

# Unleash the Power of Artificial Intelligence

Breakthrough advances in AI technology are reinventing business.

www.curotec.com





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# Introduction

As technology continues to progress at a whirlwind pace, there is no denying that artificial intelligence (AI) is capturing the attention of business leaders worldwide. AI's ability to recognize complex patterns, infer information, and provide a human-like response is revolutionizing how organizations operate and engage with customers.

With the emergence of AI, businesses across the world now have access to more datadriven insights, which have the potential to improve efficiency, productivity, and decisionmaking. AI has become an invaluable tool for companies to tackle complex challenges by offering flexible solutions and customized responses. Despite a technical lift, AI is reshaping businesses, enabling them to operate and interact more efficiently and personally with customers.

The world stands at a pivotal moment in the widespread adoption of artificial intelligence, with 78% of organizations now using AI in at least one business function, up from 55% in 2023, according to McKinsey's 2024 State of AI report. This sharp rise highlights AI's accelerating role in driving operational efficiency, innovation, and competitive differentiation across industries.

Al is the new platform revolution—accelerating faster than the internet in the 1990s or mobile in the 2000s—as tools like ChatGPT, GitHub Copilot, and Gemini redefine how we create, communicate, and compete.





## Applications for AI in Business

Al applications are increasingly being used across a variety of business functions, with Al proving to be a powerful tool in optimizing processes and improving efficiency. Businesses can take advantage of Al technology in many ways to remain competitive in today's digital world. With the right strategy, organizations can unlock the full potential of Al technologies to drive growth and success for years to come.

Business Function	Al Applications
Marketing & Sales	<ul> <li>Customer segmentation for targeted advertising</li> <li>Lead scoring and qualification</li> <li>Email content automation</li> <li>Dynamic pricing optimization</li> <li>Analyze customer feedback</li> <li>Social media and sales content (text, images, and video)</li> </ul>
IT/Engineering	<ul> <li>Write code and documentation</li> <li>Predictive maintenance scheduling</li> <li>Image recognition and analysis for quality control purposes</li> </ul>
Operations	<ul> <li>Streamline customer service and increase productivity by automating processes (e.g., chatbots)</li> <li>Supply chain management and logistics planning (e.g., transportation planning, warehouse automation)</li> </ul>
Legal & Risk	<ul> <li>Draft and review legal documents (contracts, patents, regulatory documents, annual reports, etc.)</li> <li>Fraud detection and prevention</li> </ul>
HR	<ul> <li>Create interview questions for candidate assessment</li> <li>Interview scheduling and candidate screening</li> </ul>

From customer service to predictive analytics, these examples offer a glimpse at the many use cases of this powerful technology. And with companies constantly pushing the boundaries of what's possible, the future of business is exciting.



## **The Potential Impacts** of Artificial Intelligence on Businesses

One of the most significant impacts AI technology can have on businesses is automation. Companies can automate tasks that would otherwise require manual intervention using machine learning techniques, such as natural language processing (NLP) and deep learning. This saves time and money and increases productivity, as AI algorithms can quickly process large quantities of data and make more accurate decisions than humans.

For a real-world example, see the case study on page 13.

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

Al Business Objectives (global responses)

Improve operational efficiency	39%
Improve customer experience / customer satisfaction	38%
Improve employee productivity	37%
Increase innovation	36%
Improve sustainability	35%
Increase business agility	34%
Increase revenue from new markets, products, and/or customers	33%
Improve customer retention	33%
Reduce business risk (i.e., regulatory compliance, security downtime, etc.)	33%
Accelerate time to market for new products and services	31%
Increase business resilience	31%
Profit growth	31%
Revenue growth	30%
Increase employee retention	27%

Al also provides personalized customer experiences by leveraging data to tailor realtime products, services, and content. This allows businesses to better understand their customers' needs and preferences and deliver tailored solutions. Furthermore, Al-powered chatbots and virtual assistants are becoming increasingly popular with companies, as they provide customers with quick responses to their queries, while reducing the need for human resources.

