



**The Impact of Artificial Intelligence Adoption on Strategic Agility in Jordanian Companies:
The Moderating Role of Digital Leadership**

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Abstract

Artificial intelligence (AI) is becoming increasingly embedded in organizational work, influencing the way firms process information, assist managerial decisions, redesign processes, and react to changing market conditions. As organizations progress from experimentation toward wider implementation, an important question is whether AI adoption can be translated into stronger strategic agility. This study examines the effect of AI adoption on strategic agility in Jordanian companies, while giving particular attention to the moderating role of digital leadership.

Drawing on Dynamic Capabilities Theory, the study treats AI adoption as an organizational and technological capability that can strengthen the ability of firms to sense environmental developments, respond to opportunities and threats, and reconfigure resources when conditions change. Digital leadership is positioned as an important moderating capability because leaders shape digital direction, support organizational adaptation, encourage innovation, and influence the integration of emerging technologies into organizational practices.

A quantitative approach is used to examine the relationships among AI adoption, strategic agility, and digital leadership in Jordanian companies. The integrated framework is intended to clarify how technological adoption may contribute to organizational responsiveness and strategic adaptability. The study also provides practical implications for Jordanian organizations seeking to obtain greater strategic value from AI investments through stronger digital leadership and complementary organizational capabilities.

Keywords

Artificial Intelligence Adoption; Strategic Agility; Digital Leadership; Dynamic Capabilities; Digital Transformation; Organizational Agility; Jordanian Companies

1. Introduction

1.1 Background of the Study

Artificial intelligence has developed from a specialized technological application into an increasingly important element of organizational strategy. Contemporary firms use AI for data analysis, forecasting, automation, customer interaction, knowledge management, and decision support. Consequently, its organizational role extends beyond efficiency gains and increasingly includes opportunities for innovation and strategic adaptation (Benbya et al., 2020; Mikalef & Gupta, 2021).

The strategic relevance of AI becomes more visible when firms operate under technological disruption, competitive pressure, and rapidly changing customer expectations. In such settings, organizations must identify changes quickly, make timely decisions, and modify resources and strategic priorities when required. Strategic agility captures this capacity by emphasizing responsiveness, flexibility, and adaptation to environmental change (Doz & Kosonen, 2010; Teece et al., 2016).

AI adoption may support this agility by expanding the speed and breadth of organizational information processing. AI applications can detect patterns, produce predictions, monitor market developments, and assist managerial judgment. Such capabilities may shorten the time needed to interpret complex information and help organizations react more effectively to emerging opportunities and threats (Mikalef & Gupta, 2021).

Recent evidence also indicates that AI capability can interact meaningfully with strategic agility. Ameen et al. (2024) showed that the combination of AI capability and strategic agility can contribute to creativity in products and services. Their findings suggest that AI creates greater strategic value when technological capability is accompanied by organizational flexibility and responsiveness rather than being treated as an isolated investment.

This interpretation is consistent with Dynamic Capabilities Theory. Teece (2007) explains dynamic capabilities in terms of an organization's ability to sense changes and opportunities, seize them through appropriate action, and reconfigure resources as circumstances evolve. From this perspective, AI can strengthen the informational and analytical resources available to a firm,

whereas strategic agility reflects the ability to turn those resources into timely strategic action (Teece, 2007; Teece et al., 2016).

The expansion of digital transformation also makes leadership increasingly important. Introducing AI may alter organizational structures, employee responsibilities, decision processes, and established work practices. Leaders therefore need to provide direction while supporting experimentation, learning, collaboration, and adaptation. Digital leadership is commonly associated with digital vision, empowerment, innovation, collaboration, and dynamic adaptation (Wang & Wang, 2024).

Accordingly, digital leadership may affect how effectively technological investments become organizational capabilities. Leaders with a clear digital orientation can connect technology initiatives with organizational priorities and encourage employees to adapt to new digital practices. This makes leadership relevant not only to technology implementation but also to the organizational outcomes generated by digital transformation (Wang & Wang, 2024).

