

Artificial Intelligence and Managerial Decision-Making in International Business

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Abstract: Management in the age of artificial intelligence (AI) presents unique challenges and opportunities, especially in the international landscape. The technology is constantly evolving, and managers need to adapt to the new landscape that is emerging to harness its potential while considering and anticipating the risks involved. AI can disrupt traditional leadership models by automating specific tasks and decision-making processes. This challenges managers to align with this new reality and use AI to drive innovation and productivity. In addition, managers must navigate and adapt to the evolving regulatory environment, understanding but also complying with regulations around AI, data protection, and privacy, while advocating for responsible and fair governance. While AI significantly impacts management processes, the academic literature on the subject is still emerging. This study aims to explore the challenges posed by AI and how international business managers can use this technology to drive decision-making and benefit their organizations. Ten interviews were conducted with senior executives from a range of industries to collect qualitative primary data. The findings show that AI can help with decision-making, automate many processes, and improve efficiency. Top managers can use AI tools to address many challenges more effectively, but they need to understand the ethical implications and concerns that continue to arise. The findings provide theoretical implications and practical recommendations for top managers using AI technologies. Senior executives should develop AI-focused strategies; as AI becomes more prevalent across industries, managers need to understand how to integrate AI technologies into their organizations successfully.

Keywords: Decision-making, Artificial intelligence, Technological innovation, Management challenges, International business

1. Introduction

Management in the age of artificial intelligence (AI) presents unique challenges and opportunities, especially in the international landscape. As innovation is an important part of modern business (Agoraki et al., 2024; Pistikou et al., 2024), technology is constantly evolving (Deirmentzoglou and Deirmentzoglou, 2020), and leaders must adapt to the emerging landscape to harness its potential while considering and anticipating its risks. AI can disrupt traditional leadership models by automating certain tasks and decision-making processes. This challenges leaders to adapt to this new reality and leverage AI to drive innovation and productivity. In addition, leaders must navigate and adapt to the evolving regulatory environment, understanding but also complying with regulations around AI, data protection and privacy, while advocating for responsible and fair governance (Peifer, 2022).

A primary concern is the ethical implications of AI. Managers should focus on understanding the potential risks and establishing guidelines to ensure that AI is developed and implemented in a responsible and inclusive manner (Jobin et al., 2019). Additionally, leaders need to develop a digital mindset in order to lead effectively in the AI era. This includes gaining knowledge and understanding of AI technologies, their potential applications, and their limitations. It also requires cultivating a culture of continuous learning and embracing change to adapt to the evolving AI landscape (Singh et al., 2022).

Managers need to consider the potential impact of AI on the workforce. AI may automate routine tasks. To ensure workers remain relevant in a technology-based economy, managers must anticipate changing skill requirements and provide opportunities to refresh and upgrade skills (Watson et al., 2021). In addition, effective managers will leverage AI technologies themselves. A.I. can help managers make decisions, automate administrative tasks, and improve workflow efficiency. By embracing AI tools, leaders can be more strategic, innovative, and better equipped to tackle complex challenges (Peifer, 2022).

While AI is having a significant impact on management processes, the academic literature on the subject is still emerging. The purpose of this study is to explore the challenges posed by AI and how international business managers can use this technology to drive decision-making and benefit their organizations. To achieve this, ten interviews are conducted with senior international business executives from a variety of industries to collect qualitative primary data. This study provides theoretical implications and practical recommendations for leaders using AI technologies.

2. Literature Review

Artificial intelligence (AI) is a major human effort to create machines that can act like a human. To achieve a refinement effort needs a contribution of many sciences such as psychology, philosophy and others, so that it can provide answers and solutions to questions and problems. AI is increasingly becoming a necessary tool for many organizations to be more competitive, efficient, and agile relative to their competitors, and to stay current in an ever-changing external environment. Most organizations use AI to optimize the quality of decisions, to gather new information and data, and to automate certain processes. Therefore, and according to the above, AI brings a new model to the work environment, as more and more organizational leaders are using it to make critical and important decisions.

