



AI and Global Inequality: How AI Innovation in Developed Nations Shapes Governance and Progress in Developing Nations

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ABSTRACT

Artificial intelligence (AI) is rapidly advancing in developed nations, yet its adoption remains highly unequal across countries. While developed nations generally have more resources, technological infrastructure, and government support, these factors that drive AI innovation are absent in developing nations. This paper analyzes AI in six countries—the United States, the United Kingdom, China, Nigeria, Nepal, and Palestine—across three themes: infrastructure and resource availability, national AI policy, and applications in business, healthcare, and education. Policies and ethical regulatory frameworks established by developed countries increasingly shape how governments and businesses worldwide approach AI. This review paper draws on peer-reviewed journal articles, government reports, academic theses, and policy papers to examine differences in AI development across developing and developed nations.

INTRODUCTION

The capabilities of AI continue to improve and expand in developing countries, and its application is spreading across more sectors. However, inadequate access to resources and a weak role for governments in AI development in developing countries influence who becomes the guide and determinant of AI's global direction. Current conditions heavily favor industrialized nations that have the necessary resources and can continue innovating on existing uses. Despite this, the potential of AI to transform the economies of developing nations, if the necessary infrastructure were developed, could be more transformative and influential than innovations in developed countries.

AI is transforming the way businesses operate and how governments approach economic development. As AI technologies take on an increasingly prominent role across industries, from business to education to healthcare, countries leading in AI innovation have greater influence over the standards and policies that shape the global digital economy. Emerging leaders such as the United States and China continually advance and innovate, striving to remain at the forefront of innovation. At the same time, developing nations such as Nepal, Nigeria, and Palestine face structural barriers that limit their ability to develop and implement AI independently, increasing their reliance on foreign investment and aid. Challenges stemming from resource shortages and insufficient regulatory frameworks create an imbalance, raising the question of whether the global expansion of AI will reduce inequalities or, by concentrating power and influence in developed nations, strengthen the current imbalance.

BACKGROUND

AI, by definition, refers to the ability of machines to perform tasks that normally require human intelligence (Stryker & Kavlakoglu, 2024). The term “AI” is an umbrella that encompasses subfields such as machine learning, natural language processing, robotics, and others (Folorunso et al., 2024). AI can be applied across computer science, healthcare, banking,

and agriculture, among many other fields (Demaidi, 2023). Although AI has existed for decades, it has received increased attention in recent years for the benefits it offers organizations that adopt it, including increased revenue, cost reductions, and improved business efficiency (Flowers, 2019).

Countries with the highest level of AI development—or developed countries in the context of this paper—such as the United States, the United Kingdom, and China, all have abundant financial resources, strong technological infrastructure, and widespread digital adoption. These nations generally lead in AI innovation and adoption. They prioritize ethical AI frameworks, invest in education and businesses, and optimize resource allocation in areas such as advanced medical diagnostics (Maghsoudi et al., 2025). These countries' influence in AI innovation places them at the forefront of shaping the future of AI-driven industries and applications (Demaidi, 2023). Developed nations often have the resources to mitigate the negative impacts of AI through renewable energy and data protection laws, but these measures also raise concerns about the ethical impacts of AI in developing countries that lack equal access to resources (Maghsoudi et al., 2025).

Developing countries in AI, including but not limited to Nigeria, Nepal, and Palestine, are hindered by resource limitations, funding constraints, and inadequate infrastructure (Demaidi, 2023). Developing nations often seek local talent to address the lack of workforce diversity that developed countries boast. This can limit the potential benefits of AI, as the safe and efficient deployment of AI is impacted by a workforce without sufficient technical skills (Folorunso et al., 2024). Policies toward AI in developing countries are loose. This raises ethical concerns as many developing nations lack laws addressing cybercrime or the technical skills necessary for investigative efforts (Ogunbodede & Atchrim, 2025). In contrast to developed nations, developing nations prioritize more immediate needs, such as basic infrastructure development and equitable access to AI tools. Their most immediate concern is addressing pressing issues, including healthcare and food production, in resource-constrained areas (Maghsoudi et al., 2025). As developed nations shape the global direction of AI, differences in priorities for developing and deploying AI can risk widening the global AI technology development gap.

METHODOLOGY

This literature review synthesizes articles that compare developed and developing nations to analyze how these differences contribute to broader inequalities. The methodology was designed to analyze how differences in infrastructure development capabilities generally affect the development, deployment, and governance of AI across developed and developing nations.

