

Investment innovation, artificial intelligence adoption and dynamic capabilities: Basis for agile innovation framework for IT driven SMEs

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Abstract

The study explored the relationship between investment innovation, artificial intelligence adoption and dynamic capabilities to enhance an agile innovative performance of IT driven SMEs. By examining this relationship, this study contributed to a deeper understanding of the factors that contributes to organizational success in a dynamic and competitive business environment. The descriptive design provided a solid foundation for exploring the complex relationships between investment innovation, AI adoption, dynamic capabilities, and agile innovation in IT-based SMEs. It allowed to delve deeper into the current state of the variables understudy. The survey questionnaire was the data gathering tool used in the study as it allowed for statistical analysis to identify relationships and trends that provided valuable insights on these variables. The 400 managers and employees of five Technology SMEs were used as respondents. Results of the study showed moderate agreement on the technology companies' investment innovation as to willingness to invest, ability to invest and its benefits to the company. The respondents generally agreed on AI adoption as to scope, purpose, acceptance and risks. They also generally agreed that dynamic capabilities were essential in fostering a culture of innovation and change, building relationships with key stakeholders and making strategic resource investments. Significant relationships were found among investment innovation, artificial intelligence adoption and dynamic capabilities. An agile innovation framework for IT Driven SMEs was developed to compete effectively in a dynamic market. By providing a comprehensive understanding of the factors influencing agile innovation in IT-based SMEs, the study can contribute to the growth and competitiveness of the IT sector and inform evidence-based policy development.

Keywords: investment innovation, artificial intelligence adoption, dynamic capabilities, agile innovation

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1. Introduction

The Chinese economic landscape is undergoing a rapid transformation fueled by the expanding adoption of artificial intelligence (AI) and role of small and medium-sized enterprises (SMEs) becomes critical. These SMEs are the lifeblood of the Chinese economy, driving innovation, job creation, and national growth (Li & Liu, 2021). However, to remain competitive in this dynamic environment characterized by AI integration, SMEs require a vigorous framework that fosters innovative investment and influences AI capabilities.

Investment innovation is concerned with the development of new and creative strategies for companies to invest in ventures, particularly focusing on overcoming traditional barriers and inefficiencies. It encompasses innovative approaches which include utilizing novel methods to assess risk and potential returns for investments in SMEs, potentially including data analytics or alternative financing models (Li & Liu, 2021). It also emphasizes the importance of investment management which involves the implementation of innovative processes for managing SME investments, including leveraging technology for streamlined due diligence or portfolio management (Chen, 2022). Moreover, the study of Lewandowska and Cherniaiev (2022) revealed that the outputs of both R&D cooperation and investments are highly dependent on the innovation type. The outcomes suggest that R&D cooperation might be a driver of the implementation of development activities and organizational innovation, while the expenditures on machinery and equipment lead to a greater probability for the implementation of process innovation and development activities.

China's small and medium-sized enterprises (SMEs) are the lifeblood of the nation's economic growth and innovation. However, their ability to flourish can be hindered by a critical challenge: limited access to resources for investment (Li & Liu, 2021). Investment innovation proposes a potential solution, exploring creative strategies for companies to invest in ventures, particularly focusing on overcoming traditional barriers associated with risk and inefficiencies (Chen et al., 2022).

It is interesting to note that SMEs are adopting artificial intelligence (AI) technologies and tools in their business operations. The digital landscape is undergoing a significant transformation driven by the rise of Artificial Intelligence (AI). This transformation is not just limited to large corporations. Small and medium-sized enterprises (SMEs) are also increasingly recognizing the transformative potential of AI. AI adoption in SMEs refers to the integration of AI technologies and tools into their business operations, aiming to improve efficiency, gain insights, and drive innovation (Waller & Stuart, 2020). Moreover, the use of AI enables the automation of repetitive tasks like data entry, scheduling, bookkeeping to free up employees for more strategic activities. However, challenges also exist for SMEs in the adoption of their artificial intelligence. According to Chen, et al., (2020), SMEs may have limited financial resources or technical expertise to invest in and implement AI solutions effectively. Waller and Stuart (2020) disclosed that data security and privacy posed as barriers for SMEs to store and utilize customer data for AI applications. Some SME owners and managers may lack awareness of the potential benefits and capabilities of AI for their businesses (Luo et al., 2020).

Implementation of Artificial Intelligences changes the way of doing business in small and medium enterprises. The findings of Ingalagi et al. (2021) revealed that top management's commitment, organizational readiness, external support, employee adoption and competitive pressure influence adoption of artificial intelligence technologies. The study confirms the influences of AI technology in small and medium firm's management. A clear understanding of drivers for AI implementation helps managers and owners of SMEs to take up appropriate initiatives.

Small and medium-sized enterprises (SMEs) are considered the backbone of many economies, driving innovation and job creation. However, thriving in today's dynamic business environment requires more than just strong products or services. Maintaining a competitive edge in a rapidly changing environment requires agility and adaptability. The ability to adapt and respond to change is dominant and this is where dynamic capabilities come into play. As evidenced by the study of Li and Liu (2021), the Chinese market is characterized by rapid growth and constant change. Dynamic capabilities enable SMEs to adapt to these changes and maintain a competitive edge (Li & Liu, 2021). According to Xu and Fan (2024), the consumer demands and preferences are constantly evolving, and dynamic capabilities enable SMEs to understand these changes and adjust their product offerings and marketing strategies accordingly. Moreover, Martins (2023) found out that dynamic capabilities (sensing, seizing and transforming) distinctly positively affect SME performance. Furthermore, digitalization significantly augments the relationship between the three dynamic capabilities and SME performance.

