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# How AI Solves Today's Business Challenges

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# Introduction

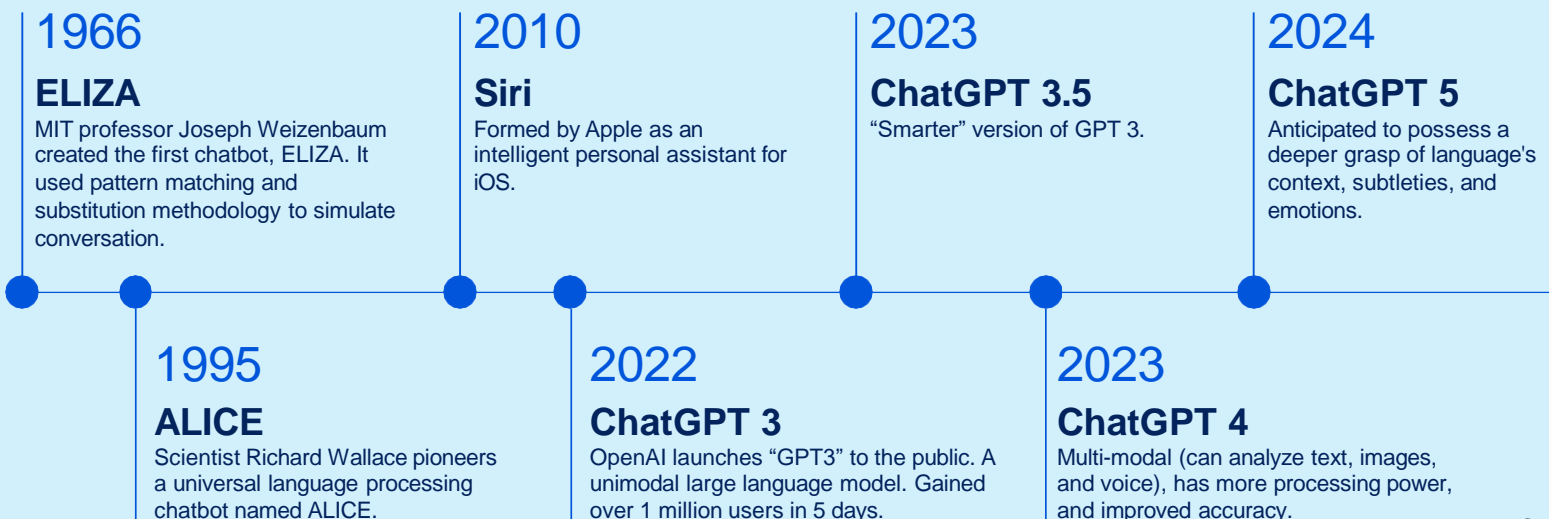
Artificial intelligence (AI) has graduated from hype to everyday use for most of us humans, whether we realize it or not. In a span of just a few years, generative AI in particular has reached revolutionary status thanks to a perfect storm of more data, computing power, and advanced algorithms. And it could be argued that the debut of one easy-to-use interface that anyone with an internet browser could make use of – ChatGPT – signaled the tipping point for widespread AI adoption in the workplace. 71% of respondents in Microsoft’s 2023 Work Trend Index report said their companies are already using AI, mostly for personal productivity.<sup>1</sup> Beyond communication and content creation, AI-enabled technologies have significant potential to tackle a wide range of key business challenges including workforce automation, knowledge management, security, drug discovery and disease diagnosis, engineering design, and other problems that have been difficult to solve until now.

Yet there are legitimate privacy and security concerns as AI continues to evolve and become more accessible to the ill-intended. In PrivacyHawk’s 2023 personal data survey, 48% of people said they fear AI will impact them negatively, while 80% are concerned about the misuse of their personal data.<sup>2</sup>

There is no question that businesses have a lot to navigate as they define and evaluate the scope and timing of their AI implementation strategies. But early adoption is worth it: Early adopters of the latest technologies are 100% more likely to see high revenue growth and consistently report higher metrics about key business goals such as brand perception and employee satisfaction.<sup>3</sup>

**In this whitepaper, we'll explore the current landscape of AI, its practical applications to solve modern business problems, and how you can harness AI's power to gain a competitive edge.**

## The Evolution of Generative AI Tools



# Section 1

## Decoding AI: Understanding Key Terms and Technologies Shaping Business Solutions

*AI encompasses a range of technologies, each with its unique capabilities and applications. Understanding the different types of AI technologies is foundational to any AI sales strategy.*

Artificial intelligence (AI) refers to the field of computer science that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence. It involves the development of algorithms and systems that can acquire knowledge, reason, learn, understand natural language, perceive the environment, and make decisions or take actions based on that understanding.