Selected developed countries (the United States, the United Kingdom, and China) and developing countries (Nigeria, Nepal, and Palestine) were specifically chosen for a comparative case study. They represent varying levels of AI advancement and economic resources, and they frequently appear in scholarly discussions of AI inequality and opportunities. Studies on AI in Palestine have already sparked discussion about AI's role in developing nations and how the lack of digital infrastructure leaves them further behind developed nations (Demaidi, 2023). Due to limited resources and outdated systems, Nepal and Nigeria face challenges in protecting users from digital infringement (Mohammed & Shehu, 2023). Regarding developed countries, the research examines the factors contributing to AI's success and how developed nations can support developing nations through funding, knowledge sharing, and infrastructure support.

Data was collected through secondary source analysis. Peer-reviewed journal articles, government reports, academic theses, and policy papers were selected based on their relevance to AI policy, technological infrastructure, and economic conditions.

RESULTS

Information from articles was sorted into the following themes for comparison:

1. Infrastructure and resource availability: Availability of internet access, data systems, funding for AI research, and civilian technological literacy.
2. AI policy and ethical governance laws: Data protection laws and cybercrime legislation.
3. Applications in the business, healthcare, and education sectors: How AI is currently used or could be used to improve efficiency in various sectors and make services more accessible to a wider population.

Data from developed and developing nations were then compared within each theme to identify patterns showing how economic and technological differences contribute to disparities in AI development levels and influence on the global AI stage. Themes 1 and 2 emphasize the lack of infrastructure and AI policies in developing nations and note how existing resources and AI laws drive AI innovation forward in developed nations. For developing nations, data for Theme 3 emphasizes AI's potential to create opportunities across the listed sectors. For developed nations, Theme 3 focuses on how these sectors are projected to change as AI advances and capabilities expand. Table 1 presents sources for previous research surrounding these three themes. Each theme is discussed in more detail in the following sections.

Table 1: Themes for AI Across Different Aspects		
Source	Author(s)	Theme(s)
Artificial Intelligence in Developing Countries: The Impact of Generative Artificial Intelligence (AI) Technologies for Development	Mannuru et al. (2023)	- Infrastructure and Resource Availability
AI Superpowers: China, Silicon Valley, and the New World Order	Kai-Fu Lee (2018)	- Infrastructure and Resource Availability
Artificial Intelligence: The Critical Infrastructures	Bagby and Houser (2021)	- Infrastructure and Resource Availability - AI Policy and Ethical Governance Laws - Applications in the Business, Healthcare, and Education Sectors



Does Artificial Intelligence Promote Financial Inclusion? Evidence From Developing Countries	Akram et al. (2025)	- AI Policy and Ethical Governance Laws - Applications in the Business, Healthcare, and Education Sectors
AI Education in China and the United States: A Comparative Assessment CiNii Research	Peterson et al. (2021)	- Applications in the Business, Healthcare, and Education Sectors
Artificial Intelligence National Strategy in a Developing Country AI & SOCIETY Springer Nature Link	Mona Nabil Demaidi (2023)	- AI Policy and Ethical Governance Laws - Applications in the Business, Healthcare, and Education Sectors
Artificial Intelligence and Social Responsibility: The Case of the Artificial Intelligence Strategies in the United States, Russia, and China	Saveliev and Zhurenkov (2020)	- Infrastructure and Resource Availability
AI Ethics Regulation Working Toward a Cohesive Approach in the United States	Wilhelmina Randike (2025)	- AI Policy and Ethical Governance Laws
An Exploratory Study of AI and Big Data, and It's Future in the United States	Lakshmisri Surya (2015)	- AI Policy and Ethical Governance Laws - Applications in the Business, Healthcare, and Education Sectors
Artificial Intelligence in Organizations: Current State and Future Opportunities	Benbya et al. (2020)	- Applications in the Business, Healthcare, and Education Sectors
AI Automation and It's Future in the United States	Ravi Teja Yarlagadda (2017)	- Applications in the Business, Healthcare, and Education Sectors
Artificial Intelligence in Nigeria: Challenges and Opportunities	Adediran et al. (2024)	- Applications in the Business, Healthcare, and Education Sectors

Artificial Intelligence in Academic Library Strategy in the United Kingdom and the Mainland of China - ScienceDirect	Huang et al. (2023)	- Applications in the Business, Healthcare, and Education Sectors
Artificial Intelligence Adoption and Implementation in the Palestinian Context: The Moderating Role of Strategic Leadership and the Perceived Attributes of Innovation	Elham Mohammad Abed Nabhan (2025)	- Applications in the Business, Healthcare, and Education Sectors

DISCUSSION

Theme #1: Infrastructure and Resource Availability

AI innovation relies heavily on sufficient human capital, research and development (R&D) investment, abundant, accessible data, and consumer demand and acceptance (Bagby & Houser, 2021). A lack of these resources and delays in deployment leave regions further behind those with a strong foundation of critical infrastructure. Industrialized and developed nations benefit from technological and financial resources that enable them to focus on AI innovation in the race to lead the global AI industry, but developing nations' reliance on foreign infrastructure and limited resources forces them to prioritize basic technological development and economic growth. In this section, I examine the infrastructure and resource availability in one of the six countries chosen for analysis.

