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PILOT STUDY TITLE:

**EXAMINING THE SUITABILITY OF AI-DRIVEN TOOLS FOR SMALL
BUSINESSES IN DEVELOPING COUNTRIES: *THE CASE OF SMES IN
PAKISTAN***

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CHAPTER 1

Abstract:

In the digital economy, artificial intelligence (AI) is a significant catalyst of business performance, revolution and competitive strategy. This research looks at how artificial intelligence can help smaller firms improve their performance and create value. To understand this, it draws on ideas from the Resource-Based View, Dynamic Capabilities Theory, the Technology–Organization–Environment framework, and the Technology Acceptance Model, combining them to give a well-rounded perspective. Current research indicates that although AI improves decision-making, efficiency and innovation, its effectiveness varies among firms. Rather, it depends on the firm's preparedness, leadership, dynamic capabilities and fit with business strategy.

Moreover, the research suggests that SMEs, particularly in developing countries, encounter several barriers to adopting AI due to resource constraints, lack of infrastructure and technical skills. The study also stresses the need for organizational agility, governance and fit between tasks and technology in harnessing the benefits of AI. Whereas there is an increasing figure of research on AI implementation, there is a dearth of studies on SMEs in developing economies, where institutional and environmental uncertainties and constraints make implementation more complex.

The current study enhances the research by contribution an integrated view of how AI capabilities are related to dynamic capabilities, agility and performance. The research also fills the void in the knowledge of how SMEs in emerging markets can harness AI for growth and performance. The research provides managerial insights by highlighting the importance of alignment, skills and moral deliberations in AI acceptance.

Background:

Artificial intelligence (AI) has become a disruptive phenomenon in the modern business world, as organizations can increase the efficiency of their operations and automate various routine tasks, as well as make better strategic decisions. Although big businesses are among the first to embrace AI technologies, small enterprises are slowly beginning to see the benefits of AI, including enhanced productivity, lower operational expenses, and improved buyer relationships. Despite these assistances, the uptake of AI by SMEs, especially in developing economies, is uneven and context-dependent.

SMEs in countries like Pakistan are an important aspect of economic development. They play a significant part in the growth of industry, the creation of jobs, and the stability of the economy. In Pakistan, SMEs make up almost 90 percent of the business organizations and play a role of around 40 percent in the gross domestic product (GDP) of the country (Matloob et al., 2023). This sector employs roughly three-quarters of the workforce outside farming, making it the second largest provider of jobs after agriculture (State Bank of Pakistan, 2024).

Moreover, SMEs contribute almost a quarter of exports in the major industries, including manufacturing and textiles (State Bank of Pakistan, 2024). According to current numbers, the SME segment is also growing significantly, with the number of enterprises expanding by an average of more than 7 million in comparison with 5.2 million, which is also a very positive growth trend (Pakistan Bureau of Statistics, 2023).

Although economically significant, SMEs in Pakistan are still experiencing various structural and technological challenges. The deficiency of monetary capitals, proper infrastructure, and lack of technical skills limits their capacity to embrace modern digital solutions. Specifically, the rate of technological adoption is rather low, as currently, it is only about 23 percent of SMEs that use modern technologies to help their operations (SMEDA, 2025). This shows that there is a huge disparity in digital preparedness, which could make it difficult to compete in a more technologically-driven business world.

Though the opportunities offered by using AI tools can help smaller businesses work more efficiently and achieve better results, their applicability in practice to developing countries like Pakistan is still not fully comprehended. Such aspects as the inadequate infrastructure, absence of skilled workers, low awareness, and financial issues can affect the adoption and efficacy of AI technologies. Thus, it is crucial to question whether AI-based tools are relevant and practical to SMEs that work in this situation. This paper seeks to explore the appropriateness of AI technologies in SMEs in Pakistan then look at both the potential and the practical issues of using such technologies.

Problem Statement:

While there is growing recognition of artificial intelligence (AI) as a deliberate resource for cultivating a business's success and standing out from competitors, much remains unknown about how companies, especially smaller companies, can implement and effectively use AI capabilities. The current body of research primarily addresses large firms in advanced economies which have access to resources, infrastructure and technical know-how. This poses a challenge in extending these insights to SMEs in developing economies, where source restraints, technological structure, and institutional factors play a critical role in AI acceptance and use.

And while theories like the Resource-Centric Framework and Dynamic Capabilities emphasise the part of internal capabilities in creating a distinct edge, we lack empirical knowledge of how AI capabilities combine with other factors such as organisational agility, leadership and governance to drive business performance in SMEs. Numerous companies invest in AI technologies to enhance efficiency and value creation, but they may fail to effectively harness the value from these investments due to integration, capability-building, and alignment problems.

Furthermore, the fit and appropriateness of AI tools is under-researched, in particular, regarding task- technology fit, ethics, and readiness. A lack of guidance on the selection and

deployment of AI tools raises concerns about misuse, bias, and poor decision-making, which can lead to poorer performance

This research aims to deal with the missing areas by looking at how AI competencies influence results, complemented by dynamic capabilities and other organisational factors, on business performance and value creation among smaller companies in growing economies. It seeks to advance knowledge of the features that determine the achievement of AI embracing, thus enriching both research and practice.

Novelty:

This research provides a unique perspective by not merely focusing on how intelligent digital technologies are adopted within smaller firms, but by placing primary emphasis on the suitability of their application in a developing country setting. Although the existing literature has mainly examined the benefits and adoption rates of AI, especially in large institutions and well-established economies, little is known about whether these technologies can be practically implemented in SMEs operating under resource constraints.

One of the main novelties of the research is that it presents the concept of AI appropriateness as one of the main ones. Rather than restricting the research to adoption behaviour, the research assesses the economic viability of AI-based tools, their operational viability, and congruity with the ability of SMEs. This shift in focus enables a more grounded and context-sensitive evaluation of technology use.

Moreover, the paper creates a full-fledged framework that describes the character of AI in the organizational operational success via a series of internal capacities. It researches how AI capacity affects the performance of firms indirectly based on such criteria as adaptability, responsiveness, innovation, and long-term stability. This combined approach provides a more in-depth view of how AI can bring value to SMEs.

The interest in Pakistan as a model of a developing economy is another significant contribution. The analysis reflects the impact of situational issues, including inadequate infrastructure, financial resources, and the absence of expertise, on the success of AI implementation. This contextual focus fills a knowledge gap in the literature, whereby much of the literature has ignored the emerging markets.

Moreover, the research integrates the quantitative analysis with qualitative insights, which allows exploring more comprehensively the measurable impacts and real-life experiences. This approach to a combination of methods enhances the richness and practicality of the results.