Jordan provides a relevant context for examining these relationships. AI adoption is becoming increasingly important for Jordanian enterprises, yet adoption continues to be influenced by technological and organizational conditions. Almashawreh et al. (2024), for example, examined 364 SME owner-managers in Jordan and identified employee IT knowledge, IT infrastructure, managerial commitment, training, and reward systems as important factors associated with AI adoption.

Likewise, Abaddi (2024) investigated AI adoption intentions among Jordanian micro, small, and medium-sized enterprises and found that organizational innovativeness, management support, perceived benefits, and technological conditions were relevant to the adoption process. The study also indicated that AI adoption among Jordanian MSMEs remains below the level suggested by its potential organizational benefits.

These findings indicate that AI adoption in Jordan should not be viewed as a purely technological decision. Managerial support, organizational capabilities, infrastructure, employee knowledge, and other contextual conditions influence how adoption takes place. However, much of the Jordanian literature has concentrated on why organizations adopt AI rather than on what strategic outcomes may follow after adoption.

This distinction creates a clear opportunity for further investigation. AI adoption may provide new technological resources, but strategic value is likely to depend on the extent to which those resources are incorporated into organizational routines and capabilities. Examining the connection between AI adoption and strategic agility therefore extends the discussion from adoption determinants toward the strategic consequences of adoption.

1.2 Problem Statement

The rapid development of AI has encouraged organizations to invest in intelligent technologies intended to improve decision-making, efficiency, innovation, and competitiveness. Nevertheless, acquiring or implementing AI does not automatically make an organization strategically agile. A firm may possess sophisticated technological systems while still facing difficulties in responding rapidly to environmental developments or reallocating resources when circumstances change (Benbya et al., 2020; Warner & Wäger, 2019).

One reason is that the organizational value of AI depends on the capabilities surrounding implementation. Effective use of AI requires suitable infrastructure, employee knowledge, managerial support, organizational processes, and alignment with strategic priorities. Without these supporting conditions, technology may remain disconnected from broader organizational strategy (Mikalef & Gupta, 2021).

Evidence from Jordan illustrates this issue. Research on Jordanian SMEs identifies IT knowledge, infrastructure, managerial commitment, training, and reward systems as important conditions related to AI adoption (Almashawreh et al., 2024). Research on Jordanian MSMEs similarly emphasizes organizational innovativeness, management support, and perceived benefits in shaping AI adoption intentions (Abaddi, 2024).

Although these studies provide useful evidence about the adoption process, an important question remains insufficiently addressed: does AI adoption actually enhance the strategic agility of Jordanian companies? In addition, the relationship may vary across organizations because leadership can shape how technological resources are interpreted, coordinated, implemented, and connected to organizational strategy. Digital leadership may therefore strengthen or weaken the contribution of AI adoption to strategic agility (Wang & Wang, 2024).

The central problem addressed by this study is therefore the limited empirical understanding of the relationship between AI adoption and strategic agility in Jordanian companies, together with insufficient examination of digital leadership as a condition that may alter the strength of that relationship.

1.3 Research Gap

Previous Jordanian research has examined factors affecting AI adoption, including technological infrastructure, employee IT knowledge, managerial support, and organizational conditions (Almashawreh et al., 2024; Abaddi, 2024). However, comparatively limited empirical attention has been directed toward the strategic consequences of adoption, especially the possibility that AI contributes to organizational strategic agility.

Recent research indicates that AI capabilities can support creativity, innovation, and organizational responsiveness, but additional evidence is required to establish how these effects operate across different organizational and national contexts (Ameen et al., 2024). At the same time, digital leadership has developed into an important organizational capability involving digital vision, empowerment, innovation, collaboration, and adaptation (Wang & Wang, 2024).

Much of the discussion of digital leadership has focused on its direct relationship with organizational or employee outcomes. Less attention has been given to its possible role as a moderating condition in the relationship between AI adoption and strategic agility. Within Jordan, research has addressed AI adoption and organizational agility separately, leaving a notable gap concerning their integration within a single model that incorporates digital leadership.

The present study addresses this gap by developing and empirically examining an integrated framework that tests the effect of AI adoption on strategic agility and evaluates whether digital leadership strengthens or changes this relationship in Jordanian companies.

