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ICT-Supported Strategic Management Practices and Their Impact on the Performance of Jordanian SMEs

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ABSTRACT

The small and medium enterprises (SMEs) are a key component of Jordan's social and economic development, providing opportunities for employment, poverty reduction, innovation and increasing economic activity in regions. Nevertheless, the SMEs' success will depend on the quality of their strategic management practices in a rapidly digitalizing environment. This paper aims to analyze the impact of the ICT-based strategic management processes on the SMEs' performance in Jordan. Although the theoretical base of this paper lies in the traditional elements of strategic management (strategic planning, strategic implementation, and strategic evaluation), the empirical model has transformed these elements into measurable constructs that reflect the process of digital transformation. More specifically, the ICT adoption is considered a factor that enables the flexibility and operational efficiency of SMEs, which are the two factors that represent how strategic processes can affect the financial performance. A quantitative, post-positivist method was used to collect data from 354 SME owners and managers through a structured questionnaire, while the analysis was done with the Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that ICT significantly increases the ability of SMEs to be flexible in terms of their strategy, which leads to increased operational efficiency and ultimately increased financial performance. Therefore, this study demonstrates how ICT can support the formulation, execution and evaluation of strategies of SMEs by enhancing their organizational flexibility, efficiency of their internal processes and improving the quality of their decision-making. Finally, this study adds to the little empirical evidence about the digital transformation in emerging economies and provides practical information to managers and policy makers who want to improve the competitive position of SMEs through ICT-enabled strategic management. Further studies are recommended to examine the long-term effects of the digital transformation, the comparative effects of the digital transformation among countries, and the changing role of digital capabilities in the performance of SMEs.

1. INTRODUCTION

Small and medium enterprises (SMEs) continue to be very important in the advancement of sustainable economic growth within the rapid pace of globalization and technology advancements, particularly in developing countries. SME's have become increasingly important since the beginning of the industrial boom of the 1970's and 80's as they can provide employment opportunities, contribute to Gross Domestic Product (GDP), enhance innovation, encourage exportation and facilitate a well-balanced distribution of resources. As such, SME's have been identified as catalysts of positive social and economic transformations in the global economy, specifically in areas where there is significant unemployment and limited financial resources available. Typically, SMEs are highly adaptable, innovative and able to adjust to changing market conditions which makes them an essential component of national sustainable development plans.

1.1 The role of SMEs in Jordan's economy and the challenges of digital transformation

Jordan's SME sector represents an overwhelming percentage (approximately 98%) of registered business entities in Jordan. Additionally, it provides roughly 60 percent of total private sector employment, and contributes almost 40 percent to Jordan's GDP.

Jordan defines and categorizes SMEs based on parameters such as number of employees, annual revenue, amount of investment, and type of activity being conducted. As a result of applying the aforementioned parameters, there are three distinct classifications for businesses operating in Jordan: Micro, Small or Medium-sized, which may represent Trade, Industrial or Service-related activities.

While SMEs are significant contributors to Jordan's economic growth, there are also a number of constraints limiting SME performance. The most notable limitations include, but are not limited to: A Low Degree of Digitalization

among SMEs; Institutional Support for SMEs is Limited; There is a Scarcity of Qualified Staff; and a Lack of Exposure to Strategic Management Techniques and Advanced ICT Solutions.

The development of digital economies is now dependent upon the implementation of information and communication technology (ICT), which is becoming an increasingly important component for enhancing the efficiency of SME business operations, competitiveness and ability to respond to changes in market conditions. The implementation of ICT allows SMEs to optimize their internal operations, reduce operational costs, improve relationships between SMEs and customers, accelerate entry into new markets, facilitate innovation, and allow for more effective strategic planning.

Despite the many advantages of implementing ICT, the vast majority of Jordanian SMEs are currently not utilizing all of the capabilities offered through ICT. As a result of not taking advantage of the capabilities provided through ICT, Jordanian SMEs will continue to experience decreased levels of efficiency and sustainability.

