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Integration of Gen Al

Automation in Existing

Business Processes

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Introduction

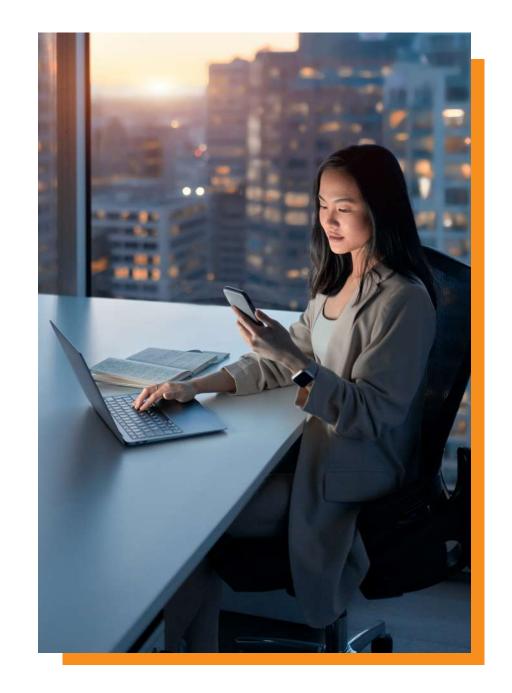
Artificial Intelligence (AI) powered Robotic Process Automation (RPA) is not just a buzzword. They contribute to a transformative change in the business landscape. ChatGPT, the generative AI tool, is now finding its way into workflows and processes in multiple industries.

Al could add \$2.6 trillion to \$4.4 trillion to the global economy, increasing its impact by 15% to 20% (Economic potential of generative AI | McKinsey). This estimate could easily double when generative AI is embedded into business software.

Generative AI solutions are the catalysts for enhancing business operations and collaboration. Intelligent process automation, leveraging Gen AI will unlock value for businesses.

This white paper serves as a crucial navigator through the rapidly evolving landscape of Generative AI (Gen AI) automation. With a keen focus on understanding Gen AI's revolutionary capabilities, it uncovers the technology's evolution, demystifies its mechanisms, and illuminates its current prowess.

Through compelling real-world case studies from the legal, finance, and sales sectors, readers gain insights into the tangible benefits and challenges of adopting Gen Al. The white paper further equips businesses with strategies to measure Gen Al's impact on operations through quality models, system efficiency, and overall business outcomes.



Understanding Gen Al Automation & Their Capabilities

Even though generative AI has had breakthroughs recently, the technology is decades old. Due to significant investment in recent times, ChatGPT, Stable Diffusion, and GitHub Copilot have gained prominence after advancements in deep learning and machine learning.

In 2016, Al-based AlphaGo, developed by DeepMind, defeated the world champion Go Player. Afterward, the public's interest weaned until ChatGPT created a stir in November 2022. The GPT-4, with its improved capabilities, changed the world, leading to the introduction of many other GPT-based models.

Evolution of Generative AI Technology

The generative AI applications are built using foundation models that contain expansive artificial neural networks inspired by the billions of neurons in the human brain. These deep learning models get their name due to the deep layers of learning within the neural networks. Unlike deep learning models, the latest foundation models can process extreme volumes of unstructured data and perform multiple tasks.

Investments in generative AI reached a total of \$12 billion in the first 5 months of 2023. From 2017 to 2022, generative AI has grown by 74%, thanks to private external investments and venture capital (Economic potential of generative AI | McKinsey). Claude, a generative AI by Anthropic, can process 100,000 text tokens in a minute.

In December 2023, Google announced the launch of Gemini, a multimodal and powerful LLM, that is considered as the largest and most powerful AI model. Google continues to update Gemini's features that can help with writing, learning, code generation, and collaboration.

Using generative AI, industries that depend on knowledge work thrived. Specifically, customer operations, sales and marketing, and software development were completely transformed with massive performance boosts. This process also resulted in unlocking trillions of dollars across multiple sectors, ranging from banking to life sciences. Generative AI could replace 300 million jobs of knowledge workers and raise the global GDP by 7% (Goldman Sachs Research). This will undoubtedly impact the Business & Information Systems Engineering (BISE) sector with revolutionary opportunities.

Demystifying Generative AI Automation

Traditional automation involves mimicking repetitive tasks. The AI automation systems strictly adhered to specific rules and automated processes. The rise of RPA helped businesses automate mundane tasks, freeing up employees for more critical tasks.