The United States Executive Order on AI, or Executive Order 13,859, named "Maintaining American Leadership in Artificial Intelligence," was signed on February 11, 2019, by President Trump. It established a national strategy that includes investing in sustained AI R&D, removing barriers to AI innovation, and implementing AI in education and workplace training (Saveliev & Zhurenkov, 2020). Funding for AI in capitalist countries such as the United States and the United Kingdom comes from a combination of state and local subsidies, industrial revenue, municipal bonds, university research funding, and publicly and privately sponsored research initiatives (Bagby & Houser, 2021). In encouraging private-sector freedom and independent innovation, the United States and the United Kingdom are well-suited to support AI innovation through independent research initiatives (Lee, 2018).

Because differences in human capital are a key driver of AI adoption, the disproportionate number of people in developed and developing nations who can contribute to AI adoption naturally favors developed nations (Brey & Van Der Marel, 2024). China's commitment to becoming an AI leader is supported by the central government's ability to issue directives and mobilize vast resources to drive AI development (Lee, 2018). With more internet users than the United States and the United Kingdom, China has access to vast quantities of high-quality data (Mannuru et al., 2023). Apps such as WeChat aggregate a variety of services people use across many aspects of daily life, giving Chinese companies access to richer datasets for training and improving AI systems. The powerful influence of Chinese leaders

means that when an industry receives government endorsement, people rush in to take action. Government funding for AI startups and government contracts to accelerate AI adoption are pushing China to the forefront of shaping the global AI landscape.

Laws that ensure responsibility, along with government support in developed nations, increase public demand for AI adoption and investment, contributing to innovation. However, the lack of safe and reliable infrastructure fuels distrust in developing nations, affecting consumer acceptance and demand, which drives AI innovation. Lacking the variety of resources and government support available in developed nations, many developing nations face challenges due to uneven access to technology and a shortage of skilled labor (Aderibigbe et al., 2023). The scarcity of AI-literate human capital and data, along with inadequate computing capacity, are major factors that will affect AI growth and effective application in developing nations (Bagby & Houser, 2021). For example, although the private sector in Nigeria relies on international cloud service providers such as Amazon Web Services and Azure, it is constrained by poor internet service, inconsistent power supply, and insufficient comprehensive regulatory frameworks (Ogunleye, 2021). A shortage of AI researchers and data analysts, as well as inadequate internet connectivity, poses challenges to Nigeria's current implementation of AI (Ogunbodede & Atchirim, 2025). While Nigeria's National AI Strategy and the National Center for Artificial Intelligence and Robotics attempt to position Nigeria as a regional and global leader in developing sustainable and ethical AI between 2025 and 2029, they lack adequate infrastructure and AI expertise, which stand in the way of Nigeria reaching its full potential.

Nepal currently relies heavily on foreign infrastructure, models, and cloud providers, raising concerns about data access, security, and national control (Maskey, 2026). However, Nepal's strategic advantage lies in its hydropower, which can support computing infrastructure at low costs. This, combined with Nepal's low labor costs, offers an attractive opportunity for AI infrastructure powered by clean, affordable hydropower. Globally, nations are investing in advanced AI compute centers (AI Factories) because they understand that whoever controls those centers also holds the power to shape the future of AI in the digital economy. To support economic growth and fuel domestic AI research, Nepal must build a national AI factory that can support startups and research institutions.

One of the biggest challenges Palestine faces in technological growth is its political instability (Awwad, 2025). The Palestinian government's limited authority and control over economic resources, as outlined in documents such as the Oslo Accords, necessitate focusing on reducing unemployment and stimulating economic growth through development projects to reduce dependence on foreign aid. Currently, there is low awareness and application of AI in Palestinian startups, with many having limited knowledge and resources to effectively implement AI. Studies show that among 102 technology startups in Palestine, only 0.09% are using AI (Awwad, 2025). The underdevelopment of digital infrastructure is a self-reinforcing cycle: 53.3% of survey participants reported constraints on AI educational resources, resulting in insufficient knowledge to advance AI development and support future AI education (Awwad, 2025).

Across developing nations, including Nigeria, Nepal, and Palestine, common themes of little government support and policies, inadequate infrastructure, and low civilian AI literacy hinder AI development and application. To reap the economic benefits of AI, developing nations must first build the necessary infrastructure to ensure AI contributes to inclusive development (Mannuru et al., 2023). In developing countries, technological change plays a crucial role in determining progress and equitable growth.

