



Computer Science & IT Research Journal
P-ISSN: 2709-0043, E-ISSN: 2709-0051
Volume 4, Issue 3, P.185-199, December 2023
DOI: 10.51594/csitrj.v4i3.629
Fair East Publishers
Journal Homepage: www.fepbl.com/index.php/csitrj



ARTIFICIAL INTELLIGENCE IN DEVELOPING COUNTRIES: BRIDGING THE GAP BETWEEN POTENTIAL AND IMPLEMENTATION

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Article Received: 02-11-23

Accepted: 25-11-23

Published: 03-12-23

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ABSTRACT

This paper examines the role of Artificial Intelligence (AI) in developing countries, focusing on bridging the gap between its vast potential and effective implementation. As AI technologies advance globally, their impact on socio-economic development becomes increasingly critical, particularly in regions with diverse challenges and opportunities. The study investigates the current landscape of AI adoption in developing countries, analyzing the potential benefits, challenges, and ethical considerations. Through a comprehensive review of literature and case studies, the paper

explores strategies and solutions for harnessing AI's transformative power in diverse sectors such as healthcare, agriculture, and education. The findings emphasize the importance of capacity building, public-private partnerships, and tailored policy frameworks to address infrastructure limitations and skill gaps. The research contributes to a nuanced understanding of the opportunities and complexities surrounding AI implementation in developing countries, providing insights for policymakers, practitioners, and scholars seeking to navigate this evolving technological landscape

Keywords: Artificial Intelligence; Global Connectivity; Emerging Technologies; Organizational Resilience; Sustainable Growth; Developing Country.

INTRODUCTION

In the realm of global technological progress, the integration of Artificial Intelligence (AI) has emerged as a transformative force, promising to reshape industries, enhance efficiencies, and foster innovation. While developed nations forge ahead in leveraging the potential of AI, the adoption and effective implementation of these technologies in developing countries present a distinctive set of challenges and opportunities. This paper delves into the complex landscape of AI in developing countries, aspiring to illuminate the nuanced interplay between the expansive potential of AI and the practical realities of its implementation.

Developing countries, characterized by diverse socio-economic contexts, are at the crossroads of harnessing the potential benefits of AI to address existing challenges and propel economic development (Wakunuma et al., 2020, Guo and Li, 2018, Hendler, 2023). The adoption of AI technologies offers the promise of leapfrogging traditional constraints, yet the unique landscape of developing nations requires strategic navigation to bridge the gap between potential and effective implementation.

This study seeks to unravel the multifaceted dimensions of AI adoption in developing countries, emphasizing the imperative to address the digital divide, skill gaps, and ethical considerations inherent in the integration of advanced technologies. The investigation extends beyond mere technological deployment, aiming to explore the holistic impact of AI on socio-economic development, education, healthcare, and beyond.

The overarching goal of this research is to provide a comprehensive understanding of the challenges and opportunities associated with the adoption of AI in developing countries. By synthesizing existing literature, analyzing pertinent case studies, and scrutinizing real-world examples, the study endeavors to offer insights into the strategies, policies, and collaborative approaches necessary to bridge the gap between the immense potential of AI and its effective implementation in the unique context of developing economies.

The exploration of AI in developing countries is not only a technological endeavor but also a socio-economic imperative. As these nations stand on the brink of profound transformation, the insights gleaned from this research will contribute to the global discourse on inclusive technological development, guiding policymakers, practitioners, and scholars alike in navigating the intricate journey of integrating AI into the fabric of developing societies.

The global ascent of Artificial Intelligence (AI) stands as one of the most transformative phenomena in contemporary technological landscapes, reshaping the way societies operate, businesses function, and individuals interact with information (Mannuru et al., 2023). As AI technologies continue to evolve and permeate various facets of daily life, the global community is witnessing a paradigm shift that transcends conventional boundaries.

Artificial Intelligence, characterized by machine learning algorithms, neural networks, and advanced computing capabilities, has evolved from a niche field to a pervasive force driving innovation across diverse sectors (Gupta et al., 2021, Zhang et al., 2021, Ukoba and Jen, 2022, Sanni et al., 2024). From voice-activated personal assistants to complex predictive analytics, AI has become an integral part of industries such as healthcare, finance, manufacturing, and beyond. Its exponential growth is propelled by breakthroughs in deep learning, natural language processing, and data analytics, enabling machines to emulate human-like cognitive functions and process vast datasets for valuable insights.