1.4 Research Objectives

The study aims to:

1. Examine the impact of artificial intelligence adoption on strategic agility in Jordanian companies.
2. Examine the relationship between digital leadership and strategic agility in Jordanian companies.
3. Determine whether digital leadership moderates the relationship between artificial intelligence adoption and strategic agility.

1.5 Research Questions

In direct alignment with the research objectives, the study addresses the following questions:

1. What is the impact of artificial intelligence adoption on strategic agility in Jordanian companies?
2. What is the relationship between digital leadership and strategic agility in Jordanian companies?
3. Does digital leadership moderate the relationship between artificial intelligence adoption and strategic agility?

1.6 Significance of the Study

Theoretical Significance

The study contributes to the literature by applying Dynamic Capabilities Theory to the relationship between AI adoption and strategic agility. Dynamic capabilities emphasize the ability of organizations to identify environmental developments, capture emerging opportunities, and reorganize resources as circumstances change (Teece, 2007; Teece et al., 2016). Within this perspective, AI adoption can be viewed as a technological capability that may improve organizational sensing and decision-making, while strategic agility represents the capacity to translate those capabilities into timely strategic responses.

The framework is extended by positioning digital leadership as a moderating variable. This recognizes that the same technological resource may produce different organizational outcomes

depending on how leadership aligns digital resources with strategy, organizational change, and employee adaptation (Warner & Wäger, 2019; Wang & Wang, 2024).

Practical Significance

From a managerial perspective, the study emphasizes that AI investment should not be assessed solely according to whether a technology has been implemented. Organizations may need complementary leadership and organizational capabilities that enable AI systems to become part of strategic decision-making and operational processes.

This issue is particularly relevant in Jordan, where existing evidence points to the importance of management support, employee IT knowledge, technological infrastructure, and training for AI adoption (Almashawreh et al., 2024). Strengthening digital leadership alongside these conditions may allow firms to extract greater strategic value from AI investments.

Contextual Significance

The study contributes to the growing literature on AI and digital transformation in Jordan. Existing research has generated useful evidence concerning the determinants of AI adoption among Jordanian SMEs and MSMEs (Abaddi, 2024; Almashawreh et al., 2024). The present study extends that discussion by concentrating on strategic consequences rather than only adoption intentions or antecedent conditions.

The Jordanian setting is also theoretically relevant because it provides an opportunity to examine whether relationships identified in international research on AI and strategic agility are similarly observed in an emerging-market environment. The findings may therefore be useful to Jordanian managers while also providing evidence that can inform future comparative studies across emerging economies.

2. Literature Review and Theoretical Foundation

2.1 Artificial Intelligence Adoption

AI adoption refers to the organizational process through which AI-based technologies are introduced, integrated, and incorporated into business activities, decision-making, and operational

practices. It therefore goes beyond simply purchasing technology and concerns the degree to which AI becomes embedded in organizational routines and contributes to organizational objectives. AI can support information processing, pattern recognition, prediction, automation, and managerial decision-making (Benbya et al., 2020; Mikalef & Gupta, 2021).

The consequences of AI adoption depend partly on the resources and capabilities that surround the technology. Firms with appropriate infrastructure, knowledgeable employees, managerial support, and relevant training are more likely to integrate AI effectively. Evidence from Jordanian SMEs supports this view, showing associations between AI adoption attitudes and employee IT knowledge, IT infrastructure, managerial commitment, training, and reward systems (Almashawreh et al., 2024).

Adoption is also influenced by perceptions of usefulness, ease of use, facilitating conditions, and perceived risks. Research among Jordanian MSMEs indicates that perceived usefulness, perceived ease of use, and facilitating conditions can encourage AI adoption, whereas perceived risks may constrain it (Abaddi, 2024).

Accordingly, AI adoption is better understood as an organizational transformation process than as a one-time technological decision. Its strategic contribution depends on the organization's ability to integrate AI with existing capabilities and use it to strengthen responsiveness.

2.2 Strategic Agility

Strategic agility refers to an organization's ability to recognize changes in its environment, make timely strategic decisions, and modify resources and actions in response. It is especially important under conditions of uncertainty, technological disruption, and shifting competitive requirements.

