



Leveraging Artificial Intelligence Technologies in Emerging Economies – A Growing Perspective

*Geetha Manoharan¹, Sunitha Purushottam Ashtikar¹, Kaparathi Sree Pravallika¹, and Shaharyar Alam Ansari²

¹ SR University, Warangal, Telangana, India

² Bennett University, Greater Noida, India

geethamanoharan1988@gmail.com

sunithaashtikar@gmail.com

Kaparthisree2008@gmail.com

shaharyargd@gmail.com

Abstract. AI is also widely changing the growth patterns, systems of governance, and social development in the emerging economies quickly as it becomes one of the most transformative forces endorsed by the emergent economies. Although initial adoption of AI was heavily concentrated amongst the developed economies that have good digital infrastructural backing and research environments, the recent rise of low-cost computing, open-source solutions and mobile internet connectivity has made access to AI inferior to have become a democratic right. This paper discusses how AI is being used by emerging economies to drive economic growth as well as foster inclusive development. It discusses the underpinnings of the AI adoption, which encompass leaped over opportunities, unexploited data, young populations, and local needs. The study shows how AI-based solutions are decreasing structural gaps including financial exclusion, little healthcare access, low agricultural output, and ineffective public services delivery by sector assessment and case studies in finance, healthcare, agriculture, education, and governance. The economic and social impacts of AI, such as the productivity growth, transformation, entrepreneurial dynamism, and social inclusion are considered by the paper as well or such problematic aspects of artificial intelligence may be lack of infrastructure, shortage of skills, computation privacy, and institutional resistance. The implication of the policy would be the emphasis on capacity building, investment on digital infrastructures, open data collaboration, inclusive design, and proper ethical governance. At the end of the paper, the author affirms that by using a combination of strategic planning and responsible regulation, and international partnership, AI can be the cornerstone of sustainable, equitable and sustainable growth of the developing economies.

Keywords: Artificial Intelligence, Emerging Economies, Digital Transformation, Inclusive Development, AI Governance.

1 Introduction - Artificial Technology in Emerging Economies

Artificial intelligence deals with transformative pillar redefining the contemporary societies, economies and governing systems across the world. Historically, the first wave of AI adoption that was characterized by thorough research, the creation of a prototype, and the first-to-market application was mostly dominated by the developed economies Davila-Zamora, P. et al. (2024). Among the initial benefits, there were developed digital infrastructures, powerful R/D ecosystems, important computational access, and prominent investments in research between the state and corporates. Such grounds helped to engage AI to advance manufacturing, finance field with high frequency, autonomous vehicles, and natural language processing.

Nowadays, even a small company or a cooperative in the developing economy can use advanced libraries of machine learning, application programming interface, and analytics platforms and improve its competitiveness and operational productivity. The other enabler is affordable computing. The dropping price of processors, the availability of various open-source AI frameworks, and the growing availability of GPUs and edge devices have enabled it to be possible to perform and analyze data not only in centralized data centers but also in other localized locations. It is topical in emerging economies where the internet availability might be disconnected, but the necessity of decisions being made based on real-time data is of the utmost importance WEF (2025). Indicatively, Kenya and India have already used AI models on smart phones and cheap IoT devices to guide planting, harvesting and resource distribution to lead to productivity and enhance livelihoods in the agricultural cooperatives.

Assuming, of utmost importance, A.I. is sealing essential voids and is a catalyst of an inclusive, sustainable development of emerging markets. In medicine, AI-based healthcare devices and health applications are alleviating the problem of lack of doctors in the rural areas and facilitate disease monitoring in under-resource equipped locations. There is precision farming, supply chain optimization in agriculture, and assistance to smallholders with climate effects with the help of AI. The AI credit scoring is growing by increasing access of the unbanked and personalizing products to informal and rural markets where financial data is either limited or absent (Mariano, 2024). Resource and language barriers are being closed, and scaled instructional personalization is offered to all learners geographically, linguistically, and with abilities through adaptive learning platforms in the educational field.

Altogether, AI is no longer the prerogative of the wealthy nations or tech leaders. Mobile, cloud, and cheap computing these three factors have democratized the power of AI. Even in developing markets where the stakes are typically biggest, AI is being considered a growth motor and a social good that can close digital divides and bring about inclusive, and widespread growth that tends to be inclusive (Kothandapani, 2022).

1.1 Foundations and Drivers of AI Adoption in Emerging Economies

The majority of the AI applied today and in particular to emerging economies is narrow AI, which is more focused on single task optimization, on the basis of big data and sophisticated algorithms. The re-search target is General AI, which can think in a

human-like manner on a variety of themes, and it has not been developed, whereas super intelligent AI is theoretical (Zuhair et al., 2024). Artificial Intelligence (AI) is the term used to describe the imitation of human intelligence through the computer systems. This may include learning, reasoning, perception, language comprehension and problem solving (Mashoene et al., 2025). Essentially AI will allow machines to do complex tasks previously done by human brains like making medical recoveries, recognizing faces and voices, comprehending natural language and making financial anticipations.

AI is the creation of the computer systems that can perform the tasks that were traditionally performed by the human intelligence level. Those are learning, reasoning, perception, problem-solving as well as language understanding.

Table: 1-Types of AI defined by their capabilities and complexity

Type	Key Features	Current Relevance
Narrow AI (Weak AI)	Task-specific, pattern recognition, language translation, image analysis	Extensively used in chat bots, mobile apps, credit scoring, agricultural analytics
General AI (Strong AI)	Broad, human-like reasoning, adaptive across domains	Research stage, not present in practice
Super intelligent AI	Surpasses human intelligence, self-improving, autonomous decision-making	Speculative, future concept

2 Literature-Unique Drivers in Emerging Economies

The emerging economies have both characteristic traits of influencing and hurrying the implementation of AI. Such drivers are leapfrog opportunities, untapped information resources, an adequate demographic, and a strong urgent local requirement in which AI can critically impact.