1.2 Strategic management and its importance for improving the efficiency of SMEs: Purpose, objectives, prospects

Strategic Management is an organized, goal-oriented process of strategy development, execution, and assessment to meet a firm's objectives under a dynamic external environment; therefore, the strategic management approach is particularly suitable for small and medium-sized enterprises (SMEs) as they can establish a sustainable development model, manage their competitive environment challenges, and seize market opportunities. Strategic management for SMEs has three principal elements: (1) Strategy Formulation (identification of goals, environmental analysis, decision-making regarding direction); (2) Strategy Implementation (resource allocation, project management, and monitoring); and (3) Strategy Evaluation (results analysis, action adjustments, and feedback). There have been numerous empirical studies demonstrating that larger firms actively utilize strategic management and reap substantial benefits from it, such as increased profitability, expanded market share, and enhanced sustainability. In contrast, many SMEs in Developing Countries, including those in Jordan, are not using strategic management because they have very limited financial resources and non-financial resources to use for it. In addition to these resource constraints, many SMEs in Developing Countries also lack knowledge and experience related to strategic planning and management. The use of ICT to facilitate strategic management has the potential to greatly increase the overall performance of SMEs by allowing them to automate their day-to-day operational activities, provide better data analysis, enable communication with stakeholders and customers via the Internet and provide managers with better informed decision-making options. The use of ICT tools for strategic management is an important tool that will allow SMEs to grow and be innovative. However, there is still a need for further scientific research that examines how strategic management affects the adoption of ICT and the subsequent performance of SMEs in Developing Economies. This is why this current study is needed to address the current scientific gap in this field of research. For this reason, the purpose of this study is to examine the impact of strategic management practices, particularly strategy formulation, strategy implementation, and strategy evaluation, when used in combination with ICT on improving the performance of SMEs in Jordan. Therefore, based upon the previous argumentation, it may be concluded that the best combination of strategic management and digital technologies can provide a foundation for long-term sustainable growth and competitiveness of SMEs during the transition to digitalization.

The study examines whether there is an association between the strategic management techniques of SMEs in Jordan, and how they combine these with ICT. The study seeks to demonstrate the interrelationship between the success of strategic management and the digital transformation of SMEs in a developing economy by utilizing ICT as a facilitator of strategic management processes.

Study Object: SMEs in Jordan, operating within different sectors: Manufacturing, trade, and services. According to the Ministry of Industry and Trade of Jordan (2023), SMEs comprise approximately 98% of the total registered businesses in the country. Moreover, SMEs represent over 60% of private sector employees and generate around 40% of the country's GDP. Since the study focuses on SMEs implementing ICT into their daily operations, for example: Digital accounting, cloud solutions, Customer Relationship Management Systems (CRM), Online Marketing and other digital tools, the primary focus will be on companies that have chosen to utilize ICT as part of their strategic management decisions.

Key Aspects:

– The Impact of Strategic Management on SME Success. The study relies upon the assumption that SME success is a direct result of the quality of strategic decisions made. Strategic planning, implementation, and monitoring enable firms to adapt to rapidly evolving market environments, enhance their competitiveness, and ultimately experience sustainable growth.

– The Role of ICT in the Transformation of Management Practices. In recent years, ICT has become a fundamental part of business management. Digital platforms have provided businesses with the ability to perform data analysis at much higher speeds and automate processes that are traditionally manual; this has allowed for cost reduction, decision-making at accelerated rates and entry into additional market segments. ICT also provides a means by which SME in Jordan can be more flexible and responsive to changing circumstances due to the traditional barriers SMEs have experienced in accessing sufficient amounts of capital.

– Barricades to Implementing ICT in SMEs. Although the potential advantages of implementing ICT exist, many SMEs in Jordan remain at a relatively low level of digital maturity. The most commonly cited barricades include: Limited financial resources, insufficient personnel with IT skills, lack of government support and cultural/behavioral attitudes of business owners.