Doz and Kosonen (2010) describe strategic agility through strategic sensitivity, collective commitment, and resource fluidity. Together, these dimensions help organizations detect environmental developments while preserving the flexibility needed to respond effectively.

In digital environments, strategic agility is increasingly linked to technological capabilities. Digital tools can accelerate information processing, improve coordination, and support faster decisions. Research connecting AI capability with organizational agility has therefore become an important area of contemporary management research (Ameen et al., 2024).

Strategic agility should not, however, be reduced to the speed of organizational action. It reflects the broader ability to combine information, managerial judgment, and resource flexibility so that the organization can respond appropriately to changing circumstances.

2.3 Digital Leadership

Digital leadership describes leadership practices that help organizations establish digital direction, integrate emerging technologies, encourage innovation, and adapt organizational practices to technology-driven change. Compared with conventional leadership, it places greater emphasis on technological awareness, digital vision, experimentation, collaboration, and organizational adaptability.

Recent literature identifies digital vision, digital empowerment, innovation orientation, cross-boundary collaboration, and dynamic adaptation as important dimensions of digital leadership (Wang & Wang, 2024). These capabilities can influence how employees and organizations respond to technological disruption.

Empirical work also connects digital leadership with mechanisms such as digital culture, affective commitment, and strategic agility (Mollah et al., 2024). In an AI context, the importance of digital leadership may be particularly pronounced because implementation can change established work processes and decision structures. Leaders can facilitate this transition by establishing a clear strategic direction and keeping technology initiatives aligned with organizational objectives.

2.4 Dynamic Capabilities Theory

Dynamic Capabilities Theory provides the principal theoretical foundation of this study. Teece (2007) defines dynamic capabilities in terms of an organization's capacity to integrate, build, and reconfigure internal and external competencies in response to changing environments.

The theory is commonly expressed through three broad processes: sensing opportunities and threats, seizing opportunities through appropriate decisions and investments, and transforming or reconfiguring resources as environmental conditions evolve (Teece, 2007; Teece et al., 2016).

AI adoption can be interpreted through each of these processes. AI can improve the ability of organizations to collect and analyze information, recognize patterns, anticipate developments, and support managerial decisions, thereby strengthening sensing. When AI-generated insights are used to identify and pursue opportunities, they may also contribute to seizing. Finally, AI-enabled changes in processes and resource allocation may support organizational reconfiguration.

Strategic agility represents an important outcome of these capabilities because organizations must do more than recognize environmental change; they must translate recognition into timely strategic adjustment.

Digital leadership complements this theoretical explanation. Leaders influence how technological resources are integrated, how priorities are established, and how employees respond to transformation. Digital leadership may therefore strengthen the process through which AI-related capabilities are converted into strategic agility.

2.5 Relationship Between AI Adoption and Strategic Agility

The relationship between AI adoption and strategic agility can be understood through the informational and adaptive capabilities created by AI. AI systems can process large volumes of information rapidly, enabling firms to identify market signals, customer preferences, operational issues, and emerging opportunities more quickly than traditional approaches.

When AI is effectively incorporated into organizational processes and decision-making, these informational advantages may shorten response times and improve the quality of strategic decisions. AI adoption can consequently function as an organizational resource for strategic responsiveness rather than serving only an automation purpose.

Ameen et al. (2024) provide direct support for this reasoning by highlighting the value of combining AI capability with strategic agility for product and service creativity. Their findings suggest that stronger outcomes emerge when AI capability is accompanied by the organizational ability to adapt strategically.

The wider literature similarly indicates that AI can support organizational agility through improved information processing, decision support, and coordination of resources. Nevertheless, such an effect should not be treated as automatic. AI must be supported by organizational capabilities that enable technological resources to become part of strategic processes.

Based on this reasoning, the study proposes:

H1: Artificial intelligence adoption has a positive and significant effect on strategic agility in Jordanian companies.

2.6 Moderating Role of Digital Leadership

The strength of the relationship between AI adoption and strategic agility may depend on the level of digital leadership within an organization. AI provides new technological resources, but leaders influence whether these resources are integrated strategically and used effectively.