2.1 Leapfrogging Opportunities

This is a unique opportunity being presented by AI to emerging economies since they are brought directly into sophisticated digital and smart infrastructure with no need to compromise on older infrastructure. As compared to many developed countries overwhelmed by a stagnant, old-fashioned technology, the African, Asian, and Latin American countries have a blank slate usually to adopt the modern technology be it in education, health care, finance, or logistics (Melkamu, 2025).Indicatively, the use of AI-based solutions by African countries has enabled them to bypass physical banking systems, roll out microfinance and credit and payment systems through mobile apps that

rely on narrow AI to score credit, detect fraud and AML. In medicine, smart drones are used to deliver medical supplies in Rwanda using AI, whereas chatbots on the WhatsApp application can provide health education in India and Nigeria with easy scaling and without involving physical infrastructure. Leapfrogging is not only technological as it allows the emergent economies formulate their digital services to fit local needs, languages and customs without necessarily using the one size fits all models. (Hanna et al., 2025).

2.2 Untapped Data Resources

Data-rich underutilized Structurally-underutilized Emerging markets are becoming data-rich due to the use of their mobiles, social media, agricultural sensors, payments apps and others. Most of this information particularly un-structured data like text, call logs and satellite images could not be obtained before AI to take action based on its insight Witts, J. O. (2024). Nowadays, the capability of AI to analyze, classify, extract meaning, and derive patterns of large, messy data pools leads to the unlocking of a new value and presents an opportunity to make smarter and more inclusive decisions. As an illustration, satellite imagery and soil sensors can be converted into real-time crop management tools with the help of AI-powered analytics to the smallholder farmers. Natural Language Processing (NLP) enables customer sentiment analysis from social media or call-centre logs without requiring data to be in English or other dominant languages. In finance, AI can assess creditworthiness from mobile phone usage, utility payments, and e-commerce behaviour enabling access to credit without traditional collateral. As the volume of unstructured data grows, AI becomes a competitive tool for local governments, businesses, and NGOs in these economies.

2.3 Youthful Demographics in Select Emerging Economies:

This “demographic dividend” means faster uptake of new AI-driven services, broader experimentation with digital business models, and a large pool of potential AI talent as educational access and skills training expand Strusani, D., & Hounbonon, G. V. (2019). Moreover, young populations are more adaptable, willing to experiment with new platforms (such as conversational AI, digital payments, and e-learning), and likely to drive the next wave of local AI entrepreneurship.

2.4 Demographics

Most emerging economies feature large, youthful populations unlike aging developed nations. Young people (those under 30) constitute more than half of the population in many countries, forming a tech-savvy, mobile-first demographic that accelerates digital adoption and innovation.

2.5 Local Needs and Context-Driven Solutions

Emerging economies face challenges that if overcome yield tremendous development gains. Demographics include large, young, and connected populations facilitate rapid adoption. Local needs such as AI solutions are tuned to address core challenges like financial inclusion, disease surveillance, climate resilience, and smart resource allocation. AI is uniquely suited to address several at scale:

Table: 2 AI Solutions Addressing Local Needs in Emerging Economies

Sector	Example
Finance	AI-based credit scoring for unbanked; fraud detection in digital payments
Healthcare	AI-powered diagnostics for infectious diseases; remote patient triaging
Agriculture	Crop disease prediction; precision irrigation via AI sensors
Education	Personalized learning platforms; language translation for diverse learners
Governance	Subsidy targeting via anomaly detection; smart infrastructure management

Indoor, artificial intelligence diagnostic tools, and health platforms offer a framework for increasing clinical access into rural areas, initiate action in infectious disease management, and supply most chronic care gaps in healthcare areas.

AI in agriculture is used by small and large-scale producers in various applications such as disease identification, linkage to markets, and yield optimization. Education employs the use of artificial intelligence to reach several students with personalized learning delivery in the languages of their locality, in most instances, by a device with little bandwidth. Governance enhancements are providing a transparent subsidy distribution and enhancing the informal management of infrastructures, thus further reducing leakages. AI in the developing world does not mean the technology in America, adapts it, and uses it to solve real, pressing, local issues. Leapfrogging from obsolete infrastructure, picking up new data streams, mobilizing new cohorts of youth, and direct application to local needs are speeding the roll-out and impact of AI in these dynamic regions. As investments, capacities, and digital readiness rise to commensurate levels, so will have a tremendous role to play in better development outcomes for the Global South.

3 Methodology

This study adopts a mixed-methods research design to examine the role of artificial intelligence in emerging economies. Secondary data is collected from policy reports, academic journals, and institutional publications to understand trends in AI adoption. Additionally, multiple case studies across sectors such as finance, healthcare, agriculture, education, and governance are analyzed to provide contextual insights. Qualitative content analysis is used to identify key themes, opportunities, and challenges, while comparative analysis highlights sectoral variations. The study also incorporates descriptive statistical insights where available. This approach ensures a comprehensive understanding of AI's economic and social impact, along with policy implications for inclusive and sustainable development.

4 Key Applications and Case Studies

AI is now a force to reckon with in many critical sectors in developing economies. AI's influence is particularly illustrated by examining practical applications in the fields of finance, healthcare, agriculture, education, and governance-where the gaps and need for scalable data-driven solutions are most glaring.