Without the foundational resources required for AI development and deployment, developing nations are unable to compete with developed countries in shaping the global direction of AI. As AI companies in the United States, the United Kingdom, and China accumulate more data and talent, wealth will become concentrated in the hands of a few companies in those countries (Lee, 2018). In the new age of AI implementation, which favors proactive investment and adoption, a lack of government participation and funding in developing nations leaves them consistently lagging behind developed nations.

Theme #2: AI Policy and Ethical Governance Laws

The United States, the United Kingdom, and China each have legal frameworks addressing data protection and the responsible application of AI, though their approaches differ. However, AI in developing nations often lacks sufficient government regulation and consumer protection standards (Schipper, 2025). This leaves their populations vulnerable and further marginalizes their influence on global AI governance policy, which is shaped by developed nations. In this section, I examine AI policy and government regulation in several countries, including the United States, the United Kingdom, China, Nigeria, Nepal, and Palestine.

Although the United States government takes a hands-off approach to AI, it provides an overarching framework for responsible AI development and employment. Executive Order No. 13,960, issued in 2020, outlined principles for the design, development, and implementation of AI to foster public trust (Randike, 2025). To combat cyber threats and protect individuals from online scams, the Better Cybercrime Metrics Act was signed into law in 2022. The Act aims to improve the collection and analysis of cybercrime data, giving law enforcement and policymakers stronger abilities to effectively address and respond to cyber threats in the United States.

The United Kingdom has introduced AI policies and strategies to promote AI innovation and development. The nation published its National AI Strategy in 2021, outlining a ten-year plan for AI that encouraged innovation and a sector-led approach rather than a government-controlled one (Surya, 2015). The AI White Paper, published in March 2023, established national broad principles for AI use, including safety, security, transparency, fairness, and accountability. A comprehensive AI strategy in developed countries provides regulatory certainty, encouraging investment and innovation. Because the United Kingdom's regulatory framework is complicated by the division of power between the national government and its devolved nations of Scotland, Wales, and Northern Ireland, some areas of AI governance are controlled by the devolved governments. Despite this, the United Kingdom has recognized the need for the government to oversee AI and its ethical, legal, and social impacts (Cath et al., 2017).

In contrast to the United States and the United Kingdom, China's government takes a more centralized approach to AI, serving as the primary driver and mobilizer of AI development. The Chinese government's Great Internet Wall, its infamous defensive and coercive policies to control technology, attempts to control information and communication technology and to collect data on the population's behavior and online activities (Bagby & Houser, 2021).

As AI capabilities expand, collecting larger amounts of consumer data becomes essential, which shapes public policies. The United States has introduced bills such as the American Data Privacy and Protection Act (ADPPA) and, more recently, the SECURE Data Act (2026) to navigate user privacy protections in an increasingly digital landscape. China's

Cybersecurity Law, enacted in 2017, includes penalties for the illegal collection or sale of user data. An evaluation of the United Kingdom Information Commissioner's Office's guide on trade-off analysis in AI systems suggests that AI personalization often involves trade-offs between privacy and statistical accuracy to improve customized offerings (Kazim et al., 2021). To ensure fairness, accessibility, and accuracy, more personal data must be collected. In developed nations, privacy protection and data usage are increasingly topics of focus as AI-driven personalization and recommendation systems rely more on big data collection.

On the other hand, the loose policies toward AI in developing nations such as Nigeria, Nepal, and Palestine mean they lack laws addressing cybercrime and the data needed for investigative efforts. Technological development without regulations amplifies cybercrime, and reliance on foreign infrastructure from industrialized nations leaves developing nations vulnerable (Schipper, 2025). Many developing nations rely on foreign technology for digital infrastructure and security systems, hindering long-term domestic development. Moreover, the lack of data governance structures and privacy laws can lead to the misuse of individuals' personal information, putting their privacy and security at risk (Folorunso et al., 2024).

Nigeria experiences cybercrimes, including ransomware, due to an inadequate regulatory framework protecting personal data (Upadhayay, 2024). In Nigeria, there are no specific laws against cybercrime, and because law enforcement officials lack the digital literacy to prosecute cybercriminals, they often turn a blind eye to cybercrime. Without knowledge sharing and foreign aid from developed nations, Nigeria risks falling further behind, as AI and technological development cannot advance with a technologically illiterate population and insufficient regulations regarding individual privacy and ethical technology use.