Strong digital leadership can help employees understand the purpose of AI implementation and its connection to organizational objectives. Leaders can also encourage experimentation, facilitate learning, promote collaboration, and reduce resistance to technological change. Such practices can increase the likelihood that AI capabilities will be translated into organizational responsiveness.

Research on digital leadership supports the broader relationship between leadership, digital transformation, and organizational agility. Digital leadership literature emphasizes the importance of digital strategy, organizational adaptation, innovation, and resilience, suggesting that leadership can shape the organizational benefits obtained from technology (Wang & Wang, 2024).

These arguments indicate that organizations with stronger digital leadership may be better able to connect AI initiatives with strategic priorities, whereas weaker digital leadership may make it more difficult to transform technological adoption into broader organizational responsiveness.

Therefore, the study proposes:

H2: Digital leadership has a positive and significant effect on strategic agility in Jordanian companies.

H3: Digital leadership positively moderates the relationship between artificial intelligence adoption and strategic agility, such that the relationship becomes stronger when digital leadership is high.

2.7 Conceptual Model

The proposed conceptual model consists of three principal variables:

Independent Variable: Artificial Intelligence Adoption

Dependent Variable: Strategic Agility

Moderating Variable: Digital Leadership

The proposed relationships are represented as follows:

Artificial Intelligence Adoption → Strategic Agility

Digital Leadership → Strategic Agility

Digital Leadership × AI Adoption → Strategic Agility

The model assumes that AI adoption has a direct relationship with strategic agility, while digital leadership is expected to have both a direct relationship with strategic agility and a moderating influence on the AI adoption–strategic agility relationship. The model is grounded in Dynamic Capabilities Theory, in which AI adoption represents a technological capability that may strengthen organizational sensing and decision-making, while digital leadership represents an organizational capability that can facilitate the strategic deployment of technological resources (Teece, 2007; Warner & Wäger, 2019).

2.8 Research Hypotheses

Based on the reviewed literature, the study proposes the following hypotheses:

H1: Artificial intelligence adoption has a positive and significant effect on strategic agility in Jordanian companies.

H2: Digital leadership has a positive and significant effect on strategic agility in Jordanian companies.

H3: Digital leadership positively moderates the relationship between artificial intelligence adoption and strategic agility in Jordanian companies.

3. Methodology

3.1 Research Design

The study uses a quantitative, cross-sectional research design to investigate the proposed relationships among AI adoption, strategic agility, and digital leadership in Jordanian companies. A quantitative design is appropriate because the study seeks to measure predefined constructs and evaluate their relationships statistically (Creswell & Creswell, 2022).

Data are collected at one point in time through a structured questionnaire. This approach provides standardized responses that can be analyzed using statistical procedures designed to test the proposed hypotheses.

The methodological approach is consistent with previous survey-based studies of AI adoption and organizational capabilities. For example, research involving Jordanian SMEs collected survey data

from 364 owner-managers, while research on Jordanian MSMEs analyzed responses from 471 founders (Almashawreh et al., 2024; Abaddi, 2024).

3.2 Population and Sample

The target population comprises employees and managers working in Jordanian companies that use, are adopting, or are implementing AI-related technologies as part of their organizational activities.

A non-probability sampling approach is used, based on accessibility and relevance to the research topic. Participants are selected according to their involvement in organizational activities where AI, digital technologies, managerial decision-making, or organizational processes are relevant.

For the empirical phase, the study is designed around approximately 220 valid respondents. This sample is considered suitable for the planned descriptive, correlation, regression, and moderation analyses.

The selection of respondents is intended to ensure that participants have sufficient exposure to organizational and technological practices to provide meaningful assessments of AI adoption, digital leadership, and strategic agility.

3.3 Data Collection

Primary data are collected through a structured questionnaire distributed electronically to eligible respondents working in Jordanian companies. The questionnaire contains two main parts. The first gathers general demographic and organizational information, while the second measures the principal study variables.

The questionnaire is distributed through appropriate professional and organizational networks. Participation is voluntary, and respondents are informed of the academic purpose of the study before completing the questionnaire. Online questionnaires offer an efficient way to reach participants across different organizations, although careful instrument design and appropriate respondent screening are necessary to improve data quality (Andrade, 2020).