4.1 3.1 Financial Inclusion and Credit Scoring

The concept of traditional credit scoring is closely related to documented income, employment, and credit history - usually inadequate for small traders/informal sector workers/rural residents. This is the kind of bridge that AI uses between traditional databases and alternative datasets (like mobile money usage, app activity, utility payments, and social media interactions) Kothandapani, H.P. (2022). *Case: Kenya & India:* With these new AI models, developed by fin-tech companies, microloans can be granted to any person who could not have accessed institutional finance. Currents of activity on social media and mobile transactions are used for analysis. Unlike conventional systems, these models can assess creditworthiness with an absence of formal records, thus reducing default rates and broadening financial access. Examples of such implementations include those in Kenya and India by various Fin-Tech firms that have set up AI-driven models for assessing creditworthiness based on patterns in usage of mobile phone services, SMS history, and frequency in making micro-transactions. It is through the analysis of thousands of such variables that products such as microloans and financial services can be made accessible to individuals unbanked and invisible to lenders in the conventional system. Data from recent case studies showed that, under AI-based models, access could be broadened while reducing the default rate rates as compared to conventional methods Kothandapani, H.P. (2022); Zuhair, V. (2024).

4.2 Healthcare

Predictive Analytics: Early Detection and Prevention System (EDPS) provide computer-based diagnostics support in areas where doctors are scarce, thereby increasing accuracy in diagnosis and patient satisfaction Zuhair, V. (2024). AI encourages early diagnosis and treatment recommendations for diseases such as tuberculosis, malaria, and cancer using local language and unstructured medical datasets. Predictive analytics and AI-based diagnostics are revolutionizing the journey of disease prevention, diagnosis, and treatment in emerging markets, thus reducing reliance on skilled personnel and urban infrastructures. In China, portable diagnostic AI implements test results that are automatically uploaded to remote clouds thus increasing the work capacity of rural clinics and enabling expert consultations from far. In Nigeria, similarly, chat bots give medical advice, symptom triage, and patient education in local languages to help bridge the rural-urban chasm in health care.

4.3 Agriculture

Precision Farming: AI analyses to guide farmers on crop selection, irrigation, and pest control. AI is pushing the frontiers of precision farming in Africa, India, and South-east Asia. Start-ups like data is relayed via mobile apps to even the smallest farmers, enabling timely actions and boosting yields Kalyanaraman, K. (2025). *For example*, Smart Farm Agri-tech reduced water and fertilizer use by up to 25% while improving yields through AI-guided sensor networks and automated recommendations. AI-led supply chain platforms further reduce post-harvest losses - matching producers to buyers and logistics in real time, thus raising incomes and food security. AI-driven platforms reduce post-harvest losses by matching local farmers to buyers, processing centres, and logistics providers in real time, notably in African and South Asian market in Supply Chain Optimization.

4.4 Education

Adaptive Learning Platforms: AI designs personalized study plans and assessment toolkits for students, making quality education scalable and affordable in resource-constrained regions. The shortage of qualified teachers and vast diversity of languages are major educational hurdles. AI-enabled adaptive learning platforms tailor lessons to individual students' strengths, weaknesses, and preferred language. These systems have been deployed in India, where personalized AI guidance has shown measurable improvements in mathematics and language learning outcomes G. V. (2019). The AI language translation has been particularly important in such a scenario as in Uganda and India where the system of public schooling is based on multilingualism. AI also helps to make cross-language education possible and millions of learners begin to have access to the process with the help of AI and no more language barriers.

4.5 Governance and Public Services

Fraud Detection and Anti-Corruption: The tax office and social welfare programs (e.g. in Brazil and India) apply AI to detect fraud or leakages with the purpose of ensuring that subsidies are received by those who are supposed to benefit. Brazil, Togo, the UAE, and Singapore governments are applying AI to enhance all the aspects of subsidy targeting, tax fraud detection, and urban management (Aderibigbe, Ohenhen, Nwaobia, Gidiagba, & Ani, 2023). In India and Brazil, subsidy and welfare program data AI models identify abnormal trends, reducing fraud and getting resources to the recipients. It enhances citizen interaction by having AI chat bots that are 24/7, multilingual, support in both the government service, reduction in administrative costs, and waittime. AI uses energy, water, and urban traffic systems optimally in the UAE, which is the basis of smart and sustainable cities.

Table: 3 AI Use Cases and Sectoral Results

Sector	Case Study Location	Demonstrated Impact
Finance	Kenya, India	Financial access, lower default rates, inclusion of unbanked
Healthcare	India, Nigeria, China	Early diagnosis, rural access, improved health outcomes
Agriculture	India, Africa	Precision resource use, higher yields, lower post-harvest loss
Education	India, Uganda	Higher learning outcomes, personalized scalable education
Governance	Brazil, Togo, UAE, Singapore	Fraud reduction, efficient spending, superior service delivery

5 Growth, Economic & Social impact’s Transformation of AI in Emerging Economies

Productivity and GDP Growth: Studies predict that AI can increase worldwide GDP by 15% by 2030, wherein countries that will manage the barriers to adoption will benefit more from catch-up growth-the brunt of which may be borne by developing economies. The fast-moving nature of artificial intelligence (AI) provides opportunities and challenges to developing economies. While some AI tools and platforms have reached maturity and are becoming accessible even to resource-constrained regions, they have laid the basis of profound changes in growth trajectories, workforce configurations, entrepreneurial vigor, and social fabric (Kalyanaraman, 2025).

5.1 Productivity and GDP Growth

AI is a key driver of productivity gains that can reshape national economies. According to global forecasts, the widespread adoption of AI could add as much as 14–15% to global GDP by 2030, or approximately \$15–\$16 trillion, making it one of the most powerful economic multipliers in modern times (Khan, Umer, & Faruque, 2024). Critically, the impact isn't uniform: regions able to scale up AI applications quickly, such as China and North America, stand to see GDP boosts of 14.5% to 26.1% by 2030. Other regions, including Africa, Latin America, and other Asian emerging markets, could realize GDP gains of 5–10% depending on infrastructure readiness, digital skill development, and the pace of AI-enabled transformation. In India, AI's integration into industry and public services is projected to contribute up to \$957 billion in additional gross value representing a 15% jump in the overall economy by 2035. Structural productivity leaps have already begun: AI enables “intelligent automation,” allowing manufacturers, logistics firms, and service sectors to do more with less, cut inefficiencies, and open new value pools IMF, “AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity” (2025).

