increasingly positive, with 74% of consumers expressing a willingness to adopt AI-driven solutions in their daily lives by 2025. This positive sentiment is expected to carry over into 2025, as familiarity with AI technologies continues to grow.



Challenges and Workforce Impact

From 2020 to 2024, the growth of AI adoption has been marked by substantial investments, widespread acceptance across industries, and increasing integration into everyday business operations. As organizations continue to recognize the benefits of AI, the landscape is set for even greater advancements, transforming how businesses operate and compete in the global market. The next few years promise to be pivotal as AI becomes an integral part of strategic planning and execution across sectors.

Despite the rapid growth, organizations face challenges, including data privacy concerns and a skills gap in the workforce. A 2022 survey by Gartner found that 54% of organizations reported a lack of skilled personnel as a significant barrier to AI implementation.

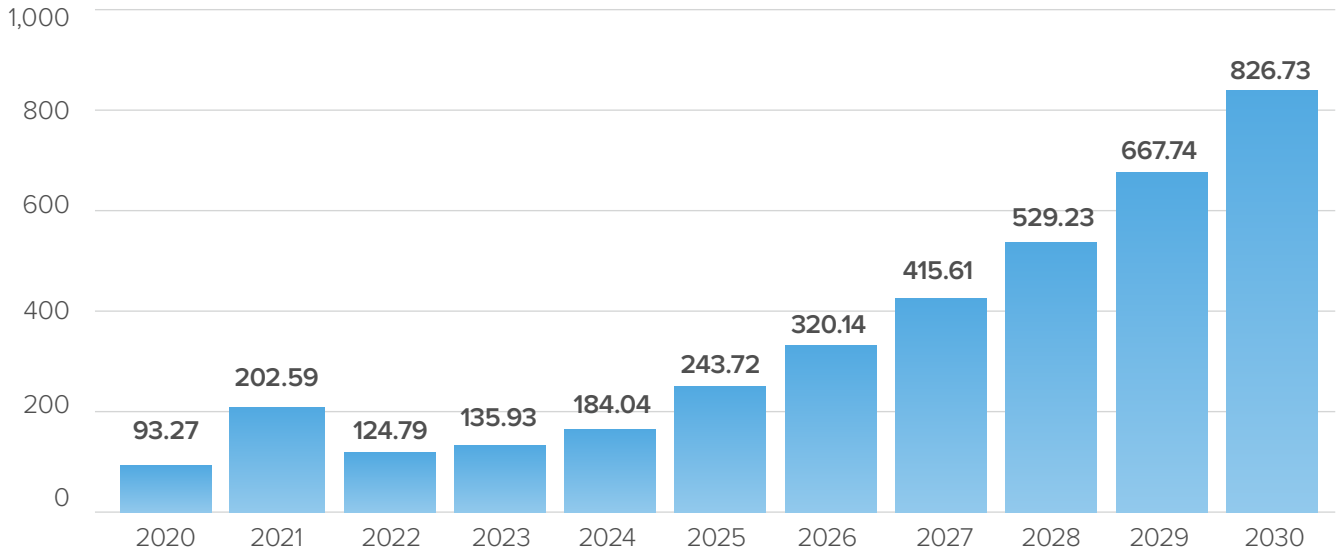
The challenges and workforce impact of AI in 2025 will be profound, necessitating proactive measures from both businesses and policymakers. Addressing job displacement concerns, investing in reskilling programs, and ensuring equitable access to new opportunities will be critical for navigating the transition into an increasingly automated economy. By fostering an inclusive approach to AI integration, stakeholders can mitigate negative impacts while harnessing the benefits of this transformative technology.

Artificial Intelligence Market Overview

Artificial intelligence (AI) market size worldwide from 2020 to 2030

(in billion U.S. dollars)

Statista



AI has transformed the landscape of modern business, enabling companies to harness data-driven insights, enhance operational efficiency, and elevate customer experiences. As organizations integrate AI into their core strategies, they unlock unprecedented opportunities for innovation and growth.

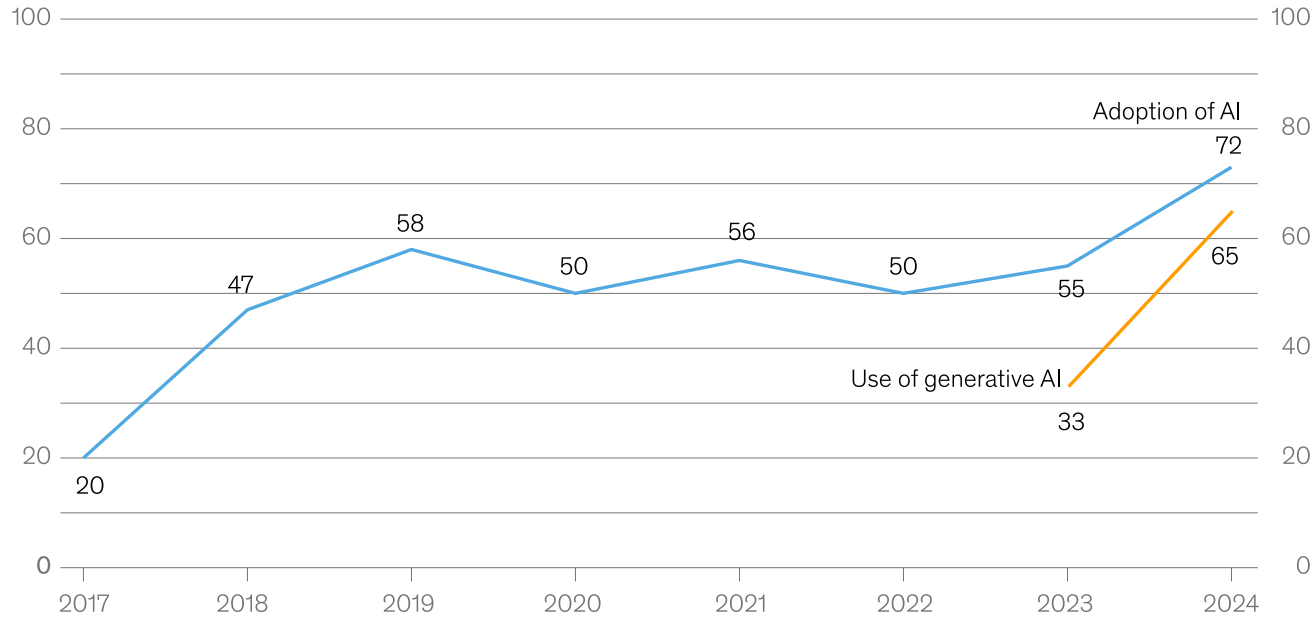
TODAY

MAIN DRIVERS OF AI AND BIG DATA ANALYTICS

AI Adoption has Increased by the Past Year

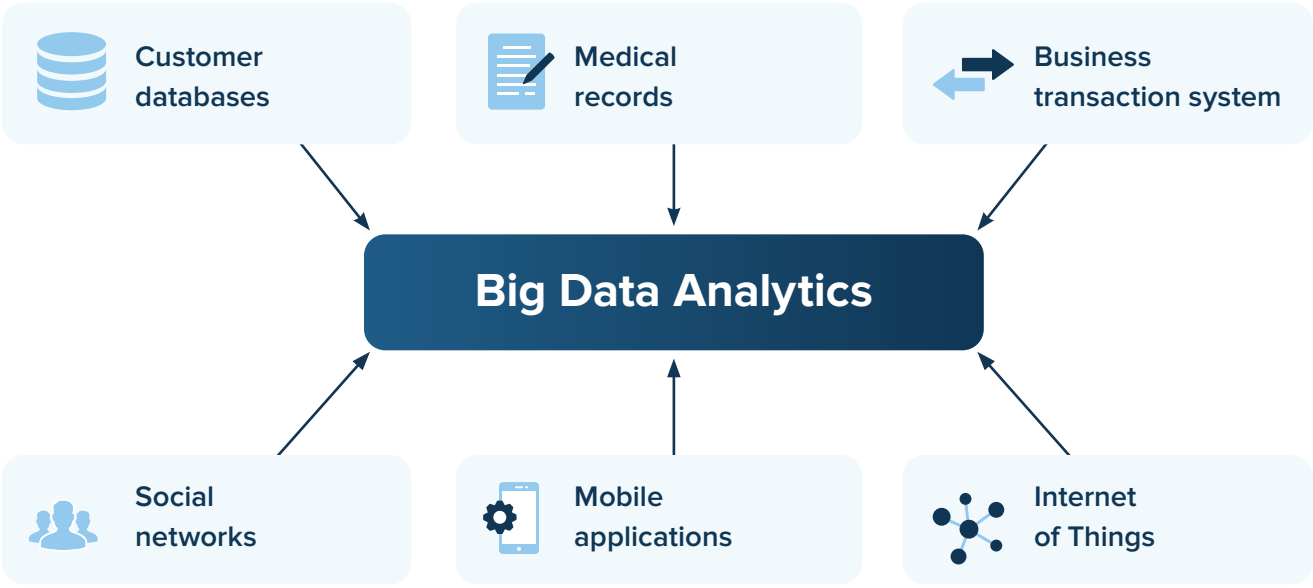
Organizations thay have adopted AI in at least 1 business function, % of respondents

McKinsey



The global Big data analytics market is projected to leap from $348.21 billion in 2024 to over $924 billion by 2032.

Fortune Business Insights



Big data and artificial intelligence have a synergetic relationship. To learn and enhance decision-making processes, AI needs a vast amount of data, and Big data analytics uses AI to improve data analysis. With this convergence, companies can swiftly glean insights from large stockpiles of data and more readily use sophisticated analytics capabilities like predictive analytics.

AI Adoption by Application

Companies seem to leverage the potential of AI-enabled analytics to support technology innovations and back up operational processes.

According to PwC, GenAI has made workers 30% to 40% more productive.

Strategies for AI Adoption in 2025

As we approach 2025, artificial intelligence continues to evolve at a rapid pace, offering unprecedented opportunities across industries. However, successful AI adoption requires more than just technological implementation; it demands strategic planning, alignment with business goals, and a culture of innovation.

Development of Custom AI Solutions:

ADVANTAGES

- **Tailored to specific needs:** Custom models can be designed to meet the exact requirements of an organization's problem or use case, leading to highly specialized solutions.
- **Competitive advantage:** Unique models can provide a competitive edge, as they are designed for specific business needs and are not available to competitors.
- **Data privacy and security:** Custom models can ensure that sensitive or proprietary data stays within the organization, which can be particularly important for sectors like healthcare and finance.
- **Scalability:** As the organization's needs evolve, custom models can be adjusted and scaled to handle growing data or more complex tasks.