As artificial intelligence continues to gain traction across many industries, companies must embrace the technology and keep up with the latest developments. This We've moved beyond the experimentation phase—AI is now entering mainstream includes staying abreast of new trends, such as deep learning and more advanced enterprise deployment, and the early movers are already reaping the benefits. From iterations of machine learning algorithms, so that they can take advantage of these Salesforce's AI copilots to Microsoft's integration of GPT-4 across Office and Azure, advances in AI technologies. By doing this, companies can remain ahead of the curve leading companies are embedding intelligence deep into their workflows and when delivering cutting-edge services and products to their customers. customer experiences.

#### AI Is Redefining the Digital Experience

This moment mirrors past tech shifts, where early adopters of cloud or mobile gained lasting competitive edges. The cost of delay is rising. Companies slow to embrace AI Al is no longer just enhancing the internet and mobile technology—it's becoming their risk becoming the laggards—outpaced by both agile startups and established players who are rapidly scaling automation, personalization, and decision-making. foundation. Today's smartphones come equipped with on-device AI chips that power The new market reality rewards boldness, experimentation, and speed. real-time language translation, adaptive camera systems, and predictive text. Platforms like Google Search, Instagram, and TikTok use AI to deliver hyperpersonalized experiences based on behavior, context, and intent—not just keywords.

Meanwhile, AI is transforming the web itself: generative models now synthesize search results, summarize content, and even create custom shopping assistants. With the rise of multimodal AI and edge computing, digital interactions are becoming more anticipatory, conversational, and seamlessly integrated into our daily lives. We're no longer just consuming the internet—we're co-creating it, with AI as our collaborator.

#### The AI Adoption Curve: Early Advantage, Fast-Moving Stakes



#### **Crossing The Chasm**



People Who Want Newest Things

People Who Want Complete Solutions and Convenience

With any new technology revolution, crossing the chasm from early adopters to mainstream adoption becomes a critical challenge as businesses continue to innovate and the end-users figure out how to adopt new technology. While the potential benefits of AI are vast, many companies have yet to fully embrace it, creating a divide between those who have implemented it and those who have not.

Crossing this chasm requires careful planning and execution, including developing robust employee training programs and identifying clear business outcomes that AI can realistically achieve.

We are likely somewhere between the Innovators stage and Early Adopters stage, to put it in Crossing the Chasm terms, with artificial intelligence. Companies like Google, Facebook, Microsoft, and OpenAI are leading the charge in this race by investing in AI research, advancing critical open source frameworks, and finding new and better ways to train large language models.

In addition to these larger organizations driving innovation forward, smaller startups have also been able to find success by focusing on niche markets or sectors where AI can add unique value. As AI technology continues to develop rapidly and expand its reach. Companies who invest in AI now will have a leg up on their competition later down the line as they benefit from first-mover advantage.

As businesses increasingly recognize the transformative potential of AI, adoption is accelerating—just as it did during the internet boom, when companies like Amazon and Netflix pulled ahead while others scrambled to catch up. Today, leaders like Delta Air Lines are using AI to predict maintenance needs, Walmart is optimizing supply chains with machine learning, and JPMorgan is deploying generative AI for contract analysis—proving that the real advantage lies in acting early on high-impact opportunities before they become industry standards.





# Off-the-Shelf vs. Homegrown AI Solutions

In today's digital age, businesses constantly seek new ways to optimize their processes and improve overall efficiency. As a result, the debate over off-the-shelf versus homegrown AI solutions has become increasingly relevant. While off-the-shelf software-asa-service (SaaS) solutions may seem easier and more cost-effective, homegrown solutions offer a tailored approach that fits the unique requirements of individual businesses. While building an in-house AI solution may be a more significant investment in resources and time, it ultimately provides greater flexibility, control, and security. At the end of the day, whether to choose an off-the-shelf or homegrown AI solution depends on each business's specific needs and goals.

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## **5** Adoption Essentials for Integrating AI Into Your Business Model

Incorporating AI into your business model can seem daunting, but it doesn't have to be. Companies should plan and identify areas where they want AI to help drive efficiency or provide customer value.