5.2 Jobs, Skills, and Workforce Transformation

While some jobs will be disrupted or automated, AI creates new employment types, especially those needing digital skills, data labelling, maintenance, and AI ethics oversight. AI's rise brings with it both displacement and creation of jobs. While repetitive or predictable tasks (in manufacturing, back-office functions, low-skill services) face automation, AI also opens new employment avenues especially in roles where humans and machines collaborate VoxDev, “How will AI impact jobs in emerging & developing economies?” (2025). In emerging economies, the immediate impact is more nuanced:

- Only the 26-40% of the jobs in these economies are at risk of AI (v. 60% of the jobs in the advanced world). This is less jobs at risk in the short term although unless the di-vide is contained immediately through rapid up-skilling, the possibility of the threat of AI-induced di-vide can increase.
- The most vulnerable employees are usually younger, urban, and better-educated who can use AI as their productivity aid.

The economic impact of AI on select G20 countries

By 2035, AI has the potential to double annual growth rates in terms of gross value added.

Real gross value added
(GVA) (% GROWTH)

India's GVA in 2035
(US\$ BILLION)

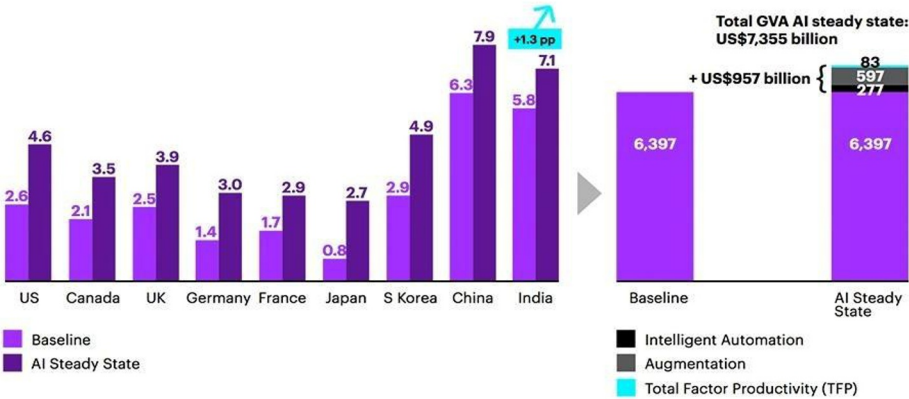


Fig: 1 Economic Impact of AI on select G20 Countries

Sources:<https://www.consultancy.in/news/453/ai-could-contribute-nearly-1-trillion-to-indian-economy-by-2035>

In Asia Pacific region, automation has also increased skilled manufacturing jobs counterintuitive to the times with increasing productivity through artificial intelligence as sharing declines in low-skilled jobs. The message is simple, to reap the benefits of AI, governments and the private sector required to spend vast sums of money in practical up skilling, digital literacy, and social relief programs to grab the advantage and ensuring the migration.

Table: - 4 Job, Skills and Workforce Transformation

Job Type	Example Role	Typical Sector
Data Labeller	Annotate AI training data	Technology, Agriculture, Healthcare
AI Maintenance Tech	IoT/robot system support	Manufacturing, Logistics, Agriculture
AI Ethics Analyst	Algorithm bias detection	Finance, Government, Health
AI Application Spec.	Implement AI in SMEs	Retail, Education, Services

Job Type	Example Role	Typical Sector
Digital Skills Trainer	Workforce up skilling	Education, NGOs, Workforce Development

5.3 Entrepreneurial Ecosystems: AI-Driven Start-ups

Indian and African tech start-ups are using AI to analyze industries, personalize their products, and reach their customers, which are also novel business strategies to enable and scale their effects Kalyanaraman, K. (2025). AI is an efficient equalizer to the start-up ecosystem, especially in the vibrant heart of start-ups such as Bangalore (India), Start-ups in these territories are using machine learning, NLP, and data analytics to fulfill local market needs like the distribution of food, healthcare diagnostics, financial inclusion, and others IJRASET, “Case Studies from Tech Start-ups in India and Africa” (2025).

Personalization AI-powered insights and market analysis help start-ups have knowledge concerning the changing customer trends and tailor their services at large scale. Automation of manual operations results in the freeing up of operational resources that are used in innovation. Scalably AI-powered platforms make access more democratic to millions of people, to-ten bypassing infrastructure bottlenecks. Impact orientation Multiple start-ups use AI to solve poverty, gaps in health, and education bottlenecks in a dual profit-impact orientation. The very core of new, entrepreneurial dynamism, therefore, is AI: it lowers the existing barriers to entry, takes new solutions across borders, and injects digital trust into new markets.

