European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.16, No.9, 2024

Artificial Intelligence (AI) tools and Human Intelligence (HI): A Double-edged Dilemma in Business Decision Making

Headmound Okari Isoe[1]
[1]*The Technical University of Kenya (TUK) - School of Business and Management Studies- Nairobi, Kenya*
headmound@gmail.com /hokari@tukenya.ac.ke

Abstract
Decision making is the most important role in organizational management. While many factors are likely to influence the quality of decisions made by a manager, intelligence stands out as the most consequential determinant. In the recent past, there has been a plurality of models and frameworks developed to enable managers make quality decisions amid heightened complexity in today's business environment. Throughout history, people have heavily relied on their human intelligence (HI) in making critical decisions. However, the advancement of Artificial intelligence (AI) has caused a complete paradigm shift on how decisions are made in contemporary organizational management. The multifaceted nature of HI and its role in any decision-making process cannot be underscored. With the proliferation of AI and its robustness in solving complex business problems and guiding decision making, one might be left wondering if HI is still relevant. This paper affirms the management dilemma in the application of AI tools considering its tremendous strengths and potential risks. It further explores the potential benefits of balancing AI and HI in business decision making to create a sustainable optimal business model. The paper is mainly qualitative in its approach and it is informed by the desk review of existing literature in the thematic areas. From the review and arguments presented, the paper concludes that the synergy between AI's data-processing capabilities and the irreplaceable human creativity and judgment presents a unique opportunity for superior business decision making resulting to optimization of business models and better performance. The paper recommends for the development and adoption of strategic policy frameworks by organizations and regulatory bodies that promote effective integration of HI with AI. Finaly, the paper also recommends for deeper empirical research to show some of the best case models on integrating AI and HI for utmost performance.
Key Words; Artificial Intelligence (AI), Human intelligence (HI), Double-edged Dilemma
DOI: 10.7176/EJBM/16-9-02
Publication date: November 30th 2024

Definition of terms

Artificial Intelligence (AI); "the science and engineering of making intelligent machines, especially computer programs capable of performing tasks that typically require human intelligence (McCarthy, 2007).

Human intelligence (HI); a multifaceted cognitive ability that encompasses various mental capacities, such as reasoning, problem-solving, abstract thinking, comprehension, and learning from experience (Gottfredson,1997).

Double-edged Dilemma; a complex scenario where a decision has both positive and negative consequences making it a challenge to determine the best option.

1.0 Introduction and Background of the Study

Human intelligence and its role as the bedrock of all forms of development has been a subject of inquiry since ancient times. Philosophers and scientists have always pondered the nature of the mind, its capabilities and its limitations. However, there is an emerging trend in which there is more focus on the development and deployment of AI given its already demonstrated positive impact on performance of organizations. In the world of business and management decision making, one of the main focuses has been on what opportunities the two forms of intelligence present and how decision makers can leverage on their complementarity to optimize the quality of decision making. Both HI and AI have inherent strengths and limitations that ought to be interrogated and understood in every context of application. For instance, according to McKinsey & Company (2020), AI can reduce R&D costs by up to 20%. However, AI can be limited by its overreliance on historical data and programmed algorithms without factoring the ethical considerations and creativity inherent in HI.

With the emerging trend of AI and its unlimited potential benefits, governments and organizations are seeking and developing strategies on how to exploit and leverage on AI. For example, in 2017, the government of China launched a policy document "New Generation Artificial Intelligence Development Plan." Among the country's

strategic objectives contained in this plan is the focus on AI Technologies that puts greater emphasis on research and development in areas such as machine learning, neural networks, AI chips, and human-computer interaction. Amid increasing pressure to optimize their operations and enhance efficiency, AI-driven tools are increasingly used for strategic decisions. For instance, companies are leveraging on machine learning to optimize outcomes and reduce human error (Karger et al., 2020). Human intelligence on the other hand provides unmatched contextual understanding, ethical considerations, and creativity that may not be adequately provided by AI. This paper argues that integrating these two forms of intelligence can lead to a balanced and sustainable business optimization model. The paper therefore explores how HI can be harmonized with AI in a balanced version for optimal possible results.

