

Mid-Ocean University

College of Management

Department/Major in Business Administration



Artificial Intelligence Applications in Strategic and Operational Management

Prepared by the student/

Majid Abdullah Khan

Supervised by/

Dr. Faisal Abdul Hamid

Dr. Fayez Jarad

Academic year:

2025

Abstract

The study aimed to analyze the role of artificial intelligence (AI) applications in enhancing the strategic and operational management of Almarai while assessing the challenges and opportunities associated with AI implementation. The research employed a descriptive-analytical approach, utilizing a questionnaire as the primary data collection tool, targeting a sample of 154 employees from various departments. The findings indicated that AI significantly contributes to improving decision-making, optimizing resource allocation, and enhancing efficiency in strategic planning, supply chain management, and quality control. However, challenges such as employee training gaps, internal resistance to AI adoption, and difficulties in integrating AI with legacy systems were identified. Based on these results, the study recommends investing in AI training programs, implementing change management strategies, strengthening AI infrastructure, leveraging AI for advanced analytics, and ensuring robust cybersecurity measures. Future prospects include further integration of AI with predictive analytics, automation, IoT, and blockchain technologies to enhance Almarai's operational and strategic capabilities, ensuring sustained competitive advantage in the industry.

Keywords: Artificial Intelligence (AI), Business Strategy, Strategic Management, Operational Efficiency.

Contents

Chapter 1	5
Introduction	5
Problem Statement.....	7
Study Questions	7
Study Objectives	8
Importance of the Study.....	8
Hypotheses.....	9
Study variables.....	10
Study Limits	10
Study Terms	11
Chapter 2: Literature Review	12
The Role of AI in Strategic and Operational Management	12
AI in Strategic Management	12
AI in Operational Management.....	14
AI and Industry: Transforming Business Models	16
Ethical and Organizational Challenges in AI Adoption	18
Theoretical Foundation	20
Chapter 3: Methodology	27
Introduction	27
3.1 Study Methodology	28
3.2 Study Community	28
3.3 Study Sample	28
3.4 Data Collection Tools	28
3.5 Validity and reliability of study tools	29
3.6 Data Analysis Methods	30
Chapter 4: Discussion of Findings	31
Primary Data:	31
Section 2: Survey Themes	36

Conclusions, Recommendations, and Future Prospects	42
References.....	45

Chapter 1

Introduction

Artificial Intelligence (AI) has emerged as a transformative force in modern strategic and operational management, reshaping the way organizations operate and compete in an increasingly complex and dynamic business landscape. As companies face growing challenges, such as rapidly evolving markets, shifting consumer preferences, and increasing competition, AI offers a range of innovative tools and techniques to enhance decision-making, streamline operations, and optimize overall efficiency. One of the most significant advantages AI brings to management is its ability to process and analyze vast amounts of data with unparalleled speed and accuracy. Unlike traditional management approaches that often rely on intuition, past experiences, and manual analysis, AI-driven systems leverage advanced computational power to uncover hidden patterns, generate insights, and support data-driven decision-making. This allows businesses to make more informed strategic choices, minimize risks, and seize new opportunities with greater confidence.

Furthermore, AI introduces a variety of sophisticated technologies, including machine learning (ML), natural language processing (NLP), and predictive analytics, all of which contribute to improving business operations. Machine learning algorithms, for example, continuously learn from data and improve their performance over time, enabling organizations to automate processes, enhance productivity, and reduce operational costs. Natural language processing allows AI systems to understand, interpret, and respond to human language, which has been particularly useful in customer service, chatbots, and virtual assistants. Meanwhile, predictive analytics enables businesses to anticipate future trends, consumer behaviors, and market shifts, empowering them to stay ahead of competitors and make proactive adjustments to their strategies (Saura, & Ribeiro-Soriano, 2021).

By incorporating AI into their management practices, organizations can gain a significant competitive edge. AI-driven insights facilitate more precise forecasting, supply chain optimization, and personalized customer experiences, all of which contribute to better overall performance. Additionally, AI enhances workflow automation, eliminating repetitive tasks and allowing employees to focus on more complex, value-added activities (Dhamija, & Bag, 2020).

In the realm of strategic management, Artificial Intelligence (AI) plays a crucial role in enhancing various applications, including the development of more accurate business scenarios, market forecasting, and competitive analysis. By leveraging AI's ability to process and analyze vast amounts of data, organizations can gain deeper insights into market dynamics and emerging trends.

One of AI's most powerful applications in strategic management is predictive analytics, which enables businesses to anticipate market trends and understand customer behavior more effectively. By analyzing historical data and identifying patterns, AI-driven predictive models help organizations design proactive strategies well in advance, ensuring they remain agile and competitive in an ever-changing business landscape (Wamba et al., 2024; Sharma et al., 2024).

Additionally, AI significantly improves the ability to detect emerging trends and uncover hidden patterns that traditional analytical approaches often overlook. This capability is particularly valuable in uncertain business environments, where decision-making requires a more refined and data-driven approach. By utilizing AI-powered insights, companies can make well-informed strategic decisions, adapt more effectively to market fluctuations, and capitalize on new opportunities before their competitors (Grover et al., 2022).

Despite its numerous advantages, the widespread adoption of AI in strategic and operational management faces significant barriers. One of the primary challenges is digital integrity, as issues related to data privacy, security, and biased algorithms raise ethical concerns for organizations. To fully implement AI, businesses must develop systems that are both transparent and ethically sound (Keding, 2021; Duangekanong, 2022). Additionally, the high costs associated with acquiring AI technology and the specialized expertise required for its integration create obstacles, particularly for small and medium enterprises (SMEs), which often lack the financial and technical resources necessary for AI adoption (Al-Surmi et al., 2022; Grover et al., 2022).

This research aims to explore how AI can be effectively integrated into both strategic and operational management, highlighting both its potential benefits and the constraints that hinder its expansion. Specifically, the study seeks to provide insights into how AI can enhance decision-making, streamline business operations, and optimize organizational efficiency. Furthermore, it examines the major barriers to AI

adoption and offers recommendations on how organizations can overcome these challenges, ensuring a more seamless and productive implementation of AI-driven solutions.

Problem Statement

In light of the rapid technological development, artificial intelligence has become an essential element in supporting administrative decisions and improving operational processes in institutions. Large companies, such as Almarai, rely on artificial intelligence technologies to analyze data and make strategic and operational decisions more efficiently. However, there are still challenges facing the application of these technologies, such as the extent of integration of artificial intelligence with traditional administrative systems, its impact on overall performance, and its ability to improve productivity and innovation. Hence, the problem of the study stems from searching for the extent of the impact of artificial intelligence applications on the strategic and operational management of Almarai Company, and the most prominent challenges and opportunities associated with them.

Study Questions

Main Question

What is the role of artificial intelligence applications in improving strategic and operational management at Almarai Company?

Sub-questions

1. How does artificial intelligence contribute to supporting strategic decision-making at Almarai Company?
2. To what extent do artificial intelligence applications affect improving operational processes at the company?
3. What are the challenges facing Almarai Company in adopting artificial intelligence technologies?

4. How can the effectiveness of artificial intelligence be enhanced in developing strategic and operational management at the company?
5. What is the impact of artificial intelligence on production efficiency and quality at Almarai Company?

Study Objectives

Main Objective

Study and analyze the role of artificial intelligence applications in improving the strategic and operational management of Almarai Company, while evaluating the challenges and opportunities associated with the application of these technologies.

Sub-Objectives

1. Determine the extent to which artificial intelligence contributes to supporting strategic decision-making at Almarai Company.
2. Analyze the impact of artificial intelligence technologies on improving operational processes.
3. Explore the most prominent challenges facing the company in applying artificial intelligence.
4. Provide recommendations to enhance the role of artificial intelligence in developing strategic and operational management.
5. Measure the impact of using artificial intelligence on organizational performance and product quality at Almarai Company.