Table: - 5 AI Start-ups in Emerging Economies: Sector Focus and Primary Impact

Start-up	Focus Sector	Primary Impact
CropIn	Agri-Tech (India)	AI-powered yield optimization, pest detection
M-Shule	Ed-Tech (Kenya)	Personalized learning for low-resource schools
Twiga Foods	Agri+Logistics	AI-enabled food supply chain, minimizing waste
SigTuple	Health-Tech (India)	Affordable AI-based diagnostics

Start-up	Focus Sector	Primary Impact
Flutter wave	Fin-Tech (Nigeria)	AI-backed fraud detection, seamless digital payments

5.4 Social Transformation and Inclusion

Inclusion brief makes credit, diagnosis and education services available to rural and marginalized communities that are now no longer data invisible or underserved. Next, Gender and equity tell: Targeted programs run with the help of the AI data boost the female presence in the spheres of entrepreneurship, health, and education. The support of civic engagement to AI-based citizen feedback tools and e-government websites alleviates the distance between the government and the citizens, in particular, urbanizing societies. Absent conscious strategies, unbalanced distribution of digital infrastructure, skills and capital may increase inter and within country inequalities. Strong ethical principles, investment in social benefit, and ethical implementation of AI is essential in case the fruits of AI can be widely distributed and equally amongst many people IndiaAI, What can Indian Start-ups learn about African AI? (2023). In the GDP development, employment, and entrepreneurship, the effect of AI on the emerging economies is disruptive and profoundly propounding. With sufficient investment in AI, which the world needs to support with bold future investments in digital infrastructure, skills, and ethical governance, AI will be a key to transformative inclusive prosperity in decades to come.

6 Challenges

These issues include inadequate infrastructure, expertise shortage, privacy and ethical issues, and inertia of legacy systems, which will derail economic and social development unless they are addressed. The deployment of AI would not need smart phones or store shelves system. Such technologies demand good high-speed connections via the internet, the power grid, local cloud computing, powerful data centres, and scaleable computing platforms. The majority of Africa, rural Asia, and Latin America do not even have one or more of such basic foundational layers. Although the urban centers have reasonable bare barebones infrastructures, more remote and peripheral areas are an AI desert that lacks the creation of either the government or the corporate sector. Those effective solutions are high-speed and dependable internet, robust power networks, local cloud networks, safe data centres, and scaleable computing frameworks, which are not present in some portions of Africa, rural Asia, and Latin America. Although, it may be comparatively improved in the urban centres, the rural region and the periphery areas remain deprived areas in which, little is DPI-O. AI-related solutions need reliable high-speed internet connectivity, powerful power grids, cloud infrastructure at regional levels, safe data centres, and scalable computing resources. Most parts of Africa, rural Asia, and Latin America do not have one or more of these foundations.

While there is somewhat decent basic infrastructure for urban hubs, rural and peripheral areas remain "AI deserts" as they are away from public and private sector innovations.

6.1 Infrastructure Gaps

Limited broadband connections, unreliable electricity, and the scarcity of cloud resources stall the deployment of AI in rural and urban settings. The performance of AI solutions is strongly dependent, in many cases, on the existence of good digital infrastructure which means broadband that contains high speed, electricity that is reliable, and cloud resources that can scale. Nevertheless, the penetration of broadband remains low in many emerging markets, especially within rural areas. As an example, only about 40-75% of the population of Colombia and Nigeria has access to regular internet, with power outages being a commonplace event in large swathes of sub-Saharan Africa and South Asia. Advanced AI models demand stable connectivity and substantial computational resources for training and inference. The scarcity of local data centres and affordable cloud computing services further impedes AI experimentation outside major cities, exacerbating the "digital divide" Omdia (2025).

6.2 Skills and Talent Shortages

The global demand for data scientists, machine learning engineers, and AI specialists significantly outstrips supply, and the gap is starker in emerging economies (Strusani & Hounbonon, 2019). It is reported that there are more than 4 million positions in AI that are left open all across the world, and that the average hiring times of those in AI are over 140 days. In India, the foundational AI skills constitute between 15-20 percent of the IT workers. African, Southeast Asian, and Latin American universities may be poorly positioned to produce candidates trained to work with AI as fast as possible due to the shortcomings of their curricula and lack of research support. Such a shortage does not only postpone AI project implementations, but it also exacerbates inequalities: big technological firms drain the talent to offer little to other agencies in the public sector, SMEs, or social enterprises. Without massive up skilling and the integration of AI literacy from early education onward, most of the population risks exclusion from the benefits and opportunities of AI Cornell Business (2024).

6.3 Data Privacy and Ethics

With regulators working to balance innovation with protection, bias, data sovereignty, and algorithm accountability have become prominent issues. Critical sectors are integrating AI, raising urgent data privacy, bias, and accountability concerns. Massive datasets typically including sensitive personal or health information are needed to train AI models and allow them to operate. Usually, users do not understand how their data is being collected, retained, or used for automated decision-making, placing them at risk for unwanted profiling, discrimination, and leakage of information. Poorly represented or biased training data for AI algorithms may aggravate social and economic impoverishment, for instance by refusing loans based on living location as opposed to

gender or misidentification in facial recognition technologies, among others. Governments and regulators in emerging economies are rushing to put in place adequate legal frameworks that ensure a balance between support for innovative commercial activities and the protection of duly identified rights in relation to data protection, transparency, and fairness (Aspur, 2023).

6.4 Legacy Systems and Institutional Resistance

Historic practice is that many enterprises or government agencies utilize legacy IT systems that create barriers to modern AI solutions. Most of the restrictions observed in AI deployment are found due to the presence of legacy IT architecture, found in public as well as private institutions. Such systems are usually old, sometimes even decades older than the application, made with proprietary technologies, incompatible programming languages, and data silos which avoid integration with typical AI tools. Attempting to overlay or embed AI into such environments can require multi-million-dollar upgrades, complex middleware solutions, and substantial time investments resources many organizations cannot spare. Data trapped in unstructured or outdated formats further limits the ability to train or deploy intelligent applications. Resistance by the institutions also retards the innovation. The process of change management where personnel are taught the advantages of AI and retrained to perform other tasks is also a daunting task, especially in big and bureaucratic organizations and government agencies (Khan, Umer, and Faruque, 2024). To fully exploit the promise of AI more productive, inclusive, and competitive digital future systematic intervention is needed through such items as Investment in digital infrastructure (broadband, electricity, data centres) useful to make universally available to all (particularly at the rural and marginalized ends) (Dey, 2025).