### Artificial Intelligence

Programs with the ability to learn and reason like humans

### Machine Learning

Algorithms with the ability to learn without being explicitly programmed

### Deep Learning

Subset of machine learning in which artificial neural networks adapt and learn from the vast amounts of data

### Machine Learning (ML)

A subset of AI, ML enables computers to learn from data and make predictions or decisions without explicit programming. ML models include facial recognition to unlock devices, medical imaging analysis to detect abnormalities, predictive analytics to forecast sales or estimate stock prices, and fraud detection.

### Large Language Models (LLM)

LLMs represent a specialized application of ML focused on processing and generating human language at a large scale. While they share commonalities with traditional ML techniques, LLMs are uniquely designed to tackle the complexities of natural language processing tasks. OpenAI ChatGPT, Microsoft Bing, and Google Bard / Gemini are among the most common LLMs. Deep learning, a type of ML inspired by the structure and function of the human brain's neural networks, excels at tasks such as image and speech recognition.

### Natural Language Processing (NLP)

NLP focuses on enabling computers to understand, interpret, and generate human language, powering applications like chatbots and language translation.

Additionally, there are distinctions between **general AI (AGI)** and **narrow AI (ANI)**. AGI, often depicted in science fiction, refers to AI systems with human-like cognitive abilities and the capacity to understand and perform any intellectual task that a human can. In contrast, ANI is designed for specific tasks or domains, such as playing chess or diagnosing medical conditions.

### **How does Generative AI Work?**

Generative AI learns patterns and structures from large datasets during a training phase, typically using deep learning capabilities like neural networks. Once trained, the AI model can generate new content, such as text, images, or music, by sampling from the learned patterns.

It can take input data or seed information and use its internal knowledge to produce coherent and contextually relevant output. Feedback from users can be used to improve the model's output quality over time, making it a versatile tool for various creative and practical business applications.

As the AI landscape continues to evolve, we'll see new technologies and advancements emerge that we never thought possible. Laundry-folding robots could become a household item in the very near future. **But for now, let's explore the known and accessible opportunities you can benefit from today.**