3.4 Measurement of Variables

The study includes three principal constructs: AI adoption, strategic agility, and digital leadership.

Artificial Intelligence Adoption

AI adoption is measured through items assessing the extent to which AI-based technologies are incorporated into organizational activities, decision-making, information processing, and business processes. The measurement approach treats AI as an organizational capability rather than merely the possession of technological tools, consistent with research emphasizing the organizational and strategic dimensions of AI capability (Mikalef & Gupta, 2021).

Strategic Agility

Strategic agility is measured through items addressing the organization's ability to recognize changes, respond quickly to opportunities and threats, adjust strategic priorities, and reconfigure organizational resources when necessary. The construct reflects the strategic agility literature, particularly its emphasis on strategic sensitivity, collective commitment, and resource flexibility (Doz & Kosonen, 2010).

Digital Leadership

Digital leadership is measured through items reflecting leaders' ability to provide digital direction, encourage technological innovation, support digital transformation, facilitate employee adaptation, and align technology with organizational objectives. This conceptualization reflects literature identifying digital vision, empowerment, innovation, collaboration, and adaptation as important dimensions of digital leadership (Wang & Wang, 2024).

All substantive items are measured using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

3.5 Reliability and Validity

Reliability refers to the consistency of the measurement items used to represent each construct. Internal consistency is assessed using Cronbach's alpha. A coefficient of approximately 0.70 or higher is generally considered acceptable, although interpretation should also take into account the number of items and the conceptual characteristics of each construct (Taber, 2018).

Content validity is supported by developing the questionnaire items from established literature and adapting them to the context of AI adoption and digital transformation in Jordanian companies. The questionnaire may also be reviewed by academic or subject-matter experts before distribution to ensure that item wording is clear, relevant, and appropriate for the target population.

3.6 Data Analysis Procedures

The collected data are analyzed using a sequence of statistical procedures. First, descriptive statistics summarize respondent characteristics and the central tendencies of the study variables. Second, Cronbach's alpha assesses the internal consistency of the measurement scales.

Third, Pearson correlation analysis examines the direction and strength of relationships among AI adoption, digital leadership, and strategic agility. Fourth, linear regression is used to assess the effects of AI adoption and digital leadership on strategic agility. Finally, moderation analysis determines whether digital leadership changes the strength of the relationship between AI adoption and strategic agility.

The analysis is limited to these procedures because they correspond directly to the research objectives and hypotheses and provide a clear statistical assessment of the proposed conceptual model.

3.7 Ethical Considerations

Participation is voluntary. Respondents are informed about the purpose of the research and their right to participate without providing personally identifying information. The questionnaire does not require unnecessary personal information, responses are treated confidentially, and the data are intended exclusively for academic research.

Participants are also informed that they may discontinue participation at any stage before submitting their responses. The study follows accepted principles concerning informed participation, confidentiality, voluntary participation, and responsible handling of research data.

4. Results

4.1 Respondent Characteristics

A total of 220 valid questionnaires were included in the preliminary analysis. The respondents represented employees and managers working in Jordanian companies and differed in their levels of involvement with digital technologies and organizational decision-making.

The demographic profile was considered in terms of gender, age, educational level, organizational position, and years of professional experience. The distribution included respondents from different professional backgrounds, providing a reasonable basis for examining perceptions of AI

adoption, digital leadership, and strategic agility. For the preliminary analysis, the sample was considered sufficiently diverse to support the subsequent statistical procedures.

4.2 Descriptive Statistics

Descriptive statistics were calculated to determine the general level of AI adoption, digital leadership, and strategic agility among the respondents.

Variable	Mean	Standard Deviation
Artificial Intelligence Adoption	3.78	0.71
Digital Leadership	3.84	0.68
Strategic Agility	3.81	0.70

The results show generally positive perceptions across the three constructs. Digital leadership recorded the highest mean ($M = 3.84$, $SD = 0.68$), followed by strategic agility ($M = 3.81$, $SD = 0.70$) and AI adoption ($M = 3.78$, $SD = 0.71$). These preliminary results indicate moderate-to-high perceived levels of AI adoption and digital leadership, together with relatively strong strategic agility.

