

BUSINESS MANAGEMENT CHALLENGES AND THEIR IMPROVEMENT BY ARTIFICIAL INTELLIGENCE

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ABSTRACT

The main purpose of our study is to analyze the influence of Artificial Intelligence (AI) on firm performance, notably by building on the business value of AI-based transformation projects. This study was conducted using a four-step sequential approach: (i) analysis of AI and AI concepts/technologies; (ii) in-depth exploration of case studies from a great number of industrial sectors; (iii) data collection from the databases (websites) of AI-based solution providers; and (iv) a review of AI literature to identify their impact on the performance of organizations while highlighting the business value of AI-enabled projects transformation within organizations.

In the e-commerce and financial industries, AI has been deployed to achieve better customer experience, efficient supply chain management, improved operational efficiency, and reduced mate size, with the main goal of designing standard, reliable product quality control methods and the search for new ways of reaching and serving customers while maintaining low cost. Machine learning and deep learning are two of the most often used AI approaches. Individuals, businesses, and government agencies utilize these models to anticipate and learn from data.

KEYWORDS: *Business Management, Artificial Intelligence, Management Improvement, Artificial Intelligence Development, Machine Learning.*

INTRODUCTION

Artificial Intelligence (AI) are a wide-ranging set of technologies that promise several advantages for organizations in terms off added business value. Over the past few years, organizations are increasingly turning to AI in order to gain business value following a deluge of data and a strong increase in computational capacity. Nevertheless, organizations are still struggling to adopt and leverage AI in their operations. The lack of a coherent understanding of how AI technologies create business value, and what type of business value is expected, therefore necessitates a holistic understanding. This study provides a systematic literature review that attempts to explain how organizations can leverage AI technologies in their operations and elucidate the valuegenerating mechanisms. Our analysis synthesizes the current literature and

highlights: (1) the key enablers and inhibitors of AI adoption and use; (2) the typologies of AI use in the organizational setting; and (3) the first- and second-order effects of AI. The paper concludes with an identification of the gaps in the literature and develops a research agenda that identifies areas that need to be addressed by future studies.

What is business management and what activities does it include?

Business management is the process of overseeing and coordinating the various activities within an organization to achieve specific goals and objectives. It involves planning, organizing, leading, and controlling all aspects of a business to ensure its success.

1. **Planning:** This involves setting goals, developing strategies, and creating plans to achieve those goals. It also includes forecasting future trends, analyzing market conditions, and making decisions about resource allocation.
2. **Organizing:** This involves designing the organizational structure, allocating resources, assigning tasks, and establishing processes and procedures to ensure efficient operations. It also includes establishing communication channels and defining roles and responsibilities.
3. **Leading:** This involves motivating, guiding, and inspiring employees to work towards the organization's goals. It also includes providing direction, resolving conflicts, and ensuring that employees have the necessary skills and resources to perform their tasks effectively.
4. **Controlling:** This involves monitoring performance, evaluating results, and taking corrective actions to ensure that goals are being met. It also includes measuring progress, analyzing variances, and making adjustments as needed to improve performance.

Overall, business management encompasses a wide range of activities that are essential for the successful operation of an organization. It requires strong leadership, effective communication, strategic decision-making, and the ability to adapt to changing market conditions.

Does business management bring challenges?

Yes, business management brings various challenges. Some of the common challenges include:

1. **Strategic decision-making:** Business managers need to make strategic decisions that can have a significant impact on the organization. These decisions require careful analysis of market trends, competitor activities, and internal capabilities.
2. **Managing resources effectively:** Business managers need to allocate resources such as finances, manpower, and materials efficiently to maximize productivity and achieve organizational goals.
3. **Dealing with uncertainty:** The business, and managers need to adapt to unexpected events such as economic downturns, technological disruptions, or changes in consumer preferences.
4. **Leading and motivating employees:** Managing a team of employees requires effective leadership skills to inspire, motivate, and guide them towards achieving organizational goals.
5. **Ensuring compliance with regulations:** Businesses need to comply with various regulations and laws, which can be complex and time-consuming to navigate.
6. **Handling conflict and resolving disputes:** Managers may encounter conflicts within the organization, whether between employees, departments, or with external stakeholders. Effective conflict resolution skills are essential to maintain a harmonious work environment.

Overall, business management is a challenging field that requires a combination of skills, knowledge, and experience to successfully navigate the complexities.

Business management challenges can be both good and bad, depending on how they are approached and dealt with. On the positive side, challenges in business management can provide opportunities for growth, learning, and innovation. They can push managers and employees to think creatively, problem-solve effectively, and develop new skills. Overcoming challenges can also lead to a sense of accomplishment and increased confidence.