DISADVANTAGES:

- **Higher cost:** Developing custom AI models often requires significant resources in terms of skilled personnel, computing power, and time. This can be expensive, especially for smaller organizations.
- **Complexity:** Building custom solutions involves handling data preprocessing, model development, and tuning, which can be complex and time-consuming.
- **Skill requirements:** Organizations must have the necessary technical expertise in-house to build and manage AI models, which can be a challenge for teams without experience in machine learning or data science.

Using Off-the-Shelf AI Solutions:

ADVANTAGES

- **Lower cost:** Off-the-shelf solutions are generally more affordable because they don't require the organization to develop the technology from scratch, and the cost is shared by multiple users.
- **Quick deployment:** Ready-made solutions can be implemented quickly, allowing organizations to start benefiting from AI technology without waiting for long development cycles.
- **Ease of use:** Many off-the-shelf tools are designed to be user-friendly and come with built-in support, making them accessible even to non-technical teams.
- **Regular updates and support:** Commercial AI solutions typically offer ongoing updates, bug fixes, and customer support, which can ease maintenance challenges.

DISADVANTAGES:

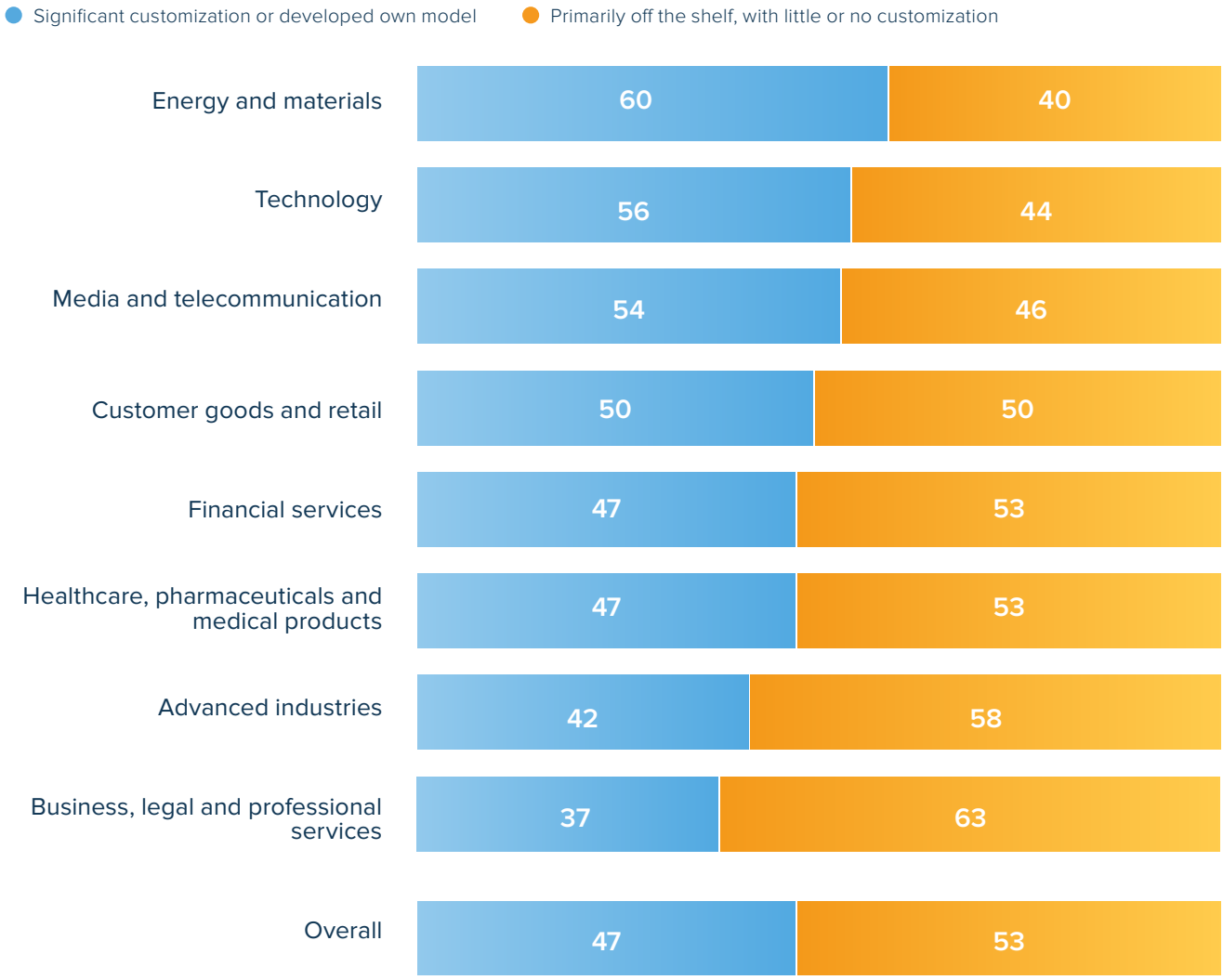
- **Limited customization:** These solutions may not fully meet the specific needs of a business, leading to compromises in functionality or performance.
- **Less competitive advantage:** Since the solution is available to other companies, it doesn't provide the same uniqueness or competitive edge as a custom-built model.
- **Data privacy concerns:** Using off-the-shelf solutions may involve sharing data with third-party providers, raising concerns about data security and privacy, especially in sensitive industries.
- **Lack of flexibility:** Some solutions might be rigid, making it difficult to adjust or scale the system as the organization's needs evolve over time.
- **Dependency on vendor:** Organizations become reliant on the vendor for updates, support, and pricing, which can be risky if the vendor changes their business model or discontinues the product.

Custom AI models offer flexibility, control, and tailored solutions but come with high costs and maintenance requirements. Off-the-shelf solutions, on the other hand, are more cost-effective and easy to implement but may lack customization and can present data security concerns. The choice between the two depends on the organization's specific needs, budget, and long-term goals.

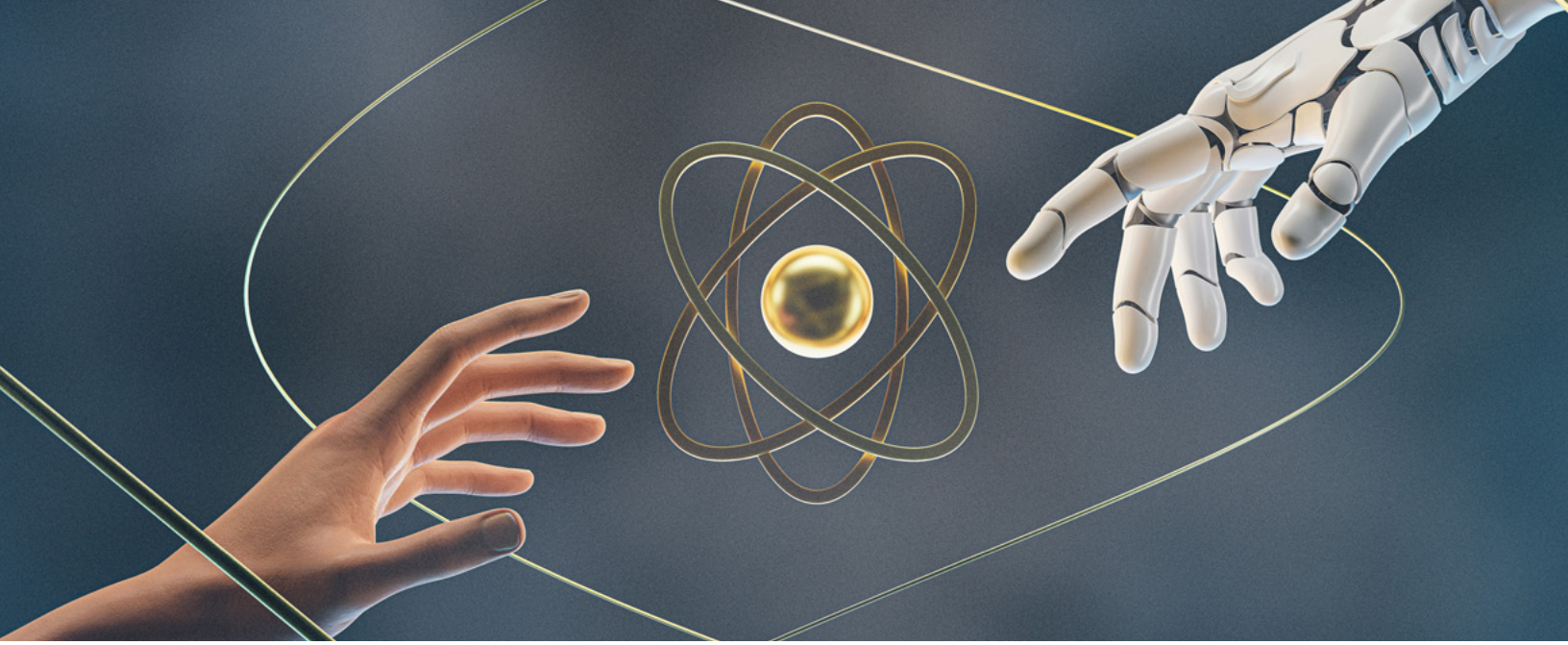
The latest survey shows that off-the-shelf tools are widely applicable across industries, with approximately half of reported GenAI use cases involving these solutions with little or no customization. However, industries like energy, technology, media, and telecommunications are more likely to invest in significant customization or develop proprietary models to meet specific business needs.

Organizations are pursuing a mix off-the-shelf generative AI capabilities and also significantly customizing models or developing their own.

Strategy for developing generative AI (Gen AI) capabilities, % of reported instances of Gen AI use



McKinsey Global Survey on AI 2024



AI Adoption by Industry

The AI distribution by industry has changed throughout the years. The computer and electronics sector seems to accrue the biggest benefits of AI value in production. Financial services, education, and healthcare have surfaced at the top as well, which is the collective result of the pandemic, industry disruptions, and rising investments. When enhancing expertise in data science, machine learning, or other technical areas, organizations can use a combination of approaches, such as creating custom solutions or utilizing ready-made solutions.

Finance

In 2024 91% of financials are either estimating or have already approved AI in their work. The AI in finance market size is projected to grow over $22.6 billion by 2026, exhibiting a 25.7% CAGR.