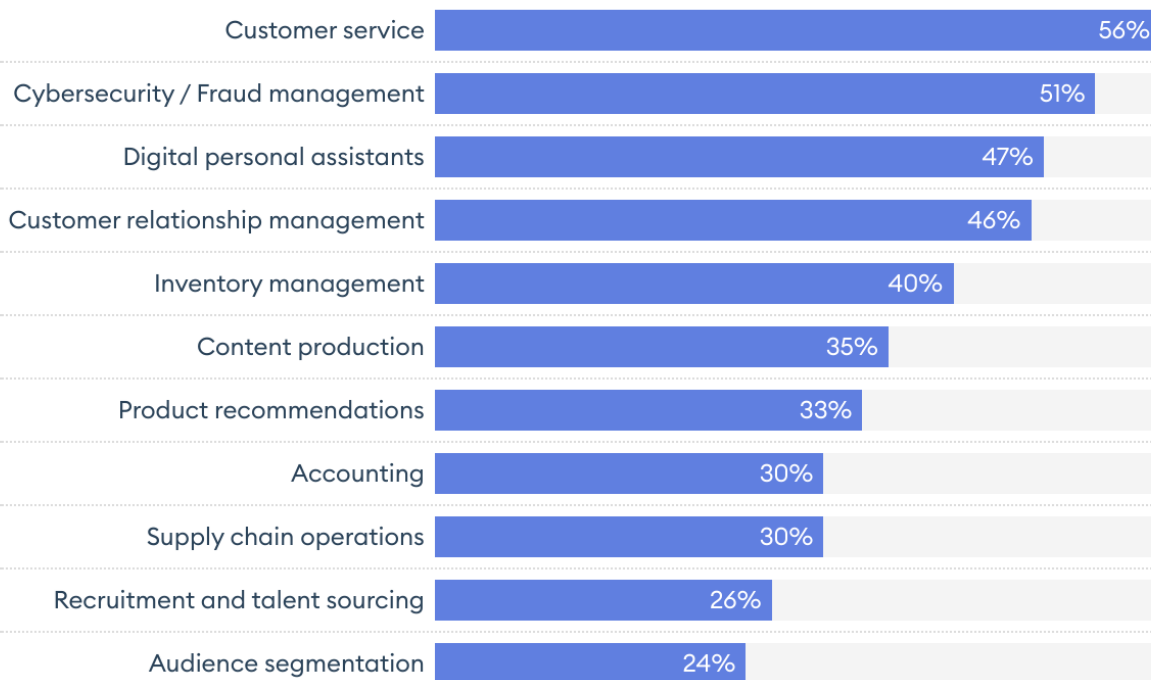


# Section 2

## AI's Proven Business Value Across CX, Cybersecurity, Cloud, and IoT

### Top Ways Business Owners Use Artificial Intelligence

Forbes Advisor surveyed business owners to find out how they currently use or plan to use AI within their business



**Forbes** ADVISOR

AI has quickly taken center stage in enhancing workforce productivity, operational efficiency, and end-customer experience across various aspects of a business. Here are just a few examples of how nearly any company can benefit from AI-enabled tools today.

### Customer Experience (CX)

In CX, generative AI is poised to redefine how businesses engage with their customers and streamline operational efficiency. In Metrigy's AI for Business Success 2024-25 survey, 39% of IT, CX, and business unit leaders said 2024 will be the turning point for their company's acceptance of using AI for customer interactions. Another 20% said that will happen in 2025.<sup>4</sup> For companies who are already experimenting with AI in CX, the proven impact is far-reaching, from predictive and responsive services to enhancing customer satisfaction and efficiency.

## AI and CX Use Cases

- Virtual Agent Bot (Phone, SMS, Web Chat, Messaging)
- AI-Driven Quality Management
- Real-Time Agent Assist
- Knowledge Base Interaction/Management with LLM
- Robotic Process Automation (RPA) - Process Tasks Driven by CX Experiences
- Data Analytics
- Outbound Sales Campaign Management and Automation
- Marketing and Messaging Campaign Management

## Personalization

Businesses that master personalization at scale, using AI for ultra-tailored experiences, boost customer engagement even further. This level of personalization ranges from individualized product recommendations to tailored communication strategies. According to Adobe, 89% of marketers are now reporting a positive ROI when they use ultra-tailored personalization techniques versus when they don't.<sup>5</sup>

*Imagine a retail clothing store using AI tools to analyze customer data, identifying individual fashion preferences and sizes. This allows them to tailor email marketing campaigns to each customer (not just each segment), recommending items that align with their unique style and fit.*

## Omnichannel Engagement

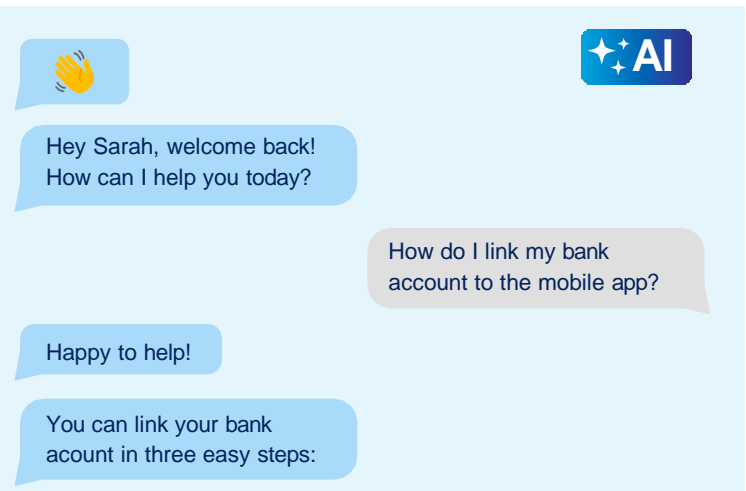
The omnichannel customer experience approach as a best practice isn't new — but AI is putting it in reach. Customers expect a seamless experience across all touchpoints with business, whether text, web, social media, or email, and more so than they ever have before.