Significance:

Practical Significance:

The research has a practical implication to the owners and managers of SMEs since it sheds light on the realistic advantages and restrictions of AI-driven tools. It assists companies in determining the fit of such technologies, considering their monetary, technical, and operational potentials. The study can allow making additional knowledgeable and strategic conclusions in the domain of technology investments by determining the opportunities and constraints.

Policy and Institutional Significance:

The results are also applicable to policymakers and supporting institutions in SME development. The research also offers evidence on how to design specific initiatives (e.g., skill development programs, financial assistance schemes, and improved infrastructure) by pointing out the obstacles that restrict AI adoption. This can help develop an environment where SMEs can embrace technology more effectively and sustainably.

Theoretical Significance:

Academically, the study builds on current knowledge by systematically relating technological capability and organizational outcomes. It adds to the knowledge on the role of internal capabilities in the success of cutting-edge technologies when applied to small companies. Also, the study provides a fresh perspective on technology adoption based on the concept of appropriateness, especially in a resource-limited environment.

Methodological Significance:

Another methodological contribution of the study is the use of a structured analytical method to analyze the complex relationship between variables. The combination of quantitative and qualitative techniques strengthens the results and makes it possible to interpret the results in a more sophisticated manner. In addition, the measurement items developed to suit the SME setting are also valuable to further studies in such environments.

Study Objectives:

The main objective of this work is to assess the suitability of intelligent digital solutions for use by smaller businesses in emerging economies, with a specific focus on Pakistan.

- To determine the extent of AI ability in SMEs in Pakistan.
- To address the purpose of AI ability in improving organizational adaptability, agility, and innovation.
- To assess how AI-enabled capabilities impact SME performance outcomes.
- To identify the feasibility of AI instruments in the SME setting of Pakistan.
- To define the main limitations influencing the use of AI and to propose the strategic steps.

Scope:

This analysis explores whether intelligent digital solutions are practical for use by smaller businesses operating in Pakistan. It aims at learning the kind of AI tools applicable to these businesses, the factors that impact their use as well as the impact they have on overall business performance.

This study is restricted to SMEs that work in such sectors like retail, services, and small-scale manufacturing, where AI applications are more feasible. It also takes into account such significant aspects as the level of awareness in organizations, financial resources, and technological readiness, since the outcome of introducing such innovations depends heavily on it.

Also, the paper discusses the ways in which AI could be used to enhance internal changes in companies and help deliver improved results in the long run. The results are primarily aimed at assisting SME owners, managers, and policymakers to make more informed decisions, who will be operating in Pakistan, and not in other countries.

Study limitations:

This research is restricted to SMEs in Pakistan, and therefore, the results might not apply to other countries with different circumstances. The data relies on the answers of business owners and managers and can be personalized or have inaccuracies in estimations. The time and resource constraints meant that not every sector and region would be well represented. Another weakness is that the study only makes a reflection of information at a given specific moment and therefore does not represent long-term variations. Finally, since AI technologies are rapidly developing, certain findings might not remain relevant over time.

CHAPTER 2

Literature Review**Difficulties experienced by small-scale businesses in less developed nations:**

Businesses of modest and intermediate size are fundamental to economic elasticity, contributing through job creation, business expansion, and the progression of new philosophies. Though there are many encounters that SMEs have to overcome, including issues regarding the infrastructure, finance, and capabilities. These challenges have an enormous impact on their adaptability towards new technologies, their performance, and stability, which leads them to lag in gaining a viable edge.

In developing countries, these problems are worse due to poor infrastructure, weak systems, lack of skills, and limited access to money and resources

System Boundaries/limits and Technology Readiness:

Limits in basic systems slow the progress of smaller firms and make it harder for them to move toward digital ways of working. In contrast, larger companies adopt new tools quickly and adjust their operations to stay competitive. Smaller businesses are more exposed to risk because their technology setup is less stable and their cybersecurity is weaker.

Research shows that these firms also face difficulties due to limited knowledge and weaker internal structures (Armenia et al., 2021). Many risk management approaches are too fixed and do not keep up with the constantly changing nature of cyber threats. Weak infrastructure further reduces their ability to introduce new technologies, mainly because they are not fully prepared and lack strong organisational support (Khn & Kee, 2022).

Studies also suggest that adopting new technology requires the right mindset, clear processes, and strategic direction. However, smaller firms often find this challenging due to restricted budgets and a lack of technical support.

Limited funding and Access investment resources:

A major issue for smaller firms in developing countries is limited access to finance. Many of these businesses struggle to obtain loans because they lack sufficient collateral, have gaps in financial information, and are often viewed as high-risk by banks and other lenders. As a result, they face ongoing financial pressure that affects their overall stability and growth potential.

Most of these firms rely heavily on their own internal funds to manage daily operations and support business activities (Serrasqueiro et al., 2021). Since external financing is difficult to secure, they are often unable to invest in new technologies, improve their services, or expand into new markets. This lack of funding slows down innovation and reduces their ability to compete effectively with larger organisations.

In addition, borrowing money can also create further challenges. High interest rates and strict repayment requirements can put extra pressure on these businesses, forcing them to cut back on spending, delay important projects, and operate below their full capacity. These financial difficulties are even more severe in developing countries, where financial systems are less developed and access to credit is more limited compared to advanced economies.

Skills shortage and Organisational strength:

Recent research shows that many smaller firms do not have the skills or internal strength needed to meet their goals and stay competitive. Because of limited budgets, they cannot hire enough qualified staff, which leaves them with fewer experts. This makes it harder for them to use advanced technologies and limits their ability to create new ideas.

Iqbal and Suzianti (2021) point out several common problems, such as lack of formal processes, weak planning, and poor technical skills. These issues reduce their ability to develop new products, support innovation, and compete with larger companies.

Khin and Khee (2022) also highlight the importance of strong internal capabilities for digital progress. Based on the Dynamic Capabilities Theory and the Resource-Based View (RBV), they explain that firms need proper resources, the ability to adapt, and continuous investment in skills to deal with changes in the business environment.

Innovation and strategic approach as solutions:

Even with these difficulties, research shows that smaller firms can still stay competitive in the market. One effective way is by using open innovation, where businesses collaborate with external partners such as other firms, institutions, or experts. This approach allows them to access new ideas, technologies, and knowledge that they may not be able to develop on their own.

Srisathan et al. (2023) highlight that open innovation plays an important role in supporting the growth and performance of smaller firms. By working with others and sharing knowledge, these businesses can improve their ability to innovate and respond to market changes more effectively.

Furthermore, building strong networks and partnerships helps these firms overcome their internal limitations, such as a lack of skills, resources, or technical expertise. Through collaboration and knowledge exchange, they can adopt new technologies more easily, improve their operations, and strengthen their competitive position. This not only supports their long-term development but also helps them survive in increasingly competitive and fast-changing markets.