Importance of the Study

Theoretical Importance

- The study contributes to enriching the scientific literature related to the use of artificial intelligence in strategic and operational management.

- It provides a scientific framework for understanding the relationship between artificial intelligence and improving administrative and operational performance.
- It provides an addition to previous studies through a case study of Almarai Company, which is one of the leading companies in the region.

Applied Importance

- The results of the study help in developing more efficient strategies for applying artificial intelligence in food industry companies.
- Provides practical recommendations for Almarai on how to enhance the use of artificial intelligence to achieve a competitive advantage.
- Contributes to improving production and quality processes by applying artificial intelligence technologies in supply chain and manufacturing management.

Hypotheses

1. Main Hypothesis:

There is a statistically significant positive impact of artificial intelligence applications on strategic and operational management at Almarai Company.

2. Sub-Hypotheses:

- There is a positive relationship between the use of artificial intelligence and making strategic decisions more accurately and effectively.
- Artificial intelligence contributes to improving operational processes and reducing operating costs.
- Almarai Company faces technical and administrative challenges when applying artificial intelligence.
- Artificial intelligence applications affect production quality and increase operational efficiency.

Study variables

Independent variable:

- Artificial intelligence applications (such as big data analysis, machine learning, intelligent automation, industrial robots).

Dependent variables:

- Strategic management (quality of decisions, growth strategies, market expansion).
- Operational management (improving efficiency, reducing costs, improving quality and productivity).
- Organizational performance (increasing profitability, improving customer satisfaction, developing competitive strategies).

Study Limits

1. Subject Limits:

- The study focuses on analyzing the role of artificial intelligence in strategic and operational management, and does not directly address other areas such as marketing or customer service.

2. Spatial Limits:

- The study will be applied to Almarai Company, one of the largest food companies in the Kingdom of Saudi Arabia and the Middle East.

3. Time Limits:

- The study covers the period between 2020 - 2025, due to the rapid developments in artificial intelligence applications during this period.

4. Methodological Limits:

- The study relies on the descriptive analytical approach by analyzing previous data and conducting questionnaires or interviews with Almarai Company officials.

Study Terms

1. Artificial Intelligence (AI)

- It is a field of computer science that aims to develop systems capable of simulating human intelligence through machine learning, processing big data, and making smart decisions.

2. Strategic Management

- The process of formulating and implementing long-term decisions that help companies achieve their competitive goals and enhance their performance in the market.

3. Operational Management

- Includes the daily operations that ensure production efficiency, such as resource management, quality control, and supply chain improvement.

Chapter 2: Literature Review

The Role of AI in Strategic and Operational Management

Artificial Intelligence (AI) has become a disruptive force in shaping strategic and operational management, providing organizations with powerful tools to enhance decision-making, boost performance, and maintain competitiveness in dynamic market environments. AI enables businesses to develop data-driven strategies, improve forecasting, and optimize resource allocation. This section synthesizes prior research on AI's role in strategic and operational management, highlighting advancements, limitations, and potential research directions.

AI in Strategic Management

Artificial Intelligence (AI) has profoundly reshaped the landscape of strategic management, introducing advanced capabilities such as data analytics, predictive modeling, and intelligent decision-support systems that have revolutionized how organizations approach decision-making and long-term planning. According to Keding (2021), AI has become an indispensable tool for managers who are tasked with navigating the complexities of modern business environments, particularly in handling the vast volumes of data generated daily. By leveraging AI, managers can extract meaningful insights from this data, enabling them to make informed, data-driven decisions that align with their strategic objectives. One of the most transformative applications of AI in this domain is predictive analytics, which empowers organizations to anticipate market trends, understand customer behavior, and identify emerging business opportunities with a high degree of accuracy (Sharma et al., 2024). This predictive capability allows businesses to stay ahead of the curve, proactively addressing potential challenges and capitalizing on new opportunities before they become apparent to competitors.

Furthermore, AI-powered decision-support systems have emerged as critical tools for refining long-term strategies. These systems analyze complex datasets, identify patterns, and correlate them with organizational goals, providing managers with actionable recommendations that enhance the precision and effectiveness of strategic planning (Wamba et al., 2024). By integrating AI into

their strategic frameworks, organizations can ensure that their plans are not only data-driven but also adaptable to changing market conditions. This adaptability is particularly crucial in volatile markets, where the ability to respond swiftly to disruptions can determine the success or failure of a business. AI-driven strategic planning has thus become a cornerstone of business sustainability, enabling organizations to align their objectives with evolving market demands and improve their overall resilience.

In developing economies, where resource optimization is often a critical challenge, AI-driven insights have proven to be particularly valuable. Businesses in these regions can leverage AI to allocate resources more efficiently, reducing waste and maximizing productivity. This, in turn, enhances their competitiveness in both local and global markets. Additionally, AI has transformed the way organizations conduct competitive analysis. By providing real-time intelligence on competitors' activities, market positioning, and strategic moves, AI enables firms to adjust their strategies swiftly and maintain a competitive edge (Grover et al., 2022). This real-time capability is especially important in today's fast-paced business environment, where delays in decision-making can result in missed opportunities or lost market share.

Despite these significant benefits, the adoption of AI in strategic management is not without its challenges. Many organizations face barriers such as the technical complexity of AI systems, resistance to change within the organization, and the high costs associated with implementation (Al-Surmi et al., 2022). These challenges can hinder the widespread adoption of AI, particularly among smaller organizations or those with limited resources. However, for those that successfully overcome these obstacles, the rewards can be substantial, as AI has the potential to drive significant improvements in strategic agility and decision-making.

AI's role in enhancing strategic agility has also been widely recognized as a critical factor in enabling businesses to respond swiftly to dynamic changes in the market. By leveraging AI-powered digital competencies, particularly in areas such as human resource management, organizations can foster a culture of adaptability and alignment with core business objectives. This not only enhances their ability to navigate market disruptions but also strengthens their overall

resilience. For example, AI can be used to analyze workforce data, identify skill gaps, and recommend training programs that align with the organization's strategic goals. This ensures that the workforce remains agile and capable of responding to new challenges and opportunities as they arise.

AI in Operational Management

From an operational perspective, Artificial Intelligence (AI) has emerged as an invaluable tool for driving efficiency, optimizing resources, and enhancing productivity across a wide range of organizational functions. One of the most significant contributions of AI in this domain is process automation, which has revolutionized how businesses manage their workflows. The introduction of Robotic Process Automation (RPA), for instance, has transformed operational efficiency by automating repetitive, time-consuming tasks that were previously performed manually. This not only reduces the likelihood of human error but also frees up employees to focus on higher-value, strategic initiatives that contribute more directly to organizational growth and innovation (Dhamija & Bag, 2020). By streamlining routine processes, RPA enables organizations to operate more efficiently, reduce operational costs, and allocate their human resources more effectively.

In addition to process automation, AI has made significant strides in enhancing customer relationship management (CRM). AI-driven CRM systems leverage advanced algorithms and machine learning to analyze customer data, predict behavior, and personalize interactions. This has led to a marked improvement in customer experiences, as businesses can now anticipate customer needs, address issues proactively, and deliver tailored solutions. As a result, organizations that adopt AI-powered CRM systems often see higher customer satisfaction rates, increased loyalty, and reduced churn rates (Saura & Ribeiro-Soriano, 2021). These systems also provide valuable insights into customer preferences and trends, enabling businesses to refine their marketing strategies and improve overall service delivery.