Interestingly, Quansah, et al., (2022) confirmed there are three sets of organizational practices, termed adaptive practices, that underlie dynamic capabilities for successful adaptation. These are continuous learning and process improvement, leveraging reciprocal relationships and communicating effectively. The findings provide practical guidance for managers to take action to improve their SME's dynamic capabilities for adaptation through creating coherent package of specified adaptive practices. While research explores investment innovation, there is a gap in understanding how to tailor specific investment strategies for different types of SMEs. More research is needed on how SMEs can manage the risks associated with innovative investment models, such as crowdfunding or venture capital. Likewise, while the benefits of AI adoption are recognized, there's a gap in understanding the most relevant and impactful AI applications for different SME sectors in China. More research is needed on how SMEs can navigate data security and privacy concerns related to AI adoption, especially with increasingly stringent regulations. Meanwhile, while research explores the importance of dynamic capabilities, there's a gap in understanding how to best foster and develop these capabilities within SMEs, particularly in resource-constrained environments. There is a limited understanding of how investment innovation can contribute to the development of dynamic capabilities among SMEs in China.

The present study delved into the relationship between investment innovation, AI adoption, and the dynamic capabilities of SMEs in China which aimed to develop a competitive framework that empowers SMEs to flourish within the realm of AI-driven innovation. This research investigated how SMEs invested in innovative practices, adopted AI technologies, and cultivated dynamic capabilities, offering valuable insights for policymakers, business leaders, and future researchers. Likewise, the study will provide valuable insights for potential investors, guiding them towards innovative investment approaches in SMEs, potentially leading to higher returns while supporting economic growth. Policymakers will also gain valuable knowledge about the challenges and opportunities related to SME growth. This can inform the development of supportive measures for investment, technology adoption, and skill development within the SME sector. By addressing these critical aspects, the proponent believes this study can unlock a new era of competitiveness and growth not just for SMEs, but for the entire Chinese economy.

Objectives of the study - This study aimed to examine the investment innovation, AI adoption and dynamic capabilities that will be the basis in developing an agile innovation framework for IT driven SME's. Specifically, the study described the investment innovation as to the company's willingness to invest, ability to invest and benefit to the company; determined the AI adoption as to scope of AI adoption, purpose of AI application, acceptance of AI application and risk of AI application; assessed the dynamic capability as to creating a culture of innovation and change, building relationship with key stakeholders and investing in resources; tested the significant relationship among investment innovation, AI adoption and dynamic capabilities and developed a competitive framework for Technology SME's.

2. Methods

Research Design - The descriptive research design was appropriate for the study as it aimed to describe and

comprehend the current state of investment innovation, AI adoption and dynamic capabilities among SMEs. Descriptive studies are useful for understanding the features of a population or phenomenon without modifying or controlling variables. It was perceived that this research design was the most appropriate to use in this research. Siedlecki (2020) defines descriptive research design as aiming to accurately describe events as they occur in their natural setting.

Participants. - To gain valuable insights of the study, 400 managers and employees of five Technology SMEs were used as respondents. Managers directly deal with investment opportunities and influence AI adoption strategies. Managers directly participate in seeking and securing investment for the company. They can provide insights into the challenges and opportunities related to innovative investment models in the technology sector. Likewise, employees experience the challenges and potential of these technologies firsthand. Their combined knowledge offers a unique perspective on the specific challenges and opportunities faced by Chinese tech SMEs. Employees working in tech SMEs are likely to be directly involved in AI adoption projects. They can share their experiences with using AI tools, the challenges encountered, and the perceived benefits. Both managers and employees play a crucial role in developing and utilizing dynamic capabilities. Managers can explain the company's strategies for adapting to change, while employees can share how these strategies are implemented in daily operations. By focusing on managers and employees of SME technology companies, the study can gain valuable firsthand perspectives on investment innovation, AI adoption, and dynamic capabilities, leading to more actionable and insightful findings relevant to the specific context of Chinese technology SMEs.

Instrument - The data gathering instrument used in the study was a self-constructed questionnaire. A self-constructed questionnaire was crafted based on the existing literature on investment innovation, AI adoption and dynamic capabilities which focused on the studies specifically in the context of Chinese SMEs. This aids in identifying the relevant constructs in developing questions that accurately will measure the variables and dimensions used in the study. The adoption of a self-constructed questionnaire was also cost effective. The proponent also had complete control over the wording and types of questions to include to ensure its relevance and appropriateness to the target participants of the study. The first part of the questionnaire included the investment innovations which were assessed using a company's willingness to invest, company's ability to invest and benefit to the company. The second part focused on the AI adoption which measured the scope of AI adoption, purpose of AI application, acceptance of AI application and risks of AI. The third part included the dynamic capabilities which assessed the dimensions on creating a culture of innovation and change, building relationship with key stakeholders and investing in resources.