7 Best Practice & Policy Recommendations for Leveraging AI in Economies

The revolutionary power of AI can be achieved only in the face of conscious and inclusive engagement, as well as ethical approaches. Depending on the case, to ensure the successful governance and sustainable implementation of AI, emerging economies must consider five pillars of policies that go hand in hand: capacity building, investing in infrastructure, open data/collaboration, building inclusion by design and strong ethical foundations. Individual pillars demand specific efforts and collaboration among multiple stakeholders to make AI gains as widespread, fair and admirable in the perspective of the rapid change. Capacity Development support Investment in AI education, skill building and up skilling on young and workforce. The infrastructure Investment support to increase affordable internet, cloud service and compute infrastructure to underserved communities. Inclusions by Design are putting the focus on equity by taking into consideration gender, geography, disability, and language in any AI initiatives. Ethical Frameworks enforce effective regulatory and ethical guidelines of fairness, transparency, and privacy of information both locally and nationally.

7.1 Capacity Development: Building AI Literacy and Skills

One of the initial actions to ensure AI preparedness is building human resource that will be able to develop, implement, and regulate AI. Incorporate AI ideas, ethics, and fundamentals into mandatory education, both at high school and post-secondary. Some countries such as India and China have initiated national-level initiatives to teach millions how to use AI and aimed at students and teachers, as well as employed professional workers (such as AI for All in India and AI Literacy Action Plan in China). Professional Up skilling provides certifications, short courses and life-long learning modules in order to keep on increasing the digital capabilities particularly among women and under-represented groups. Public-Private Skill Hubs are formations of innovation laboratories and training centres between governments, universities, and technology companies that are aimed at enhancing the demands of local talent and promoting experimental research. Reference areas STEM Pro-Promotion and School scholarships target girls, minority groups, and students in rural areas to join the talent pipeline of STEM and AI by outreach, mentoring and scholarships to offset past marginalization (Solomon, Emmanuel, Simon, & Mendez, 2025).

7.2 Infrastructure Investment: Expanding Digital Foundations

The investment in infrastructure is the key backbone on which all the successful AI adoption and the digital transformation initiatives lie in the emerging economies. The first and most important thing in the application of AI to the industrial automation, digital public services and creation of new business models is the availability of affordable, durable and high-quality digital infrastructure. This involves an all-inclusive and specific resource on top-speed broadband networks, stable electric power systems, data hubs in areas, expandable clouds, and puts a security net on online connections. Strong high speed internet would be required to transfer large volumes of data and facilitate real time connection between humans, algorithms and cloud service providers. There is a growing need by AI models to have fast and low-latency connectivity in order to process data and provide in-sights, even minor delays can sabotage the operations of the AI-based logistics, health diagnostics, or financial service. This renders the implementation of fiber-optics, 5G, rural Wi-Fi, and IoT-capable connectivity a high priority of the policymaker and the individual investor, particularly in rural and urban areas that so far remained left out on the previous stages of digitization.

The AI scalability would also be impossible without cloud computing and contemporary data centres of the region (da Silva, 2024). This is because, instead of making every business and school and government agency construct costly onsite IT and AI sectors, the cloud platforms democratize the use of artificial intelligence and machine learning re-resources. The unified, on-demand computing force and AI solutions offered by the cloud spread a leveler and the barriers to entry become extremely low to local business owners and innovators in the public sector. It is worth noting that China and India, as the leaders of the world economy, have undertaken significant investments in the field of data centres and policies with the cloud of the first priority, to help the country in the field of AI development and achieve the digital sovereignty. The example of China

establishing over 40 AI-based industrial zones and constructing additional supercomputer and AI chip fabrication centers in collaboration with state and non-state actors, or Indian government spending more than USD 1 billion on Indian Mission to strengthen compute infrastructure, talents, and apps across the country demonstrate that many countries are engaging in the field of AI.

Creative financing as well as public-private partnerships are also important in infrastructure investment. Based on national-level projects focused on introducing digital highways, globally supported efforts to build and invest in regions, as well as a combination of the capital of telecommunication, technology, and traditional telecommunication infrastructure providers, foreign countries will be able to raise the monumental capital needed to build and deploy modern digital platforms. The international bodies like the World Bank, UNCTAD and the development banks have a critical role of de-risking these investments, technical guidance and also imparting experiences in multiple markets (Kiu & Yang, 2025). The infrastructure expansion of AI-readiness is not only related to hardware having ethical, secure, and resilient digital infrastructure is unquestionably needed. This implies integrating cyber security measures, making the power grid reliable, encouraging the use of green data centres, and making sure that the initial standards involve the interoperability and the ability to transfer data. The infrastructure ecosystem is important to a resilient infrastructure that will sustain the uptime and confidence of mission-critical AI application as well as to expand the digital inclusion of populations traditionally underserved.

7.3 Open Data and Collaboration: Fostering Collective Innovation

The current trend of open data and collaborations is quickly becoming the foundations of combined AI-powered innovation, particularly when it comes to the context of new economy movement towards inclusive and sustainable digital transformation. AI is not only valuable by the quality and sophistication of algorithms but, perhaps, has its core to be valuable by the accessibility and interoperability of extensive, accessible and varied data sets. The open government data (government agency) initiatives where non-sensitive information is availed freely in secure portals have become a popular trend all over the world as a potent application of research, entrepreneurship, and policy transparency driving forces (Siricharoen, 2024). Machine-readable datasets that are well structured contribute to the formation of start-ups, allow the SMEs to create localized AI products, and evidence-based decision-making in industries like health and transportation as well as in sectors associated with education and urban planning. For instance, in Turkey, ministries and municipalities have launched open data portals that, when paired with AI's analytic capabilities, unlock new models for smart city management, participatory budgeting, public health forecasting, and much more (Christian, 2025).