The government of Nepal has not made much effort to understand the impacts of AI on society (Upadhayay, 2024). Nepal's weak cybersecurity infrastructure makes it vulnerable to cyberattacks, raising concerns about national security in the digital age. To that end, the term "AI" is not explicitly referenced in any government-endorsed policy. Although the Electronic Transactions Act (ETA) 2006 is Nepal's primary framework for governing digital transactions and cybercrimes, its vague wording makes it prone to misuse, thereby prohibiting and suppressing online information (Bhattarai, 2025). Nepal's laws are unable to manage data use and protect victims, particularly regarding AI-generated content.

Palestine faces similar issues to Nepal regarding AI applications. A study on Privacy and Protection laws in Palestine found that legislation has not kept pace with emerging technologies, leading to privacy and data protection violations (Demaidi, 2023). The study found that 83.3% of 240 participants confirmed that Palestine has yet to develop legal frameworks for AI. Cybersecurity measures and legal frameworks in developing countries are becoming increasingly crucial for protecting public safety.

Without proper oversight and regulation of AI, cybersecurity poses an obstacle to the development of AI. While developed nations have more adequate legislation governing the responsible, ethical development and use of AI, digital illiteracy in developing nations hinders the establishment of regulations, leading to cybercrime and the misuse of data without consequences. Access to the internet is often limited by financial illiteracy in developing countries, raising concerns about e-threats, which are particularly prevalent in rural areas. This makes the population in developing nations more susceptible to phishing scams and malware attacks (Akram et al., 2025). As AI innovation is pushed forward by industrialized nations such as the United States, the United Kingdom, and China, debates in these countries over the risks of big data collection overshadow the need for technological regulation and foreign aid in

countries such as Nigeria, Nepal, and Palestine. Current AI governance policies are largely shaped by developed nations, reinforcing existing inequalities and dependence (Schipper, 2025). Without technological development laws, less industrialized nations are unable to participate in global AI governance discussions, contributing to their marginalization.

Theme #3: Applications in the Business, Healthcare, and Education Sectors

Business

Given its ability to automate repetitive tasks, AI's most common objective for business applications in developed countries is to improve existing products and services, reduce costs, and aid decision-making (Benbya et al., 2020). Current applications of AI in developed nations mostly operate at the weak and narrow AI levels. At the weak AI level, AI can solve only specific problems and cannot fully replicate human capabilities. In this section, I examine AI applications in the business sector across the United States, China, the United Kingdom, Nigeria, Nepal, and Palestine.

The United States takes a hands-off approach to entrepreneurship and business, establishing AI policies and responsible data collection that generally promote sustainable development and minimize negative societal impacts (Lee, 2018). Businesses use AI to personalize experiences and detect anomalies, thereby improving overall business performance. Companies such as Amazon and Google have also tested autonomous vehicles and drone delivery, though these innovations are confined to certain low-risk areas due to consumer uncertainty and skepticism (Benbya et al., 2020). Similarly, in China, several autonomous-driving start-ups have been founded in recent years to save lives and improve traffic efficiency in densely populated areas (Wu et al., 2020). Because China is one of the world's most densely populated areas, autonomous driving offers the greatest opportunities for success and one of the biggest challenges, requiring adaptation to diverse geographies, weather, traffic, and other conditions that demand sufficient data and scalable, continually evolving algorithms.

Although robots have been used in factories for many years to automate repetitive tasks, opportunities lie ahead for them to develop spatial and environmental awareness, learn, and act on the information they collect (Benbya et al., 2020). As a result, approximately 40 percent of United States jobs are estimated to be replaced by AI by the mid-2030s (Yarlagadda, 2017). Despite this, AI automation is expected to transform the global business landscape by reducing human error, and with its continuously improving learning ability, AI has played a crucial role in enabling business success. The U.S. AI workforce is forecasted to experience significant growth, with China following a similar trend (Bagby & Houser, 2021).

Business AI is an area where the United States currently holds a strong lead over both China (Lee, 2018) and the United Kingdom (Zahra & Nurmandi, 2021). Major American corporations already collect and store vast amounts of data, which business AI can then use to calculate profit maximization. Unlike the United States, however, China's long-term progress in business AI will be affected by its authoritarian, centrally controlled economy (Bagby & Houser, 2021). With its long history of an authoritarian, centrally controlled economy, China often collects large amounts of data on its citizens and corporations. However, exerting tight control over valuable information for AI development may limit how much data private AI research and innovation companies can use, as the government restricts which data they can access and

how they can use it. This could likely limit the private sector's ability to innovate independently compared with the more private-sector-led approach in the United States.