Based on reliability test result, the Investment Innovation, AI Adoption and Dynamic Capabilities Instrument had an Excellent consistency as exhibited by the Cronbach's Alpha value of (.962). This was validated by the Excellence remark from Investment Innovation (.944); it was confirmed by the Excellent results from Company's willingness to invest (.928), Company's ability to invest (.920), and Benefit to the company (.931); Also, it was validated by the Excellent remark from AI Adoption (.973); it was confirmed by the Excellent results from Scope of AI Adoption (.934), Purpose of AI application (.919), and Good result from Acceptance of AI applications (.865) and Risks of AI application (.878). It was further validated by the Excellent remark from Dynamic Capabilities (.925); it was confirmed by the Good results from Building relationship with key stakeholders (.878), and Investing in resources (.861), and Acceptable result from Creating a culture of innovation and change (.700); which shows that the instrument at hand passed the reliability index test. Thus, the researcher proceeded to the actual survey using the instrument.

Data Gathering Procedure - The self-constructed questionnaire was professionally translated and culturally adapted for Chinese respondents in the technology sectors of SMEs. The questions were reviewed by experts in the field for content validation. Further the questionnaire was pilot tested among small group of managers and employees to assess reliability and identify any areas for improvement. This helped assess clarity, identify any technical issues, and refined the questions for better data collection. The proponent identified five leading technology SME's in China as the research locale. The Human Resource managers of the five companies were

requested permission to conduct data gathering from their managers and employees. This also emphasized data security and ethical practices. The data collection platform used was online platform to allow for easy access for participants, efficient data collection and management and for data security measures. The gathered data was summarized, interpreted and analyzed to address the objectives of the present study.

Data Analysis - Weighted mean and rank were used to describe investment innovation as to the company's willingness to invest, ability to invest and benefit to the company; to determine the AI adoption as to scope of AI adoption, purpose of AI application, acceptance of AI application and risk of AI application; and to assess the dynamic capability as to creating a culture of innovation and change, building relationship with key stakeholders and investing in resources. The result of Shapiro-Wilk Test showed that p-values of all variables were less than 0.05 which means that the data set was not normally distributed. Therefore, Spearman rho was used as part of the non-parametric tests to determine the significant relationship. All analyses were performed using SPSS version 28.

Ethical Considerations - The research protocol, including informed consent forms and data collection procedures were submitted to the Ethics Committee of the university for ethical approval before data collection begins. The ethics reviewer ensured the research adheres to ethical guidelines and protects participant rights. Participants were presented with an informed consent form before starting the online questionnaire. This form explains the research purpose, data collection methods, potential risks and benefits of participation, and how anonymity was ensured. Participants provided explicit consent before proceeding with the questionnaire. Informed consent ensured that participants understand the research and make a voluntary decision about participating. Data security safeguarded participants' information from unauthorized access. All data collected through the questionnaire was anonymized. Participant names, company names, or any other identifiable information were removed before data analysis. Data was stored securely using password protection and encryption. Confidentiality and anonymity are crucial for protecting participants' privacy and encouraging honest responses or misuse.

3. Results & discussion

Table 1

Summary Table on Investment Innovation

| Key Result Areas | Composite Mean | VI | Rank |
|---------------------------------|----------------|-------|------|
| Company's Willingness to Invest | 3.04 | Agree | 1 |
| Company's Ability to Invest | 2.96 | Agree | 2 |
| Benefit to the Company | 2.89 | Agree | 3 |
| Grand Composite Mean | 2.96 | Agree | |

Legend: 3.50-4.00=Strongly Agree; 2.50-3.49=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

Table 1 presents the summary table on investment innovation as to company's willingness to invest, company's ability to invest, and benefit to the company, with a grand composite mean of 2.96 which was verbally interpreted as agree on all indicators. Businesses can make better-informed strategic decisions about innovation investment by examining all these three dimensions. They can evaluate whether their present strategy is in line with their objectives. The idea of absorptive capacity draws attention to a critical component of a business's potential to make wise investments in innovation. It takes more than simply financial support for research and development (R&D) to succeed; one must also be able to recognize, integrate, and utilize outside expertise and innovations. A business with a strong absorptive capacity can make greater use of its R&D expenditures by skillfully fusing them with outside knowledge and experience. In the end, this results in a better capacity for innovation and a larger return on investment (Ferreira & Santos, 2020).

Among the dimensions, the company's willingness to invest obtained the highest rank with a composite mean of 3.04 and an agreed verbal interpretation. This indicates that businesses are more inclined to invest in innovation if their leadership supports it and they have a clear vision for the future. On the other hand, a

leadership that is risk averse or has a narrow focus could impede innovation attempts. The strategic decision of a corporation to invest in innovation is determined by a thorough assessment of both internal and external considerations. Although there can be significant advantages to innovation, businesses must also be aware of the risks and difficulties that come with it.

Krueger (2019) proved that Innovation can have a wide range of effects on a company, from brand reputation and customer satisfaction to long-term market position. Overconfidence on the part of managers might negatively affect investing choices. Managers that are overconfident may misjudge possible dangers, overspend on projects, or take on endeavors outside of their areas of expertise. These choices may result in resource waste and impair the general operation of the business. The study highlights how crucial it is for managers to make well-considered decisions. Making wise financial decisions requires accurately recognizing risks and being aware of one's limitations. Comprehending the possible drawbacks of excessive confidence among managers can aid organizations in arriving at better investment choices. Companies may improve their chances of making profitable investments that spur growth and innovation by fostering a culture of self-awareness and a balanced assessment of risks and possibilities.