AI in finance helps to enhance work automation, establish more personalized service offerings and advance security risk management. The last one is the most effective and necessary in this area: 87% of businesses use AI adoption in financial services for fraud detection and anti-money laundering.

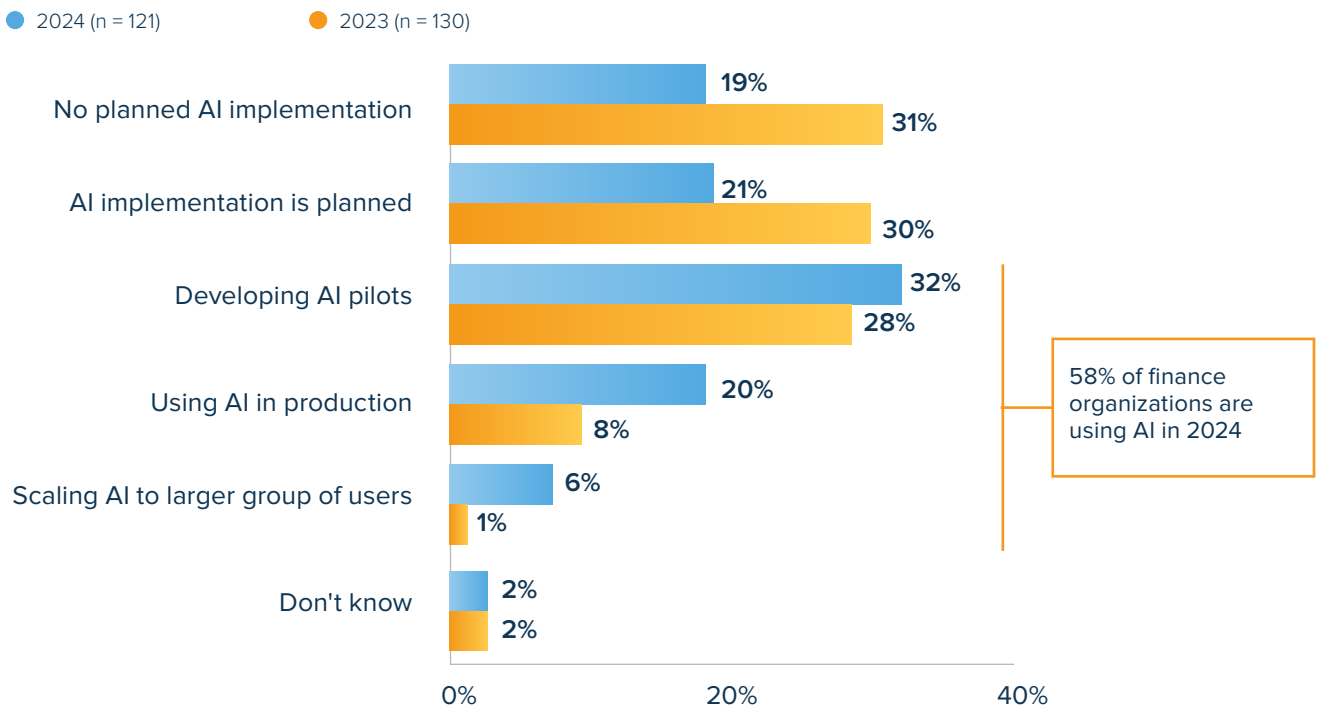
AI Use Cases for Finance:

- Fraud detection: transactions and payments
- Conversational AI
- Algorithmic trading
- Fraud detection: AML and KYC
- Recommender systems
- Portfolio optimization
- Marketing optimization
- Compliance
- Underwriting and acquisition
- Creating synthetic data for model creation
- Claims processing
- Robo-advisory

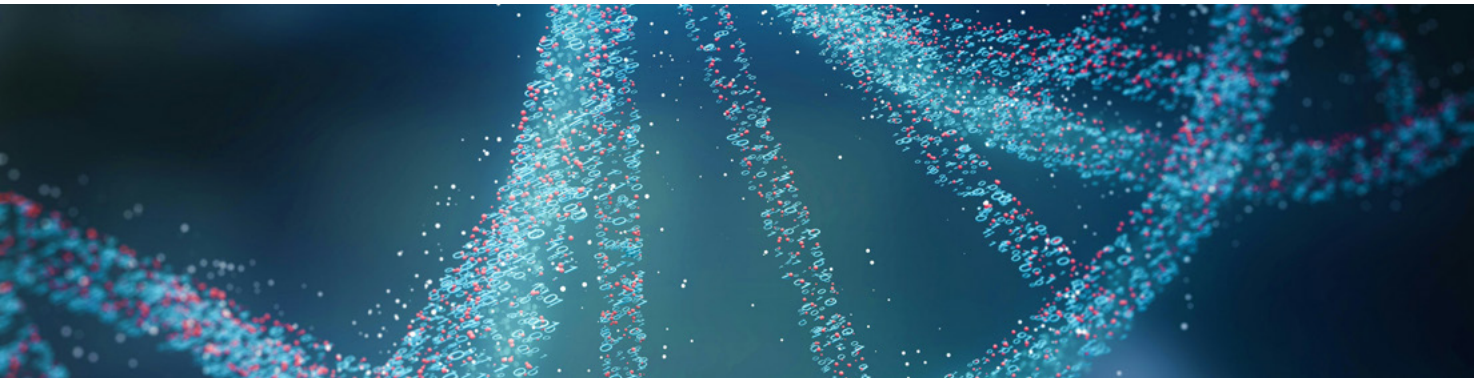
AI Adoption in Finance, 2023 vs 2024

Percentage of respondents

Gather



Healthcare



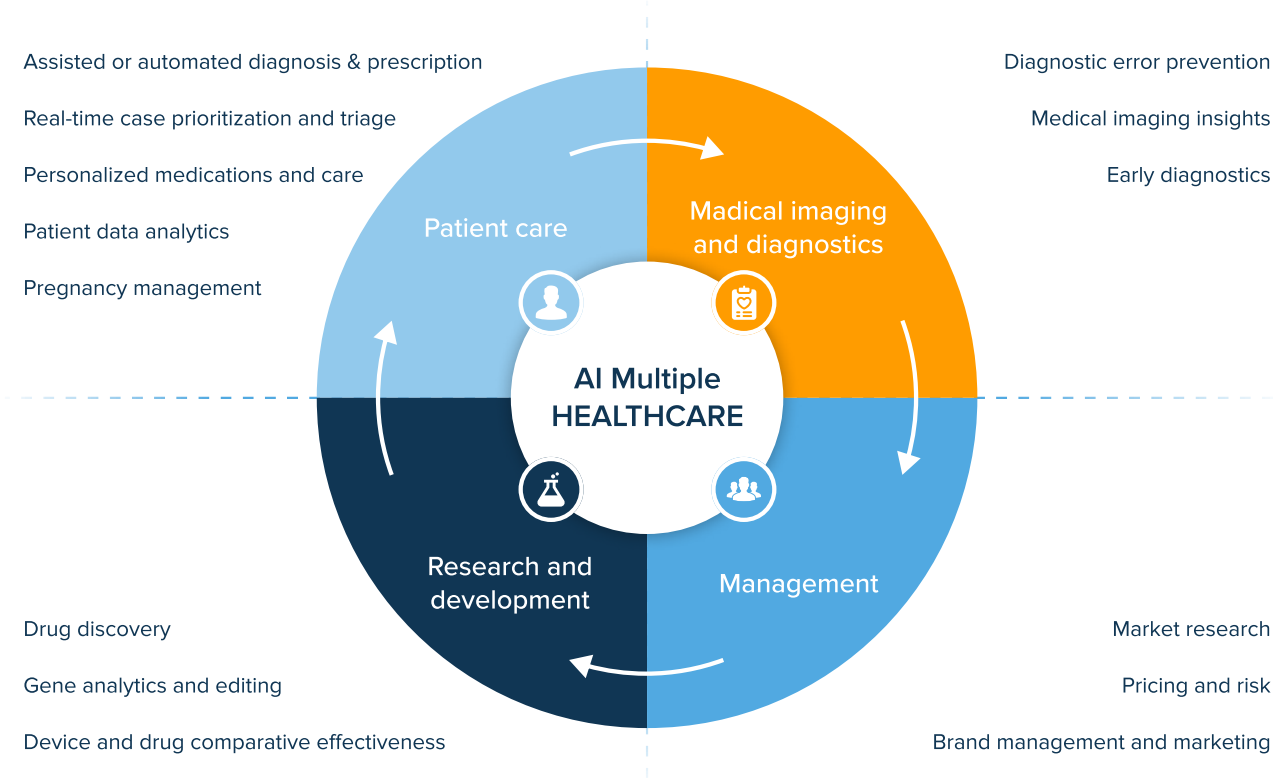
The healthcare industry has never been among early innovation adopters due to stringent regulations.

However, AI in the healthcare market is projected to skyrocket to $194.4 billion by 2030.

The pursuit of digitalization and the COVID-19 pandemic strain have emphasized the need for proactive response and automation. As a result, organizations worldwide have started adopting AI models in the healthcare field. The biggest effect was shown in the areas of surgery and early diagnosis.

In 2023 24.5% of the market was dominated by the robot-assisted surgery segment. It is also predicted that by 2025, 90% of hospitals will use AI for early diagnosis and remote monitoring.

