

The role of AI in the success of Saudi Startups: Moderation of AI readiness

دور الذكاء الاصطناعي في نجاح الشركات الناشئة السعودية: الاعتدال في جاهزية الذكاء الاصطناعي

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1. Introduction

1.1. Problem Statement

There has been a rapid technological innovation in various sectors of business. Similarly, the Saudi startups are rapidly integrating artificial intelligence (AI) to yield optimal outcomes. When AI is integrated into business operations, the efficiency of operations, innovation, and competitiveness in the market can be enhanced to a great extent (Alateeg & Al-Ayed, 2024). However, the extent to which AI contributes to their success depends on various factors. It involves various factors such as the AI readiness (Morandini et al., 2023). Due to limited financial and technological resources, there are many startups that face various challenges for the efficient implementation of AI. These challenges can be prevailed due to various factors. It can include gaps in expertise, constraints of resources, and resistance to the change in technology (Winecoff & Watkins, 2022). However, when there is an absence of sufficient AI readiness, the potential benefits of AI can lead to ineffective outcomes (Jowarder, 2024). Therefore, the present study will examine the role of AI in driving the success of startups in Saudi Arabia. It will also seek to investigate the way through which AI readiness moderates this relationship.

1.2. Importance of the Study

The present research will be important as it provides valuable insights regarding artificial intelligence (AI) and its contribution towards the success of Saudi startups. It will also focus on the critical role of AI readiness in the maximisation of its impact (Albaqami et al., 2024). As Saudi Arabia fosters its digital transformation under Vision 2030 (Al-Ruithe & Benkhelifa, 2017). So, it is important to understand the way in which AI enhances the performance of startups. It can be helpful for the entrepreneurs, investors, and policymakers so that they can make informed and effective decisions leading to improved business outcomes. Therefore, this research will offer strategic recommendations to improve preparedness of technology. The

researcher will focus on the identification of various opportunities and challenges which are associated with the adoption of AI. It will also highlight the importance of capabilities in the workforce, and growth driven by innovation. Thus, the findings will be helpful in supporting the sustainable development of AI-powered startups.

1.3. Objectives of the Study

The research will fulfil following objectives of this study;

RO1: To identify the impact of perceived usefulness on the success of Saudi startups.

RO2: To assess the influence of perceived ease of use on the success of Saudi startups.

RO3: To determine the effect of AI responsiveness on the success of Saudi startups.

RO4: To assess the moderation of AI readiness between perceived usefulness, perceived ease of use, AI responsiveness and success of Saudi startups.

1.4. Research Questions

In accordance with the research objectives, the present research will answer following research questions;

RQ1: What is the impact of perceived usefulness on the success of Saudi startups?

RQ2: What is the impact of perceived ease of use on the success of Saudi startups?

RQ3: What is the impact of AI responsiveness on the success of Saudi startups?

RQ4: How does AI readiness moderate the relationship between perceived usefulness, perceived ease of use, AI responsiveness, and the success of Saudi startups?

2. Literature Review

2.1. Perceived Usefulness and Startup Success

Perceived usefulness plays an important role in the success of business startups. It strongly influences the acceptance and effective operation of artificial intelligence (Aljarboa, 2024). When AI is perceived as beneficial by employees in fostering the operational efficiency, capabilities of business regarding their decision-making, and performance of business. In this way, they are more likely to inculcate it into their operations (Rana et al., 2022). AI-driven tools streamline processes, improve the experiences of customers and provide data-driven insights that support strategic growth (Jowarder, 2024). However, if AI solutions are not

perceived as valuable or fail to demonstrate tangible benefits. Then the startups may struggle with adoption which can also limit their competitive advantage (Cormier, 2022).

H1: Perceived usefulness has a significant positive impact on the success of business startups.

2.2. Perceived Ease of Use and Startup Success

Perceived ease of use is also considered as an important element that can impact the successful acceptance of artificial intelligence (AI) in Saudi startups (Aljarboa, 2024). When AI technologies are user-friendly, effective outcomes can be achieved. These can be perceived as intuitive, and require minimal effort to learn and operate. So, the startups can confidently integrate them into their processes of business (Puapongsakorn & Brazdeikyte, 2023). A seamless experience of AI also enhances the operational efficiency of businesses. It reduces resistance to adoption, and allows employees so that they can focus on value-driven tasks rather than struggling with complex systems (Cavadi, 2025). Conversely, if AI tools are perceived as difficult for utilisation, startups may face implementation challenges. Thus, it can lead towards lower rates of adoption and missed opportunities for growth (Shepherd & Majchrzak, 2022).

H2: Perceived ease of use has a significant impact on the success of Saudi startups.

