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Artificial Intelligence and Business Performance: Enhancing Efficiency and Innovation – A Critical Review

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***Abstract*: Artificial intelligence is considered as a buzz word in global business and many other aspects of human existence today. An empirical analysis of artificial intelligence's (AI) profound effects on organizations is presented in this article, with an emphasis on how AI promotes innovation and increases efficiency. At the centre of modern approaches lies a key undertaking which is how people create ideas and solve different challenges in the marketplace. The choice making aspect of innovation is what researchers and scholars in enterprise talk over with as design. In the past choices in innovation tactics were taken by people. However, the question that arises is 'what happens whilst those key choices can be substituted by means of machines? The purpose of this empirical study is to examine the effects of Artificial Intelligence (AI) on business performance. Artificial Intelligence (AI) brings records and algorithms to the centre of innovation and critical thinking approaches. The theories that underpinned the systematic review are Elton Mayo's theory of interpersonal relationships and the Contingency Theory. Many managers and leaders in business today must constantly ask the question what the results of this infusion of AI and day to day business could potentially be? Based on an extensive examination of empirical literature, this paper offers insightful information about how AI technologies are revolutionizing business.**

***Keywords*: Artificial Intelligence, Business performance contingency theory, Elton Mayo's theory of interpersonal relationships, Innovation.**

1. Introduction

Artificial Intelligence is now a very strong force for change in business. It changes how companies work and make new things among many other aspects of business. This article looks at how AI is innovating business. The key variables at play in this study are Artificial Intelligence which serves as the main independent variable and business performance as the key dependent variable, some of the moderating variables include efficiency, innovation, management, and leadership styles (Ameen et al.,2022). Combining AI technology can lift business achievements by making tasks faster and sparking innovation (Chen et al., 2022)

The above aid in forming the research problem of the study, it addresses the need for a critical review that goes beyond a mere acknowledgment of the potential benefits of AI in business. It aims to provide a nuanced understanding of the actual impact, challenges, and ethical considerations associated with the integration of AI technologies to enhance efficiency and foster innovation in different business contexts (Rajagopal et al.,2022). Researchers could delve into specific industries, organizational sizes, or geographical regions to provide more targeted insights (Korzynski et al.,2023). This study seeks to outline how AI makes work faster and helps with making things in new and innovative ways. Artificial Intelligence making its way into business has started a new era of efficiency like never before. This article seeks to show real examples of how AI helps companies. It delves into how AI is used, tells success stories, and looks at the effect on how companies run today (Korzynski et al.,2023).

A. Artificial Intelligence (AI)

Artificial Intelligence (AI) is defined as the science and technology of intelligent machines (McCarthy, 1955). A lot of research describes AI as a humane program or device used to aid in achieving tasks such as playing games like chess, scrabble, darts and even the very popular online game solitaire. However, today, AI is described as a type of human machine learning, which looks a little like human. According to Arora and Sharma (2023), Artificial Intelligence (AI) refers to the development of computer systems or software that can perform tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, perception, speech recognition, and language understanding. AI systems aim to simulate human intelligence and, in some cases, exceed human capabilities in certain domains (Enholm et al.,2022).

B. Business Performance

Business performance refers to the measurement and evaluation of how well an organization or a firm is doing business. It involves assessing various aspects of business operations such as financial output, financial health, daily efficiency among others (Nguyen et al.,2022). Business performance can be measured using a combination of qualitative and quantitative tools and indicators. Business performance analysis can help managers and leaders make

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important strategic decisions that can help their firms go to the next level (Enholm et al.,2022).

The relationship between Artificial Intelligence and Business performance is a multilayered one. Robert et al., (2022) cautions that with Artificial Intelligence playing a key part in enhancing the way organizations conduct business today, it cannot be ignored. While AI presents numerous opportunities for performance management within an organization, managers must also address the challenges that AI presents to modern business such as data privacy, the need for skilled personnel to manage the new tools that are presented by advent of AI (Van Waeyenberg, and Decramer, 2022). The successful integration of AI in business performance calls for a strategic approach to contemporary styles of management or else the unmitigated effect can be catastrophic (Awan et al.,2020).