Smart System Capabilities and the Resource-Based Approach:

Intelligent digital systems are now recognised as valuable assets within the resource-based perspective, helping firms improve efficiency, enhance decision-making, and drive innovation to gain an advantage (Enholm et al., 2022; Krakowski et al., 2023; Perifanis & Kitsios, 2023). AI plays a role in the creation of hybrid capabilities by combining human and technological resources to enhance forecasting, efficiency and value (Mikalef et al., 2021; Rajagopal et al., 2022). Moreover, AI simplifies both exploration and exploitation innovation, enhancing firm performance and growth (Iqbal & Suzianti, 2021; Srisathan et al., 2023). However, the RBV assumes firms have enough complementary resources to exploit the potential of AI, which may not be the case with SMEs due to their resource and technological constraints (Yesuf & Fields, 2025). This indicates that AI alone does not necessarily lead to competitive advantage; rather, it depends on how it is combined with other capabilities and resources.

Dynamic Capabilities and AI Adoption:

Drawing on dynamic capabilities, AI helps firms detect opportunities, exploit opportunities, and reconfigure operations to adapt to market changes (Gao et al., 2025; Ayoub & Sopuru, 2026). But the research stresses that success cannot be achieved through technology alone. Rather, successful implementation of AI depends on digital leadership, a data-driven culture and learning (Chen et al., 2022; Shatila, 2025). Digital leadership is crucial for driving innovation and agility, allowing firms to harness the benefits of AI to enhance their performance (Razzak et al., 2025). And, dynamic capabilities show a character in mobilising AI capabilities, implying that firms need not only to invest in AI but also in creating the organisational flexibility needed to adjust to fluctuations in the atmosphere.

Appropriateness and Suitability of AI Tools:

The suitability of AI tools varies greatly depending on the task, level of organisational readiness, user skills, and ethical concerns (Crockett et al., 2021; Sánchez et al., 2025). AI tools vary in capabilities and are fit for particular tasks, such as creativity, data analysis, or decision making (Alafnan, 2025). AI tools can improve productivity and precision but their inappropriate use can result in over-reliance, diminished creativity and potential problems like bias and transparency (Machucho & Ortiz, 2025). Hence, companies need to ensure that AI initiatives align with their goals and are supported by effective governance structures. This underscores the need for a balance between human and machine intelligence for the best results (Alkhatib et al., 2025).

AI Tools, Business Performance, and Value Creation:

AI serves as both an operational and strategic tool, impacting business performance by transforming processes, automating tasks, and improving data analysis (Moderno et al., 2024; Perifanis & Kitsios, 2023). It enables firms to streamline processes, enhance predictive modelling, and support decision-making processes, enhancing efficiency and competitiveness (Gao et al., 2025). Yet, while there is significant potential for creating value, many firms fail to derive value from it due to integration challenges, capability building and readiness (Sánchez et al., 2025; Saif et al., 2022). This suggests value creation through AI adoption is not automatic, but relies on alignment and integration with the firm's processes and capabilities.

Adoption of AI in SMEs: TOE-TAM View:

SMEs' approach to AI adoption is a multi-layered procedure that is prejudiced by high-tech, organisational, and eco-friendly factors (TOE—TAM) (Neves & Pizzichini, 2024; Khan et al., 2024). These include apparent helpfulness, comfort of use and compatibility, which drive organisational acceptance of AI. But SMEs lack the necessary financial, infrastructure and technical resources, which limit adoption. Consequently, firms need to choose cost-effective and easy-to-use AI approaches that match their capabilities and business goals (Agrawal et al., 2024). This underscores the need to comprehend the implementation of AI in the context of SME constraints.

Organizational Governance and Outcome in Small Businesses:

Commercial authority is vibrant in improving SME efficiency through transparency, accountability and good governance practices (Dzomonda, 2022; Kyambade et al., 2025). Effective governance enhances stakeholder confidence and access to external funding, vital for growth. Yet, in contrast to big firms, many SMEs lack corporate governance structures, which affects their ability to benefit. This implies that governance not only has a direct effect on performance but also moderates the association among other aspects, such as sustainability and invention and performance.

Sustainability and Environmental, Social, and Governance among SMEs:

Practices related to environmental responsibility, social impact, and governance are widely viewed as important for the long-term growth of smaller firms. They help build a positive image, increase trust among stakeholders, and make businesses more appealing to potential investors (Dzomonda, 2022). By operating responsibly, firms can strengthen their market position and support steady development over time.

However, businesses in emerging economies often face difficulties in putting these practices into action. Factors such as unstable political conditions, corruption, weak institutional systems, and economic uncertainty create barriers that limit their ability to focus on sustainability (Abdissa et al., 2022). In many cases, these firms are forced to prioritise immediate survival rather than long-term responsible strategies.

This shows that adopting sustainable practices is not shaped only by internal management decisions, but also by the external environment. Conditions such as government support, regulatory systems, and overall economic stability play a major role in influencing whether firms can successfully implement such practices.

AI and Business Innovation:

Digital technologies with intelligent features are helping companies introduce new ideas, improve their operations, and compete more effectively in the market (Machucho & Ortiz, 2025). These tools support better choices and allow firms to respond more quickly to changes in customer needs.

Even so, not all businesses are able to take advantage of these benefits. Smaller firms often struggle because they have limited budgets, less technical understanding, and weaker systems in place (Kulkarni et al., 2024). This makes it harder for them to use such technologies compared to larger companies.

Because of these differences, the impact of these technologies is not the same for every firm. Some businesses gain more benefits, while others fall behind, leading to gaps in performance and market competitiveness.

Ethical Issues and AI Governance:

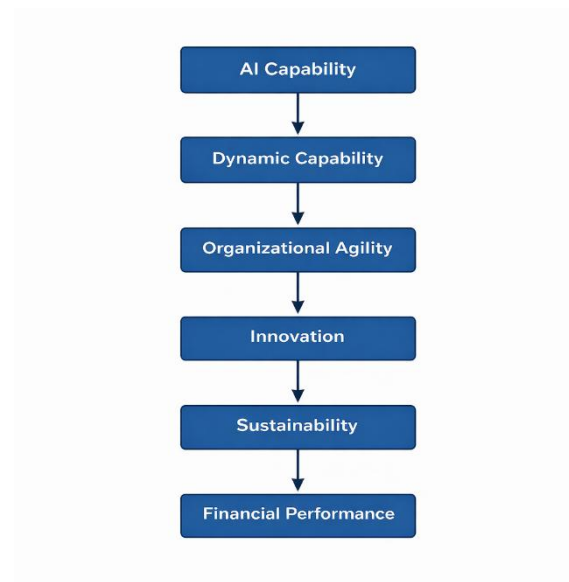
The increasing adoption of AI has also brought up principled problems such as prejudice, transparency and responsibility (Machucho & Ortiz, 2025). To address these issues, there is a need for effective governance mechanisms that promote ethical and responsible AI practices. But SMEs may not have the capabilities to establish these frameworks, making AI ethics a relatively new and understudied phenomenon in the literature (Kulkarni et al., 2024). This calls for more focus on ethical governance of AI adoption.