2.3. AI Responsiveness and Startup Success

AI responsiveness is considered as an important factor in the success of Saudi startups. It also enhances the customer interactions, decision-making, and efficiency of operations (Alzoubi et al., 2024). AI systems that quickly adapt to user needs, process real-time data, and provide accurate responses improve performance of businesses (Gadde, 2024). Startups that implement highly responsive AI can foster their customer satisfaction. In this way, they can also streamline the internal processes, and gain a competitive edge in the market (Rahman, 2024). However, if AI lacks responsiveness, it may hinder productivity and reduce the trust of users in the technology (Glikson & Woolley, 2020).

H3: AI responsiveness has a significant positive impact on the success of Saudi startups.

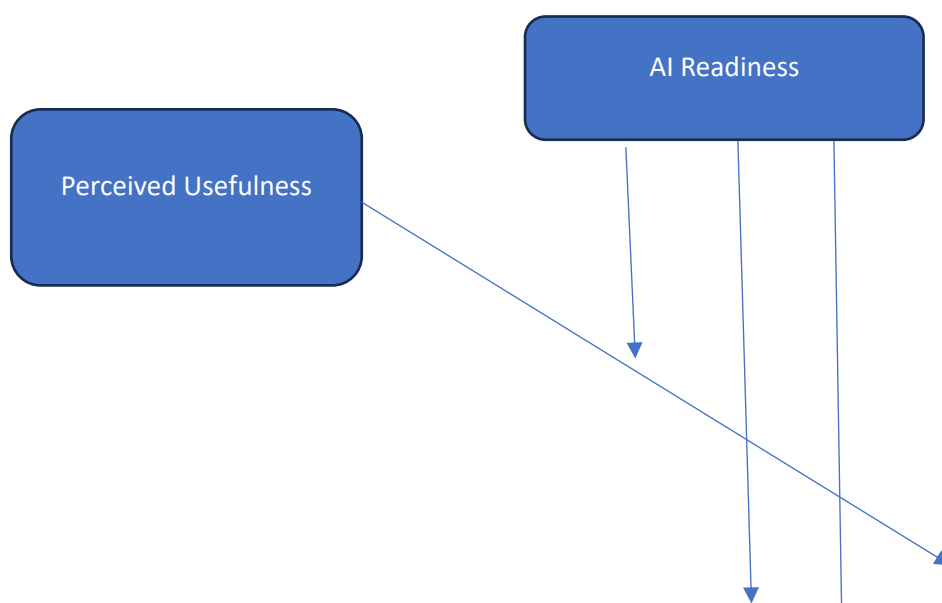
2.4. Moderation of AI Readiness

AI readiness plays a moderating role in the relationship between AI adoption and the success of Saudi startups. It plays key role in determining the way through which effectively businesses can leverage AI technologies (Badghish & Soomro, 2024; Mili et al., 2025). Startups which have a high level of AI readiness are better positioned so that they can maximize the benefits of AI, such as improved efficiency, enhanced customer engagement, and data-driven decision-making (Olaniyi et al., 2024; Socol & Iuga, 2024). Conversely, those startups which have a low AI readiness can possibly struggle with various challenges of implementation of AI within the business operations. In this way, the positive impact of AI on their growth and competitiveness can be limited (Dahlqvist & Pivén, 2020). By assessing the moderating effects of AI readiness between perceived usefulness, perceived ease of use, and AI responsiveness, the construct of AI readiness ensures that businesses can fully gain the potential of AI for ensuring its long-term and optimal success (Basri, 2023).

H4a: AI readiness significantly moderates the relationship between perceived usefulness and the success of Saudi startups.

H4b: AI readiness significantly moderates the relationship between perceived ease of use and the success of Saudi startups.

H4c: AI readiness significantly moderates the relationship between AI responsiveness and the success of Saudi startups.