Generative AI automation takes automation one step further, as these systems not only automate but also generate, innovate, and adapt without human intervention. Unlike their predecessors, gen AI automation systems are not confined by programmed rules and scripts. When trained on massive data sets, AI systems can uncover patterns and relationships within the data. Such systems will be intelligent enough to extrapolate, improvise, and generate novel outputs.



How Gen Al Automation Works

The power of gen AI automation systems depends on the ability of the system to learn from data and generate responses accordingly. There are 3 main stages:

Data training

The data set for gen AI systems can include text, images, audio, video, or a combination of unstructured data types. The system begins to understand intricate relationships between the data, exploring all the nuances to form the foundation for generative capabilities.

Generative Modeling

Once the system is trained, generative models like Generative Adversarial Networks (GANs) or Transformer models are used to produce new content. The advancements in these models provide the ability to generate realistic and contextually appropriate outputs by extrapolating from the learned patterns.

Deployment

The final stage is the deployment of gen Al Automation in real-world scenarios for the autonomous completion of critical tasks.



The following figure represents an overview of current generative AI models with different data modalities. These models are pre-trained on massive volumes of data.

	Model Level	System Level	Application Level
Output Modality (Selection)	Underlying AI model for different data modalities (e.g., image, text, code)	Embedding model functionality to provide interface for interaction	Solving dedicated business problems and stakeholder needs
Text Generation	X-to-text models, e.g., GPT-4 and LLaMA 2	Conversational agents and search engines, e.g., ChatGPT and YouChat	Content generation (e.g., SEO and customer service)Translation and text summarzation
Image/Video Generation	X-to-image models, e.g., Stable Diffusuion and DALL-E 2	Image/video generation systems and bots, e.g., Runway and Mid journey	Synthetic product and advertising visualsEducational content
Speech/Music Generation	X-to-music/speech models, e.g., MusicLM and VALL-E	Speech generation systems, e.g., ElevenLabs	 Al music generation Text-to-speech generation (e.g., news, product tutorials, etc.)
Code Generation	X-to-code models, e.g., Codex and AlphaCode	Programming code generation systems, e.g., GitHub Copilot	Software developmentCode synthesis, review, and documentation

The unimodal models work on the same input and output types. For example, ChatGPT takes in text input and gives text output. Multimodal models work with different types of data modalities. Stable Diffusion, MusicLM, and AlphaCode are such examples.

Current Capabilities of Gen Al Automation

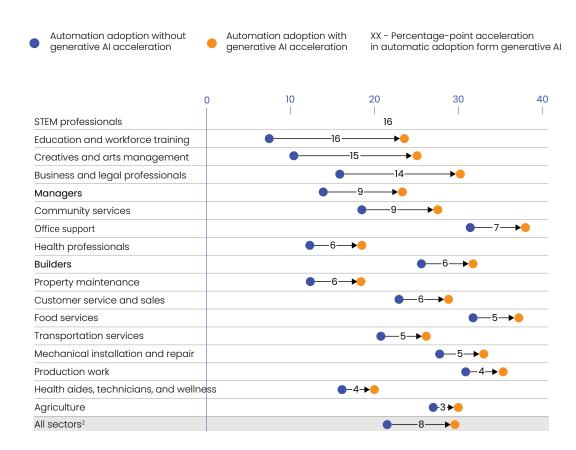
Generative Al automation can automate 70% of business activities across occupations from now to 2030 (The organization of the future: Enabled by gen AI, driven by people). Instead of allowing fears of replacement and loss to inculcate in employees, senior leaders can explain augmentation and improvement with gen Al potential.

For example, it can become a world with fewer meetings for your employees, giving them more time to think. Gen Al automation has begun and can help C-Suite discussions with data-driven insights. It can help identify patterns in customer behavior that humans can easily miss. It can foster innovation and help create new ideas and designs for products and services.

Preparing the organization for this cultural change is crucial for success. Gen Al automation impacts a wider set of work activities, including human interaction, creativity, and expertise. By 2030, Gen AI automation will take over 30% of work hours (Generative AI and the future of work in America).

With generative AI added to the picture, 30 percent of hours worked today could be automated by 2030.