C. Efficiency

Efficiency refers to the ability to achieve maximum output with minimum input, utilizing resources in a way that minimizes waste and maximizes productivity (Chen et al., 2022). In various contexts, efficiency can be applied to processes, systems, or organizations. The goal is to optimize the use of resources, whether they be time, energy, money, or other inputs, to produce the desired results effectively and with minimal unnecessary expenditures. Efficiency is a key concept in various fields including Business, manufacturing, engineering and agriculture. In a business context, improving efficiency often leads to increased profitability, reduced operational costs, and enhanced competitiveness (Garrel & Jahn, 2022). Efficiency involves identifying and eliminating inefficiencies, optimizing workflows, and implementing best practices to enhance overall performance. Continuous improvement methodologies, such as Lean or Six Sigma, are often employed to systematically enhance efficiency within organizations (Riapina, 2023).

D. Innovation

Innovation refers to the process of creating, developing, and implementing innovative ideas, products, processes, or services that bring about significant positive change. It involves the application of creativity and problem-solving to address challenges, meet needs, or capitalize on opportunities. According to Riapina (2023), contrary to popular belief Innovation is not limited to technological advancements; rather it can encompass various domains, including business, science, technology, social systems, and more (Gaol,2021). Innovation is considered a driving force for economic growth in any industry in the world. Many organizations actively cultivate a culture of innovation in their day to day running of their businesses. This helps give them a competitive advantage over other businesses that may be in the same industries.

In addition to this Governments, research institutions, and businesses invest in research and development to foster innovation and address societal challenges (Akter et al., 2023). AI an innovation has come to redefine the world of innovation in unprecedented ways. Some of the innovative capabilities that AI has include but are not limited to automating routine and mundane tasks, allowing employees to focus on more complex and strategic activities (Bahoo et al.,2023). AI systems can analyze and optimize business processes, leading to increased efficiency and reduced operational costs just to name a few (Riapina, 2023).

E. Automation and Efficiency Gains

There isn't any doubt that the technological and digital revolution has had an economic effect on almost each factor of our society, life, and business (Alblooshi et al.,2023). This has profound implications for cost savings and resource allocation (Dennehy et al.,2023). Artificial Intelligence (AI) is a precision technology that promises many benefits for organizations leaving new business value in the wake of the current flood of data being experienced due to the internet and its algorithms and strong growth in computing power over the past few years. Oorganizations today are turning heavily to AI to enhance performance particularly in industries that were previously operated manually by humans. Large, diverse, and rapidly changing information assets also known as "big data “make it possible to focus on artificial intelligence (AI) applications that provide computing, mathematics, learning, and strategy based on intelligent algorithm to achieve greater success in business performance (Dwivedi et al.,2019).

F. Artificial Intelligence and Human Resource Management

The area of Human Resource Management (HRM) is undergoing worldwide transformation due to the fast development of recent technology (Ancarani et al., 2019). Indeed, with the rapid development and extensive use of artificial intelligence (AI) and other sophisticated technologies, the relationship between companies, employees and clients is fundamentally converging. HR tasks and administrative components of HRM are automated (Thomaz et al., 2020). In tasks that have historically required human interaction and communication, modern developments are increasingly offering alternatives to human resources (Malik et al.,2019; Luo et al., 2019). Artificial Intelligence is altering organizational structures as well as the nature of work. According to Go and Sundar (2019), these clever "contraptions" have completely changed the way that traditional HRM duties are carried out. Artificial intelligence has also brought about the growth of completely new jobs and roles that previously did not exist, for example prompt engineering and remote assistants. Such innovations provide HRM new opportunities and strengths, but they also present significant concerns, such as the obsolescence of certain jobs (Malik et al., 2019).

G. Predictive Analytics for Decision-Making

AI's ability to analyse vast datasets enables businesses to make more informed and data-driven decisions (Keding, 2021). Predictive analytics algorithms can anticipate market trends, customer behaviour, and potential risks, providing a competitive edge. Organizations embrace AI and new technology with the intention of enhancing or destroying their ecosystems even as growing and optimizing their strategic and competitive advantages. Through constructing on AI factors, corporations can increase the business cost of their converted

offerings. Groups gain efficiencies through the energy of AI when they use their own assets to reconfigure their procedures (Keding, 2021). According to Dear (2019), in his research on artificial intelligence and decision-making, humans must eventually adopt recommendations that rely on such many processors over a wide area that which embraces possible actions that can only be interpreted by artificial intelligence (AI). Soon, most leaders' decision-making will become more stringent due to the increasing use of technology in decision support and decision-making services. An interpretable AI will need human interpreters to achieve its short-term goals (Dennehy et al.,2023).