Table 2

Summary Table on AI Adoption

| Key Result Areas | Composite Mean | VI | Rank |
|------------------------------|----------------|-------|------|
| Scope of AI Adoption | 2.54 | Agree | 4 |
| Purpose of AI Application | 3.19 | Agree | 1 |
| Acceptance of AI Application | 2.56 | Agree | 3 |
| Risk of AI Application | 2.88 | Agree | 2 |
| Grand Composite Mean | 2.79 | Agree | |

Legend: 3.50-4.00=Strongly Agree; 2.50-3.49=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

Table 2 presents the summary table on AI adoption as to scope of AI adoption, purpose of AI application, acceptance of AI application, and risk of AI application with a grand composite mean of 2.79 which indicated agree on all indicators. Researchers and analysts can compare the adoption of AI across various industries, nations, or organizations by using a standardized technique. This makes benchmarking and trend identification possible.

Through an examination of the many elements comprising the composite mean (scope, purpose, acceptance, and risk), it is possible to identify potential gaps or obstacles in the adoption of AI. This aids in the development of focused solutions to deal with such problems. The authors contended that AI and big data are essential components of digital transformation for SMEs in the manufacturing sector. The framework that has been suggested incorporates various dimensions to evaluate this change, potentially including elements such as the use of big data, the use of artificial intelligence, and other pertinent digitalization features. Researchers, legislators, and manufacturing SMEs themselves may find this paradigm useful in assessing their own advancements in the process of digital transformation (Cao et al., 2022).

Among the dimensions, the purpose of AI application obtained the highest rank with a composite mean of 3.19 and an agree verbal interpretation. This indicates that artificial intelligence (AI) applications are having a significant impact on many aspects of our lives. Applications of AI are intended to increase productivity, resolve challenging issues, and supplement human abilities across a range of domains. The uses of AI technology will grow increasingly more varied and complex as it advances.

Brundage et al. (2020) proved the importance of purpose in AI applications. The study makes the case that in order to reduce risks, AI applications must have a clear goal. Unintended consequences are hard to predict or stop if one does not know exactly what the AI is trying to accomplish. It is possible that the writers stress how AI development ought to be in line with human ideals. An explicit goal that takes these principles into account helps guarantee that the AI behaves morally and responsibly. Consider an AI that is programmed to write news articles, for instance. The AI may favor sensationalized content over factual accuracy if the goal is not made explicit (e.g.,

to deliver objective information vs. create clicks). This might have detrimental effects on society.

Table 3

Summary Table on Dynamic Capability

| Key Result Areas | Composite Mean | VI | Rank |
|---|----------------|-------|------|
| Creating a Culture of Innovation and Change | 2.99 | Agree | 3 |
| Building Relationship with Key Stakeholders | 3.16 | Agree | 2 |
| Investing in Resources | 3.36 | Agree | 1 |
| Grand Composite Mean | 3.17 | Agree | |

Legend: 3.50-4.00=Strongly Agree; 2.50-3.49=Agree; 1.50-2.49=Disagree; 1.00-1.49=Strongly Disagree

Table 3 presents the summary table on dynamic capability as to creating a culture of innovation and change, building relationship with key stakeholders, and investing in resources with a grand composite mean of 3.17 which indicates agree on all indicators. An organization that performs well in all three areas is more flexible and dynamic. The organization stays at the forefront of its industry thanks to a culture of innovation and change. Good stakeholder relationships offer resources, assistance, and insightful information. These capacities are fueled by prudent resource allocation, which promotes improved performance and long-term growth. Stakeholder engagement is probably argued in the study to be a dynamic capability in and of itself. This means that in order for enterprises to remain effective in a changing environment, they must constantly learn from, adjust to, and enhance their stakeholder engagement processes. Developing a solid rapport with stakeholders is an ongoing activity. Organizations may enhance their processes and make sure they are working together with stakeholders to accomplish their strategic objectives by considering stakeholder engagement as a dynamic competency (Kühnen & Hustedt, 2017).

Among the dimensions, investing in resources obtained the highest rank with a weighted mean of 3.36 and an agreed verbal interpretation. This indicates that dynamic capabilities are essential to how businesses allocate resources to meet their goals. The methods a company uses to modify its resources and capabilities in reaction to an environment that is changing are known as dynamic capabilities. Strategic resource allocations should prioritize both the acquisition of resources and the long-term development of adaptability. Businesses can make more strategic decisions that guarantee their resources stay valued and support long-term success in a dynamic business environment by understanding how dynamic capabilities affect resource investments.

Volberda et al. (2017) highlighted the significance of managerial cognition, which is the process by which managers perceive and comprehend the corporate world. The ability of a business to identify shifting market conditions and make appropriate adjustments is a prerequisite for making effective resource investments for dynamic capabilities. Investment choices and cognitive biases revealed that biases can affect management cognition. These biases might make it more difficult for a business to decide which investments to make in order to build dynamic capabilities or to recognize when new resources are needed. Gain important insights into how businesses can enhance their decision-making processes to make sure they are investing in the right resources to develop dynamic capabilities and thrive in a changing environment by comprehending the role of managerial cognition and how it can impact resource investment decisions.