Another area where AI has had a transformative impact is supply chain management. AI-powered predictive models are now widely used to forecast

demand, optimize inventory levels, and identify potential disruptions before they occur. By analyzing historical data, market trends, and external factors such as weather patterns or geopolitical events, AI enables organizations to make real-time decisions and adapt their supply chain strategies dynamically. This not only enhances supply chain efficiency but also improves resilience, allowing businesses to respond proactively to market fluctuations, supply shortages, or unexpected disruptions (Wamba et al., 2024). For example, AI can help organizations optimize logistics routes, reduce transportation costs, and ensure timely delivery of goods, all of which contribute to a more agile and responsive supply chain.

Despite these significant advancements, the widespread adoption of AI in operational management is not without its challenges. High implementation costs remain a major barrier, particularly for small and medium-sized enterprises (SMEs) that may lack the financial resources to invest in advanced AI technologies. Additionally, resistance to change within organizations can hinder the successful integration of AI systems. Employees and managers may be reluctant to adopt new technologies due to a lack of understanding, fear of job displacement, or concerns about the complexity of AI systems (Duangekanong, 2022). Overcoming these obstacles requires not only financial investment but also a cultural shift within organizations, including training programs, change management initiatives, and clear communication about the benefits of AI adoption.

Beyond process automation and supply chain optimization, AI has also been linked to improvements in organizational knowledge-sharing and collaboration. AI-enabled systems facilitate better communication and coordination among employees by providing platforms for real-time information exchange, collaborative problem-solving, and data-driven decision-making. These systems can analyze vast amounts of data to identify patterns, generate insights, and recommend actions, thereby enhancing overall efficiency and business performance (Olan et al., 2022). For instance, AI-powered knowledge management systems can help organizations capture, organize, and share critical information, ensuring that employees have access to the resources they need to perform their roles effectively. This not only improves individual productivity but also fosters a culture of collaboration and innovation within the organization.

Furthermore, AI's role in education and institutional management has gained increasing attention in recent years. AI-driven platforms are being used to create personalized learning experiences, tailoring educational content to the needs and preferences of individual learners. This approach not only enhances student engagement and outcomes but also improves the efficiency of educational institutions by automating administrative tasks such as grading, scheduling, and resource allocation (Shant Priya et al., 2023). In institutional management, AI can streamline operations, optimize resource utilization, and provide data-driven insights to support decision-making. For example, AI-powered analytics can help educational leaders identify trends, assess performance, and develop strategies to improve institutional effectiveness.

AI and Industry: Transforming Business Models

The Industry 4.0 paradigm, which represents the fourth industrial revolution characterized by the integration of advanced technologies into manufacturing and industrial processes, underscores the transformative role of Artificial Intelligence (AI) in automating repetitive tasks, minimizing human error, and optimizing production processes. AI-powered intelligent manufacturing systems have become a cornerstone of this revolution, driving significant improvements in efficiency, cost reduction, and competitiveness across industries worldwide. By leveraging AI, manufacturers can automate complex processes, monitor equipment performance in real time, and predict maintenance needs before failures occur, thereby reducing downtime and operational costs (Dhanabalan & Sathish, 2018). These advancements have not only enhanced productivity but also enabled businesses to deliver higher-quality products at a faster pace, meeting the growing demands of global markets.

In India, AI has played a particularly pivotal role in transforming supply chain management, real-time data analysis, and adaptive enterprise strategies. The integration of AI into supply chain operations has allowed Indian firms to optimize logistics, manage inventory more effectively, and respond swiftly to changing market demands. For instance, AI-driven predictive analytics can forecast demand fluctuations, enabling businesses to adjust their production schedules and inventory levels accordingly. This level of agility is critical in a

dynamic market like India, where consumer preferences and economic conditions can shift rapidly. Additionally, AI has facilitated real-time data analysis, providing businesses with actionable insights that enhance decision-making and operational efficiency. By adopting adaptive enterprise strategies powered by AI, Indian firms have been able to stay competitive in both domestic and international markets, demonstrating the transformative potential of AI in driving business success (Grover et al., 2022).

Beyond manufacturing and supply chain management, AI's integration into performance management systems has revolutionized how organizations measure, analyze, and improve their operational and strategic performance. AI tools have introduced unprecedented levels of accuracy and efficiency in performance management by automating routine tasks, identifying trends, and enabling predictive analytics. For example, AI-powered systems can analyze vast amounts of performance data to identify patterns and correlations that may not be immediately apparent to human analysts. This capability allows organizations to make data-driven decisions that enhance productivity, streamline business processes, and improve overall competitiveness (Bankar & Shukla, 2023). By automating repetitive tasks such as data entry and report generation, AI also frees up employees to focus on more strategic activities, further driving organizational growth and innovation.

The ability of AI to optimize resource allocation and enhance customer experiences has been particularly valuable in industries such as retail, healthcare, and finance, where personalized services and predictive maintenance are critical to business success. In the retail sector, AI-powered tools analyze customer data to deliver personalized recommendations, optimize pricing strategies, and improve inventory management. This not only enhances the customer experience but also increases sales and customer loyalty. In healthcare, AI is being used to predict patient outcomes, optimize treatment plans, and streamline administrative processes, leading to better patient care and operational efficiency. Similarly, in the finance industry, AI-driven algorithms are used for fraud detection, risk assessment, and personalized financial advice, enabling firms to provide more secure and tailored services to their clients (Enholm et al., 2022). These applications highlight the versatility of AI in addressing industry-specific challenges and driving innovation across sectors.

Moreover, AI's role in predictive maintenance has been a game-changer for industries reliant on machinery and equipment. By analyzing data from sensors and IoT devices, AI can predict when equipment is likely to fail and recommend preventive measures, reducing downtime and maintenance costs. This capability is particularly valuable in manufacturing, energy, and transportation industries, where equipment failures can have significant financial and operational consequences. By leveraging AI for predictive maintenance, organizations can ensure the reliability and longevity of their assets, further enhancing their competitiveness and operational efficiency.

Ethical and Organizational Challenges in AI Adoption

Despite the numerous and far-reaching benefits that Artificial Intelligence (AI) offers, its adoption is not without significant ethical concerns and operational barriers that organizations must carefully navigate. One of the most pressing ethical challenges associated with AI is the issue of data privacy. As AI systems rely heavily on vast amounts of data to function effectively, there is an inherent risk of compromising sensitive information, particularly if robust data protection measures are not in place. This concern is exacerbated in organizations that operate in regions or industries where clear regulatory frameworks governing data usage and privacy are either lacking or insufficiently enforced (Keding, 2021; Grover et al., 2022). Without proper governance, AI systems can inadvertently expose organizations to data breaches, legal liabilities, and reputational damage, ultimately eroding stakeholder trust and confidence.

Another critical ethical concern is algorithmic bias, which occurs when AI systems produce skewed or unfair outcomes due to biased training data or flawed design. For example, if an AI algorithm is trained on data that reflects historical biases or inequalities, it may perpetuate or even amplify those biases in its decision-making processes. This can lead to discriminatory practices in areas such as hiring, lending, and law enforcement, further marginalizing vulnerable groups and undermining social equity. Additionally, the lack of transparency in how AI systems arrive at their decisions—often referred to as the "black box" problem—poses a significant challenge. When stakeholders cannot understand or explain the reasoning behind AI-driven decisions, it becomes difficult to hold

organizations accountable for their actions, raising questions about fairness and ethical responsibility. Addressing these concerns requires organizations to develop and implement ethical AI frameworks that prioritize accountability, fairness, and transparency. Such frameworks should include guidelines for responsible data usage, regular audits of AI systems to detect and mitigate biases, and mechanisms to ensure that AI decision-making processes are explainable and accessible to stakeholders.