![](_page_8_Picture_3.jpeg)

### 1. Begin with a business-centric attitude

Although new innovations offer benefits, it is still difficult to introduce them into an organization, especially if it disrupts existing systems. By experimenting with AI, companies will receive the wins they need to increase acceptance, spread the advancement to the rest of the organization, and kick off the transformation and reskilling process.

Organizations should use a two-pronged approach to experimentation. One is to harvest the low-hanging fruit that presents easy wins. The other focuses on the reinvention of business, customer engagement, and products and services using models customized with the organization's data. A business-oriented attitude is vital to determine and effectively deliver the business case.

This experimentation and exploration of reinvention will bring real value, while teaching the company which AI is best for a particular use case, as the investment and sophistication differ from one use case to another. Additionally, they can test and improve data privacy, model accuracy, bias, and fairness with caution, and understand when "human in the loop" security is required.

#### 2. Implement a people-first approach

As businesses continue to make strides with AI integration, they must recognize the value of prioritizing people first. They need to increase their investment in talent to handle the two distinct challenges related to AI: creating and using it.

Organizations need to invest in their talent by helping employees develop technical skills such as AI engineering and enterprise architecture. By providing training in these areas and encouraging teamwork to foster innovation, employees can gain the expertise needed to handle the unique challenges of working with AI, ensuring that the implementation of the technology is successful. By putting people first in the company, organizations can reap the benefits of increased productivity and efficiency, and create a work environment that positively impacts employees.

American Economic Association research reveals that businesses are not investing enough in helping employees stay up-to-date with advancements in AI that necessitate more intellectual and judgment-based duties. Organizations should consider the impact of AI on their workforce and be prepared to adapt their business models to accommodate new technology.

As with any new technology, it is important to anticipate its potential effects on the workforce and take steps to ensure a smooth transition. Companies that prioritize upskilling and reskilling their employees, and that approach AI implementation with a flexible mindset, will likely reap the greatest benefits. By investing in the necessary tools and training, organizations can lay the foundation for a successful future with AI.

![](_page_9_Picture_12.jpeg)

### 3. Prepare your proprietary data

Organizations must get their proprietary information prepared for customizing foundation models. Such models require access to specific organizational data, semantics, knowledge, and methodologies. In the past, companies could still gain value from AI without modernizing their data architecture and estate by taking a usecase-centric approach. Now, that is not an option. A large quantity of properly curated data is required for foundation models to learn, thus resolving the data problem is an immediate priority for businesses.

Companies require a modernized enterprise data platform based on the cloud with a dependable, reusable set of data products to acquire, expand, refine, protect, and deploy data. These platforms are cross-functional and host enterprise-grade analytics and data in cloud-based data warehouses or data lakes, enabling data to be freed from organizational silos and used across the company. All business data can be examined together in one place or through a distributed computing strategy, such as a data mesh.

#### \$ 4. Invest in a viable tech foundation

Businesses should be aware of whether their technical infrastructure and architecture, operating model, and governance structure are appropriate for the robust computing requirements of LLMs and generative AI, and they must pay attention to the cost and energy consumed. Additionally, they will need to gauge the expense and advantages of using these technologies compared to other AI or analytical approaches that can be better suited for certain use cases, yet cost significantly less.

Companies need a comprehensive green software development framework that considers energy efficiency and material emissions throughout the software development process. Moreover, AI can be called on to make the business more environmentally friendly and meet ESG goals.

![](_page_10_Picture_8.jpeg)

#### 5. Enable responsible artificial intelligence

With the widespread adoption of AI, having a reliable and ethical AI compliance protocol is now of utmost importance. It starts with considering the potential risks that Al use poses, beginning with the design phase. It then entails incorporating responsible AI practices across the organization, with a proper governance process outlining risk management and adherence to regulations and organizational policies. This should all be initiated through education and understanding, and then translated into implementation and compliance, which must stem from upper management.

To ensure success, businesses should design a roadmap for their AI journey that takes into account the potential risks related to AI and outlines steps to mitigate them. This includes establishing policies and procedures around the use of data, privacy, compliance, data security, data processes, governance models and ethical considerations.