*Imagine a healthcare clinic where patients enjoy seamless and efficient interactions. They easily schedule appointments via a chatbot and receive proactive treatment reminders via text. After the visit, they receive an immediate AI-generated visit summary and automated outreach to ensure timely support, enhancing their overall experience and adherence to treatment plans. Not only is the patient thrilled by the personalized care through their preferred communication channels, but the healthcare provider has optimized operational costs and improved productivity.*

## Emotional AI

Emotional AI is revolutionizing customer service by fostering a deeper emotional connection between customers and brands, a crucial factor as 86% of customers are more likely to repeat business with a company if they feel emotionally connected to a contact center agent.<sup>6</sup> AI technology enhances customer experience by utilizing sentiment analysis, personalized interactions, real-time feedback, predictive analytics, and natural language processing to better understand and respond to customer emotions.

*Imagine a banking app with a chatbot that can analyze a customer's transaction history and recent interactions to predict stress about potential fraud. It proactively reaches out with reassurance and steps for fraud prevention, demonstrating human-like understanding and empathy, increasing the customer's trust and satisfaction with the brand. This approach not only elevates the emotional intelligence of customer service teams but also solidifies emotionally-driven customer loyalty.*



## Cybersecurity

As the cyberattack landscape becomes increasingly complex, AI plays a pivotal role in advancing threat mitigation strategies. Not only are cyberattacks more sophisticated than ever, but much like ransomware and malware kits a few years ago, AI hacking tools are starting to become available online. This inevitably puts them into the hands of untold numbers of less sophisticated cybercriminals. Deep Instinct's 2023 Voice of SecOps Report reveals 75% of security professionals witnessed an increase in attacks over the past 12 months, with 85% attributing this rise to bad actors using generative AI.<sup>7</sup>

The imperative is clear: Organizations must prioritize implementing and continuously evolving advanced security strategies to address threat detection and fraud prevention or face costly consequences. According to IBM's 2023 Cost of a Data Breach Report, the average cost of a breach is over \$4 million in lost business and fines. Yet 35% of US companies don't have dedicated cybersecurity staff.<sup>8</sup>



## AI and Cybersecurity Use Cases

- LLMs to Conduct Code Reviews, Preventing Vulnerabilities (AWS)
- Penetration Testing
- Attack Identification
- Rapid Response
- Real-Time Network Traffic Analysis
- Natural Language Interfaces for Configurable Resources (e.g., Firewalls)
- Vulnerability Categorization/Prioritization
- Automated Fixes/Patching
- Incident Data Analysis
- Biometrics Authentication Systems
- Social Engineering Detection

### Threat Detection

AI-powered cybersecurity systems use machine learning algorithms to detect and respond to security threats in real time. For example, an AI-based intrusion detection system can analyze vast network traffic patterns to identify and mitigate potential cyberattacks before they cause damage. By proactively monitoring for suspicious activity and adapting to evolving threats, businesses can strengthen their security posture and safeguard sensitive data.