This global rise of AI is not confined to technological advancements alone but extends into societal structures, influencing the nature of work, education, and communication. Developed nations have witnessed significant gains in productivity, the creation of novel business models, and the optimization of various processes, marking AI as a catalyst for unprecedented change on a global scale.

While the transformative potential of AI is evident, its adoption and integration present a distinctive set of challenges and opportunities for developing countries (Sood, Sharma, and Bhardwaj, 2022; Biswas, 2020). Economic, infrastructural, and educational disparities create hurdles that impact the equitable distribution of AI benefits. The digital divide, reflective of uneven access to technology, exacerbates these disparities and limits the widespread adoption of AI solutions.

Developing countries also grapple with a shortage of skilled talent proficient in AI technologies, hindering the effective deployment and maintenance of AI systems (Pedro et al., 2019, Dwivedi et al., 2021). Ethical considerations, such as bias in algorithms and responsible AI use, add complexity to the integration process. Despite these challenges, within the spectrum of difficulties lies a spectrum of opportunities. AI has the potential to drive innovation, improve public services, and address pressing issues in healthcare, agriculture, and education in developing countries.

This paper delves into the intricate interplay between the global rise of AI and its specific implications for developing nations. By navigating the challenges and seizing the opportunities, developing countries can harness the power of AI for sustainable development, ensuring that the benefits of this technological revolution are inclusive and contribute to societal progress.

The Landscape of AI in Developing Countries

An Overview of Adoption Trends: Artificial Intelligence (AI) has emerged as a powerful force shaping the global technological landscape, and its adoption trends in developing countries present a dynamic narrative influenced by a myriad of factors (Pan, 2016). This section provides an overview of the current landscape of AI adoption in developing nations, highlighting trends and drawing comparisons with the trajectories observed in developed countries.

AI Adoption Trends in Developing Nations: In recent years, developing countries have increasingly embraced AI technologies, recognizing their potential to catalyze economic growth, enhance public services, and address pressing societal challenges. The adoption of AI in developing nations is driven by a confluence of factors, including technological advancements, increased connectivity, and a growing awareness of the transformative power of AI applications. Notably, AI is being deployed in diverse sectors such as healthcare, agriculture, education, and governance to unlock efficiencies and drive innovation.

Governments and businesses in developing countries are strategically leveraging AI to tackle complex issues. For instance, AI-powered healthcare applications are enhancing diagnostic capabilities and healthcare delivery in regions with limited access to medical expertise (Han et al., 2020, Al-Turjman, 2023, Patil and Shankar, 2023). In agriculture, AI-driven precision farming is optimizing resource use and improving yields. Education systems are incorporating AI for personalized learning experiences, and governments are exploring AI applications for public service delivery and policy formulation.

Comparison with AI Trends in Developed Countries: While the adoption of AI in developing countries is accelerating, it is essential to contextualize these trends within the broader global landscape. Developed countries, often characterized by robust technological infrastructures and well-established innovation ecosystems, have been at the forefront of AI development and implementation. The trajectories of AI adoption in developed nations have been shaped by significant investments in research and development, a highly skilled workforce, and a conducive regulatory environment.

Developed countries have witnessed extensive integration of AI across industries, with applications ranging from advanced robotics in manufacturing to sophisticated AI algorithms in finance and business analytics. The emphasis on AI-driven research and innovation in developed nations has propelled them into leadership positions in AI development and deployment.

The evolving landscape of AI adoption in developing countries underscores the transformative potential of these technologies in fostering inclusive development. As the gap narrows, developing nations have an opportunity to harness AI strategically, addressing local challenges and contributing to global innovation.

Potential Benefits of AI in Developing Contexts

Artificial Intelligence (AI) holds immense promise for developing countries, offering a spectrum of transformative benefits that extend beyond mere technological advancements. This section delves into the potential advantages of AI in developing contexts, focusing on economic growth, job creation, and improvements across critical sectors such as healthcare, education, and agriculture.

