Editorial

Artificial Intelligence and the Transformation of the Nepalese Business Environment

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Abstract:

Artificial Intelligence (AI) is reshaping global business by enhancing operational efficiency, data-driven decision-making, and customer engagement through automation, machine learning, and advanced analytics. Globally, AI is projected to contribute up to USD 15.7 trillion to the economy by 2030, yet it also presents challenges such as workforce displacement and ethical dilemmas. In Nepal, AI adoption is still emerging, with gradual integration observed in banking, insurance, tourism, and hydropower sectors. Existing studies suggest moderate readiness, hindered by skill shortages, inadequate infrastructure, and regulatory constraints. Notable use cases include AI-powered chatbots in banking and microinsurance innovations promoting financial inclusion in rural areas. Although Nepal's National AI Policy 2025 outlines promising directions, it lacks concrete implementation strategies. Sustainable AI adoption in Nepal will depend on strategic policy interventions, capacity-building efforts, and robust ethical frameworks. Striking a balance between technological innovation and social responsibility is critical for Nepal's success in the AI-driven future.

Keywords: Artificial intelligence, digital transformation, ethical frameworks, sustainable adoption

The rapid advancement of artificial intelligence (AI) is fundamentally reshaping the business landscape. More than just a technological shift, AI is redefining operations, competition, and innovation. In this era of digital transformation, businesses that embrace AI strategically are poised to thrive, while those that resist risk falling behind.

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Artificial Intelligence (AI) is reshaping the global business landscape by improving efficiency, decision-making, and customer experiences. Technologies such as machine learning (ML), natural language processing (NLP), and robotic process automation (RPA) enable businesses to automate tasks, analyse large datasets, and predict trends with remarkable accuracy (Brynjolfsson & McAfee, 2017). McKinsey (2023) reports that AI adoption can boost profitability by up to 20% through optimised operations and cost reduction.

AI's impact is especially notable in customer service, where chatbots and virtual assistants enhance responsiveness and satisfaction (Davenport & Ronanki, 2018). AI also powers personalised marketing and improves supply chain efficiency through better forecasting and inventory management (Davenport et al.,2020).

Nonetheless, AI introduces challenges, including workforce displacement and ethical concerns related to data privacy (World Economic Forum, 2023). Despite these issues, AI adoption is accelerating, with PwC (2024) projecting a potential $15.7 trillion contribution to the global economy by 2030.

AI in Nepalese Business

Innovation has historically driven improvements in living standards, though technological progress often disrupts existing methods. Emerging technologies such as cloud computing, the Internet of Things (IoT), big data analytics, data science, artificial intelligence (AI), and blockchain are now reshaping global industries, offering both opportunities and challenges. While some of these innovations have been around for over 25 years (Marston et al., 2011), they remained niche and commercially unviable until recently. Their widespread adoption has since accelerated, with industries increasingly integrating these technologies into core operations.

AI is expanding its influence across sectors. Studies on leading AI startups show growing investments and strong future potential, especially in healthcare, cybersecurity, business analytics, and digital marketing. These sectors benefit from enhanced efficiency, reduced costs, and improved decision-making. However, the uneven global development of AI could widen technological and economic disparities. Technical challenges persist, including the unpredictability of deep learning models, despite extensive testing for accuracy and transparency. Moreover, ethical concerns, algorithmic bias, and a shortage of skilled professionals hinder broader commercial adoption (Soni et al., 2020).

Yadav and Dwivedi (2023) emphasise both the promise and perils of AI in business. They warn that while basic AI applications may threaten skilled jobs, more advanced AI could pose existential risks to humanity. As AI continues to evolve, businesses and societies must adapt, workers must reskill, and legal frameworks must address emerging liabilities.

Artificial intelligence (AI) is reshaping all facets of business—from marketing and sales to operations and finance—by driving productivity, streamlining workflows, reducing costs, and improving efficiency. As automation accelerates, AI adoption is rapidly increasing. By 2030, nearly 70 percent of companies are expected to integrate AI into their operations, whether in corporate processes or smart manufacturing. While AI offers immense potential, it also presents challenges. Businesses must strategically balance its benefits with ethical, operational, and strategic considerations to ensure sustainable growth (Mishra & Sharma, 2023).

The COVID-19 pandemic further accelerated the adoption of remote and hybrid work cultures, particularly in human resource management. AI is now widely used in virtual recruitment, candidate screening, skills assessment, and job-role matching. These innovations improve efficiency, reduce communication barriers, and lower recruitment costs, while offering tools like digital CV processing, video interviews, and career tracking (Pillai & Sivathanu, 2020; Palos-Sánchez et al., 2022; Altemeyer, 2019).

In marketing, rapid shifts in customer behaviour and increasingly complex sales processes are challenging traditional approaches. Manufacturing firms are deploying AI-powered smart machines as co-workers to perform tasks and solve problems, improving operational outcomes (Chen et al., 2022; Dwivedi et al., 2021). Sthapit and Vaidya (2024) also stressed the need for adopting AI-supported social media marketing that acts as a pivotal element of digital transformation of business operations.

AI is also transforming the accounting and finance sectors. It automates routine tasks, detects anomalies, and delivers real-time financial insights. The rise of FinTech reflects AI's potential to boost efficiency in financial processes (Cao, 2020). However, it also raises concerns about data security, bias, and ethical decision-making. In wealth management, AI-driven tools like robo-advisors and credit scoring systems are reshaping how financial institutions and individuals manage money, though transparency and cybersecurity remain critical concerns.