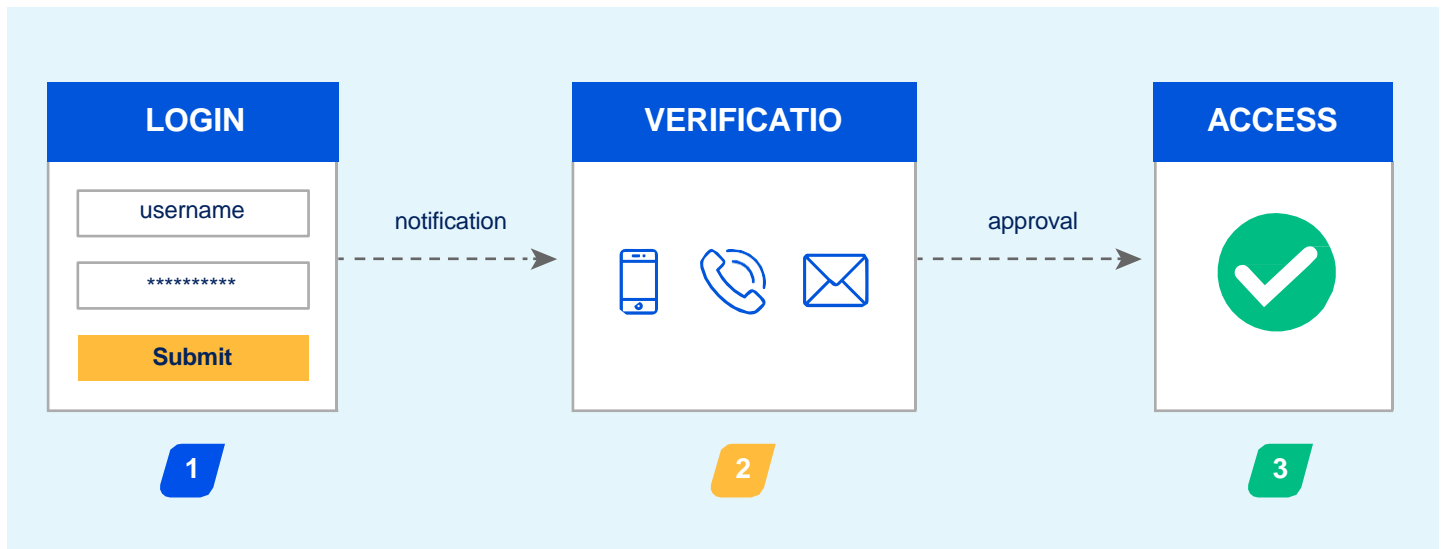
### Fraud Prevention

AI algorithms analyze transaction data to detect patterns indicative of fraudulent activity. For instance, a financial institution can use AI to identify anomalies in account behavior, such as unusual spending patterns or login attempts from unfamiliar locations. By flagging suspicious transactions for further investigation, businesses can minimize financial losses and protect customers from fraud.

### Zero-Trust

Traditionally, IT leaders have relied on perimeter security strategies like firewalls to protect their most valuable resources like user data and intellectual property. However, with digital transformation and the move to off-premises cloud infrastructure, relying on a network perimeter is no longer sufficient. One of the strategies an organization can implement to secure their data and stave off cybercriminals is to implement zero-trust inside and outside their network. Rooted in the principle of "never trust, always verify," the zero-trust model emphasizes continuous verification of every user and device, regardless of their location.

## Two-Factor Authentication



## Cloud Computing

Gartner forecasts public spending on cloud tools and services to reach \$679 billion in 2024 and \$1 trillion by 2027.<sup>9</sup> Much of this spend will be driven by the growing demand for new AI-powered platforms and as-a-service offerings. AI models, such as the LLM that powers ChatGPT, are trained on huge amounts of data, requiring vast amounts of compute power. Most businesses don't have the resources or infrastructure to do this themselves, but by accessing AI-as-a-service through cloud-native platforms, they can leverage real-time data collection and analysis required to enable AI.

### AI and Cloud Use Cases

- AI needs a variety of resources (CPUs, GPUs, Storage) in and of itself
- Optimized Scaling and Resource Allocation Based on Real-time Demand
- Predictive Analytics for Proactive Allocation/Predictive Scaling
- Automation - Resource Provisioning, Software Deployment, Config Mgmt, etc.
- Application Performance Monitoring
- Application Tuning and Optimization
- Load Balancing/Dynamic Workload Scheduling
- FinOps - Optimize Spending
- Data Management - Warehousing, Pipelines, ETL
- Robotics Process Automation (RPA)

