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# The Impact of Artificial Intelligence on The Project Management in Saudi Arabia's Private Organizations

**A Research Proposal**

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## **Abstract**

This research proposal explores the impact of Artificial Intelligence (AI) on project management within the context of Saudi Arabia. With AI's transformative potential, the current research aims to investigate how AI technologies enhance decision-making processes, efficiency, and productivity in project management within Saudi private organizations. The research adopts a deductive approach and employs quantitative descriptive analysis using SPSS software. Data collection will involve online questionnaire targeting project managers in Saudi private organizations, While the secondary data is taken from scientific literature, journals, books, and articles. The theoretical framework includes an assessment of AI's role in improving project management practices, drawing on relevant models and theories to provide a comprehensive understanding. Ethical considerations focus on addressing biases, ensuring data privacy, and enhancing transparency and accountability in AI systems. The study's findings are expected to provide valuable insights into the benefits and challenges of AI integration in project management, contributing to the broader discourse on AI's role in improving organizational performance and strategic decision-making in Saudi Arabia. This research ultimately aims to support the development of effective AI-driven project management strategies and promote responsible AI practices within the project management domain.

**Keywords:** Artificial Intelligence (AI), Project Management, Decision-Making, Efficiency, Productivity.

## Introduction

The upward thrust of Artificial Intelligence (AI) has extensively impacted numerous industries, consisting of project management, especially in Saudi Arabia. The integration of AI technology into project management procedures holds the ability to revolutionize the sector by enhancing decision-making, enhancing performance, and growing productiveness. AI programs in project management help in numerous duties including scheduling, hazard management, and useful resource allocation, main to greater powerful task execution and management (Bakr et al., 2023).

Saudi Arabia is actively pursuing economic diversification via projects which include Vision 2030, which emphasizes the development of technological hubs and clever towns like Neom. These projects closely depend upon AI and different advanced technology to decorate various factors of city lifestyles, along with mission management (Hassan, 2020). AI technologies are anticipated to power large enhancements within the efficiency and effectiveness of undertaking management practices, aligning with the USA's broader goals of monetary diversification and modernization.

One of the important thing demanding situations in Saudi Arabia's non-public sector is the adoption of AI in selection-making procedures. Despite recognizing the advantages of AI, many challenge managers face problems in implementing these technologies efficiently. The advent of AI in project management can lead to faster decision-making and progressed information best, which might be important for project fulfillment (Bakr et al., 2023). For instance, AI can streamline data processing and provide predictive analytics that enable project managers to foresee potential issues and mitigate risks proactively.

The integration of AI in project management isn't without challenges. Issues along with the need for great investment in era infrastructure, education of employees, and addressing ethical and regulatory worries are vital for the successful implementation of AI (Al-Baity, 2023). These demanding situations must be addressed to absolutely recognize the benefits of AI in project management and different sectors.

In this research, it has been provided the research background, research problem, research questions, research objectives, and research importance. The research models have been illustrated. The research hypotheses are formulated. The literature review, and theoretical framework have been discussed. The research structure, ethical considerations, and research limit are determined.

## **Research Background**

Artificial Intelligence (AI) has emerged as a transformative force throughout diverse sectors globally, including project management. In Saudi Arabia, AI's integration into project management practices has the capability to revolutionize the enterprise by means of improving decision-making, increasing performance, and driving productiveness. The Saudi authorities's Vision 2030 initiative underscores the importance of AI in accomplishing financial diversification and reducing reliance on oil, positioning the USA as an international technological hub (Hassan, 2020).

AI in project management can help in several areas, which includes scheduling, threat management, and aid allocation, which are important for a hit project execution. AI's potential to technique massive volumes of data speedy and appropriately allows project managers to make informed selections, foresee ability issues, and mitigate risks proactively (Bakr, Abu Farea, & Jadaa, 2023). Despite these advantages, the adoption of AI in Saudi Arabia's private sector faces several challenges, including a lack of infrastructure, data integrity issues, and the need for skilled personnel to implement and manage AI technologies effectively (Alghadeer, 2023).

One massive location wherein AI is making strides is inside the management of water resources. Saudi Arabia, facing excessive water scarcity problems, has commenced utilising AI to optimize water distribution and reduce waste. AI and Internet of Things (IoT) technologies can display and manage water utilization greater effectively, helping to deal with the United States of America's essential water management demanding situations (Alghadeer, 2023).

AI additionally holds promise for boosting organizational innovation and the first-class of work existence, particularly for employees with disabilities. For example, AI administrative applications

can improve accessibility and aid for disabled personnel, promoting a greater inclusive paintings environment. This is important for businesses aiming to foster innovation and improve the general best of work life for all employees (Alnaggar & Abdulkader, 2023).