Almultiple

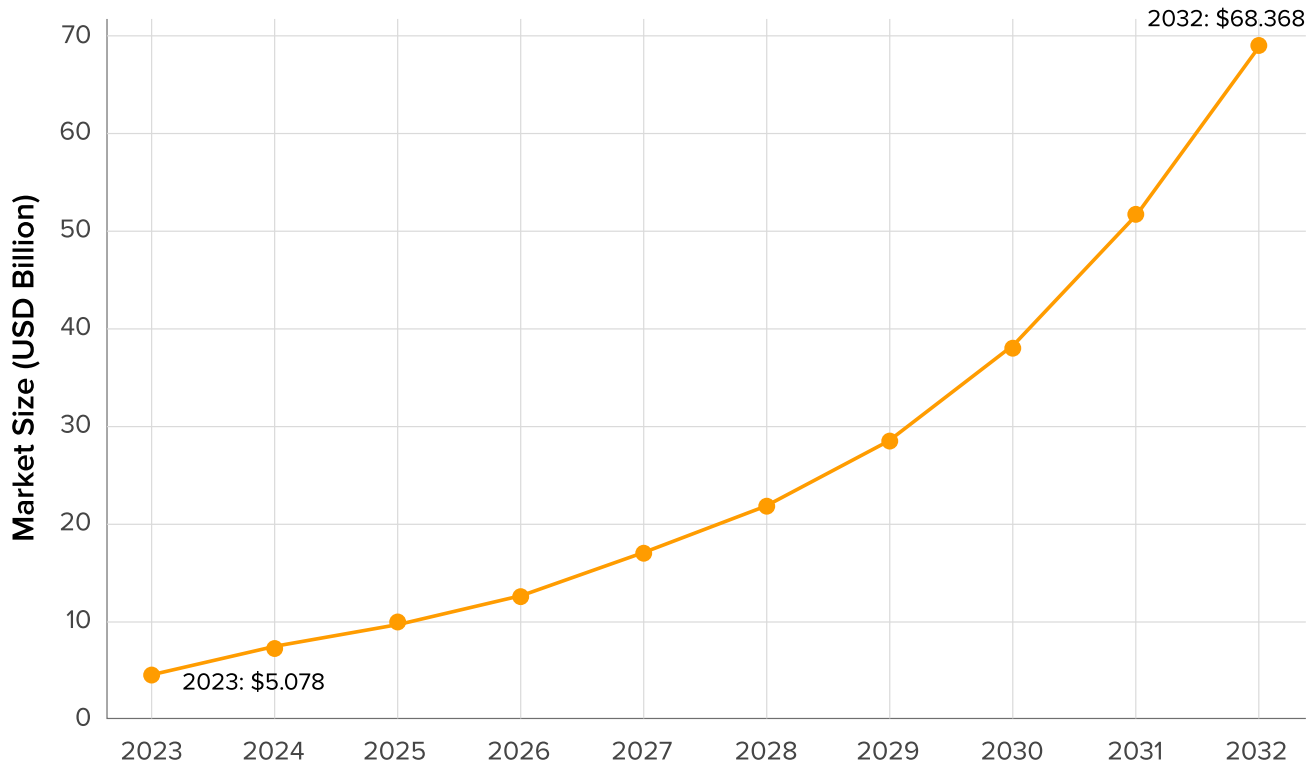


Manufacturing

The AI in manufacturing market size was USD 5.07 billion in 2023 and is forecasted to reach USD 68.36 billion by 2032, growing at a CAGR of 33.5% from 2023 to 2032.

Global AI In Manufacturing Market Size (2023 - 2032)

All about AI

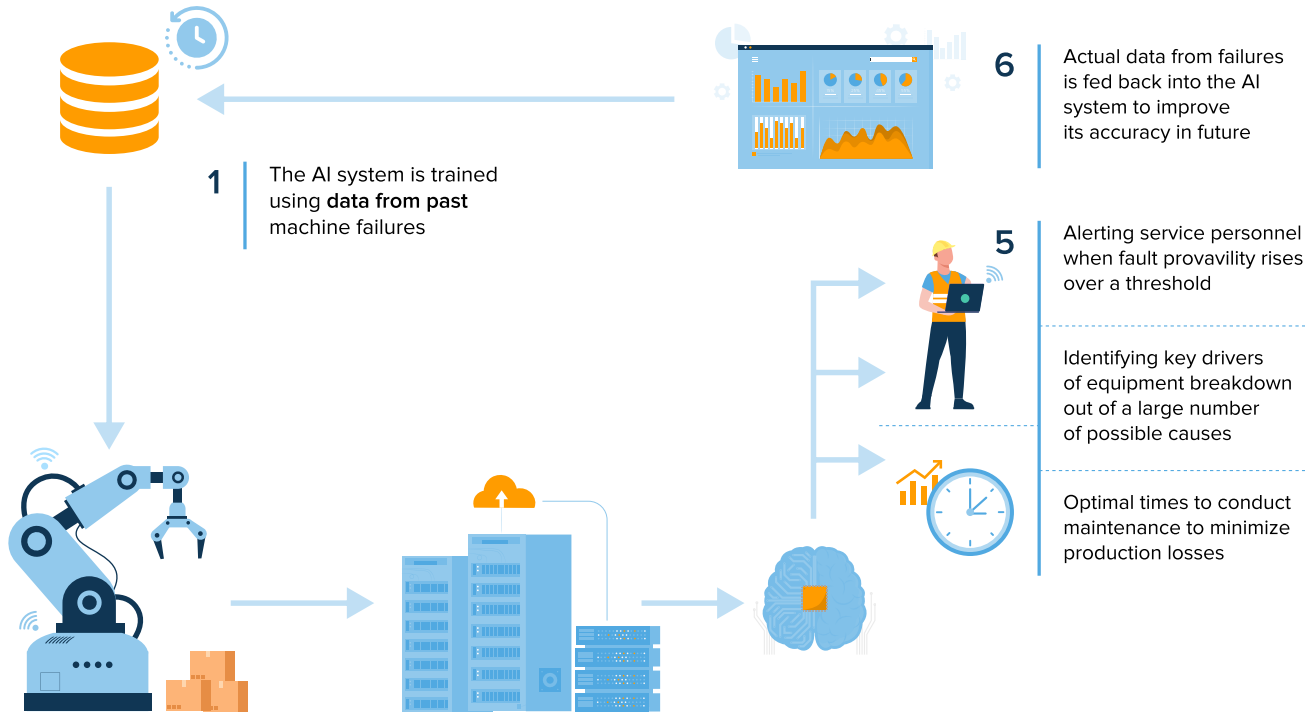


Here are the Top Use Cases for Manufacturing:

- Supply chain management
- Robots
- Warehouse management
- Assembly line optimization
- New product development
- Performance optimization
- Predictive maintenance
- Quality assurance
- Streamlined paperwork
- Demand prediction
- Order management
- Connected factories

This use case of AI for predictive maintenance empowers companies to observe equipment breakdowns proactively. It helps them minimize downtime and optimize maintenance schedules. By merging this digital twin with sensor data from actual machinery, AI in manufacturing can:

1. Study patterns
2. Spot anomalies
3. Anticipate potential malfunctions, etc.



1 The AI system is trained using **data from past** machine failures

2 Sensors from plant equipment continuously collect data on various operational parameters that affect machine performance

3 This data is collected/ uploaded in data storage

4 The AI-based system analyzes this data and makes a variety of recommendations while improving correctness of its own predictions

5 Alerting service personnel when fault provavility rises over a threshold

Identifying key drivers of equipment breakdown out of a large number of possible causes

Optimal times to conduct maintenance to minimize production losses

6 Actual data from failures is fed back into the AI system to improve its accuracy in future

Retail

The global AI in retail market size is expected to grow at a CAGR of 23.0% from 2025 to 2030, starting from $11.61 billion in 2024.

Top AI Retail Use Cases:

CUSTOMER ENGAGEMENT
- Chatbots for customer service
- Automatic translation

MERCHANDIZING AND PLANNING
- Product descriptions
- Product designs

DIGITAL COMMERCE
- AI Product recommendations
- Content creation

SMART STORES
- Employee experience

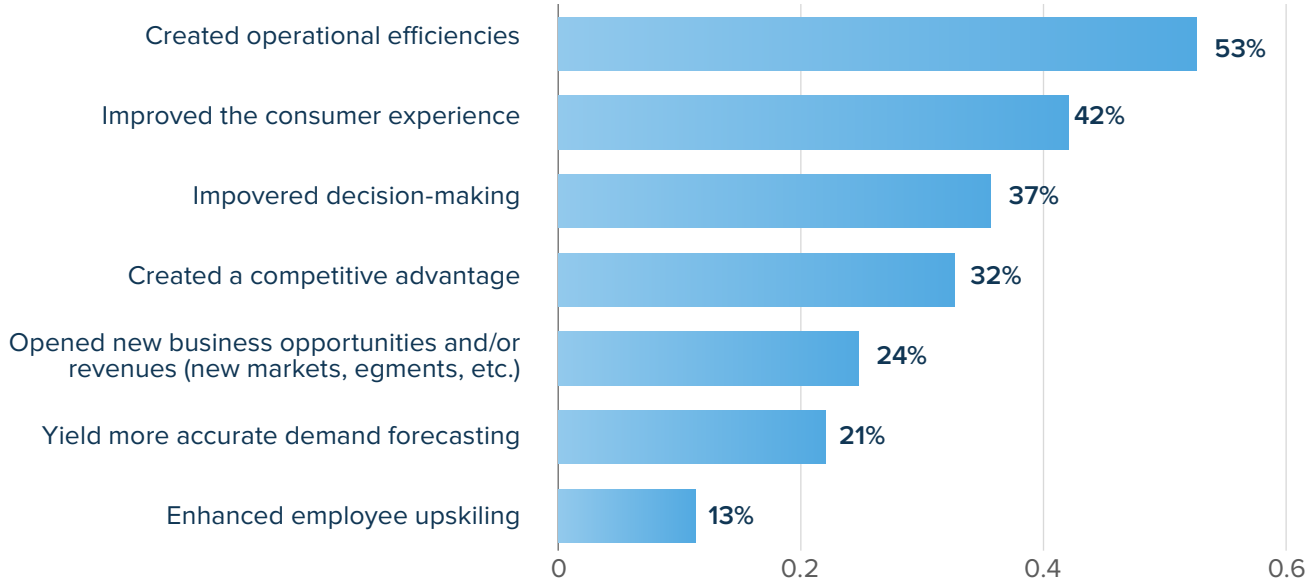
IT/CORE APPLICATIONS
- Improved software development

ADVANCED DATA ANALYTICS
- Data analysis and insights

INTELLIGENT SUPPLY CHAIN
- AI freight tracking

AI Benefits for Retail in 2025

Matty Digital



FUTURE

ANTICIPATED DRIVERS OF AI ADOPTION

In the decade, experts expect artificial intelligence to come of age with over $15 trillion of potential contribution to the global economy by 2030. This unprecedented contribution is predicted to stem from product enhancement and stimulated consumer demand as a result of the personalization and automation capabilities of smart systems.

The technology maturity of artificial intelligence is expected to be largely influenced by a wide range of facilitators. Growing AI investment, innovative hardware as well as burgeoning operational data, and Industry 4.0 are projected to expedite the broad applicability of smart analysis.

4 FACTORS TO DRIVE WIDE AI ADOPTION IN FUTURE

AI is rapidly revolutionizing nearly every industry. Its effect is being felt in sectors as diverse as healthcare, retail, finance, and manufacturing. But what exactly is driving automation into the future?