In addition to ethical concerns, the adoption of AI is often hindered by a range of operational barriers that can slow or even prevent its successful implementation. One of the most significant barriers is the high cost associated with developing, deploying, and maintaining AI systems. For many organizations, particularly small and medium-sized enterprises (SMEs), the financial investment required to adopt AI technologies can be prohibitive. These costs include not only the initial outlay for software and hardware but also ongoing expenses related to data storage, system upgrades, and technical support (Al-Surmi et al., 2022). SMEs, which typically operate with limited financial and technical resources, face particularly steep challenges in scaling AI-driven solutions effectively. Without access to affordable and scalable AI tools, these organizations may struggle to compete with larger enterprises that have the resources to invest in advanced technologies.

Technical complexities also pose a significant barrier to AI adoption. Implementing AI systems often requires specialized knowledge and expertise, which may not be readily available within an organization. This can lead to delays in deployment, suboptimal system performance, and increased reliance on external consultants or vendors. Moreover, integrating AI into existing workflows and systems can be a complex and time-consuming process, particularly in organizations with legacy infrastructure or fragmented data systems. These technical challenges can create resistance to change among employees and management, further complicating the adoption process (Duangekanong, 2022).

Organizational resistance to change is another major barrier that can hinder AI adoption. Employees may be reluctant to embrace AI technologies due to fears of job displacement, a lack of understanding of how AI works, or concerns about

the potential for errors or misuse. Managers, too, may be hesitant to invest in AI if they are uncertain about its benefits or if they perceive it as a threat to their decision-making authority. Overcoming this resistance requires a concerted effort to build a culture of innovation and adaptability within the organization. This can be achieved through targeted training programs, clear communication about the benefits of AI, and involving employees in the implementation process to ensure their buy-in and support.

To address these challenges, organizations need to develop tailored AI implementation strategies that balance cost-efficiency with technological advancement. For SMEs, this may involve leveraging cloud-based AI solutions, which offer scalability and reduce the need for significant upfront investment in infrastructure. Partnerships with technology providers, academic institutions, or industry consortia can also help SMEs access the expertise and resources they need to adopt AI effectively. Additionally, organizations should prioritize pilot projects and incremental implementation approaches, allowing them to test AI solutions on a small scale before committing to broader deployment. This not only reduces financial risk but also provides valuable insights into the practical challenges and benefits of AI adoption.

Theoretical Foundation

Several theoretical frameworks are integrated underpinning the integration of Artificial Intelligence (AI) into strategic and operational management through a robust understanding of how it can be applied and the benefits and potential challenges brought about. These theories create a solid base from which to think about what AI's synergistic development about improvement in decision-making, resource optimization, and process optimization will bring.

1. Dynamic Capabilities Theory

The Dynamic Capabilities Theory is centered on an organization's ability to adapt, modify, integrate, and reconfigure its resources and competencies in response to rapidly changing market conditions. This theory emphasizes the importance of flexibility and continuous evolution, enabling businesses to maintain a competitive edge by responding efficiently to environmental uncertainties and disruptions.

In the modern business landscape, the integration of Artificial Intelligence (AI) aligns closely with Dynamic Capabilities Theory, as AI-driven systems provide organizations with predictive analytics, scenario planning, and real-time decision-making tools that facilitate adaptation to dynamic environments. By analyzing vast amounts of data, AI helps businesses anticipate market fluctuations, consumer behavior shifts, and competitive threats, allowing them to proactively adjust strategies, optimize operations, and seize new opportunities before they become mainstream.

According to Wamba et al. (2024), AI-powered decision-support systems enhance an organization's agility and responsiveness, providing a strategic advantage in volatile markets. AI enables businesses to detect early signals of change, generate accurate forecasts, and automate rapid responses to external disruptions. This technological capability reduces uncertainty and allows companies to remain resilient, competitive, and adaptable in industries where market conditions can shift unpredictably.

Ultimately, the synergy between AI and Dynamic Capabilities Theory underscores the importance of leveraging advanced technologies to enhance organizational flexibility. As businesses continue to embrace AI for strategic innovation and operational efficiency, they strengthen their ability to navigate uncertainty, optimize decision-making, and sustain long-term growth in an increasingly complex and competitive global economy.

2. Resource-Based View (RBV)

The Resource-Based View (RBV) Theory suggests that an organization's ability to maintain a competitive advantage depends on its possession of unique, valuable, and difficult-to-imitate resources. These resources, when effectively managed and integrated into business operations, enable companies to differentiate themselves from competitors and sustain long-term success.

Within this framework, Artificial Intelligence (AI) serves as a critical strategic resource, offering capabilities such as big data processing, automation, and machine learning. These technologies significantly enhance decision-making, operational efficiency, and strategic planning, allowing businesses to optimize their workflows, predict market trends, and improve overall productivity. AI-driven automation

streamlines routine tasks, freeing up human capital for higher-value strategic initiatives, while machine learning algorithms continuously improve processes by learning from data patterns.

According to Grover et al. (2022), AI is a key enabler of sustainable growth in modern organizations, as it fosters innovation, adaptability, and resilience in rapidly changing business environments. By leveraging AI as a core resource, companies can strengthen their market position, enhance agility, and build long-term competitive advantages that are difficult for competitors to replicate.

3. Technology Acceptance Model (TAM)

Perceived usefulness (PU) and perceived ease of use (PEU) are two critical factors that help explain the adoption of new technologies, particularly through the lens of the Technology Acceptance Model (TAM). This model provides a framework for understanding how users, such as managers and employees, perceive and interact with new technologies. In the context of AI, it highlights how individuals assess whether a technology will be beneficial and whether it can be used with minimal effort. This understanding is crucial for effectively implementing AI in strategic and operational management across organizations.

According to Dhamija and Bag (2020), the success of AI adoption also depends heavily on organizational culture and digital literacy. Organizational culture plays a pivotal role in shaping how technology is embraced, with supportive cultures fostering quicker and more effective integration of AI systems. On the other hand, digital literacy, or the level of technological understanding among employees, influences how easily they can adopt and use AI tools. High digital literacy can reduce resistance to AI and accelerate its adoption, while low levels of understanding may create barriers to successful implementation. Together, these factors—PU, PEU, organizational culture, and digital literacy—form a comprehensive framework for understanding and improving the acceptance and integration of AI technologies in businesses.

4. Systems Theory

According to Systems Theory, an organization is a complex network of interconnected systems where each component is not isolated but rather influences and interacts with the others. In this view, the performance of one part of the system

has a direct impact on the overall functioning of the organization. This perspective emphasizes the importance of understanding the organization as a whole, where different subsystems—such as departments, functions, and processes—work together to achieve common objectives. In such a system, a change or improvement in one area often leads to ripple effects throughout the organization, either enhancing or disrupting the overall performance.

Artificial intelligence (AI) provides an ideal representation of the interconnectedness described by Systems Theory. AI has the capability to unify various functions within an organization by creating a seamless flow of information across different departments. For example, AI can integrate functions like supply chain management, customer relationship management (CRM), and strategic decision-making, unifying them into one cohesive system. This interconnectedness allows AI to process vast amounts of data from multiple sources, providing valuable insights that can improve coordination and alignment across the organization. The result is a more efficient and effective organization, as AI enables different departments to collaborate better, share information in real time, and make data-driven decisions that align with the overall goals (Lipkova et al, 2022).

Saura and Ribeiro-Soriano (2021) demonstrate how AI helps bridge the gap between processes and operations on the one hand, and business strategies on the other. In many organizations, there is often a disconnect between day-to-day operational processes and long-term strategic goals. AI addresses this issue by improving communication and collaboration between these two domains. By analyzing data from both the operational and strategic levels, AI can provide actionable insights that align day-to-day activities with the broader organizational vision. This integration enhances overall performance by ensuring that business strategies are not only informed by real-time operational data but also that operational decisions are aligned with strategic objectives.