2.0 Statement of the Problem

AI has been the most revolutionary innovation that has accelerated unprecedented shift in various business models and approaches. This development has sparked significant debate regarding its impact on the utilization of HI in the different human and social economic dimensions. According to a report by McKinsey Global Institute (2018), AI has had tremendous effect on the global economy and it is projected that it could contribute an additional $13 trillion to the global economy by 2030. However, there has been concerns on the overreliance of AI in business operations and decision making at the expense of HI. While AI has had tremendous positive effect on how decisions are made, it is argued that it holds potential of eroding other vital gains and values in the wider social fabric. For example, a Blueprint for an AI Bill of Rights, Making Automated Systems Work for the American People (October 2022), published by the white house office of science and technology, affirms the tremendous contributions of AI in making life better by driving important decisions across various sectors and revolutionizing global industries. However, the same document enumerates several challenges posed by AI and therefore provides principles that should guide the design, use, and deployment of automated systems to protect the American people. Gerlich (2023) observes that as AI technologies evolve, public opinion becomes more polarized, with some viewing it as a positive transformative force while others express concern about potential risks and ethical implications.

Davenport and Ronanki (2018) observe that many organizations have struggled to find a proper synergistic balance between AI and HI often resulting in suboptimal decision outcomes especially when human judgment is undervalued or omitted from the decision-making equation. This reality presents a dilemma to most managers and organizations on how to derive value by deploying AI tools while upholding and advancing the development of HI. This emerging challenge requires the attention of scholars and researchers to recommend the possible ways of navigating the dilemma. This paper therefore, sought to explore the current state of AI and HI integration in business decision-making.

3.0 Methodology

This paper adopted a qualitative approach by reviewing existing literature in the various thematic areas contained in the topic of the study. To enrich its arguments, corroboration was done with data obtained from reputable academic journals and reports by relevant business and governmental organizations.

4.0 Literature Review

4.1 Contribution of AI in Business Decision Making

The advent of AI has transformed the business landscape and radically reconfigured business models in their quest for competitiveness. Applications of AI tools is evident in areas such as predictive maintenance, customer relationship management, supply chain optimization, and financial forecasting (Agrawal, Gans, & Goldfarb, 2018). One of the outstanding strengths of AI systems is the capacity to process vast and complex data at terrific speeds, enabling businesses to make more informed decisions and optimized operations. For example, Zhao et al. (2022) examines AI's impact on wind energy forecasting, illustrating how AI's data-driven capabilities optimize operations and enhance predictive accuracy. Another study by Alordiah et al. (2023) shows how AI is being adopted in higher education and its contribution to personalized learning and administrative processes. According to Congressional Research Service (2024), AI is accelerating a long, ongoing shift in finance from face-to-face interactions conducted in a customer's community to online products and services fueled by advanced algorithms that require little or no human interaction and can occur anywhere.

The different technological driven advancements underscore not only AI's growing role in solving complex problems across industries but also its strategic role in driving competitiveness. A study by Gartner (2021) for example established that 50% of product-centric companies will deploy AI-driven R&D by 2023 to remain competitive. AI provides a competitive edge in decision-making by utilizing vast datasets and advanced analytics

(Burstein et al., 2008). Research by various scholars on the deployment of AI in business decision-making have shown a positive impact of AI on organizational performance (Peng & Zhang, 2024).

According to Brynjolfsson & McAfee (2014), the ability of AI to identify patterns and trends that human analysts might overlook, enhances more effective strategies and outcomes that lead to enhanced productivity and efficiency. Peng and Zhang (2024) share a similar view that AI technologies enable businesses to predict market trends, optimize resource allocation, and offer personalized customer experiences thus improving decision quality and promoting organizational growth.

The capabilities of AI in data analytics have taken a central place in most business decision making processes leading to unprecedented effects to business organizations and the wider global economic environment. Tusa et al. (2024) conducted a comprehensive research review on the impact of AI in decision making. This research examined 50 articles from reputable sources to analyze the trends, benefits, and challenges of AI in governance. The research established that AI improves efficiency in public administration by automating routine tasks. However, it is still confronted with significant challenges including; ensuring transparency, reducing bias, and maintaining public trust. According to Christopoulos et al., (2016) the role of AI in decision-making within accounting and auditing is growing. However, he suggests that involvement of AI in decision-making can blur traditional ethical lines.

4.2 Human Intelligence in Business Decision Making

Before the emergency of AI, human intelligence has been at the forefront of any business decision making process. According to Gardner (1983), HI encompasses creativity, emotional intelligence, ethical reasoning, and the ability to understand complex social contexts. HI enables business leaders to think outside or without the box, generate innovative ideas, and interrogate possible solutions from varied perspectives. The power of creativity is essential not only in developing new products, but also in formulating unique business strategies, and responding adaptively to market changes (Amabile, 1996). These qualities are only possible within the natural faculties of HI and are often essential considerations in a good business making process. AI by its nature is not capable of factoring such essential dimensions in its highly programmed modeling approach in guiding decision-making. The integration of human intelligence ensures that business decisions are not only data-driven but also aligned to broader social and moral considerations. For instance, considerations of ethical dilemmas that often confront business leaders and that require delicate balancing may not be well adjudicated solely through the lens of AI.