7.4 Inclusion by Design: Prioritizing Equity and Accessibility

Responsible AI design actively seeks to bridge rather than widen social divides into different categories such as Gender, Geographic, and Disability Inclusion: Mandate

gender and minority representation in AI teams and datasets; enforce inclusive, accessible interface standards for people with disabilities; invest in regionally and linguistically diverse training data. Local Language, Culture, and context are prioritizing support for local languages and contextual relevance in conversation bots, educational tools, and public service AI. For example, UNICEF's GIS programs or Peru's inclusive Ed-Tech initiatives provide blueprints. Participatory design involves diverse end-users and civil society in every stage of AI system design, governance, and feedback. Participatory approaches yield systems that solve the problems of marginalized groups and foster public trust (Dey, 2025).

7.5 Robust Ethical Frameworks and Regulation

Increased application of AI has distinctive risks: prejudice, absence of transparency, infringement of privacy and fallacies. The system involved in Ethical-by-Design Systems include algorithmic biases checks, frequent system mechanisms and external checks towards AI usage in sectors that are of high expertise. Apply the technical means such as a fairness-aware algorithm, federated learning and privacy saving data analysis. Explainable and Transparent AI There is Explainable and Transparent AI which requires the high-stakes decisions of AI systems in public service, finance or justice to include clear and human-readable reasons. Allow end-users to request appeal, audit, or not to make use of automated processes.

8 Discussion and Limitations

Artificial Intelligence is also rapidly emerging as a strategic necessity not only among emerging economies but also as a tool of development of fundamental scale. With AI in intelligent use, developing countries will be able to open their opportunities, promote socio-economic reconstruction, and build more balanced and more resilient communities. Access gap and readiness closures are very important. The all-encompassing, active collaboration in the education, regulation, infrastructure, and innovation policy shall be necessary to ensure that the full potential of AI is achieved in its full, responsible, and inclusive version. Artificial intelligence (AI) is on the brink of both potential and threat, which introduces an unprecedented prospect of the emerging economies to quicken the socio-economic change and propel inclusive and resilient growth. As this book has demonstrated, the strategic approach of AI application has ceased being just a case of technological progress it has turned into an all-encompassing policy and development prerequisite, with implications of transforming industries, state services, governance, and the everyday life in the Global South. The ability of AI to become an economic diversification driver is already evident in the industry. The AI-driven automation, in the manufacturing and logistic, and services sphere, is producing new efficiencies, prompting leapfrogging with conventional constraints and letting nations forget decades of slated development due to infrastructure and resource disparities. To poor people in India who are smallholder farmers or rural Africa where healthcare workers work.

Precision an AI-driven tool is empowering people, making them more productive, more efficient in using resources and it is also directly enhancing their quality of life. These narratives shed some light on how the most outcast groups can be supported through the power of AI to make them more equal, in terms of information, decision-making and opportunity. This is, nevertheless, a process that is not automatically automatic. A great deal of economic and social value generated by AI is now being segmented in the developed economies attributed to the sophistication of infrastructure, significant investment in research, and established innovation systems.

9 Conclusion

The World Economic Forum says that now less than one third of developing nations possess a coherent AI plan, and massive investments to create the underpinning infrastructure, including broadband connectivity, data centres, and reliable power supplies are beyond the means of many governments without outside assistance.

The solution to these inequalities requires a multi-skilled multi-faceted and coordinated approach that is persistent. To begin with, the digital foundations should be reinforced with purposeful investment initiatives by the government and corporations on broadband, cloud computing, and solid energy infrastructure foundation. This is not only the foundation of AI, but a wider digitalization necessary to be involved in the global economy.

Second, up skilling and capacity development is necessary so as to allow the countries not only to develop and achieve local expertise but also democratizing AI literacy levels not just in the classroom but also on the boardroom. Digital and artificial intelligence skills must be included in the curriculum at all levels, but women, the rural world, and historically marginalized populations must be targeted and encouraged the most to acquire the skills at risk of being left behind by the current trends.

Third, by promoting local innovation and facilitating start-ups as well as encouraging public-privacy relations, one can encourage the use of AI in the manner that is premised on the specific needs and voice of many people, as well as one that is inclusive of different locations and people. Local efforts at encouraging grassroots data gathering, the development of algorithms that are locally focused and locally-Southerly collaboration can assist in making sure that AI solutions can be relevant, sustainable, as well as empowering to local citizens.

Fourth, strong and flexible governance is also necessary. This involves the implementation of responsive regulatory systems to safeguard the privacy of data, uphold the idea of transparency and fairness and establish penalties on developers and deployers due to unintended outcomes or favoritism. Particularly relevant is ethical and explainable AI in the developing economies, where the credibility of new technologies can be weak, and where the systems should be constructed to support the abundance of languages, cultural situations, and socio-economic realities. The inclusion of the civil society, academia and communities that have suffered is important in the participatory measures

necessary to make sure that the AI systems benefit the entire population and not only the elite.

Fifth, global collaboration will continue to be among the pillars of responsible AI adoption acceleration in the Global South. Global platforms, regional organisations and development banks can reduce the disparities by transfer of technology, standardisation, re-search cooperation and building capacity. This collaboration needs to be mutually beneficial and concerned with the forms of local autonomy, without technological dependence, but rather on the local ground, the global developments.

To conclude, the way forward of AI in emerging economies is that of moderate ambivalence and material urgency. It is through developing an enabling environment that is based on equity, ethics, innovation, and collaboration that the emerging economies will be able to use AI as a potent way to prosper, survive, and continue to develop in the twenty-first century. The aim should be to achieve the huge development potential of AI but mitigate against the risks. This vision is to be achieved through substantial investments not only on the technology aspect but also on people, partners and policy.