CAPITAL

Investors are predicted to inject more money into AI initiatives. Over the next 8 years, the industry value is projected to increase by over 13x.

HARDWARE

Growing semiconductor technologies and the advent of commercial quantum computing foster new ways of fast and complex data processing.

DATA

5G and AIoT encourage the evolution of a fully connected world, allowing AI to generate more accurate models.

4TH INDUSTRIAL REVOLUTION

Manufacturers will fully integrate IoT, cloud computing, analytics and AI to enhance productivity, boost quality, and ensure workplace security.

AI adoption during recession times

In the coming years, the speed of the technology transition is projected to be influenced by a decline in economic activity. But does it mean that companies will pull back on their AI initiatives and resort to survival mode? Quite the opposite, in fact.

Automation, machine learning, and cloud computing will remain the focus areas for companies, as executives search for innovative business drivers. Technology investment is no longer seen as the casualty of a potentially recessionary environment. Instead, it is considered one of the most effective enablers of positive business outcomes and a company's revitalization.

But although artificial intelligence is deemed a linchpin to improved business process management, the majority of companies are reluctant to invest in automation. The rising costs of innovation and talent crunch hamper AI initiatives of global organizations. To reduce development costs, companies tend to tap into global AI talent and delegate their AI project to offshore destinations.

The outsourcing economy, in turn, allows for more cost-efficient software development and supports global businesses during these turbulent times.

> The global business process outsourcing market is projected to grow at a CAGR of 9.6% by 2030.

The trend of third-party development can be rightly seen as the core success factor of AI adoption for small-to-medium companies.

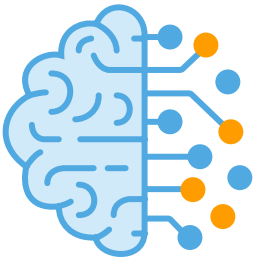
TRANSFORMATIONAL TECHNOLOGY: a Look Ahead

Although AI and analytics are likely to orchestrate the majority of innovations, it remains difficult to predict the exact form and shape of intelligent transformation and plan ahead accordingly. We've curated the main technology trends to play out in the coming years with varying magnitude so that you can make strategic technology decisions.

TRENDS >>>

- Applied AI
- Augmented Analytics
- Web 3.0
- Advanced Connectivity
- Metaverse
- Edge Computing
- Engineered Decision Intelligence
- Data Fabric
- Quantum Computing
- Hyper-automation
- Conversational AI
- Generative AI
- Agentic AI

Applied AI



Applied AI is the use of artificial intelligence to solve real-world problems. It involves the development of algorithms and models that can iteratively process and automatically learn from data to make predictions or decisions.

Applied AI is different from general machine intelligence in that it is focused on specific tasks or problems such as increasing sales, reducing costs, or improving customer satisfaction rather than hypotheses.

The state of technology today:

Applied AI is the lifeblood of data analytics, statistics, machine learning, deep learning, artificial neural network, and NLP, with each having its wide application area across industries.

Among all trends, Applied AI has had the highest innovation score for the past 5 years. Its investment score is also in the top 5, with $86 billion in equity investment in 2023.

McKinsey

Augmented Analytics

For this year, the augmented analytics market has grown enormously from $11.36 billion in 2023 to $13.9 billion in 2024 at a CAGR of 22.4%. It is predicted to grow to $36.42 billion in 2028 at a CAGR of 23.6%.

thebusinessresearchcompany

Powered by ML and natural language technologies, augmented analytics takes an extra step to help companies glean insights from complex data volumes. Augmented analytics also relies on extensive automation capabilities that streamline routine manual tasks across the data analytics lifecycle, reduce the time needed to build ML models, and democratize analytics.

Augmented analytics can lead to better decisions, faster product development, increased profitability, and accelerated knowledge-sharing. The technology also takes data from multiple channels to achieve a broader perspective.

The state of technology today:

Large-sized organizations often rely on augmented analytics when scaling their analytics program to new users to accelerate the onboarding process. Leading BI suites such as Power BI, Qlik, Tableau, and others have a full range of augmented analytics capabilities.

Web 3.0

Web 3.0 is the new iteration of the Internet that aims to make the digital space more user-centered and enables users to have full control over their data. The concept is premised on a combination of technologies, including blockchain, semantic web, immersive technology, and others. The user-friendliness of Web 3.0 is supported, among other things, by granular content distribution.

Artificial intelligence and AI-enabled analytics are among the core building blocks of Web 3.0 as they will help users access relevant data faster. Thus, a website will rely on AI to sift through and provide the data it thinks a specific user will benefit from.

The state of technology today:

Web 3.0 is still in its infancy due to the limited adoption of its technology components. However, as blockchain, cryptocurrency, and connectivity have gathered speed, the hypothesis of Web 3.0 begins to take more shape. Therefore, we can say that some aspects of Web 3.0 have already gone beyond theory.

The global Web 3 market size is to grow by 49.3% by 2030 from $2.24 billion in 2023.

Grand View Research

The number of connected IoT devices is to hit over 40 billion by 2033.

Mobile World Live

Advanced Connectivity

Advanced connectivity refers to the various ways in which devices can connect and share data. It includes technologies like 5G, the Internet of Things, edge computing, wireless low-power networks, and other innovations that facilitate seamless and fast data sharing.

With an increasing number of devices, it is crucial to ensure connectivity to operate customer-centric markets, track supply chains, conduct proactive maintenance, and improve business processes.

The state of technology today:

The global IoT connectivity imperative has been driven by cellular IoT (2G, 3G, 4G, and now 5G) as well as LPWA over the last five years. Growing usage of medical IoT, IoT-enabled manufacturing, and autonomous vehicles have been among the greatest market enablers so far.

Metaverse

Metaverse generally refers to an integrated network of virtual worlds accessed through a browser or headset. The technology is powered by a combination of virtual and augmented reality. Unlike Web 3.0, it doesn't prioritize user ownership over data. Instead, it aims to create a shared digital reality where users can connect, build economies and interact in real time.

The state of technology today

Currently, Metaverse hasn't taken its full form yet. The majority of companies are aspiring to develop the Metaverse, including Roblox, Decentraland, Meta, and others. However, those platforms aren't interoperable. Leading companies are executing metaverse strategies to establish their presence in the existing proto-Metaverse spaces.

As of 2024, Metaverse has more than 600 million active users worldwide. Experts believe that by 2040 Metaverse will be an imperative part of daily lives of half a billion people worldwide.

Demandsage

Metaverse development trends in 2025 highlight a significant focus on enhancing virtual worlds through AI and blockchain technologies. Key technologies shaping the Metaverse include virtual reality, augmented reality, 3D modeling, and blockchain. Emerging opportunities are particularly strong in virtual real estate and digital fashion, where innovative applications are driving growth and interest. However, Metaverse development faces several challenges, including issues with technology, cost, privacy, and accessibility.

Edge Computing

Edge computing takes cloud data processing to a new level and focuses on delivering services from the edge of the network. This technology allows organizations to process data at the periphery of the network, reducing overall infrastructure costs, improving data sovereignty, and enhancing data security.

The technology will enable faster local AI data analytics and allow smart systems to deliver on performance and keep costs down. Edge computing will also back up autonomous behavior for Internet of Things (IoT) devices.

The state of technology today:

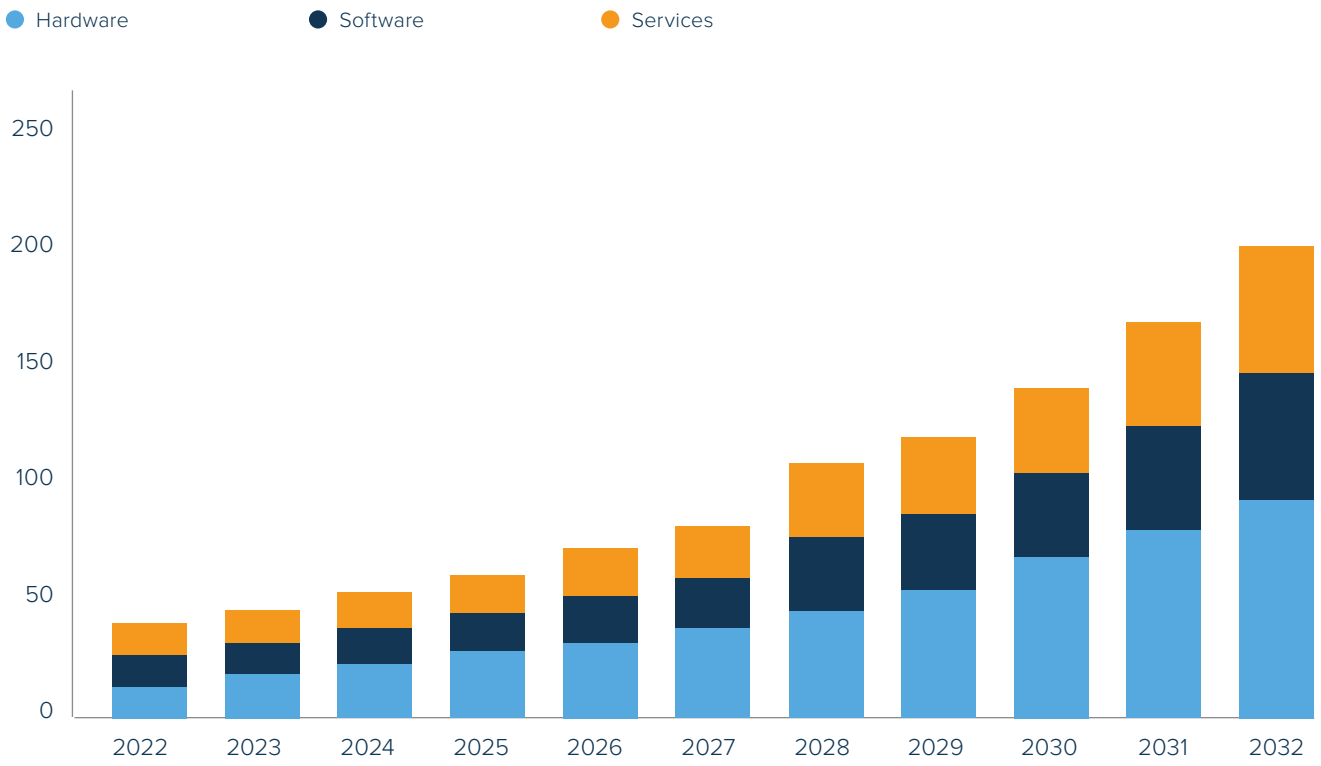
Industries already incorporate devices with edge computing, including smart speakers, sensors, actuators, and other hardware. These collect data from the real world and process it locally.

