

Chapter 17

Artificial Intelligence as a Catalyst for Socioeconomic Development: Challenges and Prospects

Jude Thaddeus Chibuzo Udenkwo
Nnamdi Azikiwe University, Nigeria

ABSTRACT

The chapter explores the challenges and prospects in the role of artificial intelligence in development. Using a qualitative method of analysis, it examines evidence from crucial literature on artificial intelligence from diverse scholars and experts in the field. The research began with a conceptual review of AI and then made a foray into the ethical and epistemological basis of AI. It further highlighted the qualities of AI and the threat that AI poses to the digital divide between North and South. It also examines the importance of AI to development, the latest advancements in AI, the importance of AI in the bid by Third World countries to catch up with development, and qualities and regulatory frameworks for harnessing and consolidating AI. Finally, it makes recommendations on the best approach to using AI to influence socioeconomic development.

INTRODUCTION

At present, Artificial Intelligence (AI) is both the current location and the next destination of global development. The various segments and dimensions of human scientific endeavors and innovative propensities—nanotechnology, machine learning, data science, military strategy, space science, corporate modeling, and so on, find a culmination in AI.

Artificial Intelligence is the engine upon which the vehicle of global change and sustainable progress is powered. Analysts have pointed at the role of artificial intelligence in achieving the Sustainable Development Goals (Vinusa, Azizpour, & Nerini, 2020). Considering the gargantuan nature of the SDGs and the ambitious nature of the tasks it arrogated to itself, there is no doubt that the founding fathers

DOI: 10.4018/978-1-6684-4107-7.ch017

envisioned a world where artificial intelligence would run concurrently with global policy implementation for development. It therefore follows that if the challenges to robust deployment of AI in industrial and domestic activities would be overcome, and if proper regulatory mechanisms are put in place to reduce the fallouts from AI, a world driven by artificial intelligence-enabled technology would be a better place for all. This paper is aimed at carrying out a brief but concise overview of the prospect of an AI-embedded economy for advancement of both the developed and the developing nations.

MEANING OF ARTIFICIAL INTELLIGENCE

What is Artificial Intelligence? According to Strusani and Hounghonon, (2019) Artificial Intelligence (AI) designates “the science and engineering of making machines intelligent, especially intelligent computer programs.” Borrowing from the AI100 Panel at Stanford University, the authors defined intelligence as “that quality that enables an entity to function appropriately and with foresight in its environment.”

Taking a more comprehensive and simplified look at the matter, two dominant views of AI could be seen: the *functional* view and the *process* view of AI. By their very meaning, functional definitions are those which see a thing or object from the point of view of what it does, while process definitions explain phenomena from the angle of how it does things.

Based on this, those who favor a functional approach to explaining AI see it as a computerized system that can think and act like humans. More comprehensive definitions that champion the functional approach to explaining AI define it as all computer systems that can continuously scan their environment, learn from it, and take action in response to what they sense, as well as to human-defined objectives (Strusani and Hounghonon,2019). Those who favor a process view of explaining AI sees it as the computerized process of combining large volumes of data with computing power to simulate human cognitive abilities such as reasoning, language, perception, vision, and spatial processing.

Conclusively AI can be seen as the understanding that with appropriate programming and ...a computer can act as if it has a mind of its own, being able to understand complex processes, have beliefs, and experience other cognitive functions (Lawhead, 2003).

EPISTEMOLOGICAL AND ETHICAL IMPLICATIONS OF AI

The science and practice of AI has serious implications in epistemology and ethics. Epistemology is the branch of Philosophical inquiry focusing on the origin, nature and subject of knowledge. Ethics considers human actions and intentions according to how they conform to certain pre-defined values and standards. It is important to highlight the implications of these areas of human intellectual activities to Artificial Intelligence at the very beginning of this paper, so as to establish the logical and moral place of AI before delving into its various challenges and prospects.

In simple terms, epistemology judges what we learn, how we learn, and who learns. It places man at the centre of (teaching and) learning experience, and implicitly or explicitly denies the possibility of knowledge for any non-human object and entity. Arguments surrounding the epistemological basis of AI have bred two opposing camps of philosophers. One group claims that AI is equivalent of the human mind, since it can literarily understand, believe, and have other cognitive states. The other group insists that AI is not the equivalent of mind, while admitting that computers can only simulate mental

7 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/artificial-intelligence-as-a-catalyst-for-socioeconomic-development/304273

Related Content

Reduction of Transaction Costs by Using Electronic Commerce in Financial Services: An Institutional Empirical Approach

Thomas Pfahler and Kai M. Grebe (2005). *Digital Economy: Impacts, Influences and Challenges* (pp. 62-83).

www.irma-international.org/chapter/reduction-transaction-costs-using-electronic/8365

E-Participation Behavioral in E-Government in Malaysia

Maslin Masrom, Edith Lim Ai Ling and Sabariyah Din (2013). *E-Government Implementation and Practice in Developing Countries* (pp. 83-97).

www.irma-international.org/chapter/participation-behavioral-government-malaysia/76241

Open Data Influence on Digital Governance

Hocine Zine, Kheir Eddine Medkour, Leila Zemmouchi-Ghomari and Abdessamed Réda Ghomari (2022). *International Journal of Innovation in the Digital Economy* (pp. 1-11).

www.irma-international.org/article/open-data-influence-on-digital-governance/292491

The Performativity of a Cop in Innovation Context: The Case of a Brazilian Cluster

Tatiane Barleto Canizela Guimarães and Luciana Castro Gonçalves (2016). *Organizational Knowledge Facilitation through Communities of Practice in Emerging Markets* (pp. 225-241).

www.irma-international.org/chapter/the-performativity-of-a-cop-in-innovation-context/148872

An Information Communication Technology Adoption Model for Small and Medium Sized Enterprises

Dan J. Kim (2010). *E-Strategies for Technological Diffusion and Adoption: National ICT Approaches for Socioeconomic Development* (pp. 165-179).

www.irma-international.org/chapter/information-communication-technology-adoption-model/44305