A key concern of many researchers on AI is whether it will be able to make decisions on its own and replace human leadership. Some believe that a machine will never be able to replace the human mind, human nature, because these machines are still far from emotions. Therefore, leaders who use AI as a means to make decisions add empathy, so they can understand the emotions of those in command to make the best decision possible. What AI still lacks is critical thinking, as sometimes idiosyncratic problems arise that only the human mind in particular can successfully address (Jones, 2018).

The use of AI is causing significant changes for employees and managers alike, but it is also creating new challenges. These challenges fall into three main categories: 'strategic transformation process', 'skills and competencies', and 'culture and human-AI interaction' (Peifer, 2022). Leaders face significant challenges, as they need to be retrained to use it, to ensure transparency of AI, but also to form an ethical profile, as AI brings to a work environment the creation of new skills, which requires retraining of leaders, as well as the use of transparency, which creates a climate of trust between management and those managed. Having said all this, it is worth mentioning that in order to achieve the above, a leader with an open and evolving mind to the future changes that are increasingly invading everyday life is needed, as the use of AI is a necessity for the sustainability of an organization in a competitive environment (Smith and Green, 2018).

The use of AI has had a particularly significant impact on the way an organization is organized and operates. This continuous technological development logically has a significant impact on the modern leader. The functions of AI and its specificity to collect and process a large amount of data, helps to optimize decision-making in the areas of marketing, sales, production, understanding and human resource management by executives in charge of managing an organization (Canals, 2020).

The use of AI and new technologies in general is not enough to transform an organization. For a thoughtful and smooth transformation of an organization, an appropriate environment for employee adaptation should be created by the leader with the help of training for both the leader and the employees (Watson et al., 2021). Therefore, it can be understood that the role of the leader is becoming increasingly challenging due to the constant changes as management becomes more specific and complex (Heukamp, 2019).

Modern managers have to emphasize the constant development of new technological data, and the constant updating of his knowledge in the field in which he is located. They still have to acquire knowledge using AI for data exploration (Smith and Green, 2018). Then, they have to place significant emphasis on ethical issues that are increasingly arising as the use of AI becomes established in a work environment. Finally, it is clear that managers must be prepared to deal immediately with any internal or external crisis that may arise (Watson, 2021).

3. Methodology

To explore the challenges posed by AI and how international business managers can use this technology to drive decision-making and benefit their organizations, ten interviews are conducted with senior international business executives from a variety of industries in the European Union to collect qualitative primary data from a descriptive scope. Through semi-structured interviews, we gave interviewees the opportunity to elaborate

on their experiences and express their personal views on each question. The questions addressed the significance of AI in contemporary leadership and on managerial decision-making in international business.

In terms of the characteristics of the respondents, one individual is involved with the health sector, specifically a company related to health quality assurance and holds a senior management position. Two respondents are from real estate companies and hold CEO positions. One individual is from a global financial organization and holds a managerial position. Two respondents are from the tourism industry and hold senior management positions. One individual is from a real estate development and engineering company with a CEO title. There were also two respondents who hold senior management positions in a legal services consulting firm and an asset management accounting firm. The last respondent holds a senior management position in a public relations firm.

4. Findings

Data analysis was carried out in the native language of the survey participants to prevent any ambiguity or misinterpretation. Initially, the interviews were individually examined using an inductive approach (Thomas, 2006) before being compared with each other. The emerging themes were documented and summarized. The findings were grouped according to the following emerging themes.

4.1 Challenges and Opportunities Arising From the Integration of AI Technologies Into Management

The integration of AI technologies into management practices creates several challenges as well as unique opportunities. Some of the positives identified from its use include the ability for managers to deal with multiple crises simultaneously. However, there is a reluctance to synchronize AI systems with human resources, as more and more training is needed, which must evolve as fast as the technological data. The educational part to overcome the challenges, but also as an opportunity for staff training, is seen as a key element by all respondents. Of course, there are also some concerns, such as ethics, protection of personal data, but also managing the perception that members of a group have of artificial intelligence.