Economic Growth and Job Creation: AI technologies have the potential to serve as catalysts for economic growth in developing countries. Automation, driven by AI, can enhance productivity across industries, leading to increased efficiency and competitiveness. As AI adoption proliferates, it is anticipated that the creation of new markets, products, and services will stimulate economic activity. A study by the McKinsey Global Institute indicates that AI technologies could contribute

significantly to global economic output by 2030, with developing countries poised to benefit from this growth (Manyika et al., 2017)

Job creation emerges as a consequential benefit of AI adoption. While some routine and manual tasks may become automated, AI-driven technologies generate new opportunities that require human expertise. The creation of jobs in AI development, maintenance, and oversight becomes essential, contributing to the growth of a skilled workforce and fostering entrepreneurship in emerging technological fields (Arntz et al., 2016)

Improvements in Healthcare: AI applications in healthcare offer promising solutions to challenges faced by developing countries in delivering effective and accessible healthcare services. AI-powered diagnostics can enhance the accuracy and speed of disease identification, especially in regions with limited access to healthcare professionals. Remote patient monitoring and predictive analytics facilitate early intervention, leading to improved health outcomes. For instance, AI algorithms are being used to analyze medical imaging, aiding in the early detection of diseases such as tuberculosis and cancer (Topol, 2019)

Advancements in Education: AI-driven innovations in education have the potential to address the unique challenges faced by developing countries in providing quality education. Personalized learning platforms powered by AI can adapt to individual student needs, overcoming resource constraints and fostering inclusive education. AI applications also assist in automating administrative tasks, allowing educators to focus on interactive and personalized teaching methods (UNESCO, 2019)

Transformation in Agriculture: Agriculture, a cornerstone of many developing economies, stands to benefit significantly from AI technologies. Precision agriculture, enabled by AI, optimizes resource use, enhances crop yields, and mitigates environmental impact. AI applications in crop monitoring, pest control, and predictive analytics contribute to sustainable agricultural practices, ensuring food security and bolstering the livelihoods of farmers (FAO, 2020)

Challenges in AI Implementation: The implementation of Artificial Intelligence (AI) in developing countries is not without its intricacies, and several challenges must be addressed to unlock the full potential of these transformative technologies. This section explores the hurdles associated with AI implementation, focusing on infrastructure limitations, skill gaps and education challenges, and ethical and societal considerations.

Infrastructure Limitations: One significant impediment to the effective implementation of AI in developing countries lies in infrastructure limitations. Reliable access to high-speed internet, robust computing resources, and advanced data storage facilities are often prerequisites for optimal AI deployment. However, many developing regions face infrastructural challenges, hindering the seamless integration of AI technologies. Insufficient connectivity and inadequate power supply can impede the real-time processing demands of AI applications, creating a digital divide between regions with and without adequate infrastructure (ITU, 2018)

Skill Gaps and Education Challenges: The shortage of a skilled workforce proficient in AI technologies is a critical challenge. Developing countries often struggle with a dearth of professionals trained in machine learning, data science, and AI development. Bridging this skills

gap requires concerted efforts in education and training programs. The curricula of educational institutions must adapt to include AI-related courses, ensuring that the workforce is equipped with the necessary expertise to harness AI effectively (World Bank, 2019).

Education challenges further compound the issue, as a lack of awareness and understanding of AI may hinder its acceptance and integration into various sectors. Initiatives aimed at promoting digital literacy and raising awareness about the benefits of AI are essential to foster a supportive environment for implementation.

Ethical and Societal Considerations: The ethical dimensions of AI implementation pose complex challenges. Bias in algorithms, a lack of transparency in decision-making processes, and concerns about data privacy and security are paramount ethical considerations. Developing countries must navigate these issues to ensure that AI systems are fair, transparent, and adhere to ethical standards. Moreover, societal implications such as job displacement, social inequality, and the potential misuse of AI technologies need careful consideration to minimize negative impacts (Floridi et al., 2018)

The social acceptance of AI is crucial for its successful implementation. Cultivating trust among communities involves transparent communication about AI applications, potential benefits, and the ethical frameworks in place to mitigate risks.