Midpoint automation adoption by 2030 as a share of time on work activities, US, %



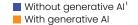
^{01.} Midpoint automation adoption is the average of early and late automation adoption scenarios as referenced in The economic potential of generative Al: The next productivity frontier, McKinsey & Company, June 2023.

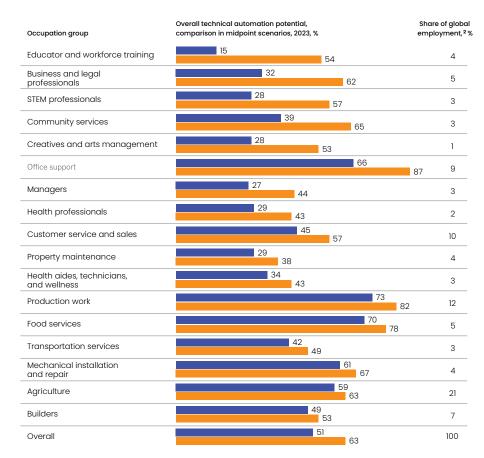
^{02.} Totals are weighted by 2022 employment in each occupation. Source: O*NET; US Bureau of Labor Statistics; McKinsey Global Institute analysis

While previous AI automation helped with the automation of physical work activities, gen AI can help automate knowledge work in all fields like education, law, technology, arts, etc.

Advances in technical capabilities could have the most impact on activities performed by educators, professionals, and creatives.

Impact of generative AI on technical automation potential in midpoint scenario, 2023





- 01. Note: Figures may not sum, because of rounding.

 Previous assessment of work automation before the rise of generative Al.
- 02. Includes data from 47 countries, representing about 80% of employment across the world. Source: McKinsey Global Institute analysis

Some of the business processes that currently benefit from generative AI are:

- Customer Service Reduction in average handling time,
 cost per interaction, and improved customer satisfaction.
- Marketing Time saved, higher return on ad spend (ROAS), and augmented creativity.
- Healthcare Increased time with patients, better outcomes, improved efficiency, and reduced wait times.
- Retail Increased revenue per visit, increased sales through Al-driven suggestions, and enhanced customer satisfaction.
- Product Development Employee hours saved, accelerated time-to-value, and the percentage of content influenced by Gen AI tools.



Assessing Business Needs and Readiness for Gen Al **Automation Integration**

Integrating a generative AI tool such as ChatGPT could increase productivity by 14% (Generative AI at Work). Adopting Gen Al Automation necessitates thoroughly evaluating organizational readiness, encompassing technological infrastructure, workforce skillsets, and cultural adaptability. The following key factors should be considered:



Technological Infrastructure

Ensure existing IT systems seamlessly integrate with gen AI automation solutions. **Workforce Skillsets** and Training

Assess the current skillsets within the organization and identify gaps that may arise with the introduction of gen AI automation.

Change **Management and Cultural Shifts**

Organizations must proactively manage change and foster a culture that embraces technological innovation.

Data Governance and Compliance

Establish robust data governance policies to ensure compliance with regulatory frameworks.

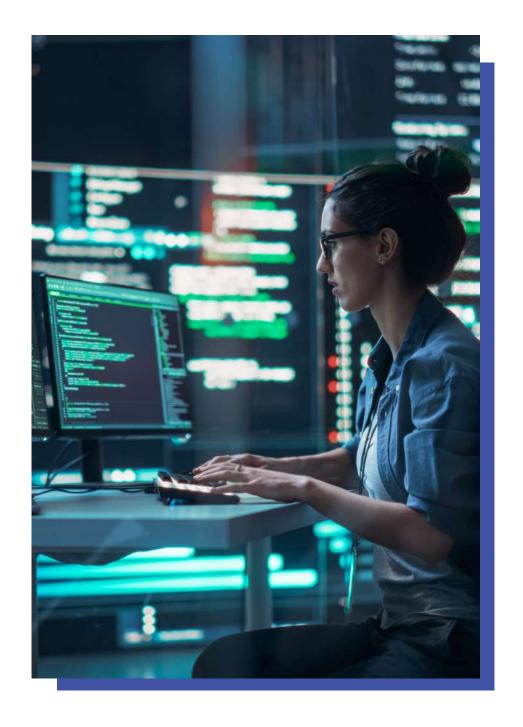
The readiness for gen AI automation integration varies between SMEs and larger corporations due to differences in resources, scale, and organizational structures.