One of the challenges is to ensure that AI systems are reliable. AI technologies are heavily data-driven, and if the data used to train these systems is biased or incomplete, it can lead to incorrect decisions. Therefore, it is critical to carefully curate and validate the data used to train AI systems to ensure fairness and accuracy. Another challenge is the potential for job displacement. As AI technologies become more advanced, there is concern that some tasks traditionally performed by executives and crisis managers could be automated. This could lead to job losses and require individuals to upskill or retrain to adapt to the changing landscape.

However, there are also many opportunities arising from the integration of artificial intelligence technologies into leadership and crisis management practices. Artificial intelligence can provide leaders with valuable insights and predictive analytics, enabling them to make more informed decisions. For example, AI algorithms can analyze large amounts of data to identify patterns and trends, helping leaders anticipate and mitigate potential crises. They can also use AI technologies to improve communication and collaboration in crisis situations. Chatbots and virtual assistants can provide real-time information and support to people affected by a crisis, freeing up human resources to focus on more complex tasks. In addition, AI-powered tools can help coordinate response efforts, optimize resource allocation, and facilitate effective communication between different stakeholders.

AI can also assist executives and crisis managers with scenario planning and risk assessment. By simulating different crisis scenarios, AI systems can provide insight into possible outcomes and help leaders develop robust contingency plans. In summary, while there are challenges to be overcome, the integration of AI technologies into leadership and crisis management practices offers significant opportunities for improved decision-making, better communication, and more effective crisis response. It is important to approach integration carefully, ensuring ethical considerations and using AI as a tool to augment, rather than replace, human capabilities.

"The biggest challenges are around ethics, data privacy, and managing team members' perceptions of AI." (R1)

"Ability to manage several crises at the same time - modern environment, constant updating of new technologies, integration, development and training of human resources, difficulty of human resources to adapt to constant changes and increasing speed of information and increasing workload due to constant need to train them." (R2)

4.2 The Impact of AI on Leadership Practices in Crisis Management

After an extensive analysis of all the responses, there is a positive sign in the use of artificial intelligence by leaders, but with caution. As for the positive elements, the extraction and analysis of a large amount of information and data in a short period of time, with a limitation of human error during the data analysis process. Improved predictive capabilities, such as the creation of realistic simulations and "scenario" planning, which allow organizations to better prepare for various scenarios and enhance their crisis management capabilities. which allow early detection of potential crises and risks. Again, there is a reluctance to invest in the education and training required to use new technologies. In all cases, however, there is talk of human leadership giving direction to management and decision making and leaving the analysis to artificial intelligence.

It is important to note, however, that while AI can provide valuable support, it should not replace human leadership in crisis management. Human judgment, empathy, and intuition are still critical to navigating complex and unpredictable crisis situations. AI should be seen as a tool to augment and enhance leadership practices, rather than a substitute for human decision-making. In conclusion, the impact of artificial intelligence on leadership practices in crisis management is significant. AI can enhance situational awareness, support decision-making, and facilitate resource allocation and coordination. By harnessing the power of artificial intelligence, leaders can be better equipped to effectively manage crises and mitigate their impact.

"AI enhances leadership and crisis management by providing powerful tools for data analysis, decision making, automation, and proactive planning. By leveraging AI technologies, leaders can more effectively navigate challenges, respond to crises with agility, and optimize various aspects of organizational management." (R7)

4.3 The Extent to Which AI is Integrated Into Crisis Management Strategies and the Implications for Managerial Effectiveness

The key practices and strategies relate to basic understanding of AI, ongoing training, and how to integrate AI into a strategic plan in a safe and functional manner. Organizations can develop effective managers able to navigate the challenges and opportunities presented by AI by blending leadership development practices (e.g., training, adaptability, flexibility, communication) and crisis management strategies (e.g., regular testing and evaluation, crisis communication plan, post-crisis evaluation and learning).