– The relationship between strategic ICT innovations and productivity. A special consideration will be given to determining how the utilization of ICT in strategic management (e.g., business intelligence systems, dashboards, electronic customer interaction channels) influences the principal performance metrics of SMEs: Profitability, market share, customer satisfaction, innovation activity, etc.

In terms of unanswered questions, the study highlights several underexplored areas in both academic literature and applied business research:

– The lack of empirical evidence regarding the influence of strategic ICT innovations on SME performance in developing

economies, specifically in the Middle East. Most prior studies were conducted in countries characterized by a high degree of digitalization and well-developed business environments.

– Lack of a uniform model of integrating strategic management and ICT in SMEs for countries with limited resources and unique social/cultural conditions, similar to the case of Jordan. The standardized models typically employed in Western nations may not necessarily match the realities of the region.

– A low level of digital culture within SME management structures, including a general unawareness among managers of the strategic value of ICT. Many entrepreneurs perceive ICT primarily as an operational tool and not as a method for achieving long-term objectives.

– Lack of government and institutional programs providing training for SMEs to strategically utilize ICT and manage digital projects. Presently, digitalization policies tend to emphasize infrastructure and rarely address management practices.

– Limited accessibility to financing for digital solutions that impedes the transition of SMEs to advanced ICT platforms. While International Organizations such as the IFC and USAID exhibit great interest in supporting the development of digitalization in SMEs, most SMEs are excluded from participating in such initiatives.

Thus, this study aims to fill the existing knowledge gap by offering a contextualized understanding of strategic management using ICT as it applies to SMEs in Jordan, as well as to put forward recommendations for practitioners and policymakers to optimize these processes.

2. LITERATURE REVIEW

The development of national economies, especially those of emerging markets, depends heavily upon SMEs. Today, however, the overall performance of SMEs are dependent upon not only financial outcomes, but also whether they can successfully apply contemporary strategic management techniques and integrate them with modern (ICT [1]. This article is to explore the association between SMEs applying strategic management and their performance, particularly within the Jordanian context; where SMEs represent a major component of the country's economy and contribute significantly to GDP and employment [2]. The Literature Review section will discuss the theoretical and practical basis for the subject matter and it will also define the current problems and suggest potential future research areas. Any business exists and operates to achieve financial sustainability, i.e., make a profit. Therefore, understanding and evaluating the performance of an organization is a fundamental responsibility of management [3]. However, various methodologies exist for determining how to evaluate organizational performance; these will depend upon the objectives of the evaluation, the type of industry and the size of the organization. Profitability represents the primary factor in evaluating performance as it directly indicates an organization's ability to produce economic value [4]. Many organizations evaluate their profitability using simple profitability metrics rather than utilizing more complex financial reporting models, which simplifies the analysis and decision-making process [5]. Additionally, note that performance of an organization is the difference between what was expected and what was achieved by the organization; this is indicative of the organization's ability to adjust to changes in its internal or external environment and meet its strategic goals [6]. In the context of SMEs, performance is a multi-dimensional concept and includes both financial performances, the effectiveness of day-to-day operations and the structure of the organization. A total system approach to assessing the success of an enterprise encompasses the financial dimensions of an enterprise as well as additional dimensions, including; (growth); customer satisfaction and innovation [7]. A study has indicated that a complete view of the performance of an SME is dependent upon the integration of both financial and non-financial performance measurement techniques [8]. Financial performance measurements can be exemplified by: sales volumes; rates of revenue growth; returns on equity; gross profit margins; net profits; and returns on investments [8]. Non-financial performance measurements can be exemplified by: new products introduced; a company's market leadership position; number of jobs created; a company's ability to continue to exist over time; and the extent in which the company positively impacts the local community [9]. Thus, employing a multi-factor assessment model to evaluate the performance of an SME will allow for the development of strategic management decisions and make better-informed business decisions [10]. Strategic Management is seen by many authors as a vital means of enhancing the competitive advantage and long-term viability of enterprises. In recent years, the literature has concentrated on the interrelationship between the strategic practices used by SMEs and their performance [11]. The application of strategic management enhances the rationalization of an organization's decision-making processes and increases an organization's effective usage of its resources [12]. There is, however, a debate among researchers regarding the extent to which management strategy influences the performance of organizations. Some researchers stress the importance of applying strategic models to create competitive advantages while other researchers indicate that the results from successful implementation of strategic models may be limited if the models are not implemented effectively [13]. Studies have consistently demonstrated a direct correlation between the application of strategic methods and the enhanced financial performance of SMEs [14]. The use of strategic practices enables organizations to better understand their external environments, quickly respond to threats, and capitalize on opportunities thereby contributing to sustained growth and improved performance [15]. The processes of strategy development, strategy implementation and strategy evaluation are considered as critical elements that influence the final performance of SMEs [16]. Research confirms that the practice of using strategic practices has a positive effect on revenue, time to achieve break even and overall profitability [17]. Similarly, a systemic process of strategic management of professional services in SMEs generates greater financial sustainability than an informal process. Research shows that companies with the highest degree of strategy adoption in their operations outperform companies in many key performance indicators including customer satisfaction and sales volume [18]. Numerous empirical research studies demonstrate the importance of strategic management to the improvement of SMEs' performance. Effective strategy implementation is a prerequisite for the maintenance of the competitive position and for the sustainability of business development [19-21]. Growing uncertainty in the economic environment and growing competition cause organizations to employ strategic