On the negative side, business management challenges can be stressful, time-consuming, and frustrating. They can impact productivity, morale, and overall company performance if not addressed promptly and effectively. Persistent challenges can also lead to burnout and high turnover rates among employees.

Ultimately, how managers approach and handle challenges in business management will determine whether they have a positive or negative impact on the organization. By fostering a culture of resilience, adaptability, and collaboration, managers can turn challenges into opportunities for growth and success.

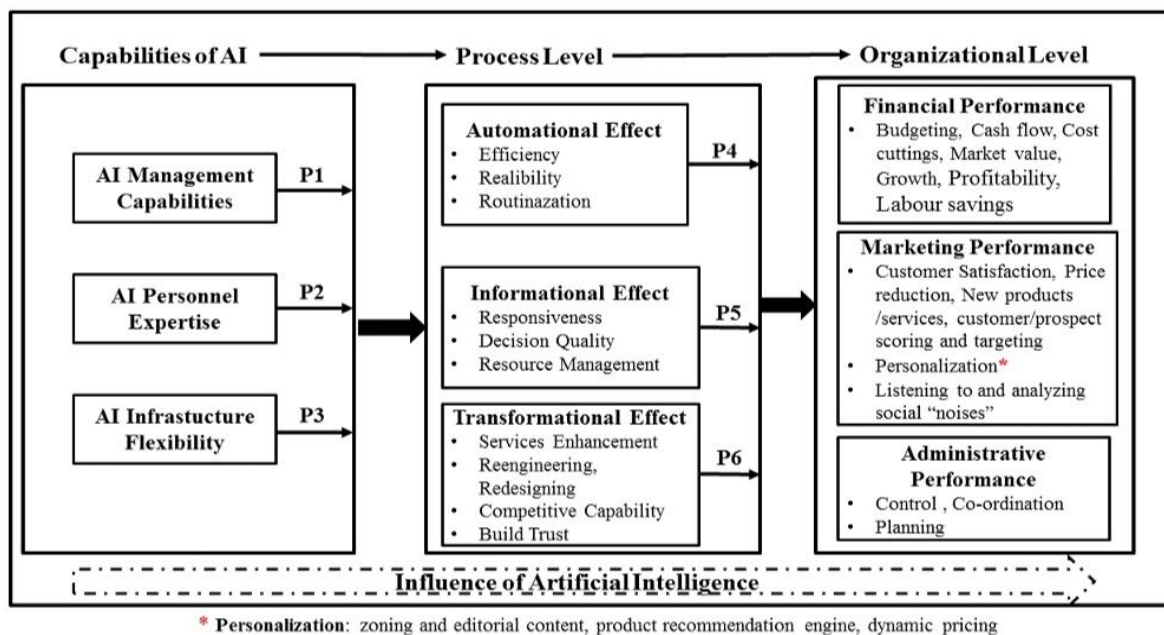


Figure 1: Research model, Adapted from Anand and Fosso Wamba (2013)

Can we get help from artificial intelligence in the field of improving business management challenges?

Yes, artificial intelligence can be a valuable tool in improving business management challenges. AI can help streamline processes, analyze data to make more informed decisions, automate repetitive tasks, and provide insights for better strategic planning. AI-powered tools such as predictive analytics, machine learning algorithms, and natural language processing can assist managers in identifying trends, predicting outcomes, and optimizing operations. Additionally, AI can enhance communication and collaboration among team members through chatbots, virtual

assistants, and project management platforms. Overall, leveraging AI technology can lead to increased efficiency, productivity, and innovation in business management.

While artificial intelligence can certainly assist and enhance various aspects of business management, it is unlikely that AI will completely replace humans in this field.

AI excels at processing large amounts of data quickly and accurately, identifying patterns and trends that may not be obvious to human analysts. This can be incredibly useful for making data-driven decisions and forecasting outcomes. AI can also handle routine tasks efficiently, freeing up human managers to focus on more strategic and creative aspects of their work.

However, there are several key skills and qualities that human managers possess that AI currently cannot fully replicate. For example, human managers bring emotional intelligence, critical thinking, creativity, and the ability to navigate complex interpersonal dynamics to the table. These skills are essential for effective leadership, communication, problem-solving, and decision-making in business management.

Furthermore, human managers are better equipped to understand the nuances of a specific industry or organization, adapt to changing circumstances, and provide empathy and support to their teams. While AI can provide valuable insights and recommendations, it lacks the contextual understanding and intuition that human managers bring to the table.

In conclusion, while AI can be a powerful tool for business management, it is unlikely to completely replace human managers. Instead, the most successful organizations will likely be those that find ways to leverage the strengths of both AI and human managers in a complementary and collaborative manner.