When it comes to crisis management, AI can be used for a variety of purposes. For example, AI-powered chatbots can provide immediate and accurate information to the public during an emergency, helping to alleviate panic and provide guidance. AI algorithms can also analyze social media data to detect early warning signs of crises, such as natural disasters or public unrest, allowing authorities to respond proactively.

In addition, AI can help with resource allocation and logistics planning during crises. By analyzing historical data and current conditions, AI algorithms can optimize the distribution of resources, such as medical supplies or emergency personnel, to areas of greatest need. This can help improve response times and save lives. When it comes to leadership effectiveness, AI can provide valuable support to leaders in crisis situations. AI algorithms can analyze data from multiple sources, including sensor networks, social media, and news reports, to provide real-time situational awareness. This allows leaders to make informed decisions based on accurate and up-to-date information.

"Organizations can cultivate effective leaders capable of navigating the challenges and opportunities presented by AI by combining managerial practices (e.g., training, adaptability, flexibility, communication) and crisis management strategies (e.g., tactical testing and evaluation, crisis communication plan, post-crisis evaluation and learning)." (R4)

4.4 Assessing Managers' Adaptability to Technological Developments in the age of AI

In this rapidly evolving digital landscape, leaders must be open-minded and willing to embrace new technologies, including artificial intelligence. They should understand the potential benefits and challenges that AI brings to their organizations and industries. Adaptability in this context refers to a leader's ability to understand and leverage AI to drive innovation, efficiency, and growth. It involves being open to change, constantly learning about new technologies, and being willing to experiment and take calculated risks.

A key aspect of adaptability is a growth mindset. Managers should be willing to learn and unlearn, as AI technologies may disrupt traditional ways of doing things. They should be open to exploring how AI can

improve decision-making processes, automate routine tasks, and enhance customer experiences. In addition, leaders must foster a culture of innovation and encourage their teams to embrace AI. This includes providing resources and training to help employees develop the skills necessary to work with AI technologies. It's important for leaders to create an environment that encourages experimentation and learning from failure, as the implementation of AI may not always go smoothly.

It's worth noting, however, that adaptability does not mean blindly embracing every AI trend. Managers should also be critical thinkers and assess the ethical implications, potential biases, and risks associated with artificial intelligence. They should ensure that AI is used responsibly and in a way that aligns with their organization's values and goals. In summary, leaders' ability to adapt to technological developments, especially in the age of artificial intelligence, is critical to remaining competitive and driving innovation. It requires a growth mindset, a willingness to learn and experiment, and a focus on creating a culture of innovation. By embracing AI and harnessing its potential, leaders can position their organizations for success in this rapidly evolving digital age.

"The main challenges are: combining AI with the company's human resources, training employees in AI systems, proper use of AI, safety nets to protect the company's sensitive data, developing systems so that AI can be used. The above challenges can be addressed through training in AI and a full understanding of the risks involved." (R8)

4.5 Identifying the Skills and Competencies Needed for Managers in the age of AI

From the analysis of the responses, it should be mentioned that managers should have a deep understanding of all the positive and negative aspects of artificial intelligence. In any case, as has been observed, there is a need for training and understanding of artificial intelligence by managers, as they will be asked to evaluate and choose to what extent and in what areas they will use this technology. They also need training to know how to use new technologies to increase efficiency and effectiveness. Managers need a solid understanding of the capabilities, implications, and ethical considerations of AI. Educating and training leaders in AI is integral to building a foundation of knowledge, skills, and ethics necessary for effective crisis management.

While AI can automate many tasks, managers need to connect with their teams on a human level. Emotional intelligence, including empathy, communication and collaboration skills, will be even more important in the age of artificial intelligence to foster trust and build strong relationships. Managers need to think strategically about how AI can be integrated into their organization's overall goals and objectives. They should identify opportunities where AI can add value, streamline processes, and improve the customer experience.