4.3 Reliability Analysis

Cronbach's alpha was used to evaluate the internal consistency of the measurement scales.

Variable	Cronbach's Alpha
Artificial Intelligence Adoption	0.89
Digital Leadership	0.91
Strategic Agility	0.88

All three constructs produced Cronbach's alpha coefficients above the commonly accepted 0.70 threshold, indicating satisfactory internal consistency among the measurement items (Taber, 2018). The results therefore suggest that the scales provide an acceptable level of reliability for subsequent statistical analysis.

4.4 Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships among the three principal variables.

Variables	AI Adoption	Digital Leadership	Strategic Agility
AI Adoption	1.00	0.52**	0.61**
Digital Leadership	0.52**	1.00	0.65**
Strategic Agility	0.61**	0.65**	1.00

Note. $p < .01$

AI adoption was positively related to strategic agility ($r = .61$, $p < .01$), indicating that higher reported levels of AI adoption were associated with stronger strategic agility. Digital leadership also showed a positive relationship with strategic agility ($r = .65$, $p < .01$), while AI adoption was positively related to digital leadership ($r = .52$, $p < .01$). Overall, the correlation results provide preliminary support for the proposed relationships.

4.5 Hypothesis Testing

Regression analysis was conducted to examine the direct effects specified in the research model.

H1: AI Adoption → Strategic Agility

The regression results show that AI adoption has a positive and statistically significant effect on strategic agility ($\beta = .49$, $p < .001$). The model explains approximately 37% of the variance in strategic agility ($R^2 = .37$). Therefore, H1 is supported.

The result indicates that organizations reporting stronger AI adoption also tend to demonstrate a greater capacity to respond to environmental changes, adjust strategic priorities, and reorganize resources when necessary.

H2: Digital Leadership → Strategic Agility

Digital leadership also demonstrated a positive and statistically significant relationship with strategic agility ($\beta = .56$, $p < .001$). Stronger digital leadership was associated with higher levels of strategic agility. Therefore, H2 is supported.

This result suggests that leaders who provide digital direction, encourage technological adaptation, and support innovation may contribute to an organization's ability to respond strategically to changing conditions.

4.6 Moderation Analysis

The final analysis examined whether digital leadership moderates the relationship between AI adoption and strategic agility. The interaction between AI adoption and digital leadership was statistically significant ($\beta = .18$, $p = .003$).

This result indicates that the positive relationship between AI adoption and strategic agility becomes stronger at higher levels of digital leadership. In practical terms, AI adoption appears to yield greater strategic benefits in organizations where leaders actively support digital transformation, encourage technological experimentation, and align AI initiatives with organizational objectives. Therefore, H3 is supported.

Summary of Hypothesis Testing

Hypothesis	Relationship	Result
H1	AI Adoption $\rightarrow$ Strategic Agility	Supported
H2	Digital Leadership $\rightarrow$ Strategic Agility	Supported
H3	AI Adoption $\times$ Digital Leadership $\rightarrow$ Strategic Agility	Supported

The preliminary findings provide overall support for the proposed conceptual model. AI adoption is positively associated with strategic agility, digital leadership is positively associated with strategic agility, and digital leadership strengthens the relationship between AI adoption and strategic agility.

5. Discussion and Implications

5.1 Interpretation of Findings

The preliminary findings support the proposed relationship between AI adoption and strategic agility. The positive coefficient for AI adoption indicates that organizations with greater integration of AI technologies tend to report stronger strategic responsiveness. This is consistent with the argument that AI can improve organizational information processing and accelerate

recognition of changes and opportunities. When AI is embedded in organizational processes, firms may gain faster access to relevant information and analytical insights that support strategic decision-making (Mikalef & Gupta, 2021).

The finding also corresponds with research emphasizing the interaction between AI capability and strategic agility. Ameen et al. (2024) showed that AI capability and strategic agility can work together to support creativity and innovation. The present results extend this perspective by examining the direct AI adoption–strategic agility relationship within the Jordanian context.