thinking as a tool to maximize returns on the minimum level of available resources [19]. The effectiveness of enterprises is greatly influenced by the processes of strategic management - formulating, evaluating and implementing the strategy [22]. A survey of SMEs in Western Uganda with the participation of 2800 respondents demonstrated that the introduction of strategic management methods contributes to the increase of operational efficiency, competitiveness and innovation of SMEs [23]. In Nigeria significant differences in strategies and their effects on the success of industrial SMEs were revealed based on data collected from 341 SMEs [24]. In Taiwan the relationship between corporate strategy and performance was examined through case studies of three leading companies and confirmed the importance of a creative approach to the development of new business models to increase total productivity [25]. According to the theory, performance indicators are separated into financial (growth, profit, market share), and non-financial (development of employees, satisfaction of customers and internal processes) [26]. It is stressed that the implementation of strategic practices provides a feedback mechanism that enables to reveal gaps in business activities and to adjust the direction of development quickly [27]. It was found that the main factors limiting the application of strategies in SMEs are macroeconomic instability and a lack of qualified managers [28]. These findings support the previous ones indicating the importance of human capital and organizational culture to the successful implementation of strategies [29]. The Resource-Based View (RBV) is central to understanding how the internal resources of a firm impact its competitiveness and performance [30]. This concept focuses on the unique and valuable resources and skills that a company uses to generate a sustainable competitive advantage [31]. RBV extends our understanding of the roles of both physical and non-physical resources, and emphasizes the contributions these make to the generation of strategic opportunities [32]. It is pointed out that the utilization of internal resources and their effective management enable the development of a long-term development strategy for the organization [33]. Competitive advantages depend upon the ability of a company to identify and utilize its unique resources and skills in the external environment [34]. In terms of SMEs, RBV is applied to assess human capital, organizational processes, and strategic planning enabling organizations to be more responsive to changes in the marketplace and to capitalize on emerging opportunities [35]. A unique set of resources explain both competitive advantage and high productivity [36]. Limited mobility of resources makes it possible to transform a temporary advantage into a lasting one [31]. Valuable resources must be scarce, difficult to replace and difficult to imitate in order to establish a sustainable advantage [37]. Based on the literature review, the following variables can be identified:

Dependent variable: SME performance in Jordan.