The Role of AI in Specific Sectors

Artificial Intelligence (AI) has emerged as a transformative force across various sectors, revolutionizing the way industries operate, innovate, and address complex challenges as shown in the figure 1. This section provides a comprehensive overview of the role of AI in specific sectors, emphasizing the diverse applications and contributions of AI technologies.

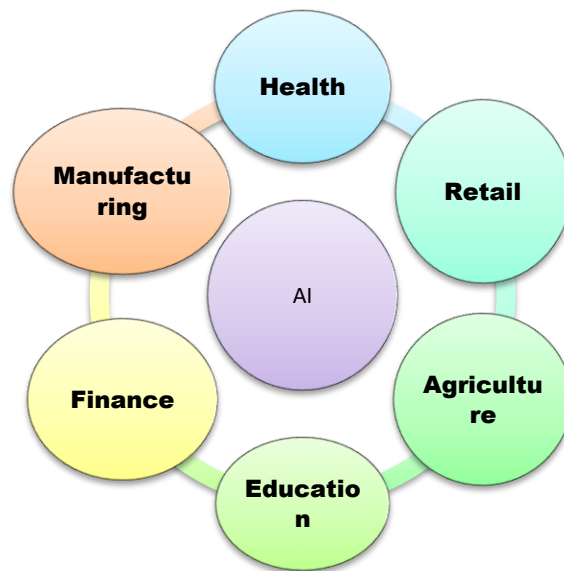


Figure 1. Some sectors of application of artificial intelligence

Healthcare: AI's impact on healthcare is profound, enhancing diagnostics, treatment, and patient care. Machine learning algorithms analyze medical images for early disease detection, predict patient outcomes, and personalize treatment plans. AI-powered chatbots offer real-time patient

engagement and support. Additionally, AI facilitates drug discovery and accelerates research processes, ushering in a new era of precision medicine (Topol, 2019)

Finance: In the finance sector, AI plays a pivotal role in risk management, fraud detection, and customer service. Predictive analytics and machine learning algorithms analyze vast datasets to identify patterns and anomalies, aiding in decision-making processes. Chatbots and virtual assistants enhance customer interactions, while robo-advisors provide personalized financial advice. AI-driven algorithms also optimize trading strategies, improving efficiency and market outcomes (Wang et al., 2020).

Education: AI applications in education include personalized learning platforms, intelligent tutoring systems, and automated grading systems. These technologies adapt to individual student needs, providing tailored learning experiences. Virtual reality and AI-driven content creation tools revolutionize educational content, making learning more interactive and engaging. Furthermore, AI facilitates administrative tasks, freeing up educators to focus on innovative teaching methods (UNESCO, 2019).

Agriculture: Precision agriculture powered by AI optimizes farming practices, improving resource use and crop yields. AI applications analyze data from sensors, satellites, and drones to provide insights into soil health, crop conditions, and pest management. Automated machinery guided by AI enhances efficiency in planting, harvesting, and post-harvest processes, contributing to sustainable and productive agriculture (FAO, 2020)

Manufacturing: AI transforms manufacturing processes through predictive maintenance, quality control, and supply chain optimization. AI-driven robotics and automation streamline production, reducing errors and increasing efficiency. Predictive analytics anticipates equipment failures, minimizing downtime. AI algorithms analyze production data to enhance product quality and adapt manufacturing processes in real-time (Lee et al., 2019)

Retail: In the retail sector, AI applications include demand forecasting, personalized marketing, and inventory management. AI-driven chatbots and virtual assistants enhance customer interactions, providing personalized recommendations and improving the overall shopping experience. Predictive analytics optimizes pricing strategies and inventory levels, reducing costs and enhancing profitability (Verhoef et al., 2020)

Case Studies: AI Implementation in Selected Developing Countries

Artificial Intelligence (AI) implementation in developing countries is marked by diverse initiatives that harness technology to address specific challenges and propel socio-economic development. This section presents case studies highlighting notable AI implementations in selected developing countries, showcasing the transformative potential of these technologies.