## Resource Optimization

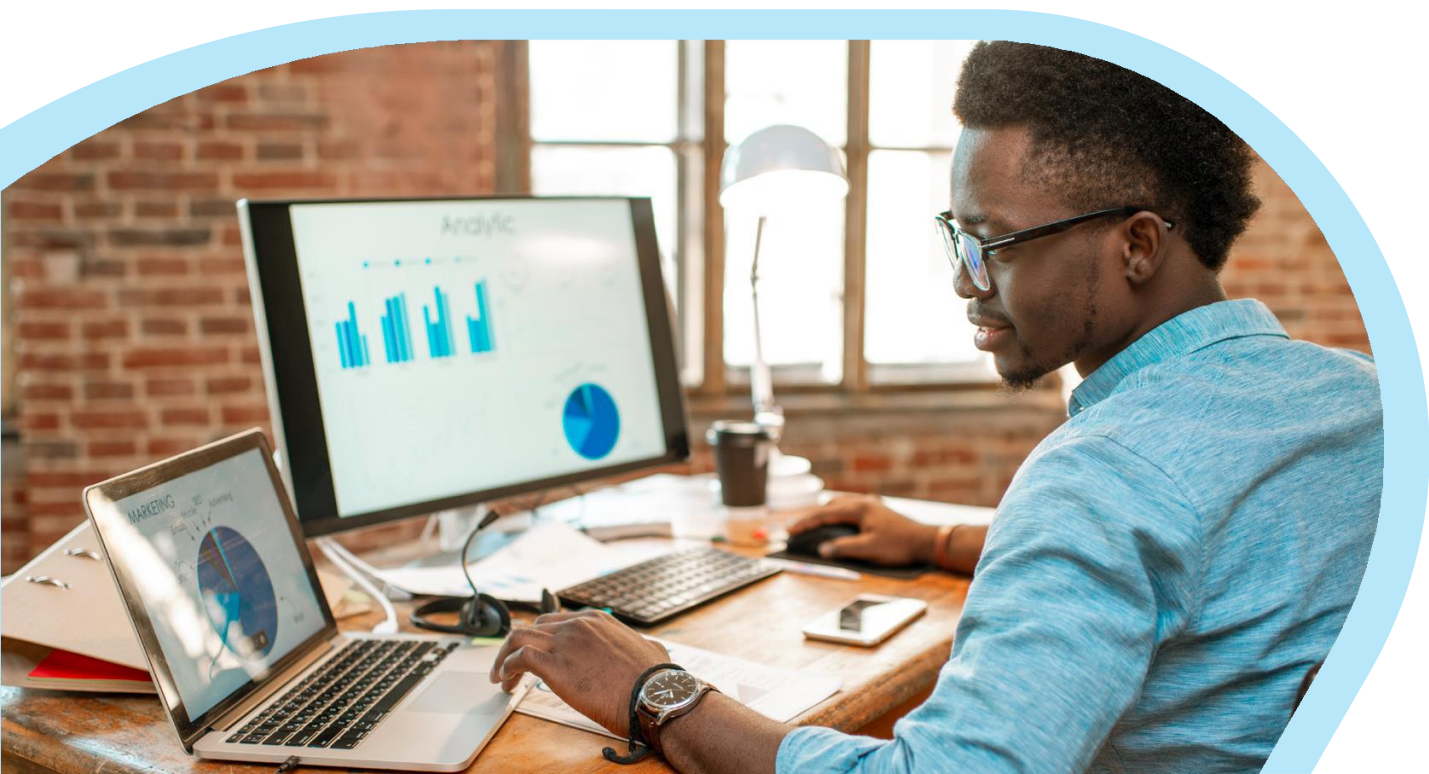
AI-driven cloud management platforms optimize resource allocation and performance to meet changing demand. For example, a cloud provider can use AI algorithms to dynamically adjust server capacity based on workload fluctuations, ensuring optimal performance and cost-efficiency. By automatically scaling resources up or down as needed, businesses can minimize downtime and reduce infrastructure costs.

## Predictive Maintenance

AI analytics predict equipment failures and schedule maintenance proactively to prevent downtime. By analyzing vast amounts of data collected from the cloud infrastructure, AI algorithms can detect patterns, anomalies, and potential risks. For example, a manufacturing company can use AI algorithms to analyze sensor data from industrial machinery across all work sites and identify signs of impending malfunctions. By scheduling maintenance tasks before equipment failure occurs, businesses can minimize disruptions to production and maintain operational efficiency.

## Robotics Process Automation (RPA)

AI-driven, cloud-based RPA enables businesses to automate their processes more quickly and easily than traditional, on-premises RPA solutions. For example, a finance team can leverage RPA technology hosted in the cloud to automate the receipt, data extraction, validation, entry, approval, payment, and archiving of invoices from various suppliers. By utilizing optical character recognition (OCR) for data extraction and integrating with the company's ERP and accounting software, the RPA system efficiently processes hundreds of invoices in diverse formats with minimal human intervention. This automation also offers scalability during peak times and cost savings over traditional on-premises solutions.



## The Internet of Things (IoT)

From self-driving cars to wearable devices that can improve health outcomes, IoT is becoming ubiquitous in modern-day life. By 2025, IoT devices are expected to outnumber non-IoT devices by 3:1.<sup>10</sup> While IoT provides a skeletal framework of devices interconnected through the internet capable of collecting and exchanging data, AI acts as the brain, analyzing and interpreting this data to make intelligent decisions without human intervention. When AI fuses with IoT – or AIoT – the result is a smarter, self-improving network of devices that not only collect data but also learn from it, optimizing processes and creating more value.

As the number of IoT devices and the data that they process grows, the business opportunities for AIoT also grow. The main challenge for business leaders will be to use this data in a meaningful way. According to Gartner, 87% of organizations have limited business intelligence and analytics maturity.<sup>11</sup> This gap in analytics resources means that many businesses underutilize their data and fail to get value from it. Integrating AI-based solutions and enlisting the support of AIoT service providers can help companies maximize their IoT investments while achieving more efficiency and cost savings for their organization.