The market size of edge computing is continuously growing. Experts predict that by 2032 it is expected to reach $206 billion from $55 billion in 2024.

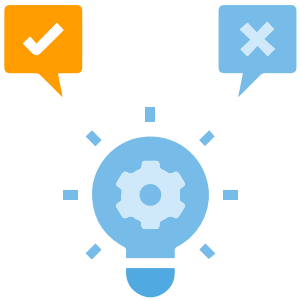
scoop.market.us

Global Edge Computing Market

Size, by component, 2022 - 2032 (USD Billion)



Engineered Decision Intelligence



The field of decision intelligence is a new area of AI that combines the scientific method with human judgment to make better decisions. In other words, it's a way to use machine intelligence to make decisions more effectively and efficiently in complex scenarios.

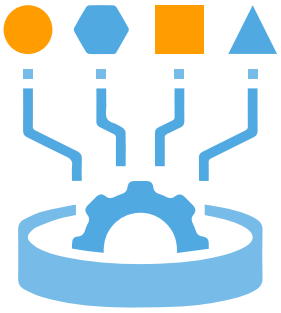
The goal isn't just to identify patterns but also to understand why those patterns exist and how they can be used as part of an overall strategy. The technology is supplemented with AI-based capabilities and data fabrics, combined with social science and decision theory.

The state of technology today:

Decision intelligence assists companies in identifying risks and frauds, improving sales and marketing as well as enhancing supply chains. For example, Mastercard employs the technology to increase approvals for genuine transactions.

By 2024 the decision intelligence market has grown to $15.38 billion from $13.05 billion from 2023 at a CAGR of 17.8%. It is expected that by 2028 the market will grow to $29.53 billion at a CAGR of 17.7%.

thebusinessresearchcompany



Data Fabric

Being a holistic data strategy, data fabric leverages people and technology to bridge the knowledge-sharing gap within data estates. Data fabric is based on an integrated architecture for managing information with full and flexible access to data.

The technology also revolves around Big data and AI approaches that help companies establish elastic data management workflows. Data Fabric is usually referred to as an autonomous ecosystem used to maximize access to corporate data, rather than a specific platform from a particular software vendor.

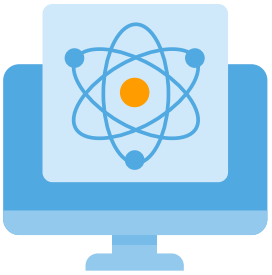
The state of technology today

Around 26.4% of businesses incorporate data fabrics to enhance business process management. The demand for this architecture is growing in the BFSI sector, retail, ecommerce, and healthcare due to the presence of huge data volumes from multiple sources.

The data fabric market will grow to $12.91 billion by 2032 at a CAGR of 21.2% from $2.77 billion in 2024.

Fortune Business Insights

Quantum Computing



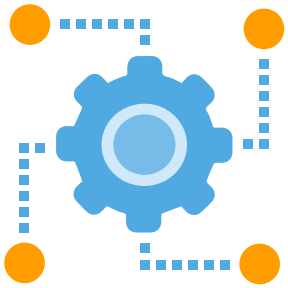
An antagonist of conventional computing, the quantum approach uses qubits as a basic unit of information to speed up analysis to a scale that traditional computers cannot ever match. The speed of processing translates into potential benefits of analyzing large datasets - faster and at finer levels.

In their commercial stage, quantum computers hold great potential in improving intelligent systems by making them more granular and accurate.

The state of technology today:

The technology is in its early stage, yet the adoption is spearheaded by increasing funding, proliferating start-ups, and QCaaS offerings. Four industries—pharmaceuticals, chemicals, automotive, and finance—could implement the earliest use cases, according to McKinsey.

The Quantum Computing-as-a-Service (QCaaS) Market is expected to reach USD 48.3 Billion by 2033, with a CAGR of 35.6%.



Hyperautomation

This concept makes the most of intelligent technologies to help companies achieve end-to-end automation by combining AI-fuelled tools with Robotic Process Automation. Hyperautomation strives to streamline every task executed by business users through ever-evolving automated pathways that learn from data.

Thanks to a powerful duo of artificial intelligence and RPA, the hyperautomated architecture can handle undocumented procedures that depend on unstructured data inputs - something that has never been possible.

The state of technology today:

Hyperautomation is currently in the ideation state with classic automation promoting its future growth. Therefore, this trend is now manifested in traditional RPA software that adheres to rule-based tasks and acts on structured data only.

The hyperautomation market size is predicted to have a hasty growth in the next few years. By 2028 the market will grow to $105.34 billion at a CAGR of 17.2% from $55.79 billion in 2024.

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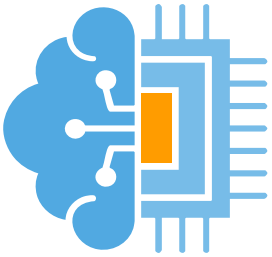
Conversational AI and ChatGPT



In Conversational AI, ChatGPT is a type of chatbot which uses OpenAI's generative models to create new responses based on the data it is filled with. Having this ability, ChatGPT is more flexible than other chatbots because it can respond to a broad variety of questions so it doesn't depend on prepared instructions. As a consequence, ChatGPT becomes a turning point in AI development.

The state of technology today:

The use of ChatGPT is extremely diverse. Its biggest advantage is that it can be used in every business area and boost its revenue a lot. ChatGPT can streamline and automate various work processes, enhance customer service, improve scalability and speed.

In late 2022, ChatGPT made a revolution after reaching 1 million users in less than a week. As of late 2024, ChatGPT has over 200 weekly active users.

Demandsage

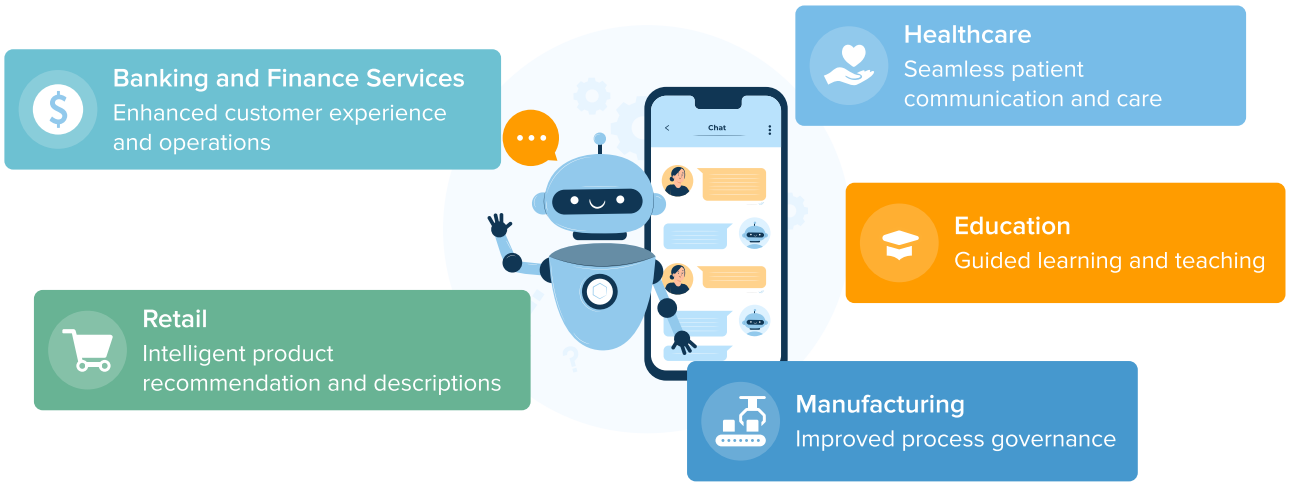
In general, the Conversational AI market is projected to grow from USD 13.2 billion in 2024 to USD 49.9 billion by 2030 at a compound annual growth rate (CAGR) of 24.9% during the forecast period.

MARKETSandMARKETS

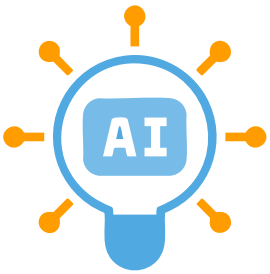
ChatGPT has an estimate 67.7 million monthly active users in the US.

eMarketer

5 Industry Use Cases of ChatGPT



Generative AI



Generative AI is a branch of AI that creates new original content. Unlike traditional AI, it concentrates on making decisions or recognizing patterns. It depends on deep learning and neural networks to analyze huge amounts of data and use it to create new ones similar to these.