Compared with the private sector in the United States, the private sector in the United Kingdom receives less government backing and support (Zahra & Nurmandi, 2021). The United States maintains a competitive advantage in AI innovation as it takes on increasingly complex tasks. In the United Kingdom's financial services sector, productivity gains from hyper-personalized, real-time risk assessment enable banks to offer better products with lower default rates (Obasse, 2025). This is an example of how improved decision-making can be enabled by AI. Unlike the United States, which leads the AI industry through scale and capital, or China, which leads through government-led initiatives, the United Kingdom has to lead through regulatory credibility and institutional trust. London is currently a hub for the tech industry in Europe and the home of AI start-ups such as DeepMind, one of Google's leading AI companies (Cath et al., 2017).

Although AI in developing nations is not yet capable of the hyper-personalized assessments seen in the United Kingdom, its adoption can help address some challenges in these countries (Akram et al., 2025). For example, implementing AI in financial services to offer fraud detection, chatbots, and personalized financial products can help overcome barriers such as documentation, credit history, and geographic accessibility. There is also a significant increase in the percentage of adults in developing countries who have access to financial services. Despite this, those in low-income households and marginalized groups continue to encounter financial exclusion. AI technology that offers user-friendly experiences can bridge the digital divide.

The use of AI in Nigeria has significant potential to expand its economy. Most banks in Nigeria use chatbots to enhance customer engagement (Mohammed & Shehu, 2023). Banking and IT are examples of the services sector, which accounts for almost half of Nigeria's GDP. Currently, 29% of Nigerian fintechs use generative AI for content creation and have been making financial services such as digital payments, mobile money, and money transfers more accessible to marginalized communities to increase financial inclusivity (Ogunbodede & Atchrim, 2025). In order for AI implementation in business and finance to be successful in Nigeria, workers need to be trained and informed on AI uses, which could allow AI to be implemented with advisory services and cybersecurity. Integrating AI into Nigeria could lead to increased production, creativity, and general progress (Adediran et al., 2024). By dedicating resources to AI research and development, Nigeria could become a leader in technological innovation across Africa (Ogunbodede & Atchrim, 2025). In developing nations such as Nigeria, the industrial sector could benefit from AI to optimize operations, reduce downtime, and lower maintenance costs, thereby improving equipment reliability. Additionally, AI can create new markets and industries for tech companies focused on AI solutions, generating new jobs and providing employment opportunities in data science, machine learning, and AI development.

Studies on Nepal's economy and AI readiness indicate that developing countries need intellectual capital, infrastructure, and institutional support to achieve industrial transformation (Khanal et al., 2026). AI in developing nations remains unevenly distributed and shaped by institutional capacity and by industries' ability to effectively use AI systems. Nepal's industrial sector has the potential to shift from labor-intensive production to knowledge-intensive activities, given its abundant raw materials and proximity to major markets (Khanal et al., 2026). Global competition and innovation by developing nations push Nepalese industries toward modernization, and AI adoption in Nepal is influenced not only by domestic demand but also by

exposure to international knowledge and practices. As Nepal becomes increasingly integrated into the global economy, external pressures are expected to drive AI adoption across Nepalese industries.

While AI technology is becoming increasingly crucial to the growth of global economies, Palestinian territories face hindrances to technological development due to political instability and a lack of resources to adopt and integrate AI technologies (Abdelmoneim et al., 2024). The higher an organization's degree of information and communications technology (ICT) readiness, the more effectively it can adopt AI technologies. With insufficient funds and regulatory constraints, startups in Palestine face obstacles (Deek, 2024). However, AI has the potential to develop supply chains in Palestine by enhancing communication between suppliers and customers, improving logistics, and providing support services (Assi, 2025). The adoption of AI in production processes is slowed by institutions' struggles to build the necessary technological infrastructure to support innovative solutions and enhance competitiveness. Research shows that overcoming obstacles, such as high costs and a lack of expertise, would improve the application of AI in Palestine, boosting business operations and increasing efficiency, thereby reducing damage and waste (Assi, 2025).

Overall, AI has the potential to strengthen the economies of developing nations, but they must first address resource constraints and establish the infrastructure needed to support AI systems and fully realize the benefits of efficiency and automation. While developed nations continue to advance more autonomous AI applications in self-driving vehicles and task-automating robots, developing nations are primarily focused on using AI to improve efficiency and reduce waste. Although building domestic technological capabilities can reduce reliance on foreign resources, international players and AI powers continue to shape the pace of innovation and influence the extent to which AI is integrated into society.

Healthcare

Other innovations in AI in developed nations are attempting to address the healthcare sector. In the United Kingdom, AI is increasingly being used in healthcare to improve diagnostics, treatment planning, and efficiency (Obasse, 2025). AI prediction, automated diagnostics, and virtual health assistants are being applied in healthcare systems globally. Machine learning algorithms can process large amounts of healthcare data, enabling earlier disease detection and more personalized treatment, while also reducing the workload for healthcare professionals. However, the effectiveness of AI in healthcare depends on the quality of the data and on ensuring that AI systems comply with data security and privacy regulations. In this section, I examine AI applications in healthcare across countries, including the United States, China, the United Kingdom, Nigeria, Nepal, and Palestine.