H. Customer Engagement and Personalization

AI-driven chatbots, recommendation engines, and personalization algorithms elevate customer experiences, leading to increased satisfaction and loyalty (Marr,2016). Tailored interactions contribute to innovation in customer engagement strategies. A study conducted by Bag et al., (2022) showed a positive relationship between user engagement and change using AI technologies. These changes have made the customer user experience more satisfying. Additionally, Bag et al., (2022) opined that AI is totally based on systems gaining knowledge of models driven through huge facts and databases (Dubey et al., 2020). The role of AI in customer experience, sales, advertising and marketing is to enhance the quality of various customer engagement campaigns, improve the performance of content advertising, take a deeper look at sample analysis, place pressure on and deliver successful income and marketplace segmentation predictions (Miller, 2019). Google Analytics, AdWords, and Search Engine Optimization are a number of famous AI tools that are gaining momentum in customer satisfaction and retention discussions (Thomaz et al., 2020).

Consumer behaviour has changed dramatically due to the COVID-19 pandemic. Confinement, social distancing, and travel restrictions in the midst of this epidemic led to new behaviours particularly in the area of Customer Engagement (Sheth, 2020), not to mention dramatic changes in the global economy (Carroll & Conboy, 2020). The rapid response required by COVID-19 has necessitated the use of digital technologies in all aspects of life (Tuli et al., 2020) and people around the world have taken preventive actions to protect themselves. Individual self-efficacy and perceived severity can now be used to monitor and assess customer behaviour change due to AI (Reddipalli, 2020).

I. Innovation Through AI: Product and Service Development

AI accelerates innovation by expediting the research and development phase of any business. Artificial Intelligence models can analyse market demands, facilitating the creation of products and services that align with evolving customer needs (Tuli et al., 2020). A study conducted by Prem (2019) gave examples of AI based innovation which include sophisticated analytical tools for object recognition in video streams using known data, innovative applications using speech recognition, and new optimization techniques for objects, an advanced portability achieved through automated knowledge acquisition. Unfortunately, like many studies conducted in support of AI, the study failed to discuss the negative effects on the supply chain process (Bag et al., 2022). Although the history of AI technology spans over 100 years with recent advances in data processing tools, falling computing and data storage costs, and a deeper understanding of our environment, a new wave of products and services are bound to see an upsurge in business in the near foreseeable future (Mondal et al., 2023)

According to Riapina (2023), information Communication and Computer Technology (ICCT) is considered a universal general technology because of its ability to solve many problems related to basic human social needs, long term aspirations and dreams. Important technologies under ICCT emerging as 21st century technologies include artificial intelligence and robotics, big data and business analytics, blockchain technology, cloud computing and storage, digital commerce, 3D printing, internet of things, ubiquitous online education, optical computing, and information storage technology (Häußermann et al.,2022). A major gap that the study failed to address included examining the user experience aspects related to digital services implemented using ICCT technologies. The study Identified ICCT baseline technologies for use in a number of major service projects and establish and analyze the management of ICCT baseline technology implementation strategies for digital innovation in third-party sectors. Another gap that the study also failed to investigate any regulatory or ethical considerations associated with the use of ICCT technologies in digital service innovation.

J. Process Optimization

A study conducted by Mondal et al., (2023) highlighted the idea that AI disrupted the world. In 2022 as many corporations such as DALL-E, Mid Journey, Stable Diffusion, and many other startups emerged. After this in just a short time, ChatGPT became one of the most used platforms on the internet, with more than a million users. The study, however, failed to address the effect the disruption had on other aspects of running the business such as human resource management among other business processes. In response to ChatGPT, Google introduced Bard on February 7, 2023. AI supports continuous improvement initiatives by identifying inefficiencies and recommending optimization strategies (Brynjolfsson & McAfee, 2019). This iterative approach fosters a culture of innovation within organizations. Through these and many other emerging innovations, it is clear that process optimization will continue to increase.

2. Conclusion

The evolution of AI in business is an ongoing journey with far-reaching implications for organizational efficiency and innovation. As AI technologies advance, businesses must remain adaptive and ethically conscious to harness the full potential of this transformative force. Risks from artificial intelligence vary and depend on the application. According to most contemporary scholars, the benefits of artificial intelligence outweigh the widespread risks, especially in a

world of commercial applications and its use makes a world more innovative and cleverer. The key is to put into place checks and balances to help optimize the benefits of AI for business optimization.

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