For SMEs:

- Resource Constraints SMEs often have limited financial and human resources. Prioritize automation in areas where it can deliver immediate, measurable benefits and gradually expand implementation.
- Agility and Flexibility SMEs can capitalize on their agility by implementing gen Al automation in a phased manner. This allows for real-time adjustments based on evolving business needs.

For larger corporations:

- Comprehensive Integration Strategies Larger corporations should develop comprehensive strategies for scaling gen Al automation across diverse departments. This requires a centralized approach to coordinating implementation efforts.
- Training and Upskilling Programs Investing in extensive training and upskilling programs to equip a large workforce is crucial. Ensuring a smooth transition by aligning automation initiatives with long-term strategic goals is challenging.



Ease of Integration

Integrating gen AI into business operations is a nuanced endeavor, demanding strategic foresight and a profound understanding of your business's technology and specific requirements. Integration is possible only after aligning all the stakeholders on goals and objectives for this AI transformation. The following is a process to ensure ease of integration:

- Identify Business Needs and Potential ROI Identify strategic goals, challenges, and key performance indicators, emphasizing ROI to gauge investment value. Utilize SWOT analysis, process mapping, and ROI calculators for a thorough evaluation.
- Assess Infrastructure and Skillsets
 Review data management, IT infrastructure, and team
 proficiency to ensure readiness for AI deployment, skill
 alignment, and informed budgeting by identifying gaps.
- Choosing the Right Gen Al Model
 Choose the best Al model—ranging from text-based like
 GPT-4, BERT, to image-based like DALL-E—matching
 business needs with Al capabilities for successful
 integration.

Pilot Testing

Start with a controlled, small-scale deployment of the selected AI model to enhance integration. This method enables precise monitoring, early problem detection, and timely adjustments before wider implementation.

- Internal Alignment and Activation After a successful pilot, communicating the benefits and changes of the Al model to all stakeholders is crucial. Develop role-specific training programs to ensure a seamless organization-wide transition.
- Scaling and Optimization

Deploy the tested AI model widely across the organization and continually refine it for better performance, efficiency, and business alignment. Embrace an iterative process, updating regularly to meet real-world performance and evolving needs.



Scalability and Adaptability

Strategically integrating Gen AI and automation is prudent, enhancing adaptability and scalability in dynamic environments while optimizing processes and resource allocation. This synergy opens up many potential applications across diverse sectors, highlighting its versatility.

Intelligent Data Extraction and Entry -

Merging data extraction with automation boosts workflow & data processing speeds, significantly enhancing efficiency across finance, healthcare, logistics, legal, customer support, and research sectors.



Integrating gen AI into automation allows businesses to tackle complex challenges, derive insights, and enhance decision-making, leading to more strategic and informed operational choices.

NLP and Chatbots -

Gen AI automation, combined with chatbots and virtual assistants, revolutionizes customer service by offering personalized support and streamlining tasks, enhancing both customer satisfaction and operational efficiency.

Compliance and Governance -

Gen AI automation streamlines compliance, enhances system security, manages access effectively, and maintains audit trails, ensuring adherence to regulations and governance.



Real-world Case Studies

Generative AI is revolutionizing industries by automating tasks once reserved for humans. Real-world case studies showcase its impact across diverse sectors:

Legal

In the legal industry, Al-powered systems play a pivotal role by:



Automating Regulatory Monitoring - Al systems ensure firms stay compliant by automating regulatory monitoring and keeping clients up-to-date with the latest compliance requirements.



Drafting and Review of Standard Documents - Streamlining document creation, AI assists in drafting and reviewing standard legal documents such as wills and contracts, enhancing efficiency and accuracy.



Due Diligence Assistance - Al aids in due diligence processes by reviewing vast document volumes, identifying potential risks, and flagging issues efficiently, facilitating a thorough and timely examination.



Contract Analysis and Revision - Al systems can flag potential issues or suggest revisions by analyzing contracts, contributing to creating robust and legally sound agreements.



Legal Research Support - Al assists in legal research by identifying, analyzing, and summarizing pertinent information from case law, statutes, journals, regulations, and other publications. This accelerates the research process and enhances the depth of insights.