The United States, one of the leaders in AI, is expected to see growth in automated technologies, such as virtual nursing and robot-assisted surgery (Surya, 2015). With declining birth rates, an aging population, and decreasing labor productivity, AI automation can take over repetitive tasks and replace human labor. Likewise, China, which has one of the world's largest populations, has the potential to become a leader in the AI medical market (Wu et al., 2020). Currently, medical start-up companies in China focus on medical image analysis, drug discovery, surgical robots, and clinical decision support systems. China focuses heavily on developing AI for cancer treatment. Although breakthroughs in machine learning in developed nations have enabled AI to perform skills equivalent to those of doctors, developers, and

providers, developers and providers must comply with data protection laws and avoid data exploitation (Thompson & Morgan, 2020).

In Nigeria, AI applications in the healthcare sector have the potential to enhance diagnostic precision, especially in remote regions where medical experts are scarce (Adediran et al., 2024). Currently, the health sector receives only about 3 percent of Nigeria's GDP. Existing AI innovations are applied to early disease diagnosis, drug development, and remote healthcare services, thereby improving access to and the quality of healthcare in Nigeria (Ogunbodede & Atchrim, 2025). Developing nations have the potential to improve the accuracy of healthcare delivery, enhance treatment strategies, and predict infectious disease outbreaks. Studies in Nepal have also indicated challenges in AI administration in healthcare, but also opportunities, including potential cost-effectiveness, increased access, and improved decision-making, with its adoption (Dahal & Sharma, 2023).

In the healthcare industry, AI-driven virtual assistants and diagnostic instruments in Palestine can improve the patient experience, increase productivity, and enhance decision-making by analyzing large volumes of data more quickly (Akram et al., 2025). AI-powered medical systems can make medical services more available to underserved communities (Demaidi, 2023). Palestine has begun using AI to analyze medical images to aid the early diagnosis of conditions such as cancer and diabetes, as well as to improve healthcare quality (Abdullah, 2025). AI in Palestine's healthcare sector remains a tool for innovation, enabling the development of new healthcare products. Despite this, the main challenge Palestine faces in effective AI implementation in healthcare is access to large amounts of high-quality, diverse data. A lack of data quality standards leads to inconsistent results, undermining the reliability of AI-proposed solutions. Healthcare in Palestine is organized, managed, and funded primarily by local government organizations and NGOs. Even though most Palestinian healthcare workers lack experience with using AI technologies, training programs are expensive and typically require an international framework, which can prove challenging given the political situation in Palestine. If these challenges are overcome, though, there is an opportunity for AI and other digital technologies to address the gap between healthcare delivery and improved patient outcomes, thereby enhancing the quality of healthcare systems and creating a system specifically tailored to the needs of the Palestinian population.

Because developing nations face challenges with inaccessible healthcare, the main focus of AI in healthcare would be to make services more accessible to a wider population, while developed nations would advance AI applications in robot-assisted healthcare to focus on efficiency and cost reduction. The challenge, therefore, lies in the different economic focus of developed and developing nations. While wealthier nations generally enjoy widespread access to healthcare and can invest in advanced AI technologies to improve efficiency and quality, developing nations are often required to prioritize basic healthcare access and infrastructure. As a result, unequal access to financial resources and priorities can widen the gap in AI adoption and deepen inequalities in AI development between developing and developed nations.

Education

Recently, policies in developed countries have promoted the implementation of AI in education (Huang et al., 2023). To start, China has made building a functional smart library one of its long-term goals. A key part of China's AI strategy is to integrate AI into basic and higher education, thereby laying the groundwork for a skilled workforce (Yang, 2019). A 2017 study in

the UK suggested that AI applications in libraries were not yet widely implemented, while another study, which looked into the top 25 influential research-intensive universities in the United States to investigate how they were responding to the increasing use of artificial intelligence technology, found that there was close to no presence of AI in the universities' or university libraries' strategic plans (Huang et al., 2023). A study of the top 25 universities in the UK and the top 25 in Mainland China found that most offer AI-related courses, and nearly all have introduced AI courses. The education sector in the United Kingdom has produced many publications on AI, with around 1,300 research initiatives to develop AI systems over the past 10 years (Zahra & Nurmandi, 2021). In this section, I examine AI applications in education across countries, including China, the United States, the United Kingdom, Nigeria, Nepal, and Palestine.