One of the outstanding strengths of HI in business decision-making is emotional intelligence. Needless to mention that AI has no natural emotions and instincts that is an endowment of natural persons. While leaders can understand, interpret, and respond to the emotions of others by use of HI, AI cannot factor in this essential dimension in its modeling. This is important in maintaining customer and other stakeholder relationships (Goleman, 1998) which are key in the long-term sustainability of any business. Emotional intelligence allows humans to build trust, resolve conflicts, and create a positive organizational culture.

4.3 Risks of overreliance on AI While Discounting HI

Despite its tremendous contribution in enhancing business efficiency and decision making, overreliance on AI poses considerable risks especially in diminishing the incomparable benefits of HI. The proliferation of AI and robotic sciences has for example significantly eroded the use of manpower. As AI and its related systems become capable of performing tasks previously done by humans, there is growing concern about job insecurity leading to significant economic and social upheaval (Acemoglu & Restrepo, 2018). Further, research has demonstrated that there is an existential risk that humans may become overly reliant on these technologies, leading to a decline in critical thinking, problem-solving abilities, and creativity. This phenomenon, often referred to as "digital dementia," raises concerns about the long-term impact of AI on human cognitive development (Spitzer, 2012). This trend not only raises a moral question but may create a major social economic crisis with disastrous consequences.

Other issues of concern to the public on overreliance of AI include; data privacy, algorithmic bias, and accountability. Despite these concerns, the reality is that businesses in the contemporary environment have to embrace AI as an essential tool in decision making and performance optimization. Business leaders and managers should only ensure that AI is developed and deployed responsibly to mitigate potential negative consequences (Binns, 2018).

4.4 Complementarity Between AI and HI

The genius of today's organization is the ability to leverage on both AI and HI for superior performance considering that each has unique inherent strengths and limitation. According to Wilson & Daugherty (2018), one of the most outstanding strength of AI is that it can handle data-intensive tasks in a multiple version. Therefore, if well utilized, it can free human workers to focus on strategic, creative, and ethical aspects of business operations. An organization that has learnt the art of the Collaborative approach in deploying the two forms of intelligence, have to a large extent enhanced their decision-making processes leading to more innovative solutions (Ransbotham et al., 2020).

The integrated approach mitigates potential negative implications of overdependence on one of the forms of intelligence. A one-sided approach may result to the lack of adaptability in unforeseen situations. Further, ethical dilemmas that require human sensitivity and moral reasoning can easily escape without due attention from HI. In their contribution to the discussion on the dual approach, Brynjolfsson and McAfee (2017) emphasize that while AI can swiftly process vast amounts of data, it lacks the ability to understand context and make judgments based on values and principles and therefore HI is essential in the equation.

5.0 Conclusions

From the discussions in the paper, it is evident that AI plays an important role in ensuring quality decision hence enhancing organizational competitiveness and ultimately its performance. However, from the reviewed literature, it is also clear that AI holds potential of eroding other vital gains and values that can only be perpetuated and sustained by deploying HI. This paper concludes that the integration of AI and HI holds tremendous potential in business optimization through enhanced business decision. Therefore, a balanced approach is necessary in order to fully benefit from the two forms of intelligence. The adoption of advanced technologies that rely on AI must be complimented by a culture that promotes the development of workforce capabilities.

5.1 Recommendations

From the discussion, the paper recommends that as businesses adopt and promote the use of AI, they should equally invest in continuous training of their workforce to equip employees with the necessary skills to work with AI. Further, clear policy and ethical guidelines be provided by the relevant bodies in the development and deployment of AI to address biases and ensure responsible use of AI. Organizations should also find ways to promote a culture that embraces the complementarity of AI and HI. Finaly, learning and research institutions should develop curriculums and programs which focus on skills such as creativity and emotional intelligence, that complement AI. Finally, the paper recommends that a deeper empirical research and case based quantitative research be done to show case best models on integrating AI and HI for optimal outcomes.

References

Acemoglu, D., & Restrepo, P. (2018). Artificial Intelligence, Automation, and Work. *National Bureau of Economic Research*.

Agrawal, A., Gans, J., & Goldfarb, A. (2018). *Prediction Machines: The Simple Economics of Artificial Intelligence*. Harvard Business Review Press.

Alordiah, C., Zawacki-Richter, O., Bedenlier, S., & Bond, M. (2023). Proliferation of Artificial Intelligence Tools: Adaptation Strategies in Higher Education. *ERIC*. https://files.eric.ed.gov/fulltext/EJ1384682.pdf

Arntz, M., Gregory, T., & Zierahn, U. (2016). The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis. *OECD Social, Employment and Migration Working Papers*, (189).