In this way, AI enhances organizational performance by facilitating collaboration and coordination across different functions, helping to optimize processes and align them with business strategies. Through this unification, AI empowers organizations to become more agile, responsive, and efficient in achieving their goals, ultimately improving their overall effectiveness and competitiveness in the marketplace. By

bridging the gap between operations and strategy, AI enables organizations to function as a more cohesive and adaptive system.

5. Ethical Theories in AI Implementation

The adoption of artificial intelligence (AI) within organizations and industries brings with it a range of ethical concerns that must be carefully considered. These concerns include issues related to data privacy, algorithmic bias, and transparency, all of which have the potential to affect individuals, organizations, and society as a whole. Data privacy is a major issue because AI systems often rely on vast amounts of personal data to function, and improper handling of this data can lead to violations of privacy and security risks. Algorithmic bias is another critical concern, as AI systems may unintentionally perpetuate or even exacerbate existing biases present in the data they are trained on. This can result in unfair treatment of individuals or groups, particularly when AI systems are used in decision-making processes such as hiring, lending, or criminal justice. Transparency is also a significant issue, as many AI systems operate as "black boxes," meaning their decision-making processes are not easily understood by humans. This lack of transparency can undermine trust in AI systems and make it difficult for individuals to challenge or question AI-driven decisions (Yin et al, 2021).

To address these complex ethical challenges, various ethical theories offer valuable frameworks for guiding the development and use of AI. Two key ethical theories that can be applied in this context are deontology and consequentialism. Deontology focuses on the morality of actions themselves, asserting that certain actions are inherently right or wrong, regardless of the outcomes. In the context of AI, deontological principles would call for strict adherence to ethical rules, such as ensuring that AI systems are designed to respect individuals' privacy and rights. On the other hand, consequentialism evaluates actions based on the outcomes they produce, suggesting that AI systems should be evaluated based on their impact, with an emphasis on maximizing positive outcomes and minimizing harm. Both of these ethical frameworks offer important perspectives on how to approach the ethical implications of AI adoption.

Keding (2021) highlights the critical importance of fairness and accountability in AI systems. As AI technologies are increasingly integrated into decision-making processes, it becomes essential to ensure that these systems are not only effective

but also just and equitable. Keding advocates for the creation of transparent frameworks that guide the responsible development and deployment of AI technologies. These frameworks would help address potential ethical risks by ensuring that AI systems are designed with fairness in mind and that their decisions can be justified and explained. Such transparency is essential for building trust in AI technologies and for ensuring that the systems operate in a manner that is consistent with societal values and ethical standards.

In addition to promoting fairness and accountability, these transparent frameworks would serve as safeguards to prevent harm from occurring due to poorly designed or biased AI systems. By providing clear guidelines for the ethical development of AI, these frameworks would help organizations ensure that their AI systems operate in a manner that aligns with established ethical principles. This approach is essential not only for minimizing the ethical risks associated with AI but also for promoting the ethical use of AI across various applications, from healthcare and education to finance and criminal justice. Ultimately, the goal is to foster the responsible and ethical adoption of AI technologies that contribute to the well-being of individuals and society while mitigating the risks that may arise from their use.

6. Decision Theory

Decision Theory is a field that explores how individuals and organizations make choices when faced with uncertainty. It aims to understand the processes involved in decision-making, particularly when the outcomes are not guaranteed, and information is incomplete or ambiguous. The theory is concerned with how decision-makers evaluate options, weigh risks, and select the most appropriate course of action. In the modern business landscape, artificial intelligence (AI) plays a transformative role in enhancing decision-making processes. AI contributes by providing predictive insights, which help in anticipating future trends and outcomes. This predictive capability allows decision-makers to act proactively, rather than reactively, thereby improving the accuracy of their choices.

Furthermore, AI is instrumental in optimizing resource allocation, ensuring that resources such as time, money, and personnel are used in the most efficient manner possible. By analyzing large datasets, AI systems can identify patterns and make recommendations that would be difficult or impossible for humans to discern. This capability helps organizations avoid costly mistakes and make more informed

decisions. AI also aids in minimizing risks by assessing potential outcomes and suggesting strategies that reduce uncertainty.

Sharma et al. (2024) discuss the pivotal role AI plays in supporting decision-makers, particularly by providing data-driven recommendations. These recommendations are based on the analysis of vast amounts of data, offering a more objective and thorough perspective than human judgment alone. By integrating AI into the decision-making process, organizations can improve both their strategic and operational outcomes. Strategic decisions, such as long-term business plans, are enhanced by AI's ability to predict market trends, while operational decisions, like day-to-day resource management, benefit from AI's ability to optimize performance. In this way, AI not only supports decision-making but also elevates the quality and effectiveness of decisions across different levels of the organization.

7. Innovation Diffusion Theory

Innovation Diffusion Theory outlines how new technologies are adopted and spread across organizations and industries. Al-Surmi et al. (2022) apply this theory to the adoption of artificial intelligence (AI), identifying key factors that influence successful implementation. These factors include organizational readiness, which refers to the infrastructure and support available for adopting AI, perceived benefits, which encompass the advantages organizations expect from AI integration, and external pressures, which involve influences such as competitive forces or regulatory requirements. Understanding these determinants can help organizations effectively navigate the challenges associated with AI adoption and achieve desired outcomes.

Chapter 3: Methodology

Introduction

The convergent mixed-methods approach is particularly valuable because it integrates both quantitative and qualitative research methods, allowing for a more thorough and nuanced analysis.

The quantitative aspect of the study focuses on gathering numerical data, which can provide statistical rigor and offer a broad, objective understanding of how AI is being implemented and its effects across different sectors. Through the collection and analysis of quantifiable data, such as surveys or performance metrics, this approach can identify trends, patterns, and correlations that reveal the general impact of AI adoption on strategic decision-making, operational efficiency, and organizational performance.

On the other hand, the qualitative component delves deeper into the contextual, human, and subjective aspects of AI integration. Through methods such as interviews, case studies, and focus groups, the qualitative research captures the experiences, perceptions, and challenges of individuals and organizations who are directly involved in the adoption of AI. This approach offers rich, detailed insights into how AI technologies are being implemented on the ground, how they affect organizational culture, and what barriers or facilitators exist in the process of integration. By considering factors like employee attitudes, leadership strategies, and industry-specific challenges, the qualitative methods provide a deeper understanding of the real-world complexities and dynamics involved in AI adoption.

Together, these two research methods—quantitative and qualitative—allow for a holistic analysis that combines statistical findings with contextual depth, providing a comprehensive picture of AI's role in strategic and operational management. Ultimately, this methodology aims to provide practical recommendations that organizations can use to make informed decisions about AI adoption, ensuring that they can maximize its advantages while addressing any issues that may arise during the integration process.

3.1 Study Methodology

This study relies on the descriptive analytical method, where the impact of artificial intelligence applications on strategic and operational management at Almarai Company is analyzed. This is done by collecting data related to the use of artificial intelligence in the company, and analyzing it to understand the extent of its contribution to improving administrative and operational processes, in addition to identifying the challenges and opportunities associated with it.

3.2 Study Community

The study community consists of administrative and leadership employees at Almarai Company, especially those working in departments related to artificial intelligence applications, such as:

1. Strategic Management and Planning
2. Operational Processes and Supply Chain Management
3. Information Technology Management and Digital Transformation
4. Quality and Production Management

3.3 Study Sample

The study sample was selected using the stratified random sampling method, to ensure representation of various administrative categories related to the research topic. The sample size is 154 employees distributed across the administrative and operational departments of the company.