Independent variables: Strategic processes - strategy formulation, strategy implementation, strategy evaluation. Research into the scientific literature indicates that strategic management has a significant impact on increasing performance in SMEs. A current body of evidence supports that combining strategy formulation, strategy implementation, and strategy evaluation processes contribute to profit growth, market development, and competitive advantage. The analysis also suggests that most studies have been limited in their empirical nature by being primarily based on cross-sectionally collected data from limited geographic regions and with little consideration for the unique characteristics of emerging economies like Jordan. Furthermore, the vast majority of research has lacked a systematic review/analysis of how digitalization and ICT have influenced the strategic process of SMEs; this is especially true as we move into the digital economy's transformative period. Therefore, it is imperative to carry out a deep study to identify the specifics of the relationship between Strategic Management, Digital Technology and the Performance of Small & Medium sized Businesses in the Jordanian Context.

Theoretical frameworks emphasize the three classic components of strategic management: strategy formulation, strategy implementation, and strategy evaluation. The empirical model operationalizes these concepts using constructs that better represent the mechanisms of digital transformation in SMEs. The adoption of ICT serves as a determinant that influences how companies create and implement strategies in a digitalized environment. Strategic flexibility can be seen as an output of effective formulation and execution, and represents the company's ability to adapt its strategic choices based upon changing environmental conditions. Operational efficiency represents the conversion of implemented strategies into streamlined operations and more efficient usage of resources, and is therefore highly aligned with the evaluation phase of the strategic management cycle. Ultimately, financial performance is the outcome of the integrated processes described above. As such, the empirical model (ICT → SF → OE → FP) does not replace the classical strategic management model but rather converts it into quantifiable variables that describe how digital technologies will change strategic behaviors in SMEs.

3. RESEARCH METHODOLOGY

In this study, a structured questionnaire based survey targeted owners and/or managers of small and medium-sized businesses operating in various sectors in Jordan (i.e., manufacturing, trading and service sectors). A purposeful sampling method was utilized to ensure that all respondents had sufficient experience/knowledge of using ICTs within their respective organizations and the process of making strategic decisions related to ICT usage. The questionnaire was distributed via both electronic channels (e.g., e-mail invitation and professional business networks) as well as in-person to organizations located in industrial and commercial areas. Data collection took place during a three-month time frame from March 2025 to May 2025. Out of 412 questionnaires distributed, 354 valid responses were collected, representing a successful response rate of 85.9%. This strong response rate may be attributed to the accessibility of SME's and the relevance of the topic to the operational needs of SMEs. Each response was reviewed for completeness and consistency prior to inclusion into the final data set used for PLS-SEM analysis.

Present-day research in the area of strategic management and ICT require analytical methods that are able to work with latent variables and can handle complex multivariate models. Traditional methods (i.e., regression analysis or correlation analysis) have numerous limitations; 1) They can only analyze one dependent variable at a time. 2) They require normal data distribution and large samples. 3) They do not take into account latent constructs that cannot be measured directly [38].

The main objective of the study: Is to identify the impact

of strategic use of ICT on the performance of Jordanian SMEs. Since the key variables (e.g., "strategic flexibility" or "operational efficiency") are latent constructs, it was decided to use SEM. Of the two main approaches to SEM-CB-SEM (covariance-based) and PLS-SEM (partial least squares), the latter was chosen. PLS-SEM has a number of advantages: Working with small and medium samples (from 50 observations).

No strict requirements for normal distribution.

Ability to work with formative and reflective designs.

Focus on the predictive power of the model, which is important for practical research of SMEs.

Using PLS-SEM allows researchers to combine the internal model (structural model – describes the relationships among the constructs) and the external model (measurement model – describes the relationships between the latent variables and their indicators). The combination of the internal and external models is widely utilized in research relating to behavioral and management sciences [15, 17, 19]. In order to ensure coherence between the theoretical model and empirical model, the researcher needs to articulate the interplay between the three strategic management aspects discussed in the abstract (strategy formulation, strategy implementation, and strategy evaluation), as well as how these relate to the constructs modeled in the structural model. The theoretical strategic management cycle forms the base of the empirical model; however, the empirical model examines the mechanisms by which ICT can influence both strategic and operational outcomes for SMEs. The mechanism of strategic flexibility represents a firms' ability to transform strategic formulation and implementation into adaptive capabilities; operational efficiency is the extent to which the firm can execute measurable performance improvement by implementing a strategy. Therefore, ICT → SF → OE → FP does not deviate from the strategic management model; instead, the study presents an empirical breakdown of how digital technologies facilitate the process of strategy formulation, strategy execution, and strategy evaluation in SMEs. This integration maintains that the conceptualization of the study's theoretical foundations and empirical findings are empirically aligned.