SMEs in Developing Country Contexts:

Structural factors such as lack of capital, poor institutional support, and low technology readiness pose barriers to the embracing of AI and other technologies by small business in emerging nations (Abdissa et al., 2022; Kulkarni et al., 2024). These factors not only hinder performance but also the relevance of research from developed countries. Hence, there is a need for more context-specific research that takes into account the realities of SMEs in developing countries.

Conceptual Structure:

This study emphasizes on the resulting essential concept:



Independent Variable: AI Capability

Dependent Variable: Financial Performance

Mediator: Dynamic Capability, Organizational Agility, Innovation and Sustainability

CHAPTER 3

METHODOLOGICAL APPROACH

This section presents the way the study was conducted. It outlines the research methodology, design, sample size, data gathering and methods of analysis applied to analyse the appropriateness of AI-based tools on SMEs in Pakistan.

Research Approach:

This research is based on data measured in numbers. The objective is to quantify the extent of AI usage in small companies and its influence on business growth/presentation. A questionnaire was administered to gather responses from SME owners and managers.

Research Design:

The research gathers information only once instead of collecting it over time. This provides a one-time view of the situation being studied. This method is appropriate in comprehending the existing practices, adoption rates, and AI influence in the context of SMEs.

Population characteristic and Sample technique:

The focus group/population will be SMEs in Pakistan, especially those in the retail sector, services sector, and small manufacturing sector.

The stratified sampling technique is employed to incorporate the businesses of various sectors. In each group, the respondents will be chosen according to their availability and willingness to participate.

The research will involve gathering data of about 20-30 respondents, which will be enough to analyse the pilot study.

Data Collection Method:

These statistics were obtained via an online questionnaire designed on Google Forms. Owners and managers of smaller firms were reached through online communication channels to collect responses.

The questionnaire contained closed-ended questions which were on the basis of 5 pointer Likert scale so that they were easy to answer and the data would be analyzed. An online form assisted in gathering answers in a short time and in maintaining the information systematized.

The respondents were free to join, and none of their information would be disclosed to any third party.

Participant answers will be rated on a scale of five levels, ranging from complete disagreement (1) to complete agreement (5).

Measurement of Variables:

A structured questionnaire was used to evaluate the primary variables in this analysis. All constructs were tested by a series of statements with ratings based on a five-category rating system ranging from full disagreement (1) to full agreement (5).

The paper pays attention to such critical aspects as the competence of AI, organizational (adaptability, agility, and modernization) and corporate (performance), and the appropriateness of AI tools. All these variables were measured by using selected items that represent the actual situation and practices of SMEs.

The measurement items were to be formulated in such a way that they are clear and relevant to the respondents in SMEs so that the study could obtain the experience of the respondents with AI as well as its perceived effects on their business.

Data Analysis:

The results obtained via Google Forms were evaluated with the help of the summary options of the service. The generated visual results on Google Forms in the form of charts and graphs have been automatically generated and utilized to make sense of the general patterns of responses.

The data were described using basic analysis (percentages and averages) to identify trends based on AI usage, executive influences, and business growth. The visualization of the responses assisted in presenting the findings in a simple and understandable way.

This method made it easy to process data effectively and gave a simple means of interpreting the findings as per the responses that were gathered at SME.

Ethical Considerations:

Taking part in this research is entirely optional, and individuals are free to decline participation or leave the study at any stage without facing any penalties. Before they decide to participate, they are given a clear explanation of the purpose of the research and what it involves, so they can make an informed choice.

All responses are kept strictly confidential. The study does not collect any personal or identifying information, and participants remain anonymous throughout. The information gathered is used only for academic purposes and is stored securely, with access limited to the researcher.

The research has been designed to avoid asking any sensitive or uncomfortable questions, and participants are not exposed to any form of risk. The results are presented in a general way, meaning that no individual response can be linked back to any participant.

Overall, the study follows ethical research practices by respecting participants' choices, protecting their privacy, and ensuring transparency throughout the process.

Chapter 4:

Findings

Overview of Respondents:

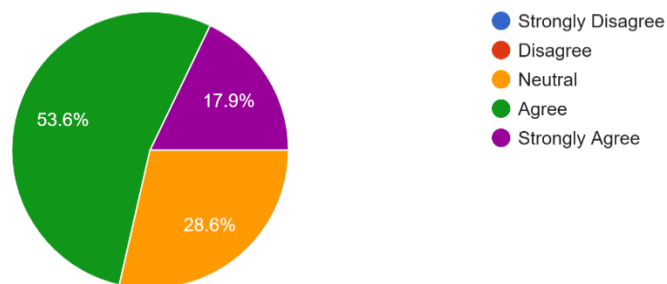
The general characteristics of the respondents indicate that many businesses are already using AI or are planning to do so in the near future. The majority of the sample is from the service sector, although there are some other sectors represented. There are both smaller and larger businesses in the sample, with smaller businesses being more prevalent. Many of the firms have been in business for a number of years, implying they are established. Further, the majority of responses were submitted by managers, suggesting the information is from people involved in decision-making.

Table: Demographic Profile of Respondents

Category	Variable	Frequency (n=28)	Percentage (%)
Use of AI	Yes	14	50.00%
	Planning to use	11	39.30%
	No	3	10.70%
Business Sector	Services	13	46.40%
	Retail	6	21.40%
	Manufacturing	2	7.10%
	Other	7	25.00%
Number of Employees	10–49	14	50.00%
	50–250	3	10.70%
	More than 250	11	39.30%
Length of time in Operation	Less than 3 years	5	17.90%
	3–5 years	7	25.00%
	More than 5 years	16	57.10%
Position of Respondents	Manager	15	53.60%

	Owner	5	17.90%
	Other	8	28.60%

1. Our firm has the technical skills required to use AI technologies



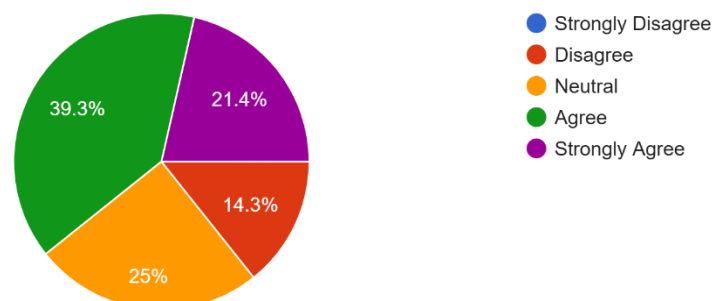
Interpretation:

The findings on whether an organisation has technical skills to use AI technologies. The survey reveals that 53.6% agreed and 17.9% strongly agreed with the statement, with 28.6% being undecided.