3.4 Data Collection Tools

To achieve the study objectives, two main tools were used to collect data:

Questionnaire:

- A main tool for collecting quantitative data from employees about their opinions and experiences with artificial intelligence applications in strategic and operational management.
- The questionnaire consists of four main axes:
 1. Demographic data of participants.
 2. Level of adoption of artificial intelligence at Almarai Company.
 3. The impact of artificial intelligence on strategic and operational management.
 4. Challenges and opportunities associated with the application of artificial intelligence.
- The questionnaire was designed according to a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

3.5 Validity and reliability of study tools

1. Validity of the tool:

- The questionnaire was presented to a group of experts and specialists in management and artificial intelligence techniques to ensure the clarity of the questions and their suitability to the study objectives.
- A Pilot Study was conducted on 20 employees from Almarai to analyze their responses and adjust the tool based on their observations.

2. Reliability of the tool:

- Cronbach's Alpha was used to test the reliability of the questionnaire.
- If the reliability coefficient is greater than 0.7, this indicates an acceptable level of reliability for the tool.

3.6 Data Analysis Methods

After collecting the data, it will be analyzed using modern statistical programs, such as SPSS, according to the following methods:

1. Frequency and percentage analysis to describe the characteristics of the sample members.
2. Calculating arithmetic means and standard deviations to measure the level of AI adoption and its impact.

Chapter 4: Discussion of Findings

This chapter presents a detailed analysis and discussion of the findings obtained from the survey. The results are systematically examined to understand the role of artificial intelligence (AI) applications in strategic and operational management at Almarai. The data are analyzed in relation to the research objectives, hypotheses, and existing literature to derive meaningful insights. Key demographic information is first explored to provide context, followed by an in-depth discussion of the responses related to AI adoption, its impact on decision-making, and the challenges and opportunities it presents. Statistical tools are employed to validate the reliability and significance of the findings, ensuring a comprehensive understanding of AI integration in Almarai's management practices.

Primary Data:

The sample consisted of 154 participants from various businesses, selected based on different criteria that ensure demographic diversity and professional experience. This approach ensures a comprehensive representation of the study population. The following sections will present this data through tables, charts, and descriptive analysis.

Gender

Variable	Frequency	Percentage
Male	79	51
Female	75	49
Total	154	%100

The gender distribution of the sample is nearly equal, with **51% male (79 respondents) and 49% female (75 respondents)**. This balance suggests that the study provides insights from both male and female employees at Almarai without significant gender bias. The near-equal representation ensures that the responses reflect a diverse perspective on the adoption and impact of AI in management. Given that the workforce at Almarai includes a wide range of professionals in both operational and strategic roles, this balance enhances the study's credibility. Additionally, the gender representation may indicate Almarai's commitment to gender diversity in its workforce, which could influence attitudes toward technological advancements such as AI.

Age

Variable	Frequency	Percentage
Under 30 years	1	0.6
30 - 40 years	85	55.2
41 - 50 years	54	35.1
Over 50 years	14	9.1
Total	154	%100

The majority of respondents (55.2%) fall within the 30-40 years age group, indicating that most of the employees surveyed are in their mid-career stage. This demographic is significant because professionals in this age bracket are often more experienced and actively engaged in both strategic decision-making and operational processes. The 41-50 years group represents 35.1% of respondents, suggesting that

a substantial portion of the workforce consists of senior professionals with extensive industry experience. Employees aged over 50 years make up 9.1% of the sample, while those under 30 years constitute only 0.6%, indicating a relatively small representation of younger employees. The limited presence of younger professionals may suggest that AI-related decision-making at Almarai is primarily driven by experienced individuals who have a deeper understanding of traditional management practices. However, it may also highlight the need for AI-driven digital transformation initiatives to attract and train younger talent, ensuring that future workforce generations are equipped to handle emerging AI technologies effectively.

Job Title:

Variable	Frequency	Percentage
Executive Administrator	48	31.2
Department Manager	25	16.2
Operations Supervisor	13	8.4
Technical Employee	68	44.2
Total	154	%100

The job title distribution reveals that the largest proportion of respondents (44.2%) are **technical employees**, suggesting that a significant portion of the workforce surveyed is directly engaged in AI-related implementation and daily operational tasks. The second-largest group is **executive administrators** (31.2%), highlighting the involvement of administrative professionals in strategic decision-making and AI adoption within the company. **Department managers** constitute **16.2%**, indicating

that mid-level management plays a key role in overseeing AI-driven strategies and operations. **Operations supervisors** make up the smallest segment at **8.4%**, reflecting a relatively lower representation of employees in direct operational oversight. This distribution suggests that the study incorporates perspectives from multiple levels within the organizational hierarchy, allowing for a more comprehensive understanding of how AI is perceived and utilized across different roles at Almarai.

Years of Experience in the Company:

Variable	Frequency	Percentage
Less than 3 years	15	9.7
3 - 5 years	36	23.4
6 - 10 years	94	61
More than 10 years	9	5.9
Total	154	%100

The majority of respondents (**61%**) have between **6-10 years** of experience at Almarai, indicating that a substantial portion of the sample consists of employees who have been with the company long enough to witness technological advancements and changes in strategic and operational management. Employees with **3-5 years** of experience account for **23.4%**, reflecting a significant number of relatively newer employees who may have had exposure to recent AI-driven initiatives. Those with **less than 3 years** of experience represent **9.7%**, suggesting a

smaller proportion of recently hired staff. Meanwhile, employees with **more than 10 years** of experience make up **5.9%**, highlighting a smaller segment of highly experienced personnel who have observed Almarai's evolution over time. The dominance of mid-career professionals suggests that AI integration is being evaluated by employees who possess both substantial institutional knowledge and exposure to emerging technologies, making them well-positioned to assess AI's impact on Almarai's management practices.

Department:

Variable	Frequency	Percentage
Strategic Management and Planning	27	17.5
Operations and Supply Chain Management	34	22.1
IT and Digital Transformation	86	55.8
Quality and Production Management	7	4.5
Total	154	%100

The department distribution highlights that **55.8%** of respondents belong to the **IT and Digital Transformation** sector, indicating a strong representation of employees involved in AI adoption, system implementation, and digital strategy execution. This

significant proportion aligns with the study's focus on AI applications, as IT professionals are directly responsible for technological innovation within the company. **Operations and Supply Chain Management** accounts for **22.1%** of respondents, emphasizing the role of AI in optimizing logistics, inventory management, and operational efficiency. Employees in **Strategic Management and Planning** make up **17.5%**, reflecting the involvement of decision-makers responsible for formulating AI-driven corporate strategies. The lowest representation is from **Quality and Production Management (4.5%)**, suggesting that while AI may have applications in quality control and production efficiency, fewer employees from this sector were surveyed. The predominance of IT and operations-related departments suggests that AI initiatives at Almarai are primarily being driven by digital transformation teams, with support from operational managers and strategic planners.