However, no matter the ability advantages, the adoption of AI in Saudi Arabia is met with a few resistances. Factors consisting of worry of process loss, lack of expertise, and worries about the moral implications of AI use contribute to the slow adoption fees. For instance, in the discipline of radiology, AI programs are expected to revolutionize diagnostic approaches, but many radiologists continue to be hesitant because of issues approximately AI's effect on their roles and the fine of affected person care (Alsharif et al., 2022).

The Saudi government is actively addressing those challenges thru rules and tasks aimed at promoting AI adoption and making sure its moral use. The establishment of governing bodies and countrywide institutions to supervise AI implementation and education is crucial for mitigating worries and facilitating the integration of AI into diverse sectors (Alsharif et al., 2022).

AI's transformative ability extends beyond private quarter initiatives and into public zone organizations in Saudi Arabia. The integration of AI in public administration is seen as a way to enhance productiveness and streamline the shipping of public offerings. However, the assimilation of AI inside public quarter corporations faces precise challenges including misalignment between AI and management decision-making, cultural and linguistic tensions, and worries approximately records integrity and governance. Addressing those troubles is critical for a hit AI implementation in public services (Alshahrani, Dennehy, & Mäntymäki, 2021).

One of the sectors experiencing extensive AI integration is healthcare. AI-pushed tools are revolutionizing healthcare services via enhancing diagnostic accuracy, optimizing treatment plans, and enhancing patient care. In Saudi Arabia, tasks like Musawah use AI to research social media statistics and find out healthcare offerings, addressing gaps in the contemporary system. This technique has been in particular powerful in coping with illnesses along with cancer, in which AI enables in early detection and customized treatment plans (Alahmari et al., 2022).

AI's function in digital finance is unexpectedly expanding in Saudi Arabia. The economic sector is leveraging AI to beautify service shipping, enhance efficiency, and reduce prices. AI programs in finance, along with automated buying and selling, fraud detection, and customer support chatbots, are becoming increasingly more familiar. However, the adoption of AI in finance additionally necessitates addressing ethical and regulatory issues to make certain the accountable use of AI technologies (Al-Baity, 2023).

AI's effect on entrepreneurship in Saudi Arabia is also noteworthy. The generation is remodeling the entrepreneurial landscape by way of enabling startups to leverage AI for progressive commercial enterprise answers. AI-driven equipment and programs are assisting entrepreneurs optimize business approaches, enhance purchaser engagement, and enhance choice-making skills. Despite the capability, many startups face obstacles consisting of limited get right of entry to to AI era and insufficient knowledge, which restrict their potential to fully exploit AI's benefits (Ahmed, 2019).

In higher education, Saudi Arabia is making strides to integrate AI into academic institutions to decorate studying effects and prepare college students for a future pushed via AI technologies. AI-based studying tools are being followed to revolutionize teaching methodologies, making training extra personalized and green. However, the implementation of AI in training additionally faces demanding situations, together with the want instructors to acquire new technological abilities and the development of a supportive infrastructure (Alotaibi & Alshehri, 2023).

The strategic cognizance on AI is further pondered in Saudi Arabia's bold venture, Neom, which pursuits to create a smart town powered by using AI and other advanced technology. Neom represents a cornerstone of Saudi Vision 2030, designed to drive financial diversification and function the kingdom as a frontrunner in innovation and generation. The venture's integration of AI in various factors of urban planning and management is predicted to generate considerable monetary blessings and serve as a model for future smart cities globally (Hassan, 2020).

AI has the potential to noticeably effect task management in Saudi Arabia by way of improving efficiency, choice-making, and productivity. The usa's strategic projects and commitment to

technological development help the adoption of AI, paving the way for a greater green and technologically driven destiny. However, overcoming the challenges related to AI adoption, which includes infrastructure improvement, records integrity, and personnel training, is critical for realizing its complete potential (Bakr et al.,2023; Hassan, 2020).

Moreover, AI's ability to analyze vast amounts of data quickly and accurately has revolutionized project planning and execution. For instance, AI can assist project managers in optimizing resource allocation and identifying potential bottlenecks before they become critical issues, thereby enhancing overall project efficiency (Mashat, 2020). This predictive capability allows for proactive adjustments and more precise project control, leading to higher success rates in project completion.

The role of AI in improving project communication and collaboration is also noteworthy. AI-powered tools can facilitate better communication among project stakeholders by providing real-time updates and insights. This ensures that all team members are aligned with the project goals and can respond swiftly to any changes or issues that arise (Basri, 2020). Enhanced communication capabilities reduce misunderstandings and improve the coordination of tasks, which is particularly beneficial in complex projects involving multiple teams or departments.