In China, demand for online education and AI-powered educational materials has been growing. China's AI development plan addressed applying AI in education, implementing initiatives such as the Artificial Intelligence Innovation Action Plan for Colleges and Universities in April 2018 to advance China's science and technology, enhance its AI innovation capabilities, and cultivate AI talent (Wu et al., 2020). Official AI textbooks for high school students also aim to better prepare them for AI education at universities. AI implementation is in its early stages in elementary education, is increasing in higher education, and is even more prevalent in civics education (Yang, 2019). As a result, Chinese students are becoming more accustomed to using AI (Peterson et al., 2021).

The United States gives states control over the integration of AI into school curricula (Peterson et al., 2021). The private sector also supports the integration of AI into primary and secondary education, backing opportunities for students to explore AI outside the classroom. One factor that gives the United States an edge over China is the greater freedom and flexibility of its education and training system, which allows states to innovate in education and develop new AI curricula.

China uses its central authority to mandate AI education into the high school curriculum, while the United States is experimenting with AI in ways that vary by state (Peterson et al., 2021). China's education system is centralized under the Ministry of Education. Since 2017, China's strategic plans for AI education have included the July 2017 New Generation AI Development Plan, which aims to implement AI training at every level of education. At the high school level, the Ministry of Education revised its national education requirements in 2018 to officially include AI in coursework. The centralized nature of the Chinese government could be its biggest advantage, as it can standardize curricula and implement national education strategies, whereas the quality of education varies across the United States.

Because developed countries continue to place ever-increasing emphasis on AI implementation in education, a highly skilled population familiar with AI would advance AI innovation and development, further widening the gap in AI implementation between developed and developing nations. Some efforts have been made in Nigeria to incorporate AI into university-level curricula, although these efforts are not as widespread or well developed as those in the United States, the United Kingdom, and China (Upadhayay, 2024). AI courses have been incorporated into some academic branches at schools such as Kathmandu University, Tribhuvan University, and Pokhara University.

Financial constraints and limited internet access mean that many qualified candidates in Nigeria are denied university admission due to the gap between educational demand and institutional capacity. Nigeria's landscape continues to lag behind in AI integration due to limited

motivation for change in the Nigerian teaching and learning sector, despite the fact that incorporating AI technologies into classrooms can alleviate Nigeria's overcrowded education system and improve it for both teachers and students. Early AI adoption in Nigeria experienced slow development from 2008 to 2013, during which adaptive learning technologies were added to the initial e-learning platforms to customize course materials and assess student performance.

Studies of students in Nepal show that 90.7% have knowledge of AI, with 30% using AI tools daily (Poudel & Maharjan, 2025). The drastic drop from 90.7% to around 30% shows that, while those in developing countries are aware of AI, few apply it in their daily lives. Surveys of 150 students in urban and rural schools found that students in urban areas were much more exposed to AI than those in rural areas, highlighting a digital divide across Nepal's regions (Poudel & Maharjan, 2025). A study of medicine and pharmacy students in Palestine found that 261 of 321 had heard of AI, while fewer than half used it in their university studies (Mosleh et al., 2023). AI has the potential to transform education in Palestine, but while most had heard of AI, few had experience applying it.

Nevertheless, AI has the potential to spark a digital revolution in Palestine by enabling personalized programs and providing students with greater access to information and learning beyond the institutional capabilities of schools (Nabhan, 2025). The Palestinian education system also plays a vital role in nurturing talent for the innovation sector, with Palestinian universities producing over 4,000 STEM graduates annually. Focusing investments on AI integration in education can further propel Palestine onto the global stage of AI innovation.

CONCLUSION

Many nations that are more AI-developed have the capacity to focus on innovation and advancing their AI capabilities. Yet nations less developed in AI lack this same capacity. As a result, they risk falling further behind as they have to prioritize basic technological development. This gap in AI capabilities may continue to grow over time, as a lack of AI literacy creates a self-reinforcing cycle: insufficient knowledge of AI leads to a shortage of employees with the skills needed to adopt its innovations and drive change.

But critically, this imbalance need not persist. More AI-developing countries can catch up by partnering with other AI-developing countries and investing in secure, stable domestic infrastructure to fuel their growth. Altogether, the future of AI can be leveraged by all through global collaboration.

Future studies can examine how international partnerships between developed and developing nations affect long-term AI literacy and infrastructure growth. Additionally, research could examine the effectiveness of emerging national AI policies in developing nations and explore whether early government intervention narrows or widens the gap with more established AI powers such as the United States, the United Kingdom, and China. Finally, studies tracking AI adoption in the education sector could provide insights into whether increased AI literacy among students in developing nations leads to measurable economic growth and technological literacy over time.

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