"A reliable and compliant AI system will accelerate innovation and enhance product development without compromising security or ethical principles."

The challenge ahead is to balance the promise of progress with the need for responsible AI governance. Organizations must invest in these protocols to ensure they align with evolving regulations and ethical standards, and promote transparency and accountability in using AI.

![](_page_11_Picture_11.jpeg)

## Case Study: A Non-Profit Leverages AI for a Balance of Machine Learning and Human Intelligence

![](_page_12_Picture_1.jpeg)

### Challenge

Curotec was contacted by a global non-profit focusing on equipping volunteers and mission-driven organizations with the tools and resources needed to maximize their positive impact worldwide.

The organization's volunteer database is an incredibly valuable resource, with a vast repository of volunteer opportunities. These opportunities serve as the backbone for creating this global NGO's various products and services.

The organization faced the challenge of sifting through massive volumes of information to identify, rate, and categorize opportunities to make informed decisions regarding matching volunteers to the most appropriate volunteering opportunities.

Manual classification of these opportunities into meaningful categories requires time and effort that the organization currently lacks with respect to employee bandwidth. As such, the backlog of opportunities continued to grow, and without a streamlined system for categorization, the organization could not realize the database's value to its fullest potential.

### Solution

Cutotec harnessed the power of a customized large language model (LLM), which uses Al deep learning techniques and massive datasets to automate the classification process and exponentially reduce the time spent evaluating the opportunities. The organization's leadership team immediately welcomed the solution.

Curotec began the project by validating the data criteria. They took the following steps:

![](_page_13_Figure_9.jpeg)

Humans evaluated the data and graded the content based on a rubric.

![](_page_13_Picture_11.jpeg)

Their answers were compared for agreement between people.

![](_page_13_Picture_13.jpeg)

Al scores against the same rubric were then compared against the human data results, where alignment existed.

Curotec is incorporating this custom AI feature set into their existing data management application.

### Impact

Historically, the time cost of manually evaluating the content was over 1,000 hours, with an average error rate exceeding 25%. Our solution took 1,000 hours of manual inspection and classification to a one-hour process, which will be embedded into the backbone of their data pipeline platforms.

This groundbreaking innovation eliminates the need for extra employees and associated expenses, allowing for better decisions, greater efficiency, and lowering the overall cost of data-intensive tasks. With the use of cutting-edge AI technology, the organization is setting the standard for efficiency and innovation in the industry.

Finally, as a result of codifying its processes, the non-profit organization was compelled to think through their evaluation methodology, which will significantly improve their overall volunteer evaluation process.

![](_page_14_Picture_4.jpeg)

![](_page_14_Picture_7.jpeg)

![](_page_14_Picture_8.jpeg)

## Unlocking AI's **Potential for Business Efficiency** and Growth

Businesses can take advantage of AI technology in many ways to remain competitive in today's digital world. With the right strategy, organizations can unlock the full potential of AI technologies to drive growth and success for years to come.

![](_page_15_Picture_3.jpeg)

### How Walmart Automated Supplier Negotiations

#### Walmart's AI Chatbot Revolutionizes Negotiations

The chatbot is specifically designed to handle smaller contracts, focusing on suppliers who provide the retail giant with its equipment, rather than the products it sells. According to a Bloomberg report, the chatbot has significantly reduced the negotiation time, allowing Walmart to close deals in days instead of weeks.

#### **Supplier Preferences**

Interestingly, the same report found that about 75% of suppliers preferred negotiating with the chatbot rather than a human. This preference for AI negotiations could be attributed to the chatbot's ability to streamline the process, eliminate potential biases, and maintain a consistent approach throughout the negotiation. Walmart, the world's largest retailer, is known for constantly improving efficiency and cutting costs. The company recently turned to AI to streamline supplier negotiations. With the help of a chatbot, Walmart can now negotiate contracts and close deals with suppliers in days rather than weeks.

#### **Cost Savings and Efficiency**

The AI chatbot has sped up the negotiation process and delivered tangible cost savings for Walmart. The technology helped Walmart conduct contract negotiations with 2,000 suppliers simultaneously — a feat no human buyer could achieve. As a result, the company generated an average savings of 3% on these negotiations.