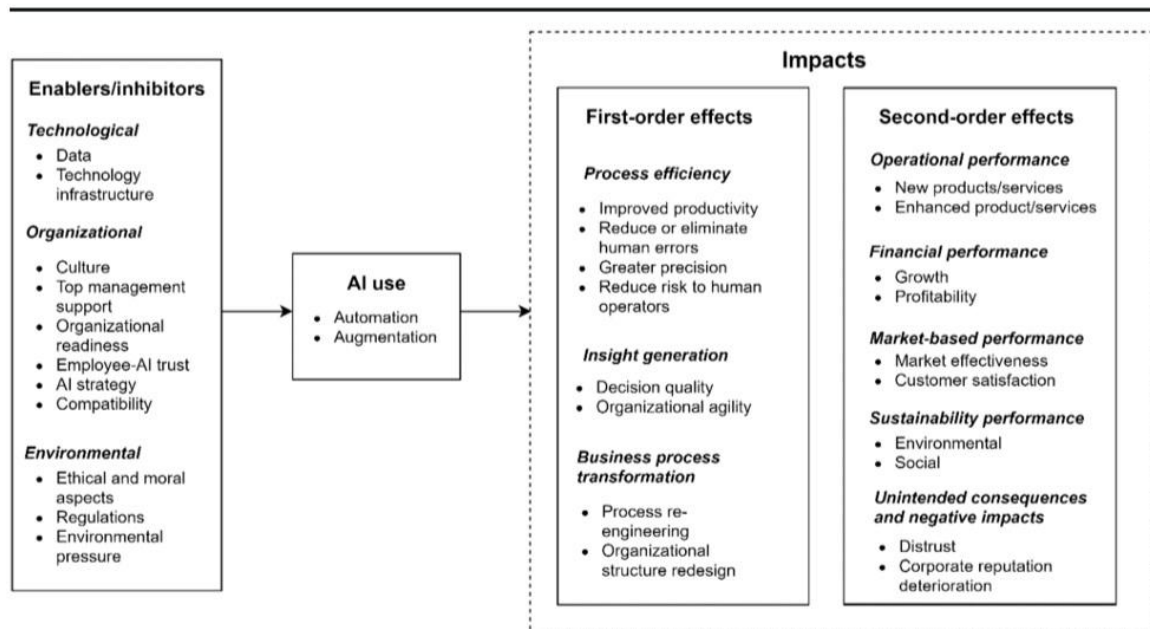


Fig. 2 Organizational framework of AI and business value

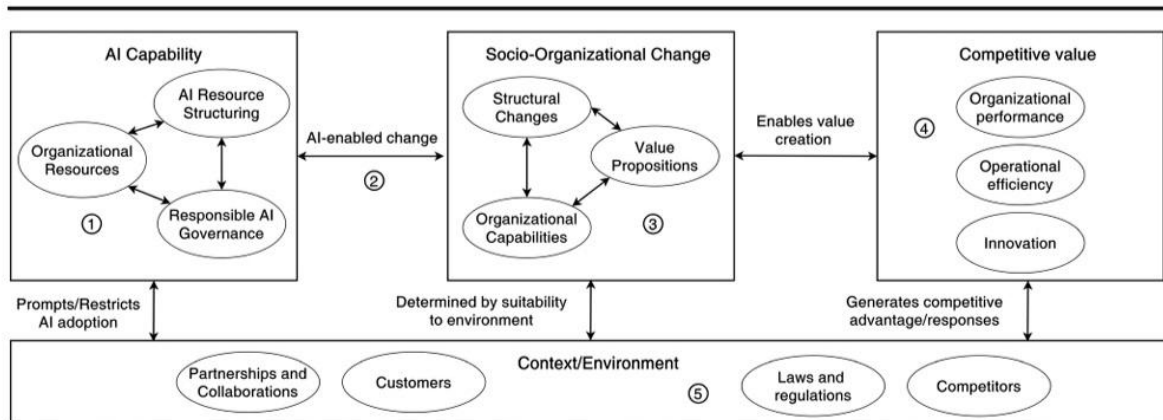


Fig. 3 AI and business value research framework

Information technologies (ITs) have become ubiquitous in professional activities, disrupting and affecting all core processes and operations (Devaraj & Kohli, 2003; Nwamen, 2006). When integrated with the ecosystem of businesses, IT can produce visible impacts, especially on the relationship between the company and its customers, prospects, and partners (Lauterbach, 2019; Nwamen, 2006). They also play a key role in the way companies' processes and operations will evolve. Today, AI remains the most spectacular IT application, a technology that has gone through an unequalled development over the last decades (Blanchet, 2016; Lee, Davari, Singh, & Pandhare, 2018; Wiljer & Hakim, 2019). It is defined as a set of 'theories and techniques used to create machines capable of simulating intelligence. AI is a general term that involves the use of a computer to model intelligent behavior with minimal human intervention' (Benko & Lányi, 2009; Haenlein & Kaplan, 2019; McCorduck, Minsky, Selfridge, & Simon, 1977). IDC estimates that 40% of digital transformation initiatives in 2019 will use AI services and that 75% of business applications will use AI by 2021 (Crews, 2019). To improve productivity and develop new services, organizations will have to rely even more on AI to improve their performance (CIGREF, 2016, 2018; Crews, 2019).

While Artificial Intelligence (AI) is not something new, it has gained much attention in recent years (Ransbotham et al., 2018). AI has been argued to be a force of disruption for businesses worldwide and in a wide range of sectors (Davenport & Ronanki, 2018). Organizations implementing AI applications are expected to attain gains in terms of added business value, such as increased revenue, cost reduction, and improved business efficiency (AlSheibani et al., 2020).

The introduction of AI in organizational operations signals a new set of barriers and challenges (Duan et al., 2019). Some of these include bridging cross-domain knowledge to develop models that are accurate and meaningful (Duan et al., 2019), identifying, integrating and cleansing diverse sources of data (Mikalef & Gupta, 2021), and integrating AI applications with existing processes and systems (Davenport & Ronanki, 2018). To capture the potential value from AI, organizations need to understand how to overcome these challenges as well as the value-adding potential of these technologies. Yet, recent research on AI is more focused on a technological understanding of AI adoption than identifying the organizational challenges associated with its implementation (Alsheibani et al., 2020). While some studies have identified research gaps (Dwivedi et al., 2019), and looked at important aspects in being able to leverage AI technologies (Mikalef & Gupta, 2021), there is still a lack of a holistic understanding of how AI is adopted and used in organizations, and what are the main value-generating mechanisms.

CONCLUSION