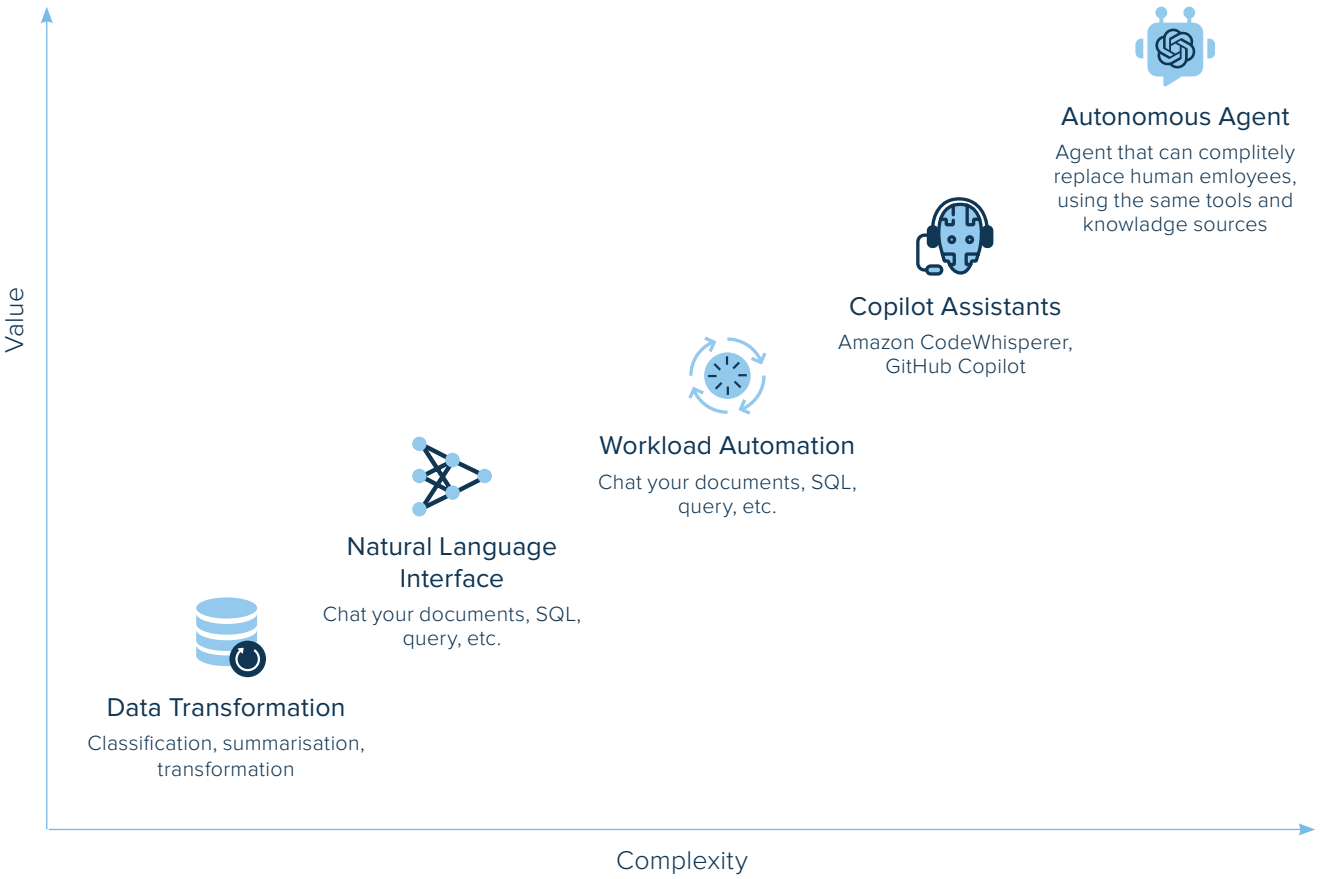
The state of technology today:

Generative AI can automate, enhance, and streamline various work processes by using enormous amounts of data and generating new content in numerous forms.

By 2032 the generative AI market will grow to $118.06 billion at a CAGR of 27.02% from $17.41 billion in 2024.

Demandsage

Generative AI Use Cases as of Today:



Key Use Cases of Generative AI by Industries

MEDIA & ENTERTAINMENT:

- Content creation
- Game design, creation of characters, dialogue, storylines
- Creation of music and digital art
- Creations of special effects (such as realistic de-aging or environment rendering).

MARKETING & ADVERTISING:

- Content generation
- Customer journey mapping and optimization
- Personalization
- Customer sentiment analysis
- Conversational marketing
- Market research
- Content summarization.

RETAIL / E-COMMERCE:

- Personalized product recommendations
- Personalized marketing
- Customer service and support
- Customer data analysis
- Virtual try-ons and fitting rooms
- Customer support automation with chatbots
- Customer reviews collection and analysis.

FINANCE:

- Virtual assistant for customer support
- Financial product recommendations and loan application support
- Automated Q&A sessions based on the internal knowledge base
- Customer sentiment analysis
- Financial report generation.

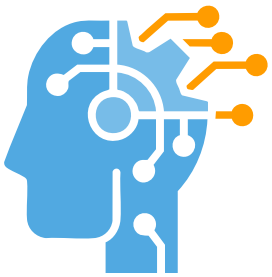
MANUFACTURING:

- Product design and prototyping
- SOP documents search automation
- Warranty sentiment analytics
- Quality control
- Supply chain optimization.

HEALTHCARE:

- Appointment scheduling
- Personalized treatment plans
- Healthcare chatbots and virtual assistants
- Data extraction for intelligent diagnostics
- Medical research.

Agentic AI



Agentic AI refers to artificial intelligence systems that possess a degree of autonomy or agency in decision-making and actions, often acting independently or with minimal human intervention. Unlike traditional AI, which typically operates within predefined rules or under direct human control, agentic AI is designed to make decisions, adapt to dynamic environments, and pursue objectives based on its own analysis of the situation.

Agentic AI offers several significant benefits across various industries thanks to its autonomy, adaptability, and decision-making capabilities.

Agentic AI's Key Advantages

1. Increased Efficiency and Automation

Agentic AI can take on tasks that would traditionally require human intervention, executing them faster and more accurately. Its ability to operate independently and make decisions in real time can streamline processes, reduce bottlenecks, and improve overall productivity. This is particularly valuable in industries like manufacturing, logistics, and customer service.

2. Enhanced Problem Solving and Decision-Making

By analyzing large datasets and continuously learning from its environment, agentic AI can uncover patterns, predict outcomes, and provide data-driven recommendations. It can optimize complex decision-making processes in areas such as healthcare (diagnosis and treatment planning), finance (risk assessment), and supply chain management.and customer service.

3. Adaptability in Dynamic Environments

Agentic AI is designed to learn and adapt to changing conditions. In environments where the situation is constantly evolving—such as autonomous vehicles navigating unpredictable roads or financial trading algorithms adjusting to market shifts—agentic AI can respond without requiring constant reprogramming, making it highly resilient to uncertainty.

4. Personalization at Scale

AI agents can provide highly personalized experiences by tailoring solutions based on individual behaviors, preferences, or needs. For instance, in online retail, agentic AI could automatically adjust product recommendations or even optimize pricing strategies to match customer demand in real-time, improving customer satisfaction and business outcomes.

5. Autonomous Operation

Agentic AI systems can function without continuous human supervision, making them ideal for environments where human presence is limited or impractical. Autonomous vehicles, drones, and robotic process automation (RPA) are examples of agentic AI that can perform tasks with minimal or no human input, reducing human error and increasing operational safety.

6. Cost Reduction

By automating tasks and reducing the need for human oversight, agentic AI can help organizations reduce operational costs. It can work around the clock, handle repetitive tasks without fatigue, and avoid the costs associated with human labor, training, and errors.

7. Scalability

Agentic AI can scale operations efficiently without the limitations that humans face. Whether it's managing large-scale data analysis, responding to millions of customer queries simultaneously, or managing complex networks, AI can expand its capacity seamlessly to meet growing demands.

8. Reducing Human Bias

In decision-making processes, agentic AI has the potential to reduce human biases that might influence judgment, such as in hiring, lending, or criminal justice. If designed with fairness and transparency in mind, it can make data-driven decisions that are more objective and equitable.

While agentic AI brings numerous benefits, such as enhanced efficiency, adaptability, and cost savings, it also raises important considerations around ethics, control, and safety. Balancing these benefits with responsible governance and oversight will be key to unlocking its full potential.

ARTIFICIAL INTELLIGENCE AND DATA: the Great Enablers of Innovation

Although the technology forecast may seem like a motley crew of disruptors, there is one linking element inherent in all of them - data. It is the language of technology that can only be deciphered by artificial technology and its offshoots.

Therefore, both artificial technology and data analytics have become indispensable building blocks of innovation and future-proof initiatives. They are now paving the way for new digital transformations we've mentioned above. Let's look at the AI technology canvas in use today.

	Predictive analytics	NLP/GenAI	Business Intelligence	Computer Vision	Internet of Things
What is...?	Statistics + modeling techniques that make prediction about future performance	The ability of computers understand human language	Tech-driven process of data analysis and insight generation	The ability of computers derive information from digital images	Network of connected devices or sensors
How does it work?	Based on current and historical data	Relies on rely on deep learning and algorithms	Data is stored and analyzed in data warehouses + visualization tools	Based on deep learning algorithms and visual stimuli	Based on real-time data collection and sharing
Data types	Structured & unstructured (deep learning)	Unstructured data (text and voice)	Structured data from multiple sources	Unstructured	Status data, automation data, location data
Application examples	• Predictive maintenance • Fraud detection • Risk modelling	• Speech recognition • Sentiment analysis • Market analysis	• Performance management • Sales intelligence • Scenario planning	• Autonomous vehicles • Pose tracking • Biometrics	• Smart homes • Connected vehicles • IoT payments
Business Value	• Forecasting • Enhanced decision-making • Fewer risks	• Improved analysis • Higher customer satisfaction • Reduced costs	• Enhanced performance • Minimized risks • Increased profits	• Improved security • Reduced operational costs • Automation	• Equipment monitoring • Increased productivity • Better safety

As it is clear from the technology chart, artificial intelligence has evolved as a powerful general-purpose technology that opens up multifaceted opportunities. Smart systems can augment almost every business function, promote better business outcomes, and reduce the cost of laborious tasks. Today, intelligent algorithms underlie the majority of cutting-edge technologies and act as a bridge between humans and software.

In the upcoming years, predictive analytics, business intelligence, and NLP will play a paramount role in shaping enterprise decision-making, with augmented analytics and engineered decision intelligence picking up the baton. Computer vision and IoT devices, in turn, enable an autonomous data-sharing ecosystem that connects everything with no human assistance.

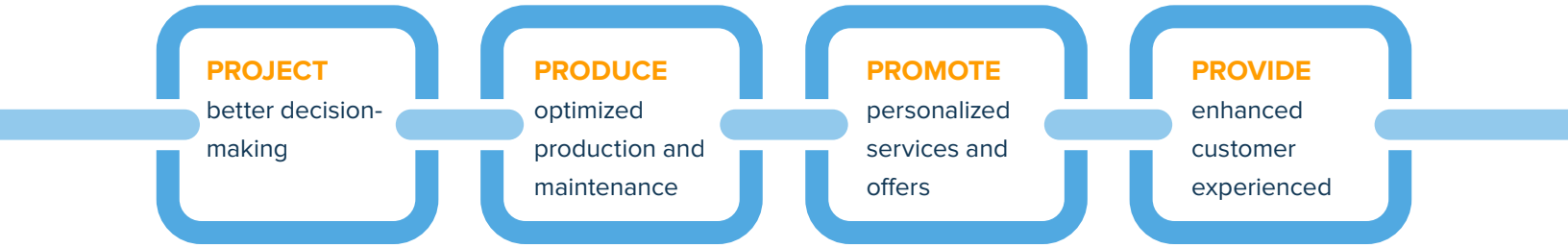
How AI and Big Data Analytics Can Benefit Your Business Today

Companies that take a piecemeal approach to adopt computer intelligence tend to miss out on opportunities.