### AIoT Use Cases

- Computer Vision (Security, Quality Assurance, Safety Monitoring)
- Sensors (Olfactory, Auditory, Pressure)
- Predictive Health Analytics
- Energy Consumption Analysis
- Logistics Asset Tracking/  
Route Optimization



## **Computer Vision – Physical Security**

Protecting the physical environment has long been the task of facilities managers and security personnel. Adding AI with IoT cameras and sensors to an organization's physical security strategy dramatically enhances the fight to protect all people and assets.

*Imagine hiring a security team that has eyes everywhere, and that never sleeps. Using AI with site-wide cameras and access controls, businesses can have an always-on security team to protect and monitor their physical environment. Taking the data feeds from IP cameras, the AI system can create alerts for virtually any desired activity, such as weapons detection, fire detection, slip and fall, and people or assets entering or exiting designated areas. This allows designated personnel to respond accordingly and save the day.*

## **Predictive AI – Home-Based Healthcare**

As the burden on our healthcare system continues to grow, care in the home has become increasingly important. Wearable IoT devices collect data on a patient's vital signs and health metrics, acting as an extra set of eyes for the healthcare provider. Predictive AI algorithms analyze this data to predict potential health issues before they become serious, enabling proactive care and intervention.

*Healthcare professionals spend most of their time providing care after an event has happened. Take for example a heart attack: In most cases a doctor will see the patient after the event, limiting their impact. What if we could predict that event BEFORE it happened? With IoT sensors to monitor and provide accurate and timely vitals, AI can analyze trends with a patient and warn healthcare professionals of potentially life-threatening events.*

## **Energy Efficiency – Building Management**

In smart homes and buildings, IoT sensors monitor real-time energy usage and environmental conditions, such as temperature, lighting, and water usage. AI algorithms then process this data, learning from patterns and making intelligent decisions to adjust energy consumption without compromising comfort or operational needs.

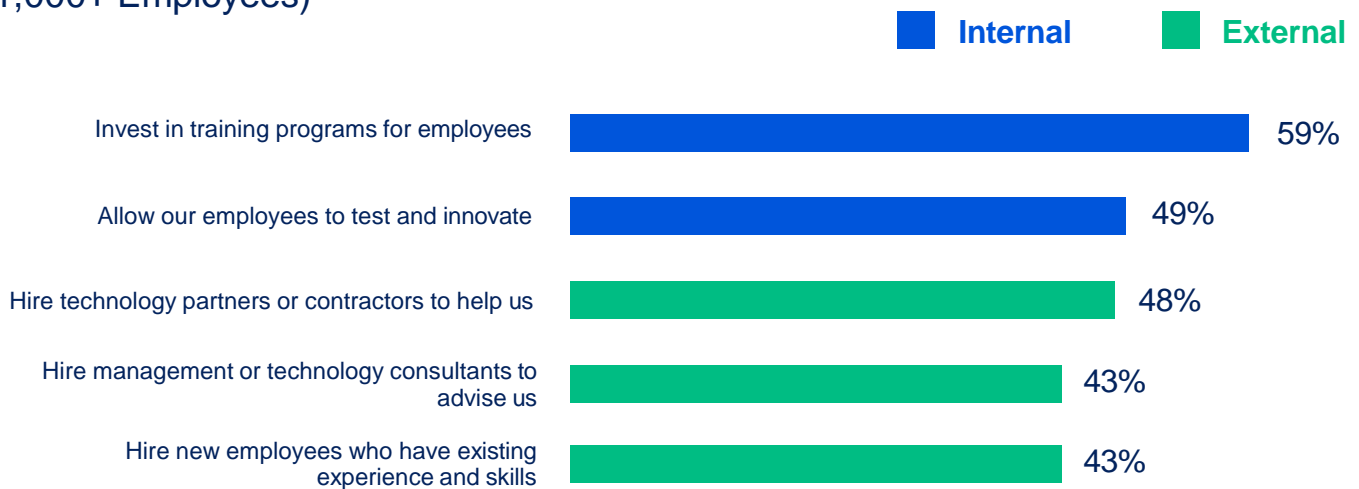
*Imagine a commercial office building equipped with various IoT devices, including temperature sensors, occupancy sensors, light level sensors, water leak detectors, and smart meters. AI algorithms analyze the collected data to understand usage patterns and automatically lowers heating in unoccupied rooms, dims lighting in areas with sufficient natural light, and identifies potentially costly water leaks (the top insurance claim for property damage). This leads to lower utility bills and a reduced carbon footprint, as the building only uses the amount of resources needed based on real-time conditions and predicted needs, all while maintaining comfort for the occupants.*