This suggests a generally optimistic view of the technical skills of SMEs, with most respondents feeling their firms possess the skills required to use AI technologies. But the significant number of neutral responses suggests there is some level of doubt about the level of these skills.

In summary, the consequences suggest that while Small business are ready to implement AI, there may be a need for more advanced technical skills to ensure successful implementation.

2. Our organization integrates AI into business processes



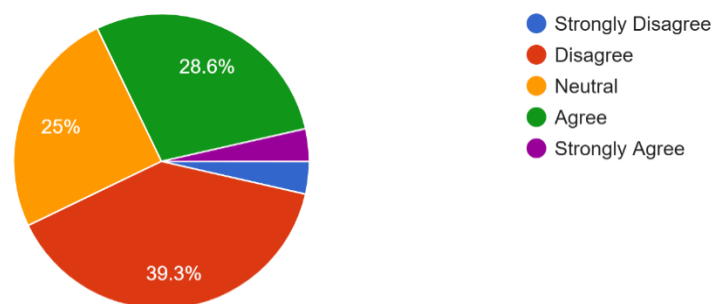
Interpretation:

The survey discloses that 39.3% of respondents decided and 21.4% powerfully agreed, with 25% feeling neutral and 14.3% disagreeing.

This indicates a positive outlook, since the majority of respondents report some adoption of AI. But there are also neutral and negative responses, indicating that not all companies are using AI.

In summary, the results suggest that while many SMEs are adopting AI technologies, many firms have only taken initial steps toward using these solutions or are having difficulties fully integrating these technologies.

3. AI is used to support decision-making in our firm



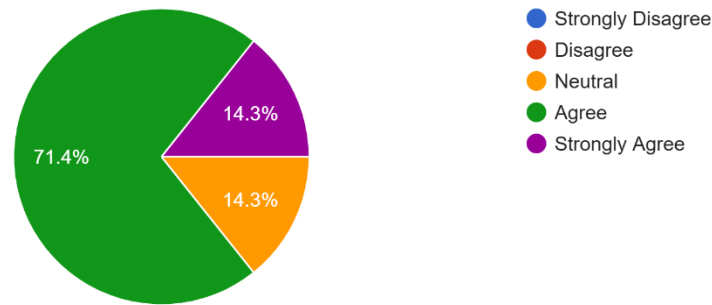
Interpretation:

The findings show that 28.6% of the respondents agreed and a very small share strongly agreed, with 39.3% disagreeing and 25% neutral.

This demonstrates a combination of responses, with more respondents not yet incorporating AI into decision-making. Some companies are starting to use AI for this purpose, but a significant portion are uncertain or do not use it for decision-making.

In summary, the results indicate that the acceptance of AI in the decision-making process is still in its primary phases among SMEs.

4. Our firm effectively identifies new business opportunities



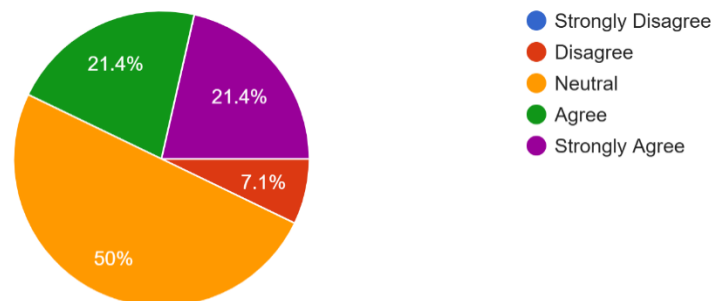
Interpretation:

The findings show that 28.6% of the respondents agreed and a very small share strongly agreed, with 39.3% disagreeing and 25% neutral.

This demonstrates a combination of responses, with more respondents not yet incorporating AI into decision-making. Some companies are starting to use AI for this purpose, but a significant portion are uncertain or do not use it for decision-making.

In summary, the results indicate that the embracing of AI in the decision-making process is still in its initial periods among SMEs.

5. We respond rapidly to variations in the exterior environment



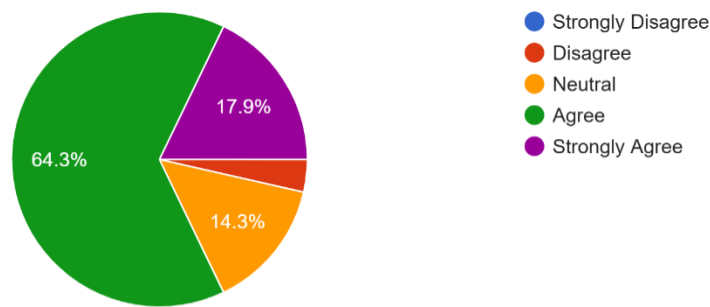
Interpretation:

According to the survey results, 21.4% agreed, 21.4% strongly agreed, 50% were neutral and 7.1% disagreed.

This is a combination of different responses, with many respondents uncertain about responsiveness. Some businesses may be confident of their ability to respond rapidly to changes, but many are uncertain and may not have established processes.

The results indicate that responsiveness to external changes in SMEs is still in the process of growing, and could be improved by increasing agility and flexibility.

6. We reconfigure resources to meet market demands



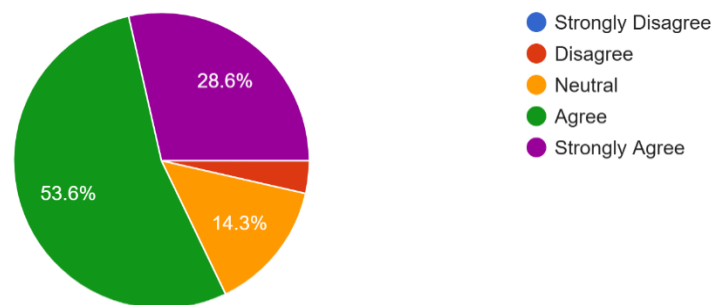
Interpretation:

Our findings reveal that 64.3% of respondents agreed and 17.9% strongly agreed, while 14.3% were neutral and a small number disagreed.

This is a very positive result as the majority of respondents feel their firms can manage their resources to meet market demands. A small percentage were either neutral or disagreed.

The results indicate many SMEs are able to adjust their resources in response to market demands, a key characteristic of adaptability.