The general structural model of the study can be described by a system of equations:

$$\mathrm{SF} = \beta_1 \cdot \mathrm{ICT} + \varepsilon_1 \quad (1)$$

$$OE = \beta_2 \cdot SF + \varepsilon_2 \quad (2)$$

$$FP = \beta_3 \cdot OE + \varepsilon_3 \quad (3)$$

where, ICT—use of ICT in strategic management; SF—strategic flexibility; OE—operational efficiency; FP—financial performance; βi—standardized path coefficients; ϵi—model errors.

All latent variables were investigated through observable indicators measured on a 5-point Likert scale.

ICT-Usage → 5 indicators

Strategic Flexibility → 4 indicators

Operational Efficiency → 4 indicators

Financial Performance → 4 indicators

To test the reliability and validity of the model, the following were used:

1) Factor loadings (λ_i):

$$\lambda_i = \frac{\mathrm{Cov}\,(X_i, \eta)}{\mathrm{Var}\,(\eta)} \quad (4)$$

2) Composite Reliability (CR):

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum \theta_i} \quad (5)$$

3) Average Variance Extracted (AVE):

$$AVE = \frac{(\sum \lambda_i)^2}{\sum \lambda_i^2 + \sum \theta_i} \quad (6)$$

Factor loadings (λ_i) demonstrated significant relationships between the indicators and their latent variables, which confirms the correctness of the measurement tool development (Table 1).

Table 1. Reliability and validity of the construct

Construct	CR	AVE	Min λ	Max λ
ICT use	0.872	0.518	0.536	0.801
Strategic flexibility	0.889	0.532	0.541	0.812
Operational efficiency	0.901	0.606	0.579	0.831
Financial performance	0.867	0.541	0.543	0.825

CR values exceed 0,7, indicating internal consistency of the scales and the absence of random differences between the indicators. AVE exceeds 0.5 for all constructs, indicating sufficient convergent validity: each latent variable explains more than half of the variation in its indicators. Thus, the measurement model has high statistical validity and provides a basis for the correct construction of the structural model [39]. This allows us to interpret the relationships between ICT use, strategic flexibility, operational efficiency and financial performance of SMEs with a high degree of confidence, minimizing the risk of methodological distortions. After confirming the reliability of the measurement model, a structural model was built reflecting the research hypotheses. The main goal of this stage is to assess the impact of ICT use on SME performance through mediating variables.

3.1 Research hypotheses

H1: ICT use has a positive impact on strategic flexibility (ICT → SF).

H2: Strategic flexibility has a positive impact on operational efficiency (SF → OE).

H3: Operational efficiency has a positive impact on financial performance (OE → FP).

H4: The impact of ICT on financial performance is indirect through SF and OE.

After hypotheses were put forward, a structural model was built to reflect the expected relationships between ICT use, strategic flexibility, operational efficiency, and financial performance of Jordanian SMEs. PLS-SEM was chosen as the main analytical tool because it allows for simultaneous assessment of direct and indirect effects, handling latent variables and relatively small samples, and accounting for mediator and moderator dependencies in complex models.

The model was built in two stages:

Testing the measurement model to assess the reliability and validity of the constructs (the results were confirmed in the previous step); Evaluation of the structural model, including hypothesis testing, path coefficient analysis (β), and calculation of statistical significance indicators. At the second stage, a bootstrapping procedure was performed with 5,000

repeated samples, which allowed obtaining t- and p-values for all hypotheses. This approach ensures the robustness of the results and reduces the risk of errors associated with the characteristics of the data distribution. Testing the significance of path coefficients (β) is a key step in interpreting the model. In line with recommendations by [34, 36, 37], values of $t >$ 1,96 and $p <$ 0,05 indicate statistical significance. For each hypothesis, direct, indirect, and total effects were calculated, allowing us to determine both the direct and indirect impact of ICT on SME performance. The results of the next stage of the analysis include calculating path coefficients, testing them statistically, and assessing the contribution of each factor to explaining the variance of the dependent variables.