#### **Automation in Walmart's Supply Chain**

Walmart's use of AI in supplier negotiations is just one aspect of the company's
broader push toward automation. The retail giant has announced plans to automate
roughly two-thirds of its stores by the end of 2026. This extensive effort aims to
create a more intelligent and connected omnichannel network with greater use of
data, intelligent software, and automation.

![](_page_16_Picture_12.jpeg)

#### In-Stock Inventory Accuracy and Flow

Walmart's automation initiatives are expected to improve in-stock inventory accuracy and flow for customers who shop in stores, pick up items, or opt for delivery. By the end of the fiscal year 2026, approximately 65% of Walmart stores will be serviced by automation, while about 55% of fulfillment center volume will move through automated facilities.

#### Cost Improvements

Walmart's push towards automation is also projected to deliver impressive cost savings. The company estimates that average costs per unit could improve by approximately 20% due to its automation efforts.

![](_page_17_Figure_5.jpeg)

### Conclusion

Walmart's adoption of Al-powered chatbots for supplier negotiations significantly shifts how the retail giant conducts its business. By streamlining the negotiation process and generating cost savings, Walmart is well-positioned to maintain its competitive edge in an increasingly digital retail environment.

![](_page_17_Picture_11.jpeg)

![](_page_17_Picture_12.jpeg)

## **AI's Future:** A Rapidly Accelerating Landscape

Exciting times are ahead as AI technology continues to revolutionize how we think about machine intelligence. The development speed is breathtaking, and businesses are at the start of a pivotal moment that will transform how they operate. Generative AI, LLMs, and foundation models embedded into enterprise digital cores will optimize tasks, augment human capabilities, and create an entirely new language for enterprise reinvention.

Companies should be optimistic about the potential benefits and realistic about the challenges of such a profound shift. Investing in operations and employee training will be crucial in realizing AI's full potential. Now is the time for businesses to leverage AI technology to redefine themselves and their industries, setting new performance frontiers.

Whether integrating machine learning into existing products or creating new ones from scratch, our Curotec team has the skills and resources to help you get the job done. Contact us for more information about how we can incorporate AI into your tech stack. We'll work with you to create a tailored solution that meets your needs. Our experts have the knowledge and experience to help you harness the power of AI technology.

![](_page_18_Figure_6.jpeg)

### About Us

![](_page_19_Picture_1.jpeg)

Curotec was founded in 2010 just outside of Philadelphia in an area known as the Philadelphia Main Line. We now have a global presence with clients ranging from venture-backed startups to Fortune 500 enterprises spanning several vertical industries.

We are a forward-thinking software services company dedicated to driving innovation for our clients through the use of artificial intelligence and machine learning software product features.

Our team of experienced software engineers and digital product people is passionate about creating tech that revolutionizes industries and make life easier for our clients and their users. We take pride in our work and strive to stay at the forefront of technological advancements.

Our services are designed to help businesses across a variety of industries succeed in an increasingly complex digital world. We create custom AI powered digital products that fit each of our customer's unique needs, allowing them to quickly gain competitive advantages in their market.

### **Our Services**

We are committed to providing the highest quality of service and support to our customers. Our dedication to customer satisfaction is matched by our commitment to ethical and responsible AI development practices, ensuring that all of our solutions are safe, secure, and compliant with relevant regulations.

![](_page_20_Picture_3.jpeg)

AI Feature Consulting & Implementation

![](_page_20_Picture_5.jpeg)

Machine Learning & Deep Learning Solutions

![](_page_20_Picture_7.jpeg)

Natural Language Processing (NLP) Solutions

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#### **Predictive Analytics and Big Data Solutions**

![](_page_20_Picture_11.jpeg)

Automation & Process Improvement Solutions

At Curotec, we strive to create better business outcomes for our clients through the power of AI. Contact us today to start a no-obligation conversation to find out if AI is right for your organization.

![](_page_20_Picture_15.jpeg)

## Curotec

#### Contact Us

For more information, please contact us at:

(610) 450-6599 sales@curotec.com www.curotec.com

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