Table 4 presents the relationship between investment innovation and AI adoption. The computed rho-values ranging from 0.169 to 0.181 indicate a very weak direct relationship between company's willingness to invest and the sub variables of AI adoption namely scope and purpose while the computed rho-value of 0.371 indicates a weak direct relationship between company's willingness to invest and risk of AI application. On the other hand, the computed rho-value of -0.262 indicates a weak indirect relationship between company's willingness to invest and acceptance of AI applications. It shows that there was a statistically significant relationship between company's willingness to invest and the sub variables of AI adoption since the obtained p-values were less than 0.01. This implies that technology companies have a strong belief in the potential benefits of AI. This translates into a willingness to explore a wider scope of applications of AI.

As evidenced by the study of Huang, et al., (2022), implementing AI requires resources like financial,

technical, and human and companies which are willing to invest are signaling a commitment to allocating these resources for AI projects. This investment allows them to explore the different aspects like the scope of AI scope, purpose of AI application, acceptance and risk tolerance. The computed rho-value of 0.233 indicates a weak direct relationship between company's ability to invest and scope of AI adoption while the computed rho-value of 0.004 indicates a very weak direct relationship between company's ability to invest and risk of AI application. The computed rho-value of -0.247 indicates a weak indirect relationship between company's ability to invest and purpose of AI application while the computed rho-value of -0.064 indicates a very weak indirect relationship between company's ability to invest and acceptance of AI application. It shows that there was a statistically significant relationship between company's ability to invest and the sub variables of AI adoption such as scope and purpose since the obtained p-values were less than 0.01. This means that technology companies' ability to invest significantly impacts the sub-variables of AI adoption, particularly the scope and purpose. With more resources, companies can explore a wider range of applications and delve deeper into various purposes for utilizing AI.

Table 4*Relationship Between Investment Innovation and AI Adoption*

| Variables | rho | p-value | Interpretation |
|--|----------|---------|--------------------|
| Company's Willingness to Invest | | | |
| Scope of AI Adoption | 0.181** | < .001 | Highly Significant |
| Purpose of AI Application | 0.169** | 0.001 | Significant |
| Acceptance of AI Application | -0.262** | < .001 | Highly Significant |
| Risk of AI Application | 0.371** | < .001 | Highly Significant |
| Company's Ability to Invest | | | |
| Scope of AI Adoption | 0.233** | < .001 | Highly Significant |
| Purpose of AI Application | -0.247** | < .001 | Highly Significant |
| Acceptance of AI Application | -0.064 | 0.213 | Not Significant |
| Risk of AI Application | 0.004 | 0.935 | Not Significant |
| Benefit to the Company | | | |
| Scope of AI Adoption | 0.033 | 0.518 | Not Significant |
| Purpose of AI Application | 0.493** | < .001 | Highly Significant |
| Acceptance of AI Application | 0.287** | < .001 | Highly Significant |
| Risk of AI Application | -0.507** | < .001 | Highly Significant |

***. Correlation is significant at the 0.01 level*

As disclosed by Yoo, et al., (2021), companies with greater investment capacity can explore a broader scope of AI applications across different departments and functions. This allows them to automate tasks, personalize marketing, or develop new products with AI. Further, according to Chaniyas, et al., (2020), investment fuels exploration of diverse purposes for AI. Companies can investigate using AI for tasks beyond just automation, such as improving customer service, gaining market insights, or even product development.

The computed rho-value of 0.033 indicates a very weak direct relationship between benefit to the company and scope of AI adoption. The computed rho-value of 0.493 indicates a moderate direct relationship between benefit to the company and purpose of AI application. The computed rho-value of 0.287 indicates a weak direct relationship between benefit to the company and acceptance of AI application. The computed rho-value of -0.507 indicates a moderate indirect relationship between benefit to the company and risk of AI application. It shows that there was a statistically significant relationship between benefit to the company and the sub variables of AI adoption such as purpose, acceptance, and risk since the obtained p-values were less than 0.01. The sub-variables work together to impact the benefits the company derives from the use of AI. When the purpose is clear and focused on addressing the needs of the company, coupled with high employee acceptance and effective risk mitigation, all of these will create a productive ground for AI to flourish and deliver substantial value.

It was observed from the findings of Chaniyas, et al., (2020), when the purpose of AI adoption aligns with a company's strategic goals like improving efficiency and enhancing customer experience, it is more likely to generate positive outcomes (Chaniyas et al., 2020). A clear purpose guides the selection of AI applications that directly address business needs, leading to measurable benefits. At the same time, Wirtz, et al., (2020)

emphasized that high employee acceptance of AI fosters a smoother integration process and better utilization of the technology (Wirtz et al., 2020). When employees understand and trust AI, they're more likely to embrace its capabilities, leading to benefits like improved productivity and innovation. Further, proactive management of AI adoption risks like bias and job displacement minimizes potential drawbacks and allows companies to focus on the benefits (Huang et al., 2022). By addressing concerns and implementing responsible AI practices, companies can unlock the full potential of AI and achieve greater returns.