After formulating hypotheses and building a structural model, the next step was to conduct a quantitative assessment of the path coefficients (β) and test their statistical significance. This process is crucial, since it is on this basis that conclusions are formed about the empirical confirmation or rejection of the proposed research hypotheses. The analysis tool used was PLS-SEM, which provides simultaneous work with measurement and structural models, allows you to analyze both direct and indirect effects, and is also resistant to data deviations from the normal distribution. Path coefficients (β) reflect the strength and direction of the relationship between latent variables [40-42]. Their assessment in PLS-SEM occurs in stages:

- Initialization of indicator weights for each latent variable.
- Calculation of external and internal approximations, where external ones are responsible for factor loadings, and internal ones are responsible for the interrelations of latent variables.
- Iterative optimization of weights until stability is achieved.
- Calculation of standardized path coefficients (β) for all hypotheses of the model [43, 44].

Mathematically, the path assessment can be represented as:

$$\widehat{\beta_{xy}} = \frac{Cov\,(X,Y)}{\sigma_X \cdot \sigma_Y} \quad (7)$$

where, $\widehat{\beta_{xy}}$ is the standardized coefficient of influence of variable X on Y; σ_X and σ_Y are the standard deviations of the latent variables. To confirm the hypotheses, it is necessary to make sure that the found path coefficients are statistically significant. PLS-SEM uses the bootstrapping method, which involves multiple random resampling with replacement. Based on bootstrapping, the following are calculated:

- t-value - the ratio of the path coefficient to its standard error;
- p-value - the probability of a type I error when rejecting the null hypothesis.

Significance criteria: $t > 1, 96$ at a significance level of 5%; $p < 0.05$ to confirm the hypothesis:

$$t = \frac{\hat{\beta}}{SE(\hat{\beta})} \quad (8)$$

where, $SE(\hat{\beta})$ is the standard error of the path coefficient calculated based on the bootstrapping results. Based on the results of the analysis, the following path coefficients and statistical indicators were obtained, which are presented in Table 2.

Table 2. The path coefficients assessment and statistical indicators

Hypothesis/Path	β	t-Value	p-Value	Result
H1 ICT → SF	0.512	8.45	<0,001	Confirmed
H2 SF → OE	0.476	7.91	<0,001	
H3 OE → FP	0.539	9.02	<0,001	
H4 ICT → SF → OE → FP	0.131	4.76	<0,001	

Analysis of the table shows that all direct relationships are significant, which confirms the stability of the model [45, 46]. The influence of operational efficiency on financial performance was especially strong (β = 0.539), which demonstrates the key role of internal business processes in the formation of SME profits.

The developed and applied research methodology demonstrates a comprehensive and innovative approach to analyzing the impact of using ICT on the performance of SMEs in the context of the modern digital economy. The main novelty of the methodological approach lies in the integration of PLS-SEM methods, a multi-stage assessment of validity and reliability, as well as mediator analysis, which made it possible to identify the indirect nature of the impact of ICT on the financial performance of SMEs through strategic flexibility and operational efficiency.

The key features of the proposed methodology are:

- Systemic nature of the analysis. The methodology combines the stages of testing the measurement model, assessing the structural model, testing hypotheses, identifying mediator effects and assessing the quality of the model (R^2, Q^2, f^2). This approach provides a complete understanding of the mechanism of the influence of ICT on business performance.
- Use of latent variables and complex statistics. The use of PLS-SEM allowed us to take into account variables that cannot be measured directly (for example, strategic flexibility) and evaluate them through a system of indicators, which increases the accuracy of the analysis and reflects complex management processes.
- Verification of the absence of systematic measurement error. Conducting Harman's one-factor test and additional procedures to reduce Common Method Bias (CMB) guaranteed high reliability of the collected data and the elimination of distortions associated with the questionnaire [47, 48].
- Mediation analysis and identification of indirect relationships. Unlike traditional regression approaches, the proposed methodology allowed us to identify the critical role of strategic and operational efficiency as intermediate links that convert digital investments into real financial results.