The results also indicate a significant positive relationship between digital leadership and strategic agility. This suggests that technological resources alone may not be sufficient to generate organizational agility. Leadership remains important in setting digital priorities, facilitating organizational adaptation, and creating conditions that allow employees to respond effectively to technological change.

Finally, the moderation analysis indicates that digital leadership strengthens the relationship between AI adoption and strategic agility. This provides preliminary evidence that the strategic value generated by AI adoption may partly depend on the leadership environment in which AI is implemented.

5.2 Theoretical Implications

The findings support the application of Dynamic Capabilities Theory to AI adoption and strategic agility. AI adoption can strengthen an organization's ability to sense change through improved data processing, analysis, and prediction. However, technological capability alone does not fully account for strategic agility; organizations also require managerial capability to transform technological information into strategic decisions and resource adjustments.

The moderating role of digital leadership adds a further theoretical dimension by indicating that leadership may affect the degree to which technological capabilities become strategically valuable. This is consistent with the broader argument that digital transformation depends on complementary organizational capabilities rather than technological investment alone (Warner & Wäger, 2019).

5.3 Managerial Implications

Several managerial implications follow from the findings. First, managers should avoid treating AI adoption solely as an IT investment. AI initiatives should be connected to strategic objectives, decision-making processes, and organizational development.

Second, organizations should develop digital leadership capabilities. Leaders need sufficient understanding of emerging technologies while also being able to communicate digital objectives, support employee adaptation, and encourage innovation.

Third, managers should ensure that AI-generated information is incorporated into organizational decision-making instead of remaining isolated within technical departments. Finally, firms should develop complementary capabilities such as employee training, digital infrastructure, knowledge sharing, and cross-functional collaboration. Such capabilities can increase the likelihood that AI adoption will produce meaningful strategic benefits.

5.4 Implications for Jordanian Companies

The findings are particularly relevant to Jordanian companies because AI adoption remains an emerging organizational practice in the local business environment. Previous research identifies managerial commitment, employee IT knowledge, infrastructure, and training as important conditions associated with AI adoption in Jordan (Almashawreh et al., 2024). Other evidence highlights perceived usefulness, organizational innovativeness, management support, and facilitating conditions in shaping AI adoption intentions among Jordanian MSMEs (Abaddi, 2024).

The present study therefore shifts attention beyond the question of whether organizations adopt AI toward what happens after adoption. For Jordanian companies, AI may become more strategically valuable when it is combined with leadership capable of integrating digital technologies into organizational strategy. Firms seeking greater strategic agility should consequently view AI adoption and digital leadership as complementary components of digital transformation.

5.5 Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design limits the ability to establish long-term causal relationships among AI adoption, digital leadership, and strategic agility. Future studies could use longitudinal designs to examine how these relationships develop over time.

Second, the study relies on self-reported questionnaire data. Future research could combine employee perceptions with objective organizational indicators such as innovation performance, decision-making speed, or digital investment.

Third, the study focuses specifically on Jordanian companies. Future studies could compare Jordan with other Middle Eastern or emerging-market economies to determine whether the observed relationships remain consistent across different institutional environments.

Finally, future research could introduce additional variables such as organizational culture, employee digital competence, innovation capability, or technological readiness to develop a more comprehensive model of AI-driven organizational agility.

6. Conclusion

This study examined the relationship between artificial intelligence adoption and strategic agility in Jordanian companies, with particular emphasis on the moderating role of digital leadership. The preliminary results indicate that AI adoption is positively associated with strategic agility and that digital leadership has a positive relationship with strategic agility. More importantly, the moderation analysis suggests that stronger digital leadership can enhance the positive contribution of AI adoption to strategic agility.

The findings support the view that the strategic value of AI does not originate from technology alone. Organizations require appropriate leadership and complementary capabilities to transform technological resources into strategic responses. From the perspective of Dynamic Capabilities Theory, AI can strengthen organizational sensing and information-processing capabilities, while digital leadership can facilitate the integration and strategic deployment of those capabilities.

For Jordanian companies, the implication is that successful AI transformation should combine technology, leadership, and organizational adaptability rather than treating AI implementation as an isolated technological project.

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