Enholm et al. (2021) explored how companies incorporate AI into operations, highlighting both the value creation and the factors that support or hinder adoption. Their study categorised AI usage in organisational contexts and noted both first- and second-order impacts.

AI is also driving the digital evolution of business—from offline to online, domestic to global, and from computer-based to human-centric interventions. It is widely used to integrate corporate data and streamline hiring. However, questions remain about AI's long-term effects on blue-collar work. As digital technologies evolve from screen-based tools to immersive, real-world applications, AI continues to shape business growth across industries, including transportation, banking, and healthcare, enhancing service delivery and operational efficiency (Sadat, 2023).

In the Nepalese context, Devkota et al. (2022) revealed a moderate preparedness for AI adoption, and identified a limited market size and shortage of skilled labour as key barriers to AI adoption. The findings emphasised the need for policy interventions and capacity-building initiatives to accelerate AI implementation in Nepal's industrial sector.

Nepal has introduced the AI Policy 2081 in 2024/025. Through a SWOT analysis of the Policy Mahat et al. (2025) identified the policy's strengths with a clear vision for digital transformation, a sector-specific approach, support for AI research, and investment in AI entrepreneurship. However, the policy also suffers from such weaknesses as the absence of a concrete implementation roadmap, inadequate AI infrastructure, outdated data governance frameworks, and limited strategies to address job displacement. Opportunities lie in enhancing economic growth, improving public service delivery, and fostering agricultural innovation. The study concludes that success hinges on addressing infrastructural, regulatory, and socio-economic gaps.

AI in the Nepalese Banking Sector

Artificial Intelligence (AI) is steadily transforming Nepal's banking sector by enhancing operational efficiency, strengthening security measures, and improving customer experiences. Although AI adoption in Nepal remains in its early stages relative to global benchmarks, Nepalese banks and financial institutions (BFIs) are increasingly leveraging AI-driven technologies to streamline processes, detect fraud, and support data-driven decision-making.

Shrestha et al. (2022) examined the potential of AI-powered chatbots in enhancing customer interaction and service delivery. These chatbots, which utilise natural language processing to simulate human-like conversations, enable automation of routine inquiries, provide instant assistance, and manage multiple customer interactions concurrently. As digital banking preferences rise among consumers, such tools offer substantial value in improving service accessibility and responsiveness.

Expanding on this, the study by Gurung and Parajuli (2024) found that chatbots significantly contribute to meeting customer expectations, thereby enhancing both service quality and institutional productivity, while Khadka et al. (2024) emphasised the role of AI technologies and social innovation in strengthening strategic decision-making processes within BFIs.

Despite existing challenges—such as infrastructure limitations and skills shortages—the adoption of AI in Nepal's banking industry is expected to accelerate, driven by digital transformation initiatives and competitive pressures. Notably, the Nepal Rastra Bank (NRB) has highlighted the importance of technological advancement in the financial sector, indicating a favourable regulatory outlook for future AI integration.

AI in the Nepalese Insurance Business

An AI-driven micro-insurance initiative in rural Nepal demonstrates how artificial intelligence can enhance financial inclusion by offering affordable insurance coverage to farmers and small businesses. By leveraging alternative data—such as mobile phone usage, agricultural practices, and weather patterns—AI systems can automate risk assessment and generate personalised risk profiles (Thapa, 2023). This not only improves access to insurance but also facilitates credit availability, helping protect vulnerable populations against uncertainties.

This innovation highlights the potential of AI to expand insurance outreach in underserved regions, thereby fostering economic resilience. However, its success relies heavily on the ethical use of AI, robust data privacy protections, and adherence to regulatory standards-factors essential to building trust and ensuring sustainable growth in Nepal's insurance sector.

AI in the Hydropower Sector

Hydropower remains a vital renewable energy source in Nepal, yet its development is challenged by high initial investment costs, complex feasibility studies, and the need for precise estimation of discharge and head-critical factors in determining plant capacity. Operational challenges such as erosion, cavitation, and maintenance further affect long-term efficiency.

AI offers transformative potential for Nepal's hydropower sector. It can enhance the accuracy of feasibility studies, optimise dam design, and enable predictive maintenance strategies,

thereby increasing energy output and reducing operational costs. According to Kumar and Saini (2021), AI applications in hydropower development can significantly improve the estimation of discharge and head, while also supporting evaluations of erosion, cavitation, and ongoing maintenance requirements. Despite initial implementation hurdles, AI could play a pivotal role in modernising the sector and promoting sustainable energy development.

Conclusion

The rapid evolution of artificial intelligence is fundamentally transforming global business landscapes, driving enhanced efficiency, innovation, and competitive advantage across diverse industries. From automation and predictive analytics to superior customer experiences and optimised supply chains, AI holds immense potential to reshape economies—contributing trillions of dollars globally by 2030. Despite these opportunities, significant challenges remain, including workforce displacement, ethical concerns, and infrastructural limitations, particularly in developing economies such as Nepal.

In Nepal, industries such as banking, insurance, and hydropower are gradually adopting AI, yet the pace of integration is moderate due to barriers like skill shortages, regulatory constraints, and limited market readiness. To fully capitalise on AI's transformative power, targeted policy interventions, robust capacity-building initiatives, and the development of ethical frameworks are essential. As businesses around the world continue to navigate this digital revolution, those that effectively balance innovation with ethical responsibility will lead the way, fostering sustainable growth in an increasingly AI-driven global economy.

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