Additionally, the strategic use of AI in project management offices (PMOs) has been shown to significantly impact project outcomes. Research highlights that PMOs leveraging AI technologies can enhance their organizational learning functions and better support project monitoring and control. This leads to improved customer satisfaction and project success rates (Almatari et al., 2022). By integrating AI into PMO functions, organizations can achieve a higher level of project management maturity and efficiency.

AI also plays a crucial role in large-scale projects such as the Neom mega-city project, part of Saudi Arabia's Vision 2030. The integration of AI in Neom aims to create a smart city where AI technologies are embedded in various aspects of urban management, from infrastructure to daily services. This ambitious project demonstrates the potential of AI to drive economic diversification and technological advancement on a grand scale (Hassan, 2020).

## Research Problem

The literature review is concerned the powerful implementation and integration of Artificial Intelligence (AI) in challenge management in the Kingdom of Saudi Arabia. Despite the diagnosed capability of AI to decorate productiveness, streamline approaches, and facilitate decision-making in project management, there are tremendous limitations and demanding situations that preclude its huge adoption and most appropriate usage.

One of the primary challenges is the limited expertise and alertness of AI technology amongst task managers in Saudi Arabia. Many task managers face difficulties in incorporating AI into their decision-making techniques, despite acknowledging its usefulness and ability blessings (Bakr, Abu Farea, & Jadaa, 2023).

Moreover, there may be a lack of adequate infrastructure and information integrity systems necessary for AI implementation. The hit deployment of AI relies heavily on excellent information and strong infrastructure, which can be frequently missing in many organizations. Issues related to information sharing and the improvement of AI infrastructure pose huge demanding situations, specifically in the public quarter (Alshahrani et al., 2021). Additionally, the private sector in Saudi Arabia has been slow to adopt AI technologies due to similar constraints, coupled with cultural and organizational resistance to change (Bakr et al., 2023).

Another considerable issue is the ethical and regulatory framework governing AI use. The fast advancement of AI technology has outpaced the improvement of corresponding guidelines and ethical pointers. This regulatory hole creates uncertainty and poses dangers associated with statistical privacy, safety, and the ethical use of AI in project management. Addressing these concerns is important for fostering a safe and powerful AI environment (Al-Baity, 2023).

Furthermore, the mixing of AI into current project management practices requires a shift in organizational lifestyle and attitude. There is a need for complete training programs to equip undertaking managers and teams with the essential talents to leverage AI effectively. The resistance

to change, coupled with a loss of training, drastically hampers the potential blessings of AI in project management (Bakr et al.,2023).

In addition to those challenges, there are area-unique barriers that similarly complicate the implementation of AI. For example, inside the creation industry, the unique demanding situations of faraway mission management require specialized AI packages that may cope with problems of communication and management in isolated places (Sidawi, 2012). Similarly, within the healthcare sector, the adoption of AI is critical for enhancing performance and exceptional of care, yet it faces big hurdles associated with facts fine and regulatory compliance (Saeed et al.,2023). Thus, the problem of statement seeks to identify the impact of artificial intelligence on project management in Saudi private organizations.

## **Research Importance**

There is a lack of comprehensive know-how and application of AI in undertaking management inside Saudi Arabia. While AI has been diagnosed for its transformative ability in numerous sectors, such as venture management, the personal region in Saudi Arabia appears to be lagging in its adoption of those technologies. This lag is mainly because of restrained attention from the educational research community and problems confronted via project managers in making use of AI in selection-making procedures (Bakr et al., 2023).

Moreover, there's a massive gap inside the infrastructure and records integrity systems vital for the powerful implementation of AI. Successful AI deployment relies heavily on extraordinary facts and robust infrastructure, which can be often missing in lots of agencies. This gap poses a widespread barrier to the good-sized adoption of AI in undertaking management, mainly inside the public quarter where AI assimilation seems fragmented and lagging as compared to the personal quarter (Alshahrani et al., 2021).

Additionally, the mixing of AI into venture management practices necessitates overcoming cultural and organizational resistance to alternate. There is a need for complete education applications to equip mission managers and teams with the vital skills to leverage AI efficaciously. Resistance to exchange and a lack of good enough education substantially avert the capacity benefits of AI in task management. This research objectives to address those challenges through presenting insights

and techniques to facilitate the adoption of AI in project management in Saudi Arabia (Bakr et al., 2023).

Another motive for this research is to bridge the distance in moral and regulatory frameworks governing AI use. The speedy development of AI technologies has outpaced the development of corresponding policies and moral suggestions, developed uncertainty and posing risks related to records privacy, security, and the moral use of AI. This research seeks to discover and propose frameworks that ensure the accountable and moral implementation of AI in task management (Al-Baity, 2023).

This research is vital for helping Saudi Arabia's Vision 2030, which emphasizes the improvement of technological hubs and smart towns powered through AI. Projects like Neom, a clever metropolis initiative, heavily rely upon AI to enhance various factors of city planning and management. By addressing the demanding situations related to AI adoption in project management, this study helps the wider dreams of financial diversification and technological development mentioned in Vision 2030 (Hassan, 2020).

## **Research Questions**

The research main questions are addressed as the following:

Q1. What is the impact of artificial intelligence on project management in Saudi private organizations?

Q2. How can Artificial Intelligence (AI) enhance decision-making processes in project management within the private sector of Saudi Arabia?

Q3. What are the challenges and barriers to the assimilation of AI in private sector organizations in Saudi Arabia?

## Research Objectives

This research has the following objectives:

1. To identify the impact of artificial intelligence on project management in Saudi private organizations.
2. To examine how Artificial Intelligence (AI) can enhance decision-making processes in project management within the private sector of Saudi Arabia.
3. To identify the challenges and barriers to the assimilation of AI in private sector organizations in Saudi Arabia.

## Research Model

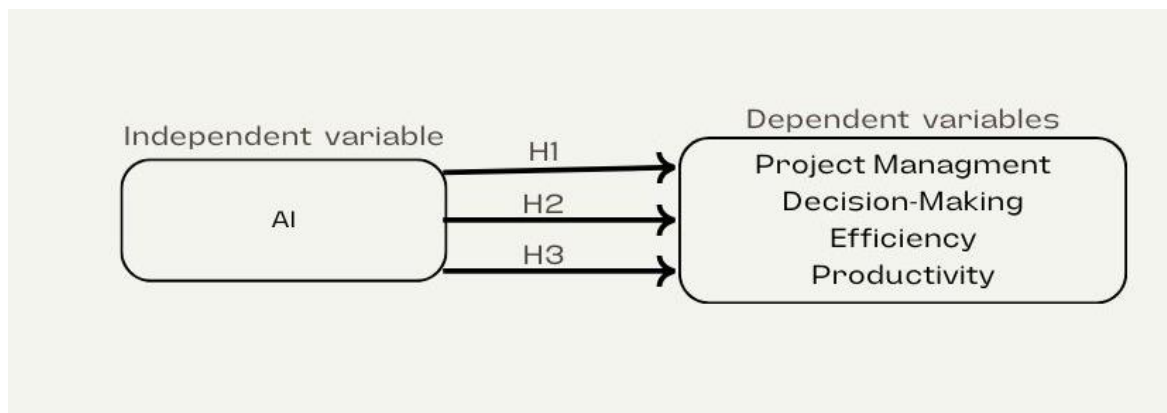


Figure 1: Research Model was designed for research purposes.

This research model illustrates the relationship between Artificial Intelligence (AI) as the independent variable (IV) and Project Management (PM) as the dependent variable (DV). The dependent variable, Project Management, is further divided into three components: Decision Making, Efficiency, and Productivity. The model posits three hypotheses (H1, H2, H3) that explore the impact of AI on these components of project management:

## Research Hypotheses

As the following, the research hypotheses are determined below:

1. H1: AI positively impacts Decision-Making Processes in Project Management.
2. H2: AI positively impacts Efficiency in Project Management.
3. H3: AI positively impacts Productivity in Project Management.

## Literature Review

Artificial Intelligence (AI) has been more and more incorporated into various sectors, demonstrating full-size transformative capacity. This segment reviews ten studies relevant to AI in project management, every that specialize in exceptional factors and contexts within Saudi Arabia.

Hinter Holzer (2024) examines the impact of Artificial Intelligence on IT project management and the evolving role of project managers. Their research, conducted through semi-structured qualitative interviews and systematic literature analysis, reveals that AI can fully automate certain operational tasks, such as translations and the creation of visual material. However, strategic and interpersonal tasks, including communication and team management, remain challenging for AI to perform efficiently. The study highlights that IT project managers must develop a deep understanding of AI functionalities and limitations to interact effectively with these systems. This includes acquiring skills in prompt engineering and effective communication with AI systems, which are becoming increasingly important. The research underscores that despite AI advancements, successful IT project management will continue to rely on human leadership and decision-making skills, with both cognitive and emotional intelligence remaining key success factors (Hinter Holzer, 2024).

AI is transforming medical imaging practices in Saudi Arabia, impacting project management in the healthcare sector. Mirza et al. (2022) assessed the use of AI among radiology trainees, finding that AI enhances the radiology workflow and improves diagnostic accuracy. For project managers

in healthcare, AI tools support better project planning, execution, and monitoring, leading to improved patient outcomes and operational efficiency. The study highlights the need for increased awareness and adoption of AI in medical imaging to fully realize its benefits (Mirza et al., 2022).

AI's integration into government services has enhanced project management practices by improving service quality and efficiency. Algosaibi et al. (2020) developed an intelligent framework for government organizations, incorporating AI-based applications like chatbots and sentiment analysis. This framework supports decision-makers in tracking and optimizing project performance, leading to improved service delivery and project outcomes. For project managers in the public sector, AI tools facilitate better planning, execution, and monitoring, aligning with the Kingdom's Vision 2030 objectives (Algosaibi et al., 2020).

Bakr et al., (2023) discover the impact of AI on choice-making within the personal sector in Saudi Arabia. AI can enhance records great and integrity, main to faster and more effective selection-making. However, additionally they note that many venture managers conflict to integrate AI into their tactics, despite recognizing its ability advantages. This research seeks to make contributions to the growing body of expertise on AI-pushed task management decision-making inside the non-public sector in Saudi Arabia by means of analyzing the advantages, challenges, and capacity dangers associated with AI implementation (Bakr et al., 2023).

Alotaibi and Alshehri (2023) cognizance on the possibilities and challenges of integrating AI-based totally learning outcomes in Saudi Arabia's higher schooling institutions. Their research highlights that even as AI holds good sized capacity to revolutionize schooling, it also offers demanding situations consisting of the want for brand spanking new technological talents among educators and students. The observe utilized the PRISMA declaration 2020 for records filtration and VOS viewer software to categories the literature, figuring out 3 massive information streams and emphasizing the need for all college students to acquire technical capabilities to interact with and create AI within the future (Alotaibi & Alshehri, 2023).

Al-Baity (2023) presents a comprehensive evaluation of AI's impact on virtual finance in Saudi Arabia. The observe discusses how AI can enhance the efficiency of monetary transactions and

services, emphasizing the need for ethical and regulatory frameworks to guide AI's implementation inside the monetary quarter. The findings screen that AI may want to transform the monetary quarter by means of growing opportunities for tailor-made, quicker, and greater price-effective services, though moral and governance worries need addressing (Al-Baity, 2023).

Alghadeer (2023) investigates the usage of AI in coping with water distribution projects in Saudi Arabia. To identifies large benefits, with decreased water waste and improved performance, however additionally it highlights demanding situations related to infrastructure, facts, and regulatory frameworks. By reviewing a success application of AI and IoT in water distribution in different nations, the study presents insights into exceptional practices that could be carried out in Saudi Arabia to improve water management (Alghadeer, 2023).

Hashfi & Raharjo (2023) conduct a systematic literature review to map the challenges and impacts of AI implementation in project management, aligning these with the Project Management Body of Knowledge (PMBOK) process groups. They identify specific challenges and potential benefits within each process group, providing valuable insights for practitioners. The study's results and analysis reveal how AI tools and techniques can address challenges in risk assessment, cost prediction, decision-making, and more, enhancing project management outcomes (Hashfi & Raharjo, 2023).

Al-Alawi and A-Lmansouri (2023) explore AI's influence at the judiciary gadget in Saudi Arabia. Their findings endorse that AI can improve efficiency, accuracy, and fairness in judicial methods, however emphasize the want for further research and improvement to absolutely realize those benefits. The study reviews 10 special global and Saudi Arabian guides, revealing that AI techniques like gadget studying and herbal language processing (NLP) can enhance judicial procedures (Al-Alawi & A-Lmansouri, 2023).

Alqahtani (2017) examines the implementation of the information technology infrastructure technology (ITIL)framework in Saudi Arabia's Ministry of Education. The study identifies critical success factors and challenges, noting that strong leadership and management involvement are crucial for successful ITIL implementation. Through a series of interviews with IT professionals,

the study confirms that project management, communication, and quality management are essential for successful ITIL adoption in the Ministry of Education (Alqahtani, 2017).

Alshahrani et al., (2021) use a case look at method to explore AI assimilation in Saudi Arabia's public sector. They become aware of key demanding situations, which includes misalignment between AI and management, linguistic and cultural tensions, and records integrity troubles, which need to be addressed to leverage AI's complete capacity. The findings monitor that AI assimilation inside the public area is fragmented and lags in the back of the personal region, highlighting the need for centered organizational attention and governance to boost up AI adoption (Alshahrani et al., 2021)

Saudi Arabia has leveraged AI to manage the Hajj season more effectively. Abalkhail and Al Amri (2022) examined the use of AI in crowd management during the Hajj, highlighting how AI techniques have improved safety and efficiency. The study found that AI applications in crowd management reduce the risk of accidents and enhance the overall experience for pilgrims. Project managers in the tourism and events sector can learn from these practices to improve their project planning, execution, and monitoring, ensuring successful large-scale events management (Abalkhail & Al Amri, 2022).

The study with the aid of Vaio et al. (2020) investigates the role of AI in building sustainable business fashions (SBMs) inside the framework of the UN 2030 Agenda for Sustainable Development Goals (SDGs). It highlights the importance of AI in reaching sustainable useful resource management and identifies gaps in information management structures (KMS) through AI. The findings recommend that AI can extensively affect manufacturing and intake patterns to obtain SDGs, specifically in the cultural glide towards sustainable practices (Vaio et al., 2020).

The IPMA and PwC (2020) survey report gives an in-depth examination of the impact of Artificial Intelligence (AI) on task management. The survey, which blanketed responses from 295 project management professionals globally, aimed to perceive the fame of AI adoption, the evolution of its use in challenge management activities, and the main drivers and barriers influencing AI adoption selections. The document highlights that AI technology, such as system mastering,

predictive analytics, and chatbots, are being increasingly more integrated into mission management to enhance productiveness, choice-making, and common overall performance. However, the survey also revealed widespread challenges, inclusive of restricted expertise of AI technologies, records privacy worries, and the want for extra robust digital transformation techniques. The findings emphasize the significance of aligning AI strategies with commercial enterprise desires, investing in AI talent and training, and establishing standards and methodologies for sound information-pushed approaches. Overall, the document underscores the transformative ability of AI in project management whilst acknowledging the hurdles that groups have to overcome to completely recognize those blessings (IPMA & PwC, 2020).

Almobarak et al., (2013) conducted an exploratory survey to investigate the use of software project management tools in Saudi Arabia. Their study provides insights into the local context of project management and identifies the tools used by software project management teams, highlighting features that influence their selection. The research underscores the importance of the Arabic interface, the Hijri calendar, and Arabic documentation in the selection process, reflecting the unique needs of Saudi organizations (Almobarak et al., 2013).

Alattas (2023) examined why corporate firms in Saudi Arabia are hesitant to embrace AI despite its numerous benefits. The study focused on the constraints that hinder the full adoption of AI in Saudi firms, such as the high investment costs and limited understanding of AI technologies. The research emphasizes the need for robust digital transformation strategies and AI talent development to overcome these barriers and fully realize AI's potential in project management (Alattas, 2023).

Dam et al., (2018) proposed a framework for effective AI-powered agile project management. They discussed how AI can assist project managers and team members by automating repetitive tasks, providing project analytics for estimation and risk prediction, and making actionable recommendations. This framework highlights the potential for AI to transform agile project management by accelerating productivity and increasing project success rates (Dam et al., 2018).

AI adoption in human resources management (HRM) significantly impacts project management in the banking sector. Qahtani & Alsmairat (2023) investigated the drivers of AI adoption in HRM, finding that perceived usefulness and trust are critical factors. AI applications improve HR processes, leading to better project planning and execution. For project managers, AI tools facilitate more efficient resource allocation, performance evaluation, and talent management, contributing to overall project success and organizational effectiveness (Qahtani & Alsmairat, 2023).

Auth et al., (2019) revisited automated project management in the digital age, offering a survey of AI approaches. They explored how AI concepts and algorithms, such as cognitive assistance systems, could be applied to automate tasks in business project management. The study provides a current overview of AI tools available for automating project management tasks, demonstrating the potential for AI to improve project outcomes by enhancing efficiency and decision-making (Auth et al., 2019).

## **Theoretical Framework**

Artificial Intelligence (AI) is increasingly being recognized for its transformative potential in project management, particularly in the context of Saudi Arabia. This theoretical framework explores the integration of AI into project management practices, focusing on decision-making, efficiency, and productivity.

Stakeholder theory addresses the interests of all parties involved in a business. It suggests that organizations should consider the needs and concerns of all stakeholders to optimize project outcomes. By leveraging AI, project managers can more effectively gather and analyze stakeholder data, ensuring that all perspectives are considered in decision-making processes (Citron & Pasquale, 2014). Agency theory, on the other hand, focuses on conflicts of interest between principals (owners) and agents (managers) and suggests mechanisms to align their interests. AI can facilitate better communication and alignment between these parties by providing transparent, data-driven insights and recommendations (New et al., 2015). Naim (2022) discusses three cost modeling methods Analog, Analytic, and Parametric, and the challenges of using AI techniques in

cost estimation and modeling. The study emphasizing the need for investment in research and development and encryption technology to safeguard user information.

The study by Bakr et al., (2023) highlights how AI can enhance decision-making within the private sector in Saudi Arabia. AI technologies improve data quality and integrity, leading to faster and more effective decision-making processes. However, many project managers face challenges in integrating AI into their workflows, despite recognizing its potential benefits (Bakr, Abu Farea, & Jadaa, 2023).

The use of software project management tools is critical in the local context of Saudi Arabia. Almobarak et al. (2013) emphasize the importance of features such as the Arabic interface, Hijri calendar, and Arabic documentation in the selection process. These culturally adapted tools ensure that project management practices are effective and relevant within the region (Almobarak et al., 2013).

Dam et al. (2018) propose a framework for effective AI-powered agile project management, suggesting that AI can automate repetitive tasks, provide project analytics for estimation and risk prediction, and make actionable recommendations. This framework can enhance productivity and success rates in agile project management, highlighting the transformative potential of AI in modern project management practices (Dam et al., 2018).

Additionally, the research by Hashfi & Raharjo (2023) systematically maps the challenges and impacts of AI implementation in project management, aligning these with the Project Management Body of Knowledge (PMBOK) process groups. They identify that AI tools can enhance risk assessment, cost prediction, and decision-making within the Initiating Process Group, and improve resource allocation and productivity in the Planning and Execution Process Groups (Hashfi & Raharjo, 2023).

Moreover, the thesis by Hinter Holzer (2024) emphasizes the importance of understanding AI's functionalities and limitations in managing IT projects. They highlight the necessity for project managers to develop skills in prompt engineering and effective communication with AI systems,

underscoring the significance of human leadership and decision-making in the successful integration of AI into project management processes (Hinter Holzer, 2024).

Alshahrani et al., (2021) explore the assimilation of AI in Saudi Arabia's public sector, identifying challenges such as misalignment between AI and management, linguistic and cultural tensions, and data integrity issues. This underscores the importance of tailored AI implementation strategies that address these specific challenges to improve public sector project management (Alshahrani et al., 2021).

Auth, Jokisch, and Dürk (2019) revisit automated project management in the digital age, offering a survey of AI approaches. They explore how AI concepts and algorithms can automate tasks in business project management, demonstrating the potential for AI to improve project outcomes by enhancing efficiency and decision-making (Auth et al., 2019).

Alattas (2023) examines the hesitation of corporate firms in Saudi Arabia to embrace AI despite its numerous benefits, focusing on constraints such as high investment costs and limited understanding of AI technologies. This highlights the need for robust digital transformation strategies and AI talent development to overcome these barriers and fully realize AI's potential in project management (Alattas, 2023).

## **Research Methodology**

In this research, a deductive approach will be used, and a quantitative descriptive analysis will be conducted for the collected data through SPSS software. This methodology is designed to systematically investigate the impact of AI on project management in Saudi Arabia. The methodology involves the following steps:

### **1. Research Design:**

The study will adopt a deductive approach, which involves testing existing theories related to AI in project management within the context of Saudi Arabia (Bakr et al., 2023). A quantitative

research design will be used to collect and analyze numerical data, providing a comprehensive view of the phenomena under study (Alshahrani et al., 2021).

## 2. Data Collection:

**Primary Data:** An on-line survey could be conducted to accumulate number one facts. The survey will goal challenge managers, team leaders, and other applicable stakeholders in Saudi Arabia's project management region. The survey will encompass questions designed to evaluate the effect of AI on decision-making approaches, performance, productivity, and the demanding situations faced in implementation (Bakr et al., 2023).

**Secondary Data:** Secondary data will be accumulated from online scientific books, articles, and journals. This information will offer additional context and aid for the evaluation, presenting insights into the theoretical historical past and present research on AI in project management (Basri, 2020).

## 3. Survey Design:

The online survey will be designed to consist of both closed-ended and Likert-scale questions. Closed-ended questions will permit respondents to pick out from predefined solutions, while Likert-scale questions will degree the degree of agreement or war of words with particular statements associated with AI in mission management (Najdawi & Shaheen, 2021).

## 4. Sampling:

A stratified random sampling method will be used to make certain a consultant sample of the populace. The participants are employees in projects in private sectors within Saudi Arabia.

## 5. Data Analysis:

The collected data will be analyzed using SPSS software. The analysis will include descriptive statistics to summarize the data, such as means, medians, and standard deviations. Additionally,

inferential statistics will be used to test the research hypotheses and determine the relationships between variables (Ahmed, 2019).

## **Research Limit:**

- **Human:** This research will focus on the employees in projects at the private sector in Saudi Arabia. The primary data will be collected from project managers, team leaders, and other relevant stakeholders within this sector (Bakr et al.,2023).
- **Spatial:** The research will be geographically confined to Saudi Arabia. This spatial limitation is crucial for understanding the specific context and challenges faced by organizations within the country, particularly in relation to the adoption and implementation of AI in project management (Alshahrani et al., 2021).
- **Temporal:** This research will be conducted in the year 2024. The temporal scope is set to ensure the relevance and timeliness of the data, reflecting current trends and developments in AI and project management within the Saudi Arabian context (Basri, 2020).

## **Research Structure**

There are five chapters in the research as below:

Chapter One: This chapter covers an overview of the research, including the problem, objectives, research importance, research model, research questions, and hypotheses. It also details the research terminology, content of the research, and ethical considerations. This foundational chapter sets the stage for the entire study by providing the necessary background and context.

Chapter Two: A critical literature review relevant to this research is presented in this chapter. It summarizes the literature previously published in highly ranked academic journals, identifies gaps in the existing research, and explores the relationships between the research variables. This review provides a theoretical foundation for the study and highlights the need for further investigation.

Chapter Three: This chapter discusses the research methods and methodology. It includes the research design, research approach, research population, research sample, and the techniques used

for data collection and analysis. The methodology chapter outlines the systematic procedures followed to ensure the reliability and validity of the research.

Chapter Four: The results of the research are presented in this chapter. It involves analyzing the research data and testing the hypotheses. The findings are described using tables and figures to provide a clear and concise representation of the data. This chapter is critical for interpreting the results and understanding their implications.

Chapter Five: This final chapter includes a summary of the findings, discussion, implications, limitations of this research, and further recommendations for future researchers. It synthesizes the key points from the study, discusses the broader implications of the results, acknowledges the study's limitations, and offers suggestions for future research directions.

## **Research Terminologies**

- **Artificial Intelligence (AI):** The simulation of human intelligence tactics by using machines, specifically laptop systems. These processes consist of getting to know (the purchase of information and rules for using the facts), reasoning (the use of rules to attain approximate or precise conclusions), and self-correction (Alotaibi & Alshehri, 2023).
- **Project Management:** The application of knowledge, abilities, tools, and techniques to project activities to satisfy the project necessities. This includes initiating, making plans, executing, monitoring, and last a project (Bakr et al., 2023).

## **Ethical Considerations**

The increasing use of Artificial Intelligence (AI) in project management and different fields necessitates a sturdy awareness on moral considerations. AI technologies, while offering enormous advantages, additionally pose diverse moral demanding situations that want to be addressed to ensure their responsible use.

One important ethical challenge is the potential for bias in AI structures. AI algorithms can perpetuate and even exacerbate current biases if they're trained on biased statistics. This highlights the want for transparency in AI selection-making tactics and the significance of the usage of various and representative datasets (Agbese et al., 2023).

Privacy and information safety also are crucial moral troubles in AI. Organizations ought to ensure that records used in AI systems is accrued and processed in compliance with privacy laws and rules. Ethical AI practices require sturdy information governance frameworks to shield user information from unauthorized get right of entry to and misuse (Brendel et al., 2021).

Another crucial attention is the duty and explainability of AI decisions. AI structures ought to be designed in a manner that their decisions can be understood and traced back to unique inputs and methods. This helps in constructing trust and ensures that decisions may be audited and challenged if necessary (Mohammad, 2021).

To deal with these moral challenges, various frameworks and pointers have evolved. The Ethical Management of AI (EMMA) framework, for an instance, offers a comprehensive method to handling AI ethics, specializing in managerial decision-making, ethical concerns, and environmental dimensions (Brendel et al., 2021).

Implementing ethical AI additionally entails embedding ethicists into AI development teams. This method guarantees that ethical concerns are incorporated into the improvement manner from the outset, promoting responsible and ethical AI practices (McLennan et al., 2020).

## **Summary**

This research inspiration explores the impact of Artificial Intelligence (AI) on undertaking management in Saudi Arabia, focusing on numerous aspects inclusive of decision-making, efficiency, and productiveness. The technique entails a deductive technique and quantitative descriptive analysis using SPSS software, with number one statistics amassed through on-line surveys and secondary records from scientific literature.

The research highlights the want for comprehensive AI strategies aligned with enterprise goals, robust digital transformation initiatives, and investment in AI talent and schooling. Ethical considerations are critical, inclusive of addressing bias, making sure records privateness, and improving the transparency and responsibility of AI choices. Various frameworks, which include the EMMA framework and embedded ethics tactics, are mentioned to sell responsible AI practices.

By investigating those elements, the studies goals to provide treasured insights into the blessings and demanding situations of AI integration in mission management, contributing to the wider discourse on AI's role in improving organizational overall performance and strategic selection-making.

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