Section 2: Survey Themes

Theme 1: Level of AI Adoption at Almarai

Phrase	Arithmetic mean	Relative weight	Standard deviation	Degree of agreement
Almarai extensively relies on AI technologies in strategic management.	3.95	79.09	0.927	Agree
The company has clear plans to adopt AI in operational processes.	3.87	77.53	0.938	Agree
The company provides training courses for employees on AI applications.	4.12	82.46	0.958	Agree

AI is used to analyze data and support strategic decision-making.	3.98	79.69	9.43	Agree
Digital transformation policies enhance AI utilization in the company.	4.29	85.84	0.643	Strongly Agree

The findings indicate that **AI adoption at Almarai is at an advanced stage**, with respondents agreeing that AI plays a significant role in strategic management (**Mean = 3.95, Relative Weight = 79.09%**). Additionally, the company demonstrates a **structured approach to integrating AI into operations** (**Mean = 3.87, Relative Weight = 77.53%**), suggesting that strategic planning includes a clear AI roadmap. Employee training on AI applications received a **high level of agreement** (**Mean = 4.12, Relative Weight = 82.46%**), reflecting the company's commitment to equipping its workforce with necessary digital skills. Moreover, the **use of AI in data analysis and strategic decision-making** was well acknowledged (**Mean = 3.98, Relative Weight = 79.69%**), emphasizing AI's growing role in managerial processes. The strongest agreement was recorded for the **impact of digital transformation policies on AI utilization** (**Mean = 4.29, Relative Weight = 85.84%**), reinforcing the idea that Almarai's leadership actively supports AI integration through forward-thinking technological initiatives.

Theme 2: AI's Impact on Strategic Management

Phrase	Arithmetic mean	Relative weight	Standard deviation	Degree of agreement
AI has improved strategic planning at Almarai.	4.03	80.77	0.899	Agree

AI helps provide accurate analytics for strategic decision-making.	3.87	77.53	0.938	Agree
AI implementation has reduced errors in strategic forecasting.	4.38	87.79	0.810	Strongly Agree
AI contributes to enhancing the company's competitiveness in the market.	4.29	85.84	0.831	Strongly Agree
There is a clear integration between AI and the company's strategic goals.	4.24	84.80	0.833	Strongly Agree

The results demonstrate a **positive perception of AI's influence on strategic management** at Almarai. The statement "**AI has improved strategic planning**" received an **agreement level of 80.77% (Mean = 4.03)**, indicating that AI facilitates better decision-making frameworks. AI's role in providing **accurate analytics for decision-making** was slightly lower but still within agreement levels (**Mean = 3.87, Relative Weight = 77.53%**), suggesting its effectiveness, albeit with room for enhancement. The strongest agreement was observed for AI's role in **reducing errors in strategic forecasting (Mean = 4.38, Relative Weight = 87.79%)**, highlighting its effectiveness in refining predictive analytics and minimizing uncertainties. Respondents also **strongly agreed** that **AI enhances the company's competitiveness (Mean = 4.29, Relative Weight = 85.84%)**, emphasizing AI's contribution to market leadership. Lastly, the perceived **alignment between AI and strategic goals** was **very strong (Mean = 4.24, Relative Weight = 84.80%)**, signifying that AI is not only an operational tool but an essential component of Almarai's long-term strategy.

Theme 3: AI's Impact on Operational Processes

Phrase	Arithmetic mean	Relative weight	Standard deviation	Degree of agreement
AI has improved the efficiency of operational processes.	4.00	80.12	0.911	Agree
AI helps optimize supply chain management and reduce costs.	4.03	80.64	0.959	Strongly Agree
AI is used for quality control and production line performance analysis.	4.25	85.19	0.854	Strongly Agree
AI has minimized operational errors and improved process accuracy.	4.16	83.37	0.920	Agree
AI has enhanced response speed to market changes in operations.	4.13	82.72	0.848	Agree

The results highlight that AI **positively influences operational processes** at Almarai, with strong agreement on its role in improving efficiency (**Mean = 4.00, Relative Weight = 80.12%**). AI's contribution to **optimizing supply chain management and reducing costs** was also highly rated (**Mean = 4.03, Relative Weight = 80.64%**), suggesting that AI-driven solutions are effectively streamlining logistical operations. The strongest agreement was observed in **AI's use for quality control and production line performance analysis** (**Mean = 4.25, Relative Weight = 85.19%**), indicating that AI plays a critical role in ensuring product consistency and operational reliability. Furthermore, respondents acknowledged AI's role in **minimizing operational errors and improving process accuracy**

(**Mean = 4.16, Relative Weight = 83.37%**), emphasizing its effectiveness in reducing human error and enhancing precision. Finally, AI's ability to **enhance response speed to market changes** was rated favorably (**Mean = 4.13, Relative Weight = 82.72%**), demonstrating its strategic importance in adapting operations to dynamic market conditions. These findings collectively reinforce the **significant impact of AI on operational efficiency, cost optimization, quality assurance, and responsiveness in Almarai's business model.**

Theme 4: Challenges and Opportunities of AI Implementation

Phrase	Arithmetic mean	Relative weight	Standard deviation	Degree of agreement
The company faces challenges in training employees on AI applications.	4.30	86.10	0.920	Strongly Agree
There is internal resistance to adopting AI technologies in some departments.	4.06	81.81	1.00	Agree
The company struggles with integrating AI systems with traditional systems.	4.24	84.80	0.840	Strongly Agree
AI offers significant opportunities to enhance productivity and profitability.	4.16	83.24	0.910	Agree
The company adopts strategies to mitigate risks associated with AI usage.	4.36	87.27	0.806	Strongly Agree

The findings reveal that while AI **presents numerous opportunities**, it also comes **with challenges**. The highest level of agreement was recorded for **challenges in training employees on AI applications** (Mean = 4.30, Relative Weight = 86.10%), indicating that a major hurdle in AI adoption at Almarai is equipping staff with the necessary digital competencies. Another challenge highlighted was **internal resistance to adopting AI technologies in some departments** (Mean = 4.06, Relative Weight = 81.81%), suggesting a need for change management initiatives to ensure smoother AI adoption. The integration of **AI systems with traditional processes** was another notable issue (Mean = 4.24, Relative Weight = 84.80%), emphasizing the complexity of digital transformation in legacy business structures. On the positive side, AI was **widely recognized for its potential to enhance productivity and profitability** (Mean = 4.16, Relative Weight = 83.24%), confirming its strategic value. Importantly, the strongest agreement was seen in **the company's proactive approach in adopting strategies to mitigate AI-related risks** (Mean = 4.36, Relative Weight = 87.27%), showcasing Almarai's **commitment to responsible AI integration**. Overall, these results suggest that **while challenges exist, the company is actively working towards maximizing AI's benefits while addressing obstacles in implementation**.

Conclusions, Recommendations, and Future Prospects

Conclusions

This study examined the **applications of artificial intelligence (AI) in strategic and operational management** at Almarai. The findings indicate that AI has **significantly contributed to improving efficiency, enhancing decision-making, and optimizing resource allocation**. The results confirm that AI is widely used in **strategic planning, supply chain management, quality control, and operational forecasting**, leading to **cost reduction and improved accuracy**. However, despite the advantages, certain challenges persist, including **employee training gaps, resistance to change, and difficulties integrating AI with traditional systems**.

Recommendations

Based on the study's findings, the following recommendations are proposed:

1. **Enhancing AI Training and Awareness** – Almarai should invest in **comprehensive AI training programs** to improve employee competency and ease the transition toward AI-driven workflows.
2. **Developing Change Management Strategies** – Addressing internal resistance through **awareness campaigns and incentive programs** will encourage greater acceptance of AI technologies.
3. **Strengthening AI Integration with Legacy Systems** – The company should **invest in AI-compatible infrastructure** to facilitate a smooth transition from traditional operational models to AI-driven systems.

4. **Expanding AI Applications in Decision-Making** – Leveraging AI for **advanced analytics, predictive modeling, and real-time decision-making** can further optimize strategic planning.
5. **Enhancing Cybersecurity and Risk Management** – Ensuring **robust cybersecurity measures** and ethical AI governance frameworks will mitigate potential risks associated with AI implementation.