3.2 Practical applicability

The methodology was developed with an eye to implementation in the management practice of SMEs. Company managers can use its results to: Assess the current level of digital maturity of the business; Identify bottlenecks in operational processes; form an ICT implementation strategy

with a priority on increasing flexibility and operational efficiency, and not only on technological modernization. Adaptability to various contexts. Although the empirical basis of the study is related to SMEs in Jordan, the proposed methodology can be adapted to other countries with a developing digital economy, which expands its universality and scientific significance. As a result of applying this methodology, a holistic picture of the transformational effect of ICT on the business indicators of SMEs was obtained. The methodology allows not only to confirm or refute hypotheses, but also to identify hidden mechanisms of the influence of digitalization, to form recommendations for strategic management and to build guidelines for further digital transformation of business [49]. Thus, the proposed methodological approach combines deep academic elaboration and high practical applicability, which makes it a relevant tool for both researchers and practitioners in the field of SME management in the digital economy.

3.3 Limitations of the research methodology

Despite the high complexity and practical significance of the developed methodology, the study has a number of limitations that should be taken into account when interpreting the results and in subsequent attempts at replication.

- Use of a cross-sectional design. Data collection was implemented in the form of a single cross-sectional survey, which limits the possibility of strict conclusions about the cause-and-effect relationships between the variables. Although the PLS-SEM methodology allows for the assessment of complex structural dependencies, the identified relationships reflect correlational rather than strictly causal effects.
- Self-report bias. The survey of respondents in Jordanian SMEs involves subjective perceptions of ICT use, strategic flexibility, and business performance. Despite the measures taken to reduce CMB, including Harman's one-factor test and procedural measures (guarantee of anonymity, wording of questions in a neutral form), the risk of systematic distortions of responses cannot be completely excluded.
- Limited sample and context of the study. The empirical base is limited to Jordanian SMEs, which imposes certain geographical and economic limitations. The impact of ICT on SMEs in countries with different levels of digitalization, regulation, and competitive environments may manifest itself differently. Therefore, generalizing the results to other markets requires caution and additional cross-cultural research.
- Specifics of measuring latent variables. The PLS-SEM methodology relies on a system of indicators to estimate latent constructs. Despite the reliability and validity checks, the quality of the model depends on the accuracy of the selected indicators. Possible omissions or excessive correlation between them may affect the accuracy of the path coefficients.
- Lack of dynamic analysis. The proposed methodology does not take into account time lags and the dynamics of digital transformation, although the impact of ICT on the financial performance of SMEs may manifest itself with a delay. Longitudinal studies could strengthen the evidence base and reveal the cumulative effect of digitalization.

Taken together, these limitations do not diminish the scientific value of the methodology but suggest directions for further research, including larger samples, longitudinal designs, and cross-cultural comparisons.

3.4 Prospects for the development of research methodology

The proposed methodological approach to analyzing the impact of ICT on the efficiency of SMEs has significant potential for further development and adaptation to the changing conditions of the digital economy. First of all, a promising direction is the integration of longitudinal studies that will allow us to trace the dynamics of SME transformation under the influence of ICT and identify the cumulative effect of digitalization on strategic and operational efficiency. The next direction is to expand the methodology to multicultural and inter-industry contexts, which will take into account differences in the levels of digital maturity of companies and in the institutional environment [50, 51]. The inclusion of international samples will make it possible to build comparative models and identify specific and universal mechanisms of ICT influence. Also promising is the combination of PLS-SEM with machine learning and big data analysis methods, which will enhance the predictive power of models and allow processing unstructured data, including digital footprints of companies on the Internet