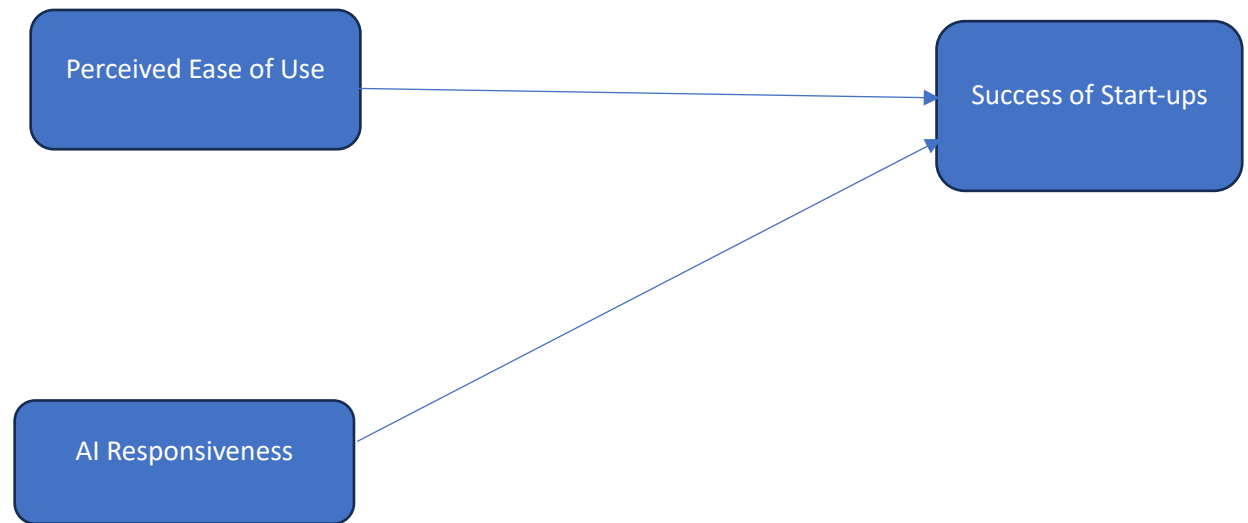


Figure 1. Conceptual Framework

Source: Author Generated

3. Methodology

3.1. Research Philosophy

Positivism will be the appropriate research philosophy for this study. This is because it will emphasize objective measurement, quantifiable data, and hypothesis testing. It can lead towards the establishment of causal relationships. A positivist philosophy will allow for systematic collection of data and statistical analysis. Positivism will also ensure that findings are based on empirical evidence. It will minimize the researcher bias and will also enhance the reliability and generalizability of results.

3.2. Research Approach

A “deductive approach” will be suitable for this study. This is because it begins with established theories, formulates hypotheses, and tests them using empirical data. As the research examines the impact of AI-related factors on the success of Saudi startup businesses and the moderating role of AI readiness, therefore, it will follow a structured process of hypothesis testing through quantitative analysis. This approach will be important in ensuring the objective conclusions. It will also allow for generalizability and validation of existing theoretical frameworks in the context of Saudi startups.

3.3. Research Design

A quantitative research design will be appropriate for this study. This is because it will allow for objective measurement, statistical analysis, and hypothesis testing. As the present research aims to examine the relationships between AI-related factors (perceived usefulness, perceived ease of use, AI responsiveness) and the success of Saudi startups, therefore a quantitative approach will enable the collection of numerical data. In this way, the researcher will assess these impacts systematically.

3.4. Sampling and Population

A simple random sampling technique will be appropriate for this study. This is because it ensures that every startup in the target population has an equal chance of being selected. It will reduce the selection bias and enhance the representativeness of the sample. The population will be consisted of Saudi startups that have integrated AI into their business operations.

3.5. Data Collection

An online survey questionnaire will be the most suitable data collection method for this study. This is because it will allow for efficient, large-scale data gathering from Saudi startups integrating AI into their operations. This method will also ensure accessibility and enable the participants so that they can respond at their convenience.

Table 3.1. Measurement of Variables

Variable	Number of Items	Source
Perceived ease of use	4 items	(Plewa et al., 2012)
Perceived Usefulness	5 items	(Plewa et al., 2012)
AI Responsiveness	3 items	(Chen et al., 2021)
AI Readiness	4 items	Issa et al. (2022)
Success of Saudi Startups	10 items	(Pillai & Srivastava, 2024)

3.6. Data Analysis

Regression analysis will be performed through SPSS. It will be conducted to examine the impact of perceived usefulness, perceived ease of use, and AI responsiveness on the success of Saudi startups. Through this method, the researcher will test AI readiness as a moderating factor. Descriptive statistics will summarize the data. However, multiple regression analysis will assess the direct relationships between variables. Moderation analysis using PROCESS Macro by Hayes will determine whether AI readiness strengthens or weakens these relationships. This approach will also ensure objective and data-driven insights into the role of AI in startup success.

4. Structure of Research

Table 2: Structure of Research

Chapter	Title	Content
Chapter 1	Introduction	- Background
		- Problem Statement
		- Research Aims
		- Research Objectives
		- Research Questions
		- Significance of the Study
		- Scope of the Study
Chapter 2	Literature Review	- Theoretical Framework
		- AI Adoption in Startups
		- AI Features and Customer Loyalty
		- AI Readiness as a Moderating Factor
		- Previous Studies on AI and Startup Success
Chapter 3	Research Methodology	- Research Gaps
		- Research Philosophy
		- Research Approach
		- Research Design
		- Population and Sampling Method

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Chapter	Title	Content
		- Data Collection Process
		- Data Analysis Techniques (SPSS Regression & Moderation Analysis)
		- Ethical Considerations
		- Descriptive Statistics
		- Correlation Analysis
Chapter 4	Data Analysis and Findings	- Regression Results
		- Moderation Analysis
		- Key Findings
		- Interpretation of Findings
Chapter 5	Discussion	- Comparison with Existing Literature
		- Theoretical Implications
		- Practical Implications
		- Summary of Key Insights
		- Research Contributions
Chapter 6	Conclusion and Recommendations	- Study Limitations
		- Recommendations for Startups
		- Suggestions for Future Research