Future Prospects

Looking ahead, AI in strategic and operational management at Almarai has **substantial potential for further expansion**. Future advancements may include:

- **AI-Driven Predictive Analytics** – Further refinement of AI-powered forecasting tools to anticipate market trends and consumer behavior.
- **Automation in Production and Logistics** – Enhancing **autonomous systems** for production lines and delivery networks to improve efficiency.
- **Integration of AI with IoT and Blockchain** – Leveraging **smart technologies** for real-time tracking, enhanced supply chain transparency, and security.
- **Adoption of AI-Powered Customer Insights** – Implementing AI-driven solutions for **personalized customer experiences and targeted marketing strategies**.
- **Continued Research and Innovation** – Engaging in AI research collaborations with **academic institutions and technology firms** to remain at the forefront of innovation.

By embracing these advancements, Almarai can **solidify its position as a leader in AI-driven strategic and operational excellence**, ensuring long-term sustainability and competitive advantage in the evolving business landscape.

References

1. Al-Surmi, A., Bashiri, M., & Koliouris, I. (2022). AI-based decision-making: Combining strategies to improve operational performance. *International Journal of Production Research*, 60(3), 345–364.
2. Dhamija, P., & Bag, S. (2020). Role of artificial intelligence in operations environment: A review and bibliometric analysis. *The TQM Journal*, 32(5), 857–876.
3. Duangekanong, S. (2022). Applications of artificial intelligence for strategic management of organizations. *ABAC ODI Journal Vision.Action*.
4. Grover, P., Kar, A. K., & Dwivedi, Y. K. (2022). Understanding artificial intelligence adoption in operations management: Insights from the review of academic literature and social media discussions. *Annals of Operations Research*, 315(1), 53–78.
5. Keding, C. (2021). Understanding the interplay of artificial intelligence and strategic management: Four decades of research in review. *Management Review Quarterly*, 71(2), 123–145.
6. Mustak, M., Salminen, J., Plé, L., & Wirtz, J. (2021). Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda. *Journal of Business Research*.
7. Saura, J. R., & Ribeiro-Soriano, D. (2021). Setting B2B digital marketing in AI-based CRMs: A review and directions for future research. *Journal of Industrial Marketing Management*.
8. Sharma, A. K., Vats, P., & Jain, D. (2024). Deep learning and machine intelligence for operational management of strategic planning. *Proceedings of the Third International Conference on Machine Learning and AI*. Springer.
9. Sharma, T., Rathore, A., Lehri, B. P. S., Tiwari, M., & Vadar, P. S. (2024). The impact of artificial intelligence in operational management. *In Handbook of AI in Business Management*. Taylor & Francis.

10. Wamba, S. F., Queiroz, M. M., & Ngai, E. W. T. (2024). The interplay between artificial intelligence, production systems, and operations management resilience. *International Journal of Production Research*.
11. Adams, J, Hasan, M, & Thorp, J (2021). AI (artificial intelligence)- assisted planning within emergency management operations. *J Emerg Manag*, 20(1), 41-52.
12. Bellini, V, Russo, M, Domenichetti, T, Panizzi, M, Allai, S, & Bignami, E.G (2024). Artificial intelligence in operating room management. *J Med Syst*, 48(1), 19.
13. Bellini, V, Valente, M, Gaddi, A.V, Pelosi, P, & Bignami, E (2022). Artificial intelligence and telemedicine in anesthesia: potential and problems. *Minerva Anesthesiol*, 88(9), 729-734.
14. Bhat, M, Rabindranath, M, Chara, B.S, & Simonetto, D.A (2023). Artificial intelligence, machine learning, and deep learning in liver transplantation. *J Hepatol*, 78(6), 1216-1233.
15. Condello, I, Santarpino, G, Nasso, G, Moscarelli, M, Fiore, F, & Speziale, G (2022). Management algorithms and artificial intelligence systems for cardiopulmonary bypass. *Perfusion*, 37(8), 765-772.
16. Lee, D, & Yoon, S.N (2021). Application of artificial intelligencebased technologies in the healthcare industry: Opportunities and challenges. *Int J Environ Res Public Health*, 18(1), 271.
17. Lipkova, J, Chen, R.J, Chen, B, Lu, M.Y, Barbieri, M, Shao, D, & Mahmood, F (2022). Artificial intelligence for multimodal data integration in oncology. *Cancer Cell*, 40(10), 1095-1110.
18. Solanki, S.L, Pandrowala, S, Nayak, A, Bhandare, M, Ambulkar, R.P, & Shrikhande, S.V (2021). Artificial intelligence in perioperative management of major gastrointestinal surgeries. *World J Gastroenterol*, 27(21), 2758.

19. Tognetto, D, Giglio, R, Vinciguerra, A.L, Milan, S, Rejdak, R, Rejdak, M, & Toro, M.D (2022). Artificial intelligence applications and cataract management: A systematic review. *Surv Ophthalmol*, 67(3), 817-829.
20. Yin, J, Ngiam, K.Y, & Teo, H.H (2021). Role of artificial intelligence applications in real-life clinical practice: systematic review. *J Med Internet Res*, 23(4), e25759.
21. Olan, F., Arakpogun, E. O., Suklan, J., Nakpodia, F., Damij, N., & Jayawickrama, U. (2022). Artificial intelligence and knowledge sharing: Contributing factors to organizational performance. *Journal of Business Research*, 145, 605-615.
22. Shant Priya, S., Jain, V., Priya, M. S., Dixit, S. K., & Joshi, G. (2023). Modelling the factors in the adoption of artificial intelligence in Indian management institutes. *foresight*, 25(1), 20-40.
23. Dhanabalan, T., & Sathish, A. (2018). Transforming Indian industries through artificial intelligence and robotics in industry 4.0. *International Journal of Mechanical Engineering and Technology*, 9(10), 835-845. 7.
24. Bankar, S., & Shukla, K. (2023). Performance management and artificial intelligence: a futuristic conceptual framework. In *Contemporary Studies of Risks in Emerging Technology, Part B* (pp. 341-360). Emerald Publishing Limited.
25. Grover, P., Kar, A. K., & Dwivedi, Y. K. (2022). Understanding artificial intelligence adoption in operations management: insights from the review of academic literature and social media discussions. *Annals of Operations Research*, 308(1), 177-213.
26. Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (2022). Artificial intelligence and business value: A literature review. *Information Systems Frontiers*, 24(5), 1709-1734.

27. Wamba, S. F. (2022). Impact of artificial intelligence assimilation on firm performance: The mediating effects of organizational agility and customer agility. *International Journal of Information Management*, 67, 102544.
28. Soni, N., Sharma, E. K., Singh, N., & Kapoor, A. (2020). Artificial intelligence in business: from research and innovation to market deployment. *Procedia Computer Science*, 167, 2200-2210.
29. Soni, N., Sharma, E. K., Singh, N., & Kapoor, A. (2019). Impact of artificial intelligence on businesses: from research, innovation, market deployment to future shifts in business models.
30. Rajagopal, N. K., Qureshi, N. I., Durga, S., Ramirez Asis, E. H., Huerta Soto, R. M., Gupta, S. K., & Deepak, S. (2022). Future of Business Culture: An Artificial Intelligence- Driven Digital Framework for Organization Decision-Making Process. *Complexity*, 2022(1), 7796507.
31. Tarafdar, M., Beath, C. M., & Ross, J. W. (2019). Using AI to enhance business operations. *MIT Sloan Management Review*, 60(4), 37-44.
32. Duangekanong, S. (2022). Applications of artificial intelligence for strategic management of organization. *ABAC ODI Journal Vision. Action. Outcome*, 9(2), 202- 217.

تطبيقات الذكاء الاصطناعي في الإدارة الاستراتيجية والتشغيلية

إعداد الطالب/

ماجد عبدالله خان

إشراف/

د. فيصل عبد الحميد

د. فايز جراد

السنة الدراسية:

2025