7. Our organization responds quickly to customer needs



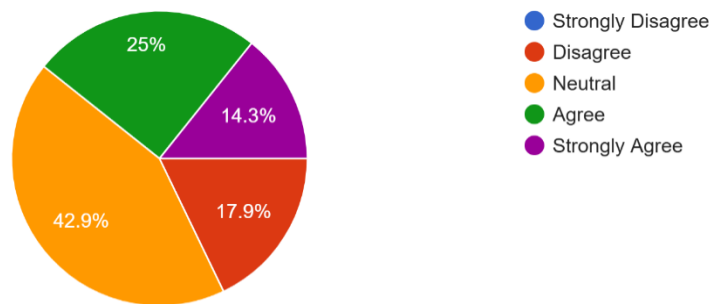
Interpretation:

The findings show that 53.6% agreed and 28.6% strongly agreed with 14.3% being undecided and a small number disagreeing.

This demonstrates a positive trend, with the majority of respondents agreeing their companies respond rapidly to customers. Few were uncertain or disagreed.

In conclusion, the results indicate that many SMEs are customer-oriented and responsive, which is a key factor in staying competitive in a rapidly changing environment.

8. Decision-making in our firm is fast and efficient



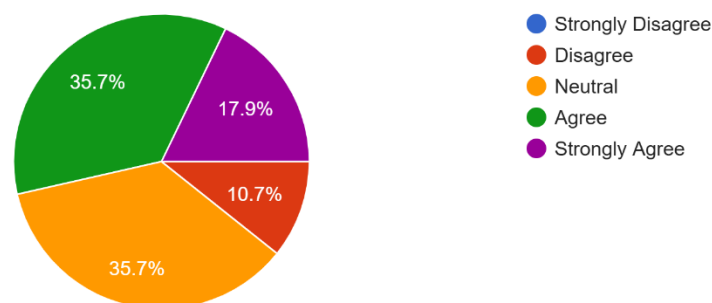
Interpretation:

A quarter (25%) agreed and 14.3% strongly agreed that decision-making is quick and efficient. But a considerable number (42.9%) remained neutral and 17.9% disagreed.

This indicates not all businesses have fast and efficient decision-making. There are firms that are confident, many that are not sure, and some that are clearly struggling.

It seems that decision-making within SMEs is not consistent and could be sped up and improved.

9. We can quickly adjust our operations when required



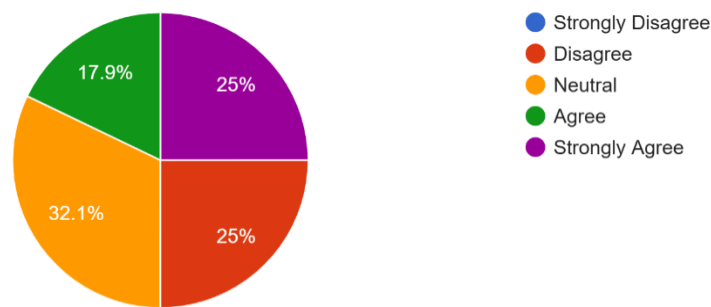
Interpretation:

A total of 35.7% agreed and 17.9% strongly agreed while 35.7% were neutral and 10.7% disagreed.

This shows a mixed situation. Some companies are very confident in their ability to respond to change but many are not, and some do not consider themselves to be adaptable.

In conclusion, this shows some SMEs are flexible; but many are not yet confident in their power to respond quickly.

10. Our firm frequently introduces new products/services



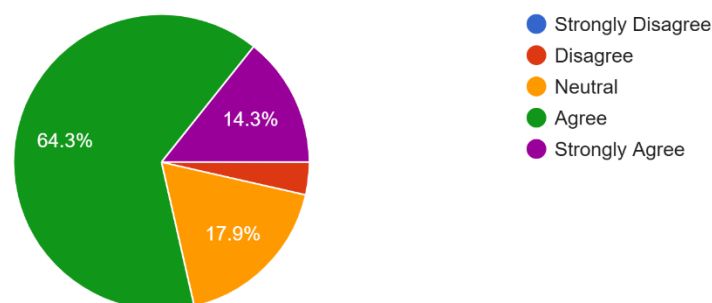
Interpretation:

The findings show that 17.9% agreed and 25% strongly agreed, with 32.1% being neutral and 25% disagreeing.

This shows a mixed pattern. A proportion of businesses are regularly adding new products or services, but many businesses are either undecided or do not add new products or services often.

This, in turn, shows that overall innovation is not uniform among SMEs, with some firms being more active and others possibly having difficulties innovating regularly.

11. We regularly improve our business processes



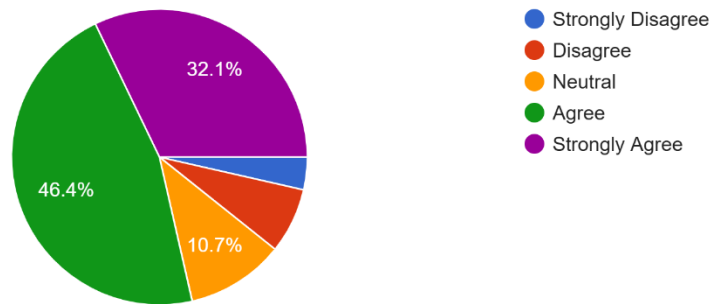
Interpretation:

The majority had a positive attitude with many agreeing and some strongly agreeing. Some remained neutral and a few disagreed.

So many SMEs are working on improving their processes. But not all are doing it as there are some who are still uncertain.

In summary, process improvement appears to be widespread, but it isn't consistent

12. Technology plays a crucial character in innovation in our firm



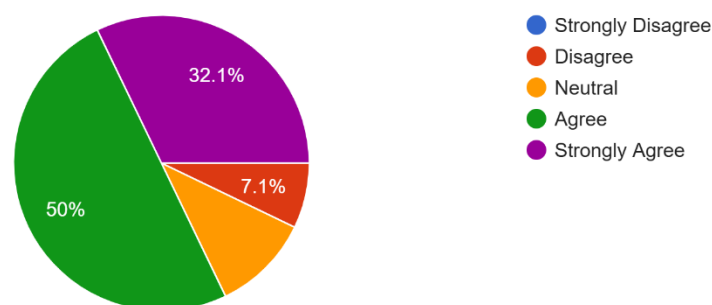
Interpretation:

Most participants expressed support for the view that technology is important, with only a few neutral and a few disagreed.

This is a very positive indicator, as most business see technology as an important enabler of innovation. Only a few are neutral or disagree.

So, in general, it seems that SMEs see the value of using technology to promote innovation and growth.

13. Our business focuses on long-term growth



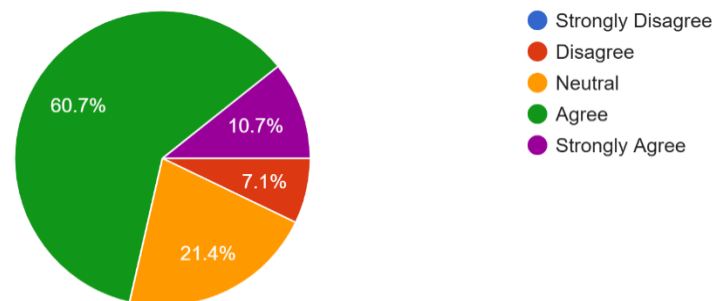
Interpretation:

This shows that 50% agreed and 32.1% strongly agreed, with a few being uncertain and 7.1% disagreeing.