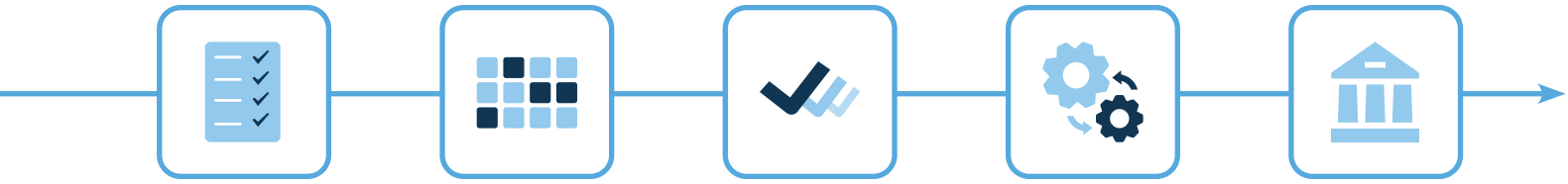
> Conversely, a holistic strategy of AI implementation sets up organizations for greater success.
>
> *PwC*

Although each company pursues its unique business needs, the value of AI and analytics usually anchor in four areas. Thus, organizations advance their automation initiatives to supplement decision-making (41% of companies), innovate digital estates (40% of companies), and personalize customer success (40% of companies).

Four areas across the value chain where AI delivers results



Five elements of successful AI transformations



Clear use cases

Unified data infrastructure

Best data management practices

Workflow integration and automation

Cultural shift

How to Prepare Your Business for Innovation?

In a bid to deliver organizational value from analytics, leaders often focus on short-term gains, rather than following a consistent, long-term strategy. As a result, around 85% of data projects fail to deliver expected results.

Without a well-founded adoption strategy, businesses risk suffering from the negative effects of misallocating resources and money. The outcome? An agile digital organization gets the opposite of optimization and eventually poor ROI elements.

Therefore, it is essential to create a strategic roadmap for rapid AI adoption that digitally advanced firms can use to guide their implementation and reap the rewards.

Here are some milestones that should lay the ground for your pursuit of automation.

Identify current business problems. A strong business case for automation is the shortcut to quicker executive buy-in and higher ROI. To embed intelligence and analytics, leaders need to prioritize the exact problem to solve. Be it product growth, customer success, or decision-making, projects should be undertaken not for the sake of innovation, but rather to solve a critical business challenge. Moreover, young adopters should start from a few business cases, instead of embracing all departments.

Get control over your data. The feasibility of AI applicability depends on the amount and quality of operational data you act on. Siloed and incomplete data does not provide the correct bases for model development, and, therefore, does not suffice adoption needs. Conversely, a unified data infrastructure, such as data warehouses, stores information readily available for analysis and gives a 360-degree understanding of the business performance.

Invest in data-driven people. Data and AI talent are the key enablers of successful implementation. Due to the talent crunch, around 36% of companies prefer to source capabilities from dedicated AI&data partners where they can find the skills and expertise needed. Moreover, an internal culture shift should nurture high levels of organizational trust, data fluency, and agility, as workers segue from disparate data tools.

AI consulting and development

Make an appointment with one of our AI consultants to go over the idea's viability, relevant business use cases, and realization options.

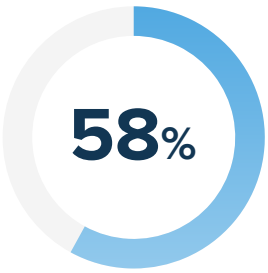
Contact us

AI and Data Privacy:

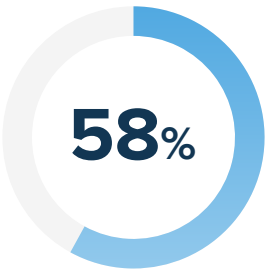
Strategies for Securing Data Privacy in AI Models

Companies looking to stay ahead of the curve are increasingly engaging in AI exploration. They are experimenting with various AI models, assessing their potential impact on business and people. However, this exploration comes with challenges, particularly in the realm of AI and data privacy. As AI models rely on large datasets, often containing sensitive or personal information, businesses must carefully navigate data privacy regulations and privacy-preserving techniques.

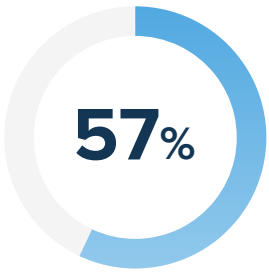
The infographic below illustrates the most common data-related obstacles



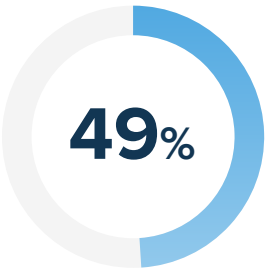
Using sensitive data in models



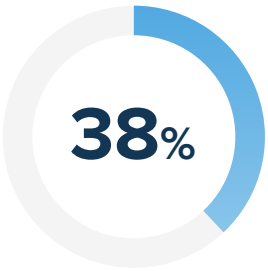
Managing data privacy-related issues



Managing data security-related issues



Complying with data-related regulations



Using our proprietary data in models

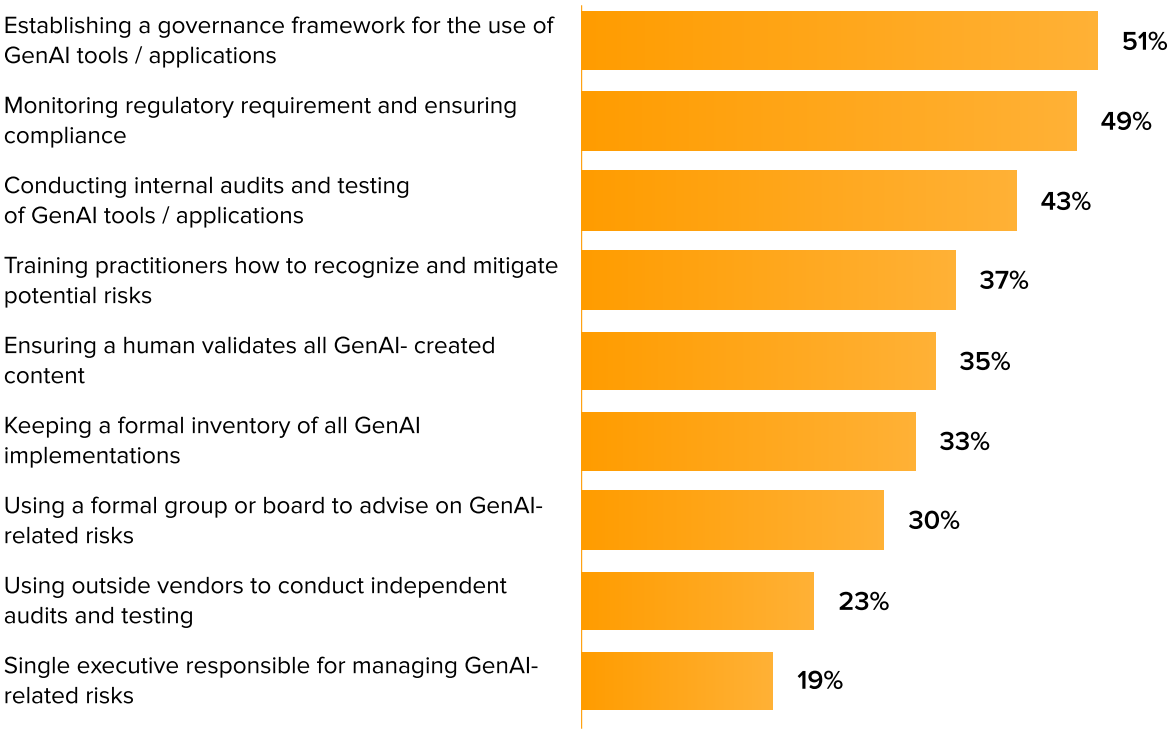
Best Practices for AI Model Security

A robust governance is essential for ensuring the responsible and ethical use of AI. This framework typically includes creating clear policies around data usage, model deployment, and accountability. It should outline roles and responsibilities for AI practitioners, data scientists, and business leaders, ensuring that there is a transparent chain of accountability. In addition, the framework should establish protocols for addressing biases in the model, managing sensitive data, and aligning AI use cases with corporate ethics and compliance standards.

To complement these governance efforts, securing AI models against adversarial threats is equally important. Training AI models to defend against adversarial attacks strengthens LLMs in terms of security and robustness. By incorporating adversarial examples during the development phase, organizations can enhance the model's ability to recognize and classify malicious inputs. This helps models become more resilient to real-world adversarial threats, although regular updates and re-training are necessary to maintain these defenses. When paired with a strong governance framework, adversarial training ensures the model's reliability and trustworthiness, protecting both the input and output data.

As models evolve and are deployed in critical systems, regular internal audits become a crucial step in maintaining security and compliance. This involves stress-testing AI models for robustness, accuracy, and resilience to adversarial attacks. Auditing should cover the data pipeline, ensuring that data input and output are properly encrypted and protected from breaches. Companies should also test for bias in AI-generated content, especially if it influences decisions related to sensitive areas such as healthcare, finance, or hiring.

Actions to Manage Risk



Afterword

After the pandemic, the automation craze has passed the tipping point. Today, data analytics and algorithms are an industry standard for high-yielding projects across different verticals. This combination enables global leaders to predict, automate, and optimize processes, reducing time to value. Most importantly, a data-driven strategy fosters integrated business planning, allowing companies to swiftly adapt to new realities.

As we're stepping into the new era of automation, AI readiness is integral to embracing new technology trends and getting a head start on new initiatives.

Be it data fabrics, edge computing, or advanced connectivity, automated workflows and data control will facilitate your leap to a new level of enterprise success.

About InData Labs

InData Labs is a leading data science firm and AI-powered solutions provider with its own R&D center. Having a mission to bring the power of AI to every business, we help organizations of any size create intelligent products and services or shape intelligent business processes.

Since 2014, our solutions and consulting services help our clients to get valuable insights into data, automate repetitive tasks, enhance performance, add AI-driven features, and prevent cost overruns.

USA
333 S.E. 2nd Avenue,
Suite 2000,
Florida, 33131
Miami
+1 305 447 7330

Lithuania
Ukmergės g. 126,
08100
Vilnius
+370 520 80 9 80

Cyprus
16, Kyriakou Matsi,
Eagle House,
Agioi Omologites, Nicosia

linkedin.com/company/indata-labs
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