References

1. Kothandapani, H. P. (2022). Leveraging AI for Credit Scoring and Financial Inclusion in Emerging Markets. *World Journal of Advanced Research and Reviews*, 15(03), 526-539.
2. Kalyanaraman, K. (2025). AI-Powered Product Strategy: Case Studies from Tech Start-ups in India and Africa. *IJRASET*, 2321-9653.
3. Davila-Zamora, P. et al. (2024). Artificial Intelligence Adoption in Emerging Economies. *PJLSS*, 12101-12109.
4. Mariano, J. L. (2024). The impact of the extension project: Personality development and character building for resident of ifugao district jail. *Pakistan Journal of Life and Social Sciences*, 22(2). <https://doi.org/10.57239/pjlss-2024-22.2.00864>
5. Mashoene, M., Tweneboah, G., & Schaling, E. (2025). Fin-Tech and financial inclusion in emerging and developing economies: a system GMM model. *Cogent Social Sciences*, 11(1). <https://doi.org/10.1080/23311886.2025.2491701>
6. Zuhair, V., Babar, A., Ali, R., Oduoye, M. O., Noor, Z., Chris, K., Okon, I. I., & Rehman, L. U. (2024). Exploring the impact of artificial intelligence on global health and enhancing healthcare in developing nations. *Journal of Primary Care & Community Health*, 15, 21501319241245847. <https://doi.org/10.1177/21501319241245847>
7. Melkamu, M. (2025). Artificial intelligence implementation challenges in industries: Developing countries prospective. *Journal of Trends and Challenges in Artificial Intelligence*. <https://doi.org/10.61552/jai.2025.01.004>
8. Hanna, M. G., Pantanowitz, L., Jackson, B., Palmer, O., Visweswaran, S., Pantanowitz, J., Deebajah, M., & Rashidi, H. H. (2025). Ethical and bias considerations in artificial intelligence/machine learning. *Modern Pathology: An Official Journal of the United States and Canadian Academy of Pathology, Inc*, 38(3), 100686. <https://doi.org/10.1016/j.modpat.2024.100686>
9. Strusani, D., & Hounghonon, G. V. (2019). The role of artificial intelligence in supporting development in emerging markets. International Finance Corporation, Washington, DC.

10. Witts, J. O. (2024). Leveraging Artificial Intelligence (AI) for Banks in Emerging Markets. *Journal of Advanced Management Science*, 12(4), 84-1045.
11. Aderibigbe, A. O., Ohenhen, P. E., Nwaobia, N. K., Gidiagba, J. O., & Ani, E. C. (2023). Artificial intelligence in developing countries: Bridging the gap between potential and implementation. *Computer Science & IT Research Journal*, 4(3), 185-199.
12. Strusani, D., & Hounghonon, G. V. (2019). The role of artificial intelligence in supporting development in emerging markets. International Finance Corporation, Washington, DC.
13. Khan, M. S., Umer, H., & Faruqe, F. (2024). Artificial intelligence for low-income countries. *Humanities and Social Sciences Communications*, 11(1), 1-13.
14. Solomon, O., Emmanuel, F., Simon, J., & Mendez, D. (2025). Leveraging Data Analytics, Business Intelligence, Artificial Intelligence, and Predictive Modeling to Foster Innovation, Strengthen Startups, Mitigate Operational Risks, and Accelerate Economic Growth in the United States.
15. Dey, S. (2025). Leveraging AI and Blockchain for Digital Transformation: Advancing Socio-Economic Development in Emerging Economies. In *Driving Socio-Economic Growth With AI and Blockchain* (pp. 291-314). IGI Global Scientific Publishing.
16. da Silva, R. G. L. (2024). The advancement of artificial intelligence in biomedical research and health innovation: challenges and opportunities in emerging economies. *Globalization and health*, 20(1), 44.
17. Kiu, T., & Yang, J. (2025). Leveraging Artificial Intelligence for Sustainable Economic Growth: Lessons from the United States and China to Address the UK's Economic Challenges. *Journal of Knowledge Management Practice*, 25(3).
18. Siricharoen, W. V. (2024, May). Leveraging Artificial Intelligence and Emerging Technologies in the Next Phase of Digital Business Transformation. In *2024 IEEE 14th Symposium on Computer Applications & Industrial Electronics (ISCAIE)* (pp. 10-14). IEEE.
19. Christian, I. A. (2025). LEVERAGING ENTREPRENEURIAL ARTIFICIAL INTELLIGENCE TO ENHANCE URBAN AND REGIONAL DYNAMICS: A STUDY ON INNOVATION, ECONOMIC GROWTH, AND SMART CITY DEVELOPMENT IN ANAMBRA STATE NIGERIA. *INTERNATIONAL JOURNAL OF FINANCIAL ECONOMICS*, 2(4), 194-209.
20. IJRASET. (n.d.). AI-powered product strategy: Case studies from tech startups in India and Africa. *Ijraset.com*. Retrieved August 7, 2025, from <https://www.ijraset.com/research-paper/ai-powered-product-strategy-case-studies-from-tech-startups-in-india-and-africa>
21. Pandey, D., Jain, V., & Ansari, S. A. (2024, September). Adaptability of Blockchain in Wireless Sensor Networks: Challenges and Future Scope. In *2024 International Conference on Artificial Intelligence and Emerging Technology (Global AI Summit)* (pp. 653-659). IEEE.
22. Ansari, S. A., Pandey, D., Yadav, N., & Zafar, A. (2025). A brief systematic review on video summarization using deep learning techniques. *Intelligent Computing and Communication Techniques*, 376-385.
23. Ansari, S. A., Wajid, M. A., Arif, M., & Wajid, M. S. (2025). PolyModNet: Advanced positional encodings and ethical bias mitigation in adaptive multimodal fusion for multilingual language understanding. *Neurocomputing*, 131450.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