Precision Agriculture for Smallholder Farmers: In India, where agriculture is a cornerstone of the economy, AI is being leveraged to enhance precision farming practices (Tiwari and Jaga, 2012, Rana, 2023). Companies like CropIn are using AI algorithms to analyze satellite imagery, weather data, and soil conditions. Smallholder farmers receive personalized recommendations for crop management, irrigation, and pest control through mobile applications (Shaktawat, and

SWAYMPRAVA, 2024). This AI-driven approach optimizes resource use, improves yields, and contributes to sustainable agriculture

Kenya: AI-Powered Healthcare for Remote Communities: In Kenya, where access to healthcare is often limited, AI is making significant strides in improving medical services (Ade-Ibijola, and Okonkwo, 2023). The company Ilara Health utilizes AI-driven diagnostic tools to enhance medical imaging analysis. This technology aids in the early detection of diseases, enabling timely intervention. Ilara Health's portable diagnostics also facilitate healthcare delivery in remote areas, addressing the challenges of distance and limited medical infrastructure.

Brazil: AI for Environmental Monitoring in the Amazon Rainforest: Brazil is deploying AI to address environmental challenges, particularly in the Amazon rainforest. The Instituto Nacional de Pesquisas Espaciais (INPE) utilizes AI algorithms to analyze satellite imagery and monitor deforestation in real-time. This AI-driven approach helps authorities detect illegal logging and enforce environmental regulations. By combining AI with geographic information systems (GIS), Brazil aims to preserve the biodiversity of the Amazon and combat deforestation.

Rwanda: AI in Education for Enhanced Learning: Rwanda has embraced AI in the education sector to enhance learning experiences (Harerimana, and Mtshali, 2020). The Smart Africa initiative collaborates with companies like Zindi Africa to implement AI-driven platforms that provide personalized learning content. These platforms adapt to individual student needs, supporting educators in delivering tailored educational experiences. AI in education in Rwanda aims to bridge educational gaps and improve learning outcomes.

Vietnam: AI-Driven Chatbots for Financial Inclusion: In Vietnam, AI is being utilized to promote financial inclusion. The National Payment Corporation of Vietnam (NAPAS) employs AI-driven chatbots to provide financial information and services to individuals without access to traditional banking (Ha and Nguyen, 2022, Binh, 2018). These chatbots enable secure and convenient financial transactions, fostering financial inclusion in regions with limited banking infrastructure.

Strategies for Bridging the Gap: The gap in AI implementation, particularly in developing countries, can be bridged through strategic and concerted efforts. This section outlines key strategies to address challenges and promote the inclusive deployment of AI technologies.

To bridge the gap, significant investments in digital infrastructure are crucial. Governments and private entities should collaborate to improve broadband connectivity, ensure reliable power supply, and establish data centers. Accessible and robust infrastructure forms the foundation for effective AI implementation.

Addressing skill gaps is paramount. Initiatives for capacity building and education in AI-related fields should be prioritized. This includes incorporating AI courses into educational curricula, providing training programs for professionals, and fostering a culture of continuous learning. Partnerships between educational institutions, industry, and government bodies can facilitate knowledge transfer.

The development of comprehensive AI policies is essential to ensure ethical practices and inclusivity. Governments should establish frameworks that address concerns related to bias,

transparency, and privacy. Engaging stakeholders, including AI developers, civil society, and marginalized communities, in the policy-making process ensures diverse perspectives are considered.

Encouraging research and innovation in AI is key to staying abreast of advancements. Establishing research centers, fostering collaborations between academia and industry, and providing grants for AI-focused projects can spur innovation. Localized research efforts ensure that AI solutions are tailored to the specific needs and challenges of developing countries.

Collaboration between the public and private sectors is vital for successful AI implementation. Public-private partnerships can facilitate the sharing of resources, expertise, and data. Governments can create incentives for businesses to invest in AI initiatives, fostering an ecosystem where innovation is encouraged and supported.

Building trust and fostering community engagement are essential components of successful AI implementation. Initiatives to raise awareness about the benefits and risks of AI should be undertaken. Community input in decision-making processes ensures that AI solutions are culturally sensitive and address local needs.

Given the global nature of AI challenges, international collaboration is crucial. Developing countries can benefit from partnerships with tech companies, research institutions, and international organizations. Knowledge exchange, joint research projects, and sharing best practices contribute to a collective effort in bridging the AI gap.

Promoting inclusive development requires targeted funding and support for AI-driven startups and entrepreneurs. Accessible funding mechanisms, mentorship programs, and incubators can empower local innovators to develop solutions that address specific challenges in their communities.