Artificial intelligence is a rapidly evolving field, and leaders need to be lifelong learners. They should keep up with the latest developments, attend conferences, participate in training programs, and work with experts to expand their knowledge and stay ahead of the curve. Implementing artificial intelligence often requires organizational change. Leaders should be skilled at managing change, including communicating the benefits of AI, dealing with resistance, and ensuring a smooth transition for employees. Overall, leaders in the age of AI will need a combination of technical expertise, adaptability, ethics, emotional intelligence, strategic thinking, continuous learning, and change management skills to effectively harness the power of AI and move their organizations forward.

"Managers must be technologically literate to make informed decisions about the adoption, integration, and governance of AI. Educating and training leaders in AI is essential to building a foundation of knowledge, skills, and ethics necessary for effective crisis management." (R7)

4.6 The Importance of Modern Leadership and Crisis Management in the age of AI

During the 4th industrial revolution, strong leadership is necessary that will redefine the meaning of the work of the human potential and through their continuous education will lead them to join creative groups that will pursue and achieve common goals. Modern managers will be called upon to face many crises, which they will achieve only through the practice of modern management methods. Artificial intelligence has the potential to help companies grow in depth. It provides the possibility of a more efficient utilization of resources. Modern leadership and crisis management are essential in the age of artificial intelligence. Artificial intelligence technologies are rapidly transforming our entire world, including industries, affecting the way organizations operate, make decisions and respond to challenges. Artificial intelligence can provide many benefits at the level of analysis and prediction. Managers who possess a combination of technical literacy, ethical acumen,

adaptability and strategic vision are able to harness the benefits of AI while effectively addressing the challenges and ensuring the responsible and sustainable use of these technologies.

"AI has the potential to help companies grow in depth. It offers the possibility of a more efficient use of resources and therefore the possibility of improving efficiency and effectiveness. The positives that AI brings will come at the cost of a reduction in human resources, which leaders should be able to manage as painlessly and effectively as possible. Developing systems, improving existing rules and practices, and protecting data are essential elements in the transition to the AI era." (R3)

5. Discussion and Conclusion

This study demonstrates that AI is becoming increasingly useful for companies that utilize large amounts of data. However, it also creates significant opportunities and numerous challenges (Peifer, 2022). A significant challenge is the management and coexistence of AI with the workforce (Naqvi, 2017). According to the results of our research, the necessity of human leadership is evident because AI lacks human empathy. The deployment of AI will result in the creation of new job roles in the absence of human labor, a phenomenon that has been observed in recent years for a number of reasons. Furthermore, the utilization of AI can be considered an advisory tool for the leadership of an organization.

Moreover, our research shows that today's managers need to be properly trained in the use of AI machines, but they also need to stay abreast of new developments (Naqvi, 2017). Furthermore, the use of AI is particularly important in the operations of organizations for crisis prediction and management (Unhelkar and Gonsalves, 2020). Artificial intelligence has the potential to support decision-making and facilitate resource allocation. By harnessing the power of artificial intelligence, managers can be better equipped to effectively deal with crises that may arise.

This research has significant managerial implications as today's leaders need a combination of technical expertise in many areas to effectively harness the power of artificial intelligence and lead their organizations to success. Modern managers in international business will have to adapt to AI machines, with the caveat that the survey participants said they will use the machines in the right way to analyze data and treat human resources properly.

Future research can focus on more aspects related to AI and management. For example, future research can be conducted on the impact of cultural aspects on managerial decisions (Agoraki et al., 2024; Deirmentzoglou et al., 2024) regarding AI, the role of organizational culture (Deirmentzoglou et al., 2020), and aspects regarding customer satisfaction (Deirmentzoglou, 2022). Finally, this research focuses on qualitative data, therefore, future research can utilize quantitative data.

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