Table 5*Relationship Between Investment Innovation and Dynamic Capability*

| Variables | rho | p-value | Interpretation |
|---|----------|---------|--------------------|
| Company's Willingness to Invest | | | |
| Creating a Culture of Innovation and Change | -0.178** | < .001 | Highly Significant |
| Building Relationship with Key Stakeholders | -0.146** | 0.004 | Significant |
| Investing in Resources | -0.024 | 0.642 | Not Significant |
| Company's Ability to Invest | | | |
| Creating a Culture of Innovation and Change | -0.170** | 0.001 | Significant |
| Building Relationship with Key Stakeholders | -0.064 | 0.208 | Not Significant |
| Investing in Resources | -0.087 | 0.088 | Not Significant |
| Benefit to the Company | | | |
| Creating a Culture of Innovation and Change | 0.234** | < .001 | Highly Significant |
| Building Relationship with Key Stakeholders | 0.487** | < .001 | Highly Significant |
| Investing in Resources | -0.044 | 0.389 | Not Significant |

** . Correlation is significant at the 0.01 level

Table 5 shows the relationship between innovation and dynamic capability. The computed rho-values ranging from -0.024 to -0.178 indicate a very weak indirect relationship between a company's willingness to invest and the sub variables of dynamic capability.

It shows that there was a statistically significant relationship between company's willingness to invest and the sub variables of dynamic capability such as creating a culture of innovation and change, and building relationship with key stakeholders since the obtained p-values were less than 0.01. This demonstrates that technology companies are willing to invest in AI and they are committed to change and innovation. This investment brings about a culture that embraces changes and allows for building strong relationships with stakeholders who play an important role in the successful adoption of AI. Moreover, the company's investment in AI nurtures the development of dynamic capabilities which are significant for the AI adoption to be successful. Technology companies can direct changes brought about by AI and influence its potential for significant results by creating a culture of innovation and building strong stakeholder relationships.

According to Caloghi et al. (2021), companies which are willing to invest in AI signal a commitment to innovation. The investment can be used to create a culture that embraces experimentation, risk-taking, and continuous learning, all essential for successful AI adoption. Further, investment allows for building strong relationships with key stakeholders like employees, customers and investors. By actively engaging stakeholders and addressing concerns, companies can gain support for AI initiatives, fostering smoother adoption (Sivarajah et al., 2020). The computed rho-values ranging from -0.064 to -0.170 indicate a very weak indirect relationship between the company's ability to invest and the sub variables of dynamic capability. It shows that there was a statistically significant relationship between a company's ability to invest and creating a culture of innovation and change since the obtained p-value was less than 0.01. A company's ability to invest empowers them to create a culture of innovation and change. By allocating resources for employee development, incentivizing innovation, and fostering experimentation, companies can build a workforce that embraces change and drives continuous improvement. This paves the way for sustained growth and competitive advantage in today's dynamic business environment.

Companies with a strong ability to invest can allocate resources like financial, human, technological towards fostering a culture of innovation and change. This allows for activities like employee training and development.

Investing in training programs equips employees with the skills and knowledge needed to adapt to new technologies and embrace change (Morris et al., 2021). Further, investment allows for implementing incentive programs that reward employees for innovative ideas and risk-taking behavior (Cao et al., 2020). Investment facilitates experimentation with new ideas and technologies. This allows for learning from failures and successes, fostering a culture of continuous improvement (Caloghi et al., 2021).

The computed rho-values ranging 0.234 to 0.487 indicate a weak to moderate direct relationship between benefit to the company and the sub variables of dynamic capability such as creating a culture of innovation and change and building relationship with key stakeholders while the computed rho-value of -0.044 indicates a very weak indirect relationship between benefit to the company and investing in resources. It shows that there was a statistically significant relationship between benefit to the company and the sub variables of dynamic capability such as creating a culture of innovation and change, and building relationship with key stakeholders since the obtained p-values were less than 0.01. This implies that by fostering a culture of innovation and change and building good relationship with stakeholders, technology companies may influence their investment to develop innovative services to meet the needs of the customers and generate growth revenue. It is worth noting that investment allows for initiatives that promote a culture of innovation: employee training, rewarding creativity, and encouraging experimentation (Morris et al., 2021). This leads to a more innovative workforce, generating ideas with the potential for substantial benefits. Moreover, Sivarajah et al. (2020) found out that investment allows for engaging key stakeholders in the innovation process. By building strong relationships and addressing concerns, companies can gain valuable feedback and secure support for their innovative ideas, leading to better outcomes.

Table 6

Relationship Between AI Adoption and Dynamic Capability

| Variables | rho | p-value | Interpretation |
|---|----------|---------|--------------------|
| Scope of AI Adoption | | | |
| 1. Creating a Culture of Innovation and Change | 0.319** | < .001 | Highly Significant |
| 2. Building Relationship with Key Stakeholders | 0.297** | < .001 | Highly Significant |
| 3. Investing in Resources | 0.111* | < .001 | Highly Significant |
| 4. Purpose of AI Application | | | |
| 5. Creating a Culture of Innovation and Change | 0.144** | < .001 | Highly Significant |
| 6. Building Relationship with Key Stakeholders | 0.265** | < .001 | Highly Significant |
| 7. Investing in Resources | -0.090 | 0.078 | Not Significant |
| 8. Acceptance of AI Application | | | |
| 9. Creating a Culture of Innovation and Change | 0.415** | < .001 | Highly Significant |
| 10. Building Relationship with Key Stakeholders | 0.164** | 0.001 | Significant |
| 11. Investing in Resources | -0.137** | 0.007 | Significant |
| 12. Risk of AI Application | | | |
| 13. Creating a Culture of Innovation and Change | -0.308** | < .001 | Highly Significant |
| 14. Building Relationship with Key Stakeholders | -0.169** | 0.001 | Significant |
| 15. Investing in Resources | 0.281** | < .001 | Highly Significant |