By employing these strategies, stakeholders can work collaboratively to bridge the gap in AI implementation. The goal is to create an environment where AI technologies contribute to inclusive development, ensuring that the benefits of these innovations reach all segments of society in developing countries.

The key strategy for bridging AI gap includes capacity building, infrastructure development, public-Private Partnerships as shown in the figure 2.

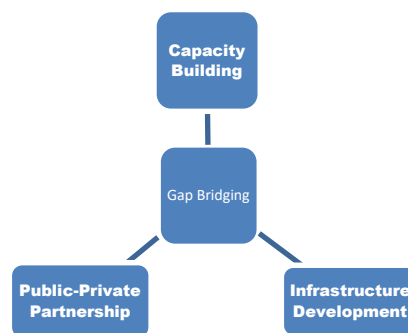


Figure 2. The Key to Bridging AI Gap

Ethical Considerations in AI Implementation: Navigating Fairness, Bias, Privacy, and Security: Artificial Intelligence (AI) implementation introduces ethical challenges that necessitate thoughtful strategies to ensure fairness, address bias, and uphold privacy and security. This section explores key ethical dimensions and provides insights into addressing these considerations.

Fairness and Bias: Bias in AI algorithms can inadvertently perpetuate and amplify existing societal inequalities. To address bias, a proactive approach involves careful scrutiny of training data to identify and rectify biases. The utilization of diverse and representative datasets is crucial to ensure that the AI system learns from a broad spectrum of experiences. Continuous monitoring and auditing of algorithmic outputs are essential to identify and rectify biases that may emerge during deployment. Strategies for ensuring fairness include the development and adherence to ethical guidelines and standards. Transparent AI systems, where the decision-making process is clear and comprehensible, promote accountability. Additionally, fostering diversity within AI development teams and engaging with stakeholders in the decision-making process helps identify and rectify biases, ensuring that AI applications are fair and equitable (Suresh, and Guttag, 2019)

Privacy and Security: The ethical use of data in AI applications involves striking a delicate balance between leveraging data for innovation and protecting individual privacy. Privacy-preserving technologies, such as federated learning or differential privacy, enable organizations to glean insights from data without compromising individual privacy. Clear policies and regulations must delineate the collection and use of personal information, empowering users with control over their data (Abadi et al., 2016).

Legal and Ethical Considerations for AI in Developing Countries: Implementing AI in developing countries requires careful attention to legal and ethical frameworks. Robust regulations must be established to address data protection, user consent, and algorithmic accountability. These regulations should be tailored to local contexts and aligned with international ethical standards. Ensuring ethical AI practices safeguards against potential misuse and supports the responsible and beneficial deployment of AI technologies in developing countries (Floridi et al., 2021, Murphy and Barr, 2022, Shneiderman, 2020)

Navigating ethical considerations in AI implementation is pivotal for building trust and ensuring the responsible deployment of these technologies. By actively addressing bias, promoting fairness, and prioritizing privacy and security, stakeholders can contribute to the development of AI systems that align with ethical standards and positively impact society.

Future Prospects and Recommendations: As we stand at the intersection of technological advancement and societal transformation, contemplating the future of Artificial Intelligence (AI) in developing countries is both exciting and challenging. This section explores emerging trends in AI, predicting its role in the continued development of these nations. Additionally, it provides policy recommendations to guide governments and stakeholders in fostering responsible AI use.

Emerging Trends in AI: The future of AI technologies is poised to bring about transformative changes across various sectors. Advancements in machine learning, natural language processing, and robotics will contribute to more sophisticated and context-aware AI applications. The integration of AI with other emerging technologies like the Internet of Things (IoT) and 5G will

create interconnected ecosystems, enabling seamless data exchange and enhanced decision-making. The development of explainable AI models will increase transparency, addressing concerns related to algorithmic accountability (Saeed, W. and Omlin, 2023).