This is a very positive trend, as the majority are planning for the future. A small number are neutral or not in agreement.

Generally, it means that many SMEs have an eye on the future and are focused on long-term growth.

14. We efficiently manage operational costs



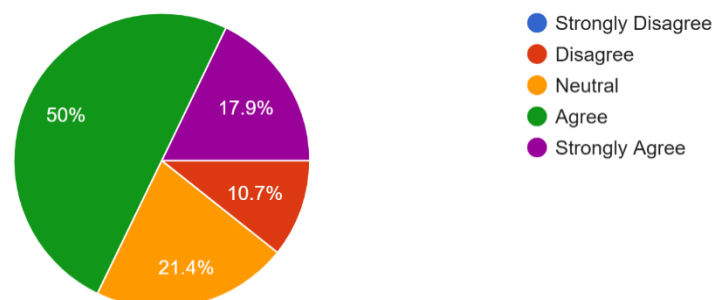
Interpretation:

Most agreed, some strongly agreed, some were neutral and a few disagreed.

This indicates a generally favourable development, with most companies feeling they are managing costs effectively. But not all are as sure, with some respondents uncertain or concerned.

This shows that while many SMEs perceive their cost management to be effective, there is still room for improvement.

15. Our revenue has increased over the past 3 years



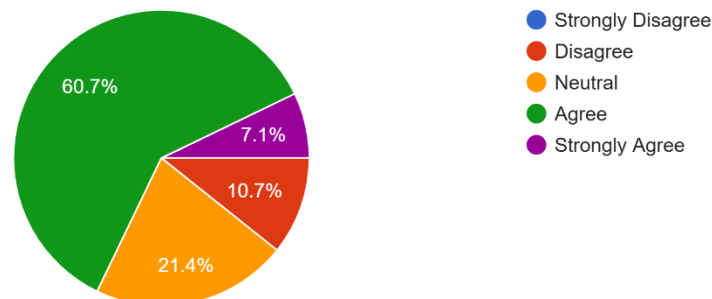
Interpretation:

50% of respondents reported agreement and 17.9% expressed strong agreement that their earnings have grown, 21.4% were neutral and 10.7% disagreed.

This would indicate a positive outcome for many businesses, with revenue increasing. But there is also a significant proportion who are neutral or disagree.

In summary, the findings show that while there is a trend of growth for many SMEs, this is not uniform across firms.

16. Our profitability has improved



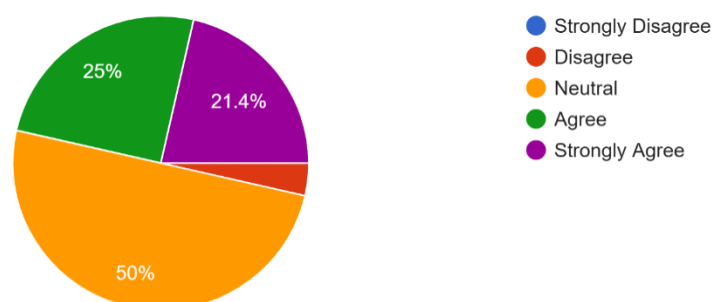
Interpretation:

The findings suggest 60.7% agreed and 7.1% strongly agreed, 21.4% were undecided and 10.7% disagreed.

This is a positive sign, with a majority of respondents indicating profitability has improved. But there are some respondents who are not sure or have not improved profitability.

This implies that the experience of many SMEs has been an improvement in profitability, but not all SMEs.

17. AI tools are suitable for SMEs like ours



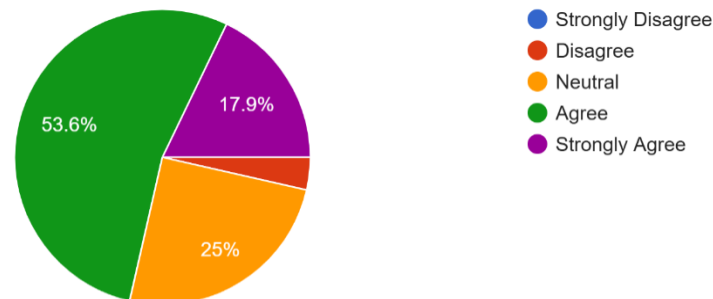
Interpretation:

The findings show that 25% agreed and 21.4% strongly agreed, but 50% were undecided and a few disagreed.

This reveals a split, with many unsure about the suitability of AI tools. Although many believe AI is suitable, half of the respondents are not sure.

Overall, it shows that while there is some trust in AI tools, many SMEs are still not sure about the suitability of AI tools.

18. AI tools are cost-effective for SMEs



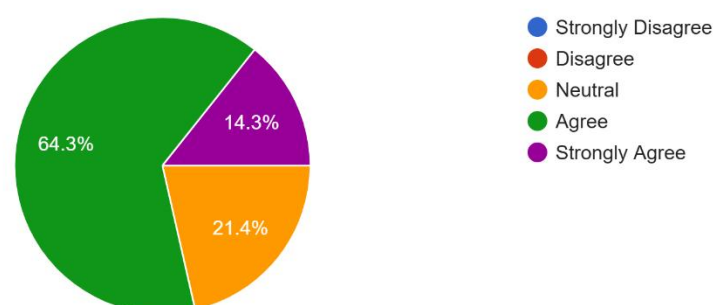
Interpretation:

The findings show 53.6% agreed and 17.9% strongly agreed, 25% were neutral and a few disagreed.

This indicates a good trend, with the majority feeling that AI tools are cost beneficial. But there is some uncertainty.

In general, this shows that many SMEs believe investing in AI is good, but not all SMEs are confident about the cost benefits of AI.

19. AI technologies are practical in Pakistan



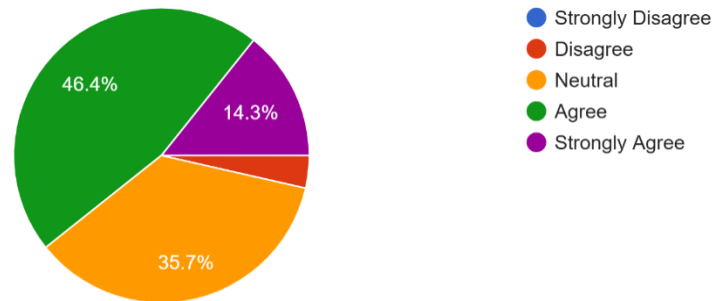
Interpretation:

Most respondents leaned toward a positive view, with 46.4% agreeing and 14.3% strongly agreeing that the benefits of AI outweigh its challenges. At the same time, 35.7% were unsure, and only a small number disagreed.