***. Correlation is significant at the 0.01 level/ **. Correlation is significant at the 0.05 level**

Table 6 illustrates the relationship between AI adoption and dynamic capability. The computed rho-values ranging from 0.111 to 0.319 indicate a very weak to weak direct relationship between scope of AI adoption and the sub variables of dynamic capability. It shows that there was a statistically significant relationship between scope of AI adoption and the sub variables of dynamic capability because the obtained p-values were less than 0.01/0.05. A broader scope of AI adoption requires strong dynamic capabilities which implies that companies that want to use AI in a wider range of their operations are adaptable and good at managing resources.

Interestingly, Morris et al. (2020) confirmed that investment fuels the development of dynamic capabilities. Resources from investment can be used for training employees, building a culture of experimentation, and fostering collaboration across departments which are all crucial for dynamic capabilities. Companies with a strong ability to invest can explore a wider scope of AI adoption. Investment also fosters dynamic capabilities, allowing them to adapt and manage resources effectively for a successful and impactful broader AI

implementation.

The computed rho-values ranging from 0.144 to 0.265 indicates a very weak to weak direct relationship between purpose of AI application and the sub variables of dynamic capability such as creating a culture of innovation and change and building relationship with key stakeholders while the computed rho-value of -0.090 indicates a very weak indirect relationship between purpose of AI application and investing in resources. It shows that there was a statistically significant relationship between purpose of AI application and the sub variables of dynamic capability such as creating a culture of innovation and change, and building relationship with key stakeholders since the obtained p-values were less than 0.01. This implies that the specific purpose of AI application influences the dynamic capabilities a company needs to develop. By fostering a culture of innovation and change, and building strong relationships with stakeholders, technology companies can navigate the changes AI brings and achieve its intended benefits.

The findings of Chanas et al. (2020) shows that companies don't just adopt AI, they apply it with specific goals in mind like improving efficiency and enhancing customer experience. The chosen purpose also influences the type of dynamic capabilities needed for successful implementation. As disclosed by (Sivarajah et al., 2020), regardless of the AI purpose, dynamic capabilities help manage the changes brought about by AI adoption. This could involve restructuring workflows, adapting employee roles, or creating new training programs. Further, the specific purpose of AI application can impact how stakeholders perceive it. Building trust and addressing concerns requires clear communication and collaboration with stakeholders.

The computed rho-values ranging from 0.164 to 0.415 indicate a very weak to moderate direct relationship between acceptance of AI application and the sub variables of dynamic capability such as creating a culture of innovation and change and building relationship with key stakeholders while the computed rho-value of -0.137 indicates a very weak indirect relationship between acceptance of AI application and investing in resources. It shows that there was a statistically significant relationship between acceptance of AI adoption and the sub variables of dynamic capability because the obtained p-values were less than 0.01. By investing in resources and developing dynamic capabilities, companies can create an environment where employees feel informed, valued, and prepared to work with AI. This, in turn, leads to greater acceptance and smoother AI adoption.

It is worth noting that by developing dynamic capabilities, companies can create an environment that fosters employee acceptance of AI (Wirtz et al., 2020). Further when a company embraces change and innovation, employees are more likely to see AI as an opportunity for improvement, not a threat (Caloghi et al., 2021). It is interesting to note that strong relationships with stakeholders, particularly employees, allow for open communication about AI implementation and addressing concerns (Sivarajah et al., 2020). This can significantly improve employee trust and acceptance. Moreover, investing in resources like training programs and clear communication strategies equips employees with the skills and knowledge to work effectively with AI, increasing their comfort level (Morris et al., 2021).

The computed rho-values ranging from -0.169 to -0.308 indicate a very weak to moderate indirect relationship between risk of AI application and the sub variables of dynamic capability such as creating a culture of innovation and change and building relationship with key stakeholders while the computed rho-value of 0.281 indicates a weak direct relationship between risk of AI application and investing in resources. It shows that there was a statistically significant relationship between risk of AI adoption and the sub variables of dynamic capability because the obtained p-values were less than 0.01. This means that by developing a culture of innovation and change, building strong stakeholder relationships, and investing in resources, companies can proactively manage the risks associated with AI adoption. This allows them to navigate the uncertainties and unlock the potential benefits of AI more effectively. Dynamic capabilities are not a one-time fix. Companies need to continuously monitor risks and adapt their strategies as the AI landscape evolves.

As disclosed by Huang, et al., (2022), AI adoption carries inherent risks, such as bias, job displacement, and security vulnerabilities. Strong dynamic capabilities allow companies to manage these risks and navigate the uncertainties associated with AI. Moreover, an openness to experimentation and learning allows companies to identify and address potential risks before they escalate (Caloghi et al., 2021). Indeed, strong relationships with stakeholders like employees and regulators allow for open communication about risks and concerns (Sivarajah et al., 2020). This fosters collaboration in developing risk mitigation strategies.

