

ROLE OF ARTIFICIAL INTELLIGENCE IN DIGITAL ECONOMY

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ABSTRACT

The digital economy is described as economic operations enabled by digital tools, such as the internet, vast datasets, cloud services, and increasingly AI. The digital economy signifies a fundamental transformation in value creation, trade, and allocation. Artificial intelligence (AI) is considered the core driver of the 2026 digital economy. It helps in boosting productivity and transforming business models. Artificial intelligence (AI) means making computers do things that normally need human intelligence. Artificial Intelligence is usually defined as a set of technologies that can imitate human intelligence in the process of problem-solving. In the case of the impact of AI on the digital economy, it enhances efficiency and productivity, enhances customer engagement, speeds up innovations, accelerates economic growth, and addresses global challenges. AI technology is incorporated into different sectors like banking, health, education, tourism, etc., in various ways. Through some case studies, it is made clear that AI is deeply adopted in the Indian Economy.

KEYWORDS: Digital Economy, Artificial Intelligence, Economic Growth, Facial Recognition-commerce

Introduction

The digital economy was introduced by Don Tapscott in 1995. It describes economic operations enabled by digital tools, such as the internet, vast datasets, cloud services, and increasingly AI. The digital economy signifies a fundamental transformation in value creation, trade, and allocation. Conventional economies are dependent on tangible resources and manpower. In contrast, the digital version relies on non-physical elements: data as the modern “oil,” platforms facilitating effortless exchanges, and systems linking billions of devices. It represents the shift from traditional, physical business models to interconnected, virtual, and paperless systems. It encompasses e-commerce, digital banking, and automated services. The digital economy was sometimes called the internet economy, the new economy, or the web economy because of its reliance on internet connectivity. But, economists and business leaders assert that the digital economy is more advanced and complex than the internet economy. Under one definition, it simply means economic value derived from the internet.

The global digital economy is booming. In 2026, projections from sources like the Digital

Cooperation Organization (DCO) estimate it will reach around \$28 trillion, accounting for about 22% of global GDP and growing at roughly 9.5% - nearly three times faster than the overall global economy. Digital economic growth was further accelerated by the Covid-19 pandemic as remote work, online shopping, telemedicine, and digital entertainment became essential during lockdowns and social distancing.

Artificial intelligence (AI) is considered the core driver of the 2026 digital economy. It helps in boosting productivity and transforming business models. It enhances efficiency in different sectors like health, finance, and e-commerce. McKinsey projects that AI might generate \$13 trillion in worldwide value by 2030, including \$2.6–4.4 trillion from generative AI via efficiency improvements. Artificial intelligence (AI) means making computers do things that normally need human intelligence. Artificial Intelligence is usually defined as a set of technologies that can imitate human intelligence in the process of problem-solving. It means creating programs which make computers learn, make decisions, and understand language. AI is used in day-to-day technology, like helping your phone understand voice commands,

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suggesting movies you might like, and even in robots that can move or do tasks on their own. AI makes gadgets smarter, helping them figure out what you need without being directly programmed for every task.

Impact of Artificial Intelligence on Digital Economy

Enhancing Efficiency and Productivity:

With the help of AI, tasks are automated and processes are optimized. This leads to improvement in efficiency and productivity in businesses. For example, automating customer service tasks, identifying potential risks, and streamlining the supply chain.

Enhancing Customer Engagement: With the help of AI, customer experiences can be personalized. AI helps business companies to build stronger relationships with customers. This strategy helps companies to attract and retain customers by providing them with the products and services that they need.

Speeding Up Innovations: AI helps businesses to easily collect customer data, analyze it, and also make proper predictions. This helps businesses to improve their operations and develop new products and services.

Accelerating Economic Growth: With the help of AI, new businesses, jobs, and markets can be created. New businesses like AI-powered healthcare, AI-powered financial services, and AI-powered transportation. New job roles like data scientists, machine learning engineers, Gen AI developers, and prompt engineers are being created.