# Section 3

## The Future is Now - We are Here to Help

As demonstrated in the use cases above, the proven benefits of AI enablement across virtually every business function are clear. And companies that choose not to invest in AI experimentation could lose out to the competition. But hurdles remain, ranging from data and infrastructure requirements, severe talent shortages, and ethics, privacy, and compliance considerations. That’s why more and more enterprises are looking to outside help to make sense of the dizzying space, find the right resources, and implement the right AI solutions for their business. GBK Collective’s 2023 Taking a Pulse on Generative AI survey revealed that nearly half of US companies with 1000+ employees are or are planning to hire technology consultants for advisement.<sup>12</sup>

### Enterprise Organization Strategies for Implementing Generative AI Solutions (1,000+ Employees)



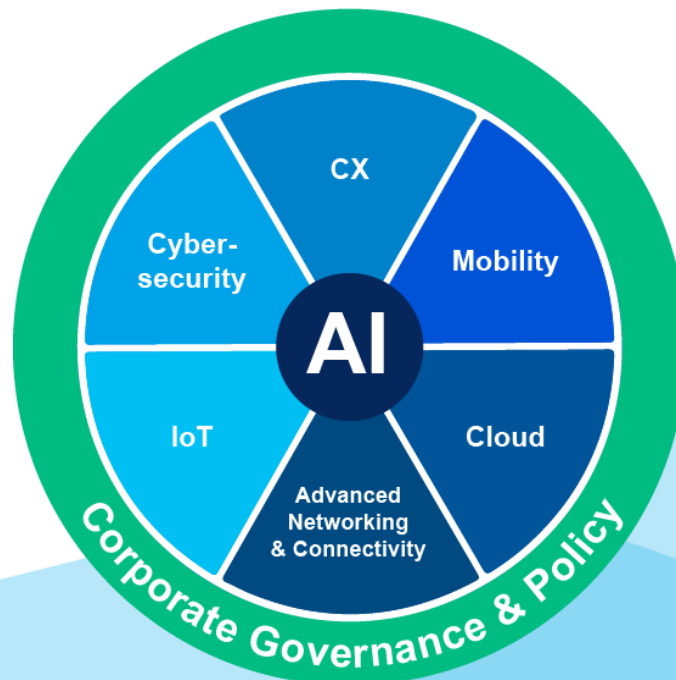
#### A Note About Ethical AI Use

Against a backdrop of heightened concerns regarding data privacy, businesses are embracing the concept of ethical AI practices. But few are clear about where to start. As reported by ZDNet, while 73% of business leaders acknowledge the indispensability of AI guidelines, only 6% have established such guidelines in their companies. Furthermore, while customers are generally supportive of AI tools, 65% have lost trust due to a lack of transparency in how businesses handle their data.<sup>13</sup>

We got you. We can help you navigate AI-driven implementations safely and effectively with the leading providers in this space.

## Ready to Discuss How AI Can Drive More Impact for Your Business?

LeadFoot and our team of Enterprise AI Architects can assess your requirements and match you with the “right fit” AI solution providers at the most effective costs. Let us assist you in unleashing the capabilities of AI in your organization for improved efficiencies.

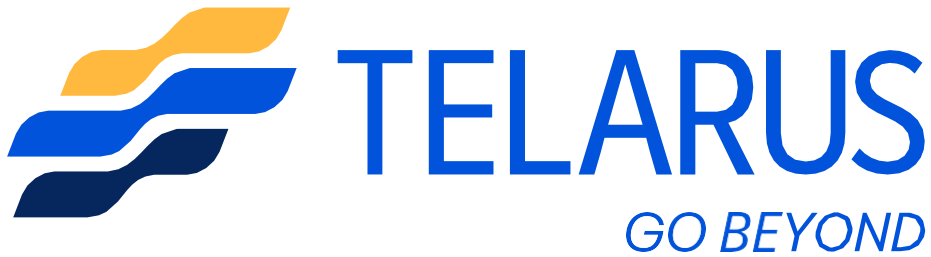


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