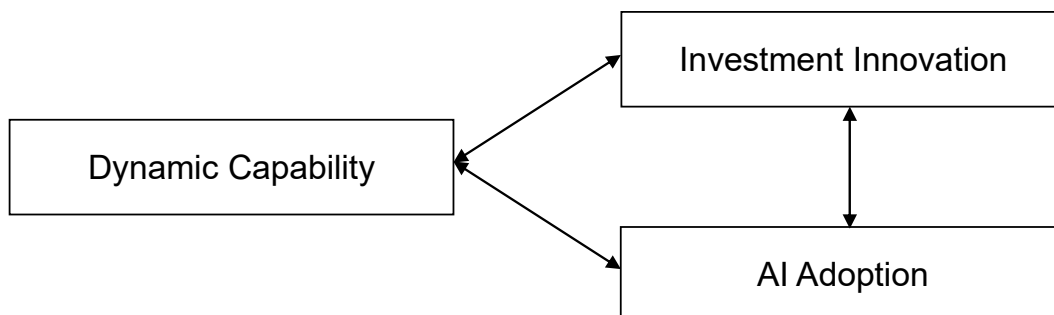


Figure 1

Agile Innovative Framework for IT Driven SMEs

The competitive framework as the output of the study resulted from the interplay between investment innovation, AI adoption and dynamic capabilities in the technology companies. AI adoption empowers technology SMEs with powerful tools and insights to make innovative investment decisions, while dynamic capabilities ensure they can adapt and seize the opportunities unlocked by AI. The competitive framework is a roadmap for IT driven SMEs to identify innovative investment opportunities related to AI adoption, develop a strategic plan for AI adoption that aligns with their investment goals, foster dynamic capabilities to ensure they can adapt and exploit the full potential of AI for innovation. By following this framework, IT driven SMEs can position themselves competitively in the market by leveraging AI and investment innovation.

AI itself represents a significant technological innovation. By adopting AI, IT driven SMEs gain access to powerful tools and capabilities that can drive further innovation across various aspects of their business. AI can analyze vast amounts of data and identify new investment opportunities, trends, and market needs. This allows SMEs to make more informed investment decisions that drive innovation and growth. Further, AI can automate tasks related to investment research, portfolio management, and risk assessment. This frees up resources and allows SMEs to focus on developing innovative new products and services. Likewise, AI creates a competitive advantage as it can attract additional investment and can fuel innovation. Further, dynamic capabilities allow organizations to identify and capitalize on novel investment opportunities arising from technological advancements like AI. This agility is crucial for staying ahead of the curve (Helfat et al., 2020).

The process of making innovative investments itself contributes to developing dynamic capabilities. Engaging with novel technologies and navigating new challenges enhances a company's ability to learn, adapt, and solve problems (Foss & Klein, 2021). By fostering this two-way relationship, investment innovation and dynamic capabilities create a virtuous cycle, where each strengthens the other, leading to a more competitive and adaptable organization. Strong dynamic capabilities allow IT driven SMEs to identify trends and opportunities related to AI. They can assess the potential benefits of AI for their specific business needs and seize the opportunity to adopt it effectively (Teece et al., 2021). Further, AI adoption often involves significant changes in processes, workflows, and potentially even organizational structures. Dynamic capabilities equip SMEs with the agility to navigate this complexity and adapt their resources to integrate AI seamlessly (Helfat et al., 2020).

The process of adopting AI itself fosters the development of dynamic capabilities. SMEs learn to handle complex data, manage change, and solve novel problems encountered during implementation (Foss & Klein, 2021). Moreover, AI adoption allows SMEs to leverage data analytics for better decision-making, further

improving their ability to sense opportunities and adapt to changing market dynamics (Chanias et al., 2021). In essence, dynamic capabilities act as a foundation for successful AI adoption, while AI adoption itself can contribute to strengthening these capabilities. This creates a virtuous cycle where each element reinforces the other, leading to a more adaptable and competitive IT driven SMEs.

4. Conclusion and recommendations

Results of the study showed moderate agreement on the technology companies' investment innovation as to willingness to invest, ability to invest and its benefits to the company. The respondents generally agreed on AI adoption as to scope, purpose, acceptance and risks. Respondents generally agreed that dynamic capabilities were essential in fostering a culture of innovation and change, building relationships with key stakeholders and making strategic resource investments. Generally, there was a significant relationship among investment innovation, AI adoption and dynamic capabilities. An agile innovative framework for IT driven SMEs was developed to adapt quickly to changing market conditions, increase their competitiveness, and drive growth.

The IT driven companies may explore business areas with high-impact and low-cost AI opportunities. The IT driven companies may align AI investments with the company's overall innovation goals and long-term vision to provide a clear return on investment (ROI). IT driven companies may focus on areas where it has a competitive advantage or unique capabilities to ensure that investments support long-term goals and mission. Technology companies may use the framework to identify areas where the company needs to strengthen its dynamic capabilities to better support investment innovation and AI adoption. Future researchers may contribute to a deeper understanding of how technology SMEs can influence investment innovation, AI adoption, and dynamic capabilities to achieve sustainable success in the ever-evolving technological environment.

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