Addressing Global Challenges: AI helps in addressing global challenges such as hunger, poverty, and climate change. This can be done by using AI to improve agricultural productivity, innovate new energy sources, and create new goods and services which did not exist previously.

AI Applications in Different Sectors of the Economy

AI in Banking and Financial Services:

AI made it possible for banks to provide 24/7 customer assistance by deploying chatbots on call. Beyond this, machine learning is strengthening fraud detection and better regulatory compliance. Banks also use AI to understand customers' transaction history for improved credit decisions. Financial institutions are increasingly adopting AI for diverse functions that enhance user interactions and internal operations. For instance, drawing on historical transaction data, AI anticipates and suggests a customer's favored payment option.

These personalization features not only elevate the banking experience but also aid significantly in customer loyalty. AI is being utilized in India to detect and prevent financial fraud as well as automate loan processing.

AI in Industry: AI assists the production process in various ways like automating production procedures, enhancing product quality, and cutting costs. AI is being utilized, for instance, in India to automate assembly line processes and to anticipate and stop equipment faults. AI is being used by an Indian manufacturer to enhance its production methods. As a result, there are now fewer flaws, more products are produced, and costs are going down. AI can automate a variety of tasks, from simple cognitive processes to complex manual chores. This automation frees up human resources to devote themselves to more innovative and strategic projects. By 2030, the adoption of AI could boost India's GDP by an estimated \$957 billion, with better productivity contributing around 15% of this growth, according to a McKinsey Global Institute report.

AI in Agriculture: Integrating AI in agriculture is going to be a game changer. With the help of technologies like machine learning, robotics, drones, and predictive analytics, AI is revolutionizing agriculture by enhancing efficiency, precision, and sustainability. Computer vision technology is used in agriculture to monitor crop health, detecting pests and diseases, and assessing soil health through image analysis. Labor-intensive tasks like planting, weeding, and harvesting are done by robotic systems. To practice sustainable farming, an AI-driven soil monitoring system is used to make sure that nutrients are applied only when and where needed. AI will play an even greater role in balancing agricultural productivity with environmental sustainability, contributing to long-term global food security.

AI in Healthcare: Healthcare has been revolutionized by AI. It completely reshaped processes like diagnosing, treatment, and monitoring. The medical field utilizes AI's forecasting strengths to identify conditions early, such as breast cancer via machine learning methods and diabetic eye disease through deep neural networks. Reports suggest AI can enhance health results by 30–40%, thereby cutting healthcare expenses by up to 50%. AI has the potential to tackle challenges in healthcare such as rising costs, inefficiency, and demand for high-quality care. One of the greatest contributions of AI to healthcare is its ability to analyze vast amounts of clinical data quickly, extending a helping hand to professionals

to identify disease markers, patient risks, and population health trends that might otherwise be missed. With the help of AI, physicians can make better-informed decisions based on accurate and real-time insights. It saves time, reduces costs, and improves patient records management. Artificial intelligence in healthcare looks like a game changer, specifically in identifying new cancer therapies, monitoring chronic disease progression, or improving the patient experience. The future of medicine will be defined by how effectively we harness the power of artificial intelligence in healthcare.

AI in Tourism: AI is playing a transformative role in reshaping the tourism sector in various ways. AI-powered recommendation engines analyze traveler preferences, browsing history, and behavior to curate personalized itineraries. AI-assisted chatbots and virtual assistants are enhancing customer support for travelers. It ensures quick, effortless reservations and improves customer satisfaction. AI-generated 360-degree immersive tours of monuments such as Jaipur's Amer Fort or Delhi's Red Fort provide a realistic preview of India's historical sites. These technologies attract international visitors and promote lesser-known destinations. AI-driven predictive analytics helps governments in various ways like forecasting visitor footfall at major tourist places, making proper arrangements such as transport, accommodation, etc., and also in identifying peak seasons and travel trends. India's tourism sector is modernized with the help of AI applications like facial recognition at airports, contactless hotel check-ins, and AI-powered tourist information centers.