London law firm Macfarlanes has partnered with legal artificial intelligence startup Harvey, and following a successful pilot program, up to 650 Macfarlanes lawyers will utilize Harvey's technology for tasks like research, document analysis, and drafting emails and memos. Harvey, built on OpenAl's GPT-4, reflects a broader trend in law firms exploring generative Al technologies, with other firms like Allen & Overy and PriceWaterhouseCoopers also integrating Harvey into their operations (UK law firm is latest to partner with legal Al startup Harvey).

Finance

In early 2023, major Wall Street institutions banned ChatGPT over data privacy concerns. Despite this, the financial industry has long leveraged machine learning for fraud detection and credit decisions. Generative AI is gaining traction in finance, with 80% of use cases focused on process optimization, including finance chatbots, automated accounting functions, and document analysis. Notably, there's a growing interest in using AI to detect and prevent financial crimes and fraud. Customized solutions like BloombergGPT, a 50-billion parameter language model tailored for financial services, are emerging as tech solutions in the industry (Welcome to BloombergGPT, a large-scale language model built for finance).

Morgan Stanley has officially launched its generative AI assistant, the AI @ Morgan Stanley Assistant, based on OpenAI's GPT-4 (Morgan Stanley kicks off generative AI era on Wall Street with assistant for financial advisors). This move makes Morgan Stanley the first major Wall Street firm to deploy a bespoke solution using GPT-4. The assistant provides financial advisors with swift access to the bank's extensive database of about 100,000 research reports and documents, streamlining information retrieval and enhancing client interactions.

These case studies exemplify how generative AI is automating tasks and reshaping industries. Continued evolution promises even more innovative applications in the future.

Sales

Sales and marketing teams are increasingly embracing generative AI for various applications:

- Drafting initial versions of emails, blog posts, landing pages, and other content.
- Customizing content for personalized outreach using CRM data.
- Analyzing sales interactions to provide coaching insights to representatives.
- Automating lead scoring by considering demographics, firmographics, and digital behaviors.
- Summarizing content from calls and video meetings.

In the tech landscape, platforms like Gong employ proprietary models for call summaries and recommending next steps. At the same time, Salesforce's Einstein Copilot generates email responses and account updates based on specific customer contexts (There's A New Copilot In Town: Salesforce Reveals Its Al Roadmap At Dreamforce 2023). This surge in generative Al adoption is enhancing efficiency and effectiveness in sales and marketing processes. The account engagement platform, 6sense, leverages an Al-driven conversational email solution for prospect communications, resulting in a substantial contribution of 10% to generating new pipelines from marketing-engaged accounts (5 Generative Al Use Cases Companies Can Implement Today).





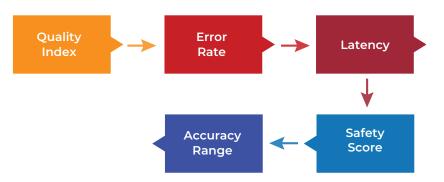
Measuring the Impact of Gen Al Automation Integration

As organizations dive into the transformative era of gen AI, the need for robust metrics and key performance indicators (KPIs) becomes paramount. These metrics not only gauge the effectiveness of AI investments but also play a crucial role in refining and enhancing subsequent iterations of projects. Early establishment of KPIs is pivotal, creating a continuous feedback loop for efficiency improvements.

Drawing upon extensive experience in AI collaboration and development, Google Cloud introduced a comprehensive framework, delineating three interlinked stages crucial for the success of generative AI initiatives:

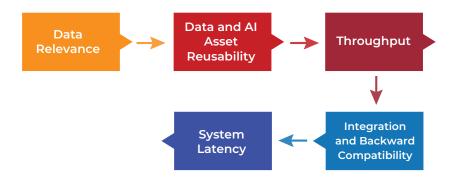
Model Quality

In Gen AI, evaluating model quality is a dynamic process focusing on continuous improvement and innovation. Metrics for tracking model quality include:



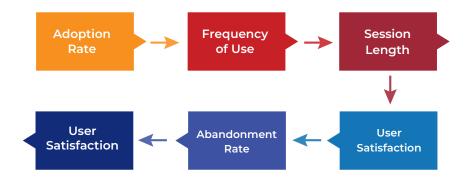
System Quality

Ensuring an end-to-end AI system facilitates effective development, tuning, and deployment at scale. Critical system quality metrics include:



Business Impact

Gen Al deployments span various departments, each benefiting from unique opportunities. To gauge business impact, organizations should focus on:



Business Value Improvement Metrics

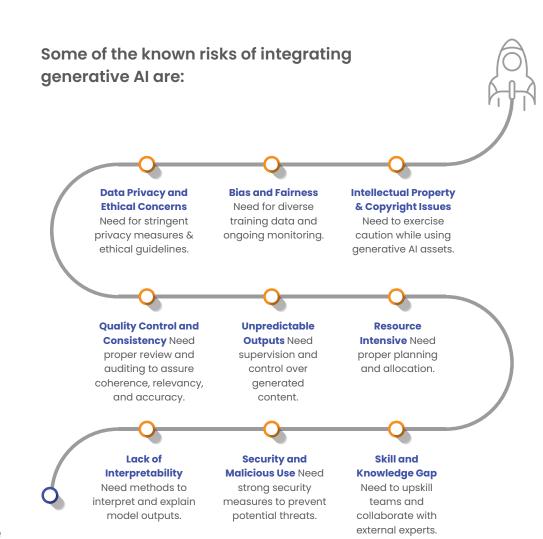
These metrics provide evidence of positive impacts on the bottom line, demonstrating the value of Al investments across departments:

- Customer Service Reduction in average handling time,
 cost per interaction, and improved customer satisfaction.
- Marketing Time saved, higher return on ad spend (ROAS), and augmented creativity.
- Healthcare Increased time with patients, better outcomes, improved efficiency, and reduced wait times.
- Retail Increased revenue per visit, increased sales through Al-driven suggestions, and enhanced customer satisfaction.
- Product Development Employee hours saved, accelerated time-to-value, and the percentage of content influenced by Gen AI tools.

Addressing Challenges & Risks

Recent research highlights that 67% of senior IT leaders prioritize integrating generative AI into their business operations within the next 18 months, with one-third (33%) deeming it a top priority (Managing the Risks of Generative AI, Harvard Business Review).

Companies are actively exploring the multifaceted impacts of generative AI, envisioning its application in sales, customer service, marketing, commerce, IT, legal, HR, and various other domains.



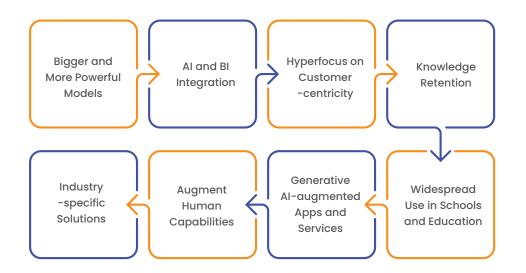


Adhering to established guidelines and implementing proactive guardrails ensures the accuracy, safety, and trustworthiness of deployed tools, contributing to the overall well-being and success of individuals within organizations.

Training generative AI tools on data shared proactively by customers and collected directly by companies ensures accuracy and originality, emphasizing strong data provenance. Human involvement is necessary for reviewing outputs, addressing bias, and ensuring generative AI models operate as intended. Generative AI should augment human capabilities, not replace them.

Future Outlook and Emerging Trends

As gen AI advances, it catalyzes industries towards efficiency and innovation. Even traditionally conservative sectors are beginning to explore ways to integrate AI tools seamlessly. By 2030, generative AI models could be easily trained on datasets with 1 trillion parameters (What's the future of generative AI? An early view in 15 charts | McKinsey). As the cost of training AI models continues to decline, the number of gen AI models doubles in capacity every 3.5 months. Some of the emerging trends to look forward to in 2024 are:







How Can Organizations Leverage Cutting-Edge Al Capabilities?

The prime concern for leaders is how to accelerate AI adoption in their organizations. Innovative AI tools enhance efficiency and drive growth, but how can you find the right tools that seamlessly integrate with the existing systems and IT infrastructure? Integra's *QuixI* is an AI accelerator that expands your capability to create AI agents, integrate with existing systems, and unlock varied AI benefits with zero disruption.

The diverse toolkit has curated AI applications tailored for diverse sectors. The ready-to-deploy modules unlock quick adaptation. Advanced AI technology is now accessible to all, and you can keep your business moving forward with rapid prototyping.

Regardless of the number of AI applications you build, manage all of it through a single platform and future-proof your business strategies with data-driven insights.



Conclusion

Gen AI emerges as a pivotal tool for industries, bridging the gap between traditional practices and future needs. These advancements benefit sectors and have broader positive implications for society and the economy.



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