This shows that many SMEs see clear value in AI, but not everyone is fully convinced yet. A good portion of respondents are still on the fence.

Overall, it suggests that while AI is generally viewed as beneficial, some businesses remain cautious and may need more confidence before fully embracing it.

20. The benefits of AI outweigh the risks/challenges



Interpretation:

The majority of respondents were positive, with 46.4% agreeing and 14.3% strongly agreeing that the benefits of AI outweigh the drawbacks. However, 35.7% remained undecided, and only a few disagreed.

This indicates that while many SMEs recognise the benefits of AI, others are still uncertain. Many are still uncertain.

In all, it indicates that while AI is perceived as a good thing, some are in the process of building confidence and may be more cautious.

CHAPTER 5

Analysis of Findings & Discussion

AI Adoption and Organisational Readiness:

Our results show that AI adoption in SMEs is in its early but uneven stage. A substantial quantity of firms are already adopting AI or are considering its adoption, but a substantial minority are uncertain. This indicates that AI adoption is moving from awareness to incremental adoption.

This finding aligns with the Technology–Organisation–Environment (TOE) framework, which emphasises the role of internal preparedness and external influences in adoption. While firms may perceive themselves as technically ready, the presence of neutral responses suggests perceived readiness may not translate into technical capability.

This suggests a critical point: SMEs may be digitally aware, but they still need to build the technical skills needed to effectively integrate AI.

Use of AI in Operational vs Tactical Decision-Making:

The research shows that AI is being applied to improve operational efficiency, rather than aid strategic decision-making. Although companies reported benefits in responsiveness, process improvement and customer management, there is minimal decision-making practice of AI.

This is reliable with previous studies that reveal SMEs typically operationally use digital technologies before moving to strategic adoption. In terms of the Resource-Based approach, it implies AI has yet to be fully exploited as a strategic resource offering long-term competitive advantage.

Hence, although AI is helping with efficiency, it is not being fully leveraged in the framework of SMEs for conversion.

Corporate Agility and Modernization:

The insights suggest SMEs are agile to a moderate degree, especially in terms of responding to different customer needs and continuously improving their processes. But the results in terms of innovation, such as new product or service development, seem mixed.

This implies that although AI and digital technologies enable continuous improvement, they do not necessarily lead to greater innovation. This finding echoes dynamic capability theory, which suggests that companies need to not only embrace technologies but also build the capability to integrate and reconfigure resources.

Therefore, simply adopting AI technologies is not enough; they must be integrated into the organisation's capabilities to have a significant effect.

Value Creation and Financial Outcomes:

The results show that many smaller firms have seen growth in income and profits, along with better cost control. However, these improvements are not experienced by every business, as some firms report little change.

This difference suggests that the impact of such technologies varies across organisations. The benefits depend on how well the technology is used, how it fits within the business, and whether the firm has the right skills and resources in place. Companies that invest in training and adjust their processes are more likely to gain positive results.

For this reason, these technologies should not be seen as a complete solution on their own. Instead, they act as support tools that can improve performance when applied correctly. Their success depends on proper use, planning, and the ability of the business to adapt.

Appropriateness of AI for Pakistani SMEs:

The results suggest that many smaller firms in Pakistan see these advanced technologies as useful and relevant. However, a large number of respondents neither agreed nor disagreed,

which shows uncertainty and low confidence about using them in practice. This indicates that awareness exists, but trust and readiness are still limited.

This creates a clear gap between what these technologies can offer and what businesses can actually achieve with them. While they seem suitable in theory, many firms are not fully prepared to apply them in real situations. In other words, there is a difference between recognising benefits and being able to use them effectively.

Several reasons explain this situation. Smaller firms often have limited budgets, making it difficult to invest in new systems. They may also lack trained staff and technical knowledge, which reduces their ability to use such tools properly. In addition, weak digital systems and limited infrastructure make implementation more challenging. These problems are common in developing countries, where businesses face external constraints.

Therefore, the value of these technologies depends not only on their capabilities but also on the conditions in which they are used. Factors such as cost, skills, infrastructure, and organisational readiness play a key role. This means that even if the technology is suitable in theory, its success in practice depends on whether businesses are able to support and apply it effectively.

Theoretical Contribution:

This analysis contributes to existing knowledge by providing a deeper understanding of how AI is used in smaller firms within developing nations. It draws attention to the disconnect between the perception of readiness and actualisation of AI, and also to the difference between operational and strategic AI adoption.

The results also support the validity of TOE and dynamic capability theory in understanding technology adoption in resource-limited settings. The study on Pakistan provides country-specific insights to a field dominated by research in developed countries.

Practical Implications:

The research offers several practical implications. SMEs should consider not just the adoption of unconventional technologies, but also the expertise and abilities required to apply them. They should not just adopt AI tools but also integrate them strategically.

Governments should encourage SMEs to adopt by offering training, incentives, and building infrastructure. Technology vendors should also explore low-cost and easy-to-use AI applications specific to SMEs in developing nations.

Conclusion:

Overall, intelligent digital tools are gradually being seen as appropriate for smaller firms in Pakistan, yet their actual use is still at a very early stage. Many businesses recognise the value these technologies can offer, but practical challenges continue to slow down their adoption.

Limited technical skills, high costs, and weak infrastructure make it difficult for firms to fully integrate these tools into their operations.

The findings suggest that these technologies can help improve efficiency, support better decision-making, and enhance overall performance. However, they do not provide instant results or guaranteed success. Businesses need to be well-prepared, with clear plans, trained staff, and supportive internal processes in place. Without these elements, the benefits of such technologies may not be fully realised.

In this context, these technologies present both opportunities and difficulties for smaller firms. On one hand, they offer the potential for growth, invention, and improved competitiveness. On the other hand, they require investment, learning, and structural changes within the organisation. For successful implementation, there is a need for strong support systems, including access to training, financial resources, and a stable external environment. With the right support and planning, these technologies can play a significant role in the future development of smaller businesses.

Limitations and Future Research:

This study relies on early-stage data, which means the results may not accurately represent the broader population. Since the sample is limited, the findings should be interpreted with caution, as they may not fully capture variations across different firms or regions.

Future research should consider using larger sample sizes to improve the reliability and generalisability of results. In addition, adopting a longitudinal approach—where data is collected over an extended period—would help researchers better understand how patterns and outcomes change over time, rather than providing only a one-time view.

Further studies could also explore specific industry settings to identify sector-based differences in technology use. Moreover, qualitative methods such as interviews or case studies could offer deeper insights into the experiences, challenges, and decision-making processes of firms when adopting new technologies.

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