AI in Education: The education field is revolutionized by AI. From personalized learning to smart classes, AI is reshaping many things like how students learn, how teachers teach, and how institutions function. AI is becoming a copilot of learning and teaching. AI-driven data insights can be used by teachers to improve their teaching methods. By automating administrative tasks like grading, attendance, and feedback, AI allows teachers to concentrate on what they do to inspire and guide students. With the help of AI-powered language translation, speech recognition, and accessible content formats, students of various backgrounds and abilities can access quality education irrespective of economic status, geography, and disability. AI is becoming a bridge connecting rural students to a world of opportunity. Classrooms are becoming smarter with AI-equipped interactive whiteboards, virtual

assistants, and facial recognition. Even AI-enabled online learning platforms have become a lifeline for millions and millions of students worldwide.

AI in Media and Entertainment: AI has revolutionized content creation, distribution, and personalization. AI tools assist in content creation in various stages of production, from scriptwriting to post-production. For example, AI can analyze scripts to predict audience reception, suggest edits, and even generate realistic visual effects. AI can provide producers and distributors with a predictive analysis of a film's box office potential by examining vast datasets, including social media sentiment, trailer views, and historical performance of similar genres or actors. Artificial intelligence can analyze existing music to understand patterns and structures and then compose new scores that evoke desired emotions, complementing the visual content.

AI in Transportation: AI can be integrated into transportation planning and operations. Traffic flow can be improved, public transport scheduling can be enhanced, and data-driven strategies can be supported for more sustainable and resilient mobility. Public transportation agencies have increasingly used AI-based tools to optimize daily operations-such as reducing waiting times, better matching supply with demand, and enhancing the passenger experience. Well-known, eye-catching AI applications are self-driving cars, autonomous air taxis, or smart highways; multiple other use cases are less spectacular but still very useful.

Case Studies Showing AI's Deep Impact on the Indian Economy

Artificial Intelligence has revolutionized businesses in India. Many companies adopted AI to improve their services.

TCS: A well-known Indian IT company, TCS, is a pioneer in integrating AI to spur creativity, streamline business processes, and accelerate digital transformation inside the IT industry and beyond. With the help of AI, this company provided innovative solutions to many industries in the case of fraud detection, supply chain management, and customer support. Many crucial processes such as hiring and training are done with the help of AI. TCS has invested \$1 billion in AI research and development. TCS's adoption of AI is very crucial in boosting India's economic development and international competitiveness.

Flipkart: Another case study is Flipkart, which is a pioneer company in e-commerce that has adopted AI. Flipkart, with AI, introduced a visual search feature which led to a remarkable 20% increase in customer engagement, illustrating

the positive influence of AI-driven innovations on user interactions and conversion rates. At the same time, the implementation of AI in customer support resulted in a substantial 70% reduction in resolution times, underscoring the tangible impact of AI on operational efficiency and customer satisfaction.

Reliance Jio: A third case study is Reliance Jio, which is a leader in incorporating AI in its different processes. The Reliance company, by adopting AI, has gained customer confidence and improved network efficiency. The use of AI in fraud detection has significantly decreased the number of fraud cases. The JioMoney platform's users now have more faith and confidence since they know that their transactions are secure. Reliance Jio is now a market leader in the Indian telecoms industry, setting new benchmarks for the safe and effective delivery of services to the nation's millions of consumers.

Conclusion

Results confirm AI as the core driver of the digital economy but stress the need for forward-thinking regulation. Strategies should focus on AI education, moral guidelines, and broad access to infrastructure for reducing divides. Emphasis on human-AI collaboration-through learning and essential services-will ease transitions. Upcoming studies should monitor advanced AI spread and sustained productivity effects via extended firm-level tracking. As AI advances, the digital economy's structure must evolve toward sustainability and fairness. Overall, AI's blend with digital systems offers extraordinary potential for prosperity, provided it is guided by forward-looking leadership.

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