Binns, R. (2018). Fairness in Machine Learning: Lessons from Political Philosophy. *Proceedings of the 2018 Conference on Fairness, Accountability, and Transparency*.

Blueprint for an AI Bill of Rights, Making Automated Systems Work for the American People (October 2022) https://www.whitehouse.gov/wp-content/uploads/2022/10/Blueprint-for-an-AI-Bill-of-Rights.pdf

Brynjolfsson, E., & McAfee, A. (2014). The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. *W. W. Norton & Company*.

Brynjolfsson, E., & McAfee, A. (2017). *The Business of Artificial Intelligence: What It Can — and Cannot — Do for Your Organization*. Harvard Business Review.

Burstein, F., Holsapple, C., & Power, D. J. (2008). Decision support systems: A historical overview. In *Handbook on Decision Support Systems*. Springer

Chen, D., Esperança, J. P., & Wang, S. (2022). The impact of artificial intelligence on firm performance: An application of the resource-based view to e-commerce firms. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.884830

Christopoulos, A., Kish-Gephart, J., & Sturm, R. (2016). Artificial intelligence-based decision-making in accounting and auditing: Ethical challenges and normative thinking. *Emerald Insight*. https://www.emerald.com

Congressional Research Service (2024), Artificial Intelligence and Machine Learning in Financial Services. Retrieved on 08/10/2014 https://crsreports.congress.gov/product/pdf/R/R47997

Davenport, T. H., & Ronanki, R. (2018). Artificial Intelligence for the Real World. *Harvard Business Review*, 96(1), 108-116.

Floridi, L., Cowls, J., King, T. C., & Taddeo, M. (2018). How to Design AI for Social Good: Seven Essential Factors. *Science and Engineering Ethics*.

Ford, M. (2018). *Architects of Intelligence: The truth about AI from the people building it*. Packt Publishing.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. Basic Books.

Gartner. (2021). Future of AI in product-centric companies. https://www.gartner.com/en/newsroom/press-releases/2021.

Gerlich, M. (2023). Perceptions and Acceptance of Artificial Intelligence: A Multi-Dimensional Study. *Social Sciences, 12*(9), 502. https://doi.org/10.3390/socsci12090502

Gottfredson, L. S. (1997). Mainstream science on intelligence: An editorial with 52 signatories, history, and bibliography. Intelligence, 24(1), 13-23

Heckman, J. J. (2019). Giving Kids a Fair Chance: A Strategy that Works. *MIT Press*.

Karger, E. (2020). Combining blockchain and artificial intelligence for decision-making in organizations. *ScienceDirect*. https://www.sciencedirect.com

McAfee, A., & Brynjolfsson, E. (2017). *Machine, Platform, Crowd: Harnessing Our Digital Future*. W. W. Norton & Company.

McCarthy, J. (2007). What is artificial intelligence? Retrieved from http://www-formal.stanford.edu/jmc/whatisai/ Retrieved 08/06/2014

McKinsey Global Institute. (2018). Notes from the AI Frontier: Insights from Hundreds of Use Cases.

Peng, L., & Zhang, X. (2024). Research on the influence of AI application on business decision making based on machine learning algorithm. In *Proceedings of the 4th International Conference on Economic Management and Big Data Applications*. https://doi.org/10.4108/eai.27-10-2023.2341918.

Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2020). *Artificial Intelligence in Business Gets Real: Pioneering Companies Aim for AI at Scale*. MIT Sloan Management Review.

Spitzer, M. (2012). Digital Dementia: What We and Our Children Are Doing to Our Minds. *Droemer Knaur*.

State Council of the People's Republic of China. (2017). *New Generation Artificial Intelligence Development Plan*. http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm

Topol, E. (2019). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. *Basic Books*.

Tusa, N., Masaquiza, V., Ortiz, A., & Garcia, M. V. (2024). Navigating governmental choices: A comprehensive review of artificial intelligence's impact on decision-making. *Informatics, 11*(3). https://doi.org/10.3390/informatics11030064

Wilson, H. J., & Daugherty, P. R. (2018). *Collaborative Intelligence: Humans and AI Are Joining Forces*. Harvard Business Review.

Zhao, L., Nazir, M. S., & Abdalla, A. N. (2022). A review on proliferation of artificial intelligence in wind energy forecasting and instrumentation management. *Environmental Science and Pollution Research, 29*, 43690–43709. https://doi.org/10.1007/s11356-021-16917-7