AI is increasingly becoming important for organizations to create business value and achieve a competitive advantage. However, many AI initiatives fail even though time, effort, and resources have been invested. There is a lack of a coherent understanding of how AI technologies can create business value and what type of business value can be expected. And AI has been used in the e-commerce and financial industries to improve customer experience, efficient supply chain management, operational efficiency, and market size, with the main goal of designing standard, reliable product quality control methods and the search for new ways of reaching and serving customers while keeping costs low. Deep learning and machine learning are two of the most popular AI techniques. These models are used by individuals, corporations, and government organizations to predict and learn from data. At the moment, machine learning models for the complexity and diversity of data in the food sector are being created. This article addresses the uses of machine learning and artificial intelligence in e-commerce, business management, and finance. Some of the most common applications include sales growth, profit maximization, sales forecasting, inventory management, security, fraud detection, and portfolio management.

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5. <https://doi.org/10.1016/j.matpr.2021.06.419> 2214-7853/ 2021 Elsevier Ltd. All rights reserved.
6. McCulloch and Pitts invented in 1943 the first mathematical model of the biological neuron, the formal neuron, using a physiological approach to AI (Benko&Lányi, 2009; Haenlein& Kaplan, 2019; McCorduck, Minsky, Selfridge, & Simon, 1977).
7. Wiener develops cybernetics, the science of how the human mind works, with the aim of modelling the mind as a "black box" with behavior dependent on feedback mechanisms. But this approach postulates that the brain and the architecture of its hundreds of billions of cells are mathematically mobilizable. This approach was further sublimated by the work of Donald Hebb, who is helping to endow formal neurons with learning capacities (Brown & Milner, 2003).
8. Herbert Simon introduced the notion of limited rationality in 1947. Later, in 1945, Allen Newell introduced the notion of heuristics for problem solving; an empirical method of problem solving, whose validity or efficiency is not proven. Their work also illustrates the

cross-fertilization between computer science and AI. Firstly, the development of computer science makes it possible to conduct AI experiments; and secondly, the problems posed by AI experiments lead to the production of tools that serve the development of computer science (Benko&Lányi, 2009; Haenlein& Kaplan, 2019; McCorduck et al., 1977).

9. Between 1937 and 1948, Shannon established the link between Boolean algebra and electrical circuits and thus designed the digital electronics and information theory (Verdu, 1998).
10. In 1956 Newel, Simon and Shaw developed the Information Processing Language (IPL), with list structures, allowing the manipulation of chained elements to reproduce the associative character of human memory (Benko&Lányi, 2009; Haenlein& Kaplan, 2019; McCorduck et al., 1977).
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