Predictions for the Role of AI in the Continued Development of Developing Countries: In the continued development of developing countries, AI is expected to play a pivotal role in addressing socio-economic challenges. Precision agriculture, personalized healthcare, and inclusive education are anticipated to witness substantial growth. AI-driven innovations in finance, logistics, and manufacturing will enhance efficiency and contribute to economic growth. Collaborative initiatives, both nationally and internationally, will foster knowledge exchange and create opportunities for technology leapfrogging, enabling developing countries to harness the benefits of AI

Policy Recommendations: To unlock the full potential of AI, governments in developing countries should consider the following policy suggestions: Investment in Education and Research, Incentives for AI Adoption, National AI Strategies. Foster a skilled workforce by investing in AI education and research programs. Collaborate with academia and industry to bridge skill gaps and promote innovation. Provide financial incentives for businesses to adopt AI technologies. Tax credits, grants, and subsidies can stimulate AI implementation, particularly among small and medium enterprises (SMEs). Comprehensive national AI strategies that outline the vision, goals, and action plans for AI development. These strategies should be inclusive, addressing diverse sectors and considering local contexts.

Regulatory Frameworks to Encourage Responsible AI Use: Crafting regulatory frameworks is essential to ensure responsible AI use. Developing and enforcing ethical guidelines for AI development and deployment. These guidelines should encompass fairness, transparency, accountability, and the protection of privacy. Implementation of robust data protection regulations to safeguard individual privacy. Defining clear rules for data collection, storage, and sharing to prevent misuse. Establishing mechanisms for algorithmic accountability, requiring organizations to disclose and explain the decision-making processes of AI systems. Regular audits can ensure compliance.

The future of AI in developing countries holds immense promise, but its realization requires strategic planning and responsible governance. By embracing emerging trends and implementing thoughtful policies, governments and stakeholders can harness the transformative power of AI for inclusive and sustainable development.

CONCLUSION

As we conclude our exploration of Artificial Intelligence (AI) in developing countries, it is evident that the transformative potential of AI is vast, holding the promise to reshape economies, societies, and the overall trajectory of development. This conclusion recaps key findings, summarizes main points discussed in the review paper, and issues a compelling call to action to encourage stakeholders to address challenges and seize opportunities, emphasizing the potential of AI in fostering inclusive development.

Throughout this review, we have delved into the intricate landscape of AI implementation in developing countries. From the challenges posed by infrastructure limitations, skill gaps, and ethical considerations to the myriad opportunities in healthcare, education, agriculture, and other sectors, the journey has been one of discovery and recognition of the profound impact AI can have on these nations.

We have witnessed case studies showcasing real-world applications, illustrating that AI is not merely a technological luxury but a pragmatic solution to address pressing challenges in diverse domains. Whether enhancing precision agriculture for smallholder farmers, revolutionizing healthcare in remote communities, or monitoring environmental sustainability, AI is proving to be a catalyst for positive change.

Developing countries face challenges in infrastructure, skills, and ethical considerations, yet within these challenges lie opportunities for leapfrogging traditional constraints. Initiatives in education, awareness, and targeted policies can unlock the potential of AI.

AI is making significant impacts across sectors, from improving healthcare delivery and educational outcomes to optimizing agricultural practices and transforming financial services. The multifaceted applications of AI underscore its versatility in addressing diverse challenges.

The potential of AI in fostering inclusive development is evident. Precision applications tailored to local needs, coupled with strategic policies, can ensure that the benefits of AI are distributed equitably, contributing to sustainable and inclusive development.

Stakeholders, including governments, businesses, and educational institutions, must collaboratively address challenges. Investments in infrastructure, education, and initiatives to bridge skill gaps are essential. Public-private partnerships can play a pivotal role in creating an ecosystem conducive to AI implementation.

The potential of AI to drive inclusive development cannot be overstated. It is imperative for stakeholders to proactively seize opportunities presented by AI applications. This includes leveraging AI for sustainable agriculture, improving healthcare accessibility, and fostering innovative approaches to education.

The challenges and opportunities of AI in developing countries extend beyond national borders. Global collaboration is essential to share knowledge, best practices, and resources. International organizations, tech companies, and research institutions can play a crucial role in supporting developing countries on their AI journey.

In conclusion, the integration of AI in developing countries is a dynamic journey requiring concerted efforts, strategic planning, and a commitment to inclusivity. The potential benefits are immense, and by addressing challenges collaboratively, stakeholders can pave the way for a future where AI serves as a catalyst for sustainable development, leaving no one behind.

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