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Appendix

Questionnaire

Thank you for taking the time to participate in this study. The aim of this research is to examine the role of artificial intelligence (AI) in the success of startups in Saudi Arabia, with a specific focus on the moderating effect of AI readiness. This study seeks to evaluate how AI-driven capabilities such as perceived usefulness, perceived ease of use and responsiveness influences the startup success of Saudi businesses. Additionally, this research will also investigate the extent to which AI readiness moderates the relationship between AI adoption and the success of Saudi startups. By exploring these associations, this research aims to provide valuable insights regarding the integration of AI and the way it can be leveraged effectively so that entrepreneurial performance and sustainability can be enhanced. Your participation is entirely voluntary. So, all the responses will be kept confidential and used solely for academic purposes.

Your insights are highly valuable for us in contributing to a deeper understanding of the impact of AI on startup in Saudi Arabia.

We also sincerely appreciate your time and effort that you put in completing this questionnaire.

Thank you for your valuable contribution!

Section A

1. Please indicate your gender

- a) Male
- b) Female

2. Kindly indicate your age range

- a) 20-25
- b) 26-30
- c) 31-35
- d) 36-40

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e) 40+

3. Please provide your work experience

- a) 2-3 Years
- b) 4-5 Years
- c) 6-7 Years
- d) 8-9 Years

Section B

Please carefully read the following statements. For each statement of item, please indicate your opinion. Your provided opinions should be based on the scales which are provided below. The following scale items have been measured on a 5-point Likert scale as shown below:

"1= strongly disagree."

"2= disagree"

"3= neutral"

"4= agree"

"5= strongly agree."

No of items	Item	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree
Responsiveness						
1	The AI-enabled services inform users of the progress of their complaints via email or messages.	☐	☐	☐	☐	☐
2	The AI-enabled services take immediate action when problems occur.	☐	☐	☐	☐	☐
3	The AI-enabled services ensure the timely provision of AI-driven insurance services.	☐	☐	☐	☐	☐

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Perceived Ease of Use						
1	I find it easy to get AI-enabled insurance services to perform the tasks I need.	☐	☐	☐	☐	☐
2	My interaction with AI-enabled insurance services is clear and understandable.	☐	☐	☐	☐	☐
3	I find AI-enabled insurance services easy to use.	☐	☐	☐	☐	☐
4	I find it easy to get AI-enabled insurance services to perform the tasks I need.	☐	☐	☐	☐	☐
Perceived Usefulness						
1	Using AI-enabled insurance services allows me to complete transactions more quickly.	☐	☐	☐	☐	☐
2	Using AI-enabled insurance services improves my financial management.	☐	☐	☐	☐	☐
3	Using AI-enabled insurance services increases my efficiency in handling transactions.	☐	☐	☐	☐	☐
4	Using AI-enabled insurance services enhances my overall banking experience.	☐	☐	☐	☐	☐
5	Using AI-enabled insurance services makes financial transactions easier.	☐	☐	☐	☐	☐
AI Readiness						
1	I prefer the use of AI-enabled insurance services.	☐	☐	☐	☐	☐
2	I enjoy the challenges of figuring out how AI-enabled insurance services work.	☐	☐	☐	☐	☐

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3	I feel confident that AI-enabled insurance services will do what you tell them to do.	☐	☐	☐	☐	☐
4	I prefer the use of AI-enabled insurance services.	☐	☐	☐	☐	☐
Startup Success						
1	Better relationship management enhances collaboration and strengthens employee engagement.	☐	☐	☐	☐	☐
2	Employees play a crucial role in driving the growth and success of Saudi startups.	☐	☐	☐	☐	☐
3	The ability to attract employees improves as startups create dynamic and technology-driven work environments.	☐	☐	☐	☐	☐
4	Employee retention increases with AI-driven job satisfaction, career development, and workplace efficiency.	☐	☐	☐	☐	☐
5	The quality of services and products improves through AI-powered innovation, precision, and customer-centric solutions.	☐	☐	☐	☐	☐
6	Return on investment rises as AI optimizes resource utilization, reduces costs, and enhances strategic decision-making.	☐	☐	☐	☐	☐
7	Profitability grows through automation, data-driven insights, and improved business operations.	☐	☐	☐	☐	☐

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8	Productivity is enhanced by AI-driven process automation, streamlined workflows, and operational efficiency.	☐	☐	☐	☐	☐
9	Market value increases as AI adoption strengthens competitiveness and investor confidence.	☐	☐	☐	☐	☐
10	Market share expands with AI-driven marketing, customer insights, and strategic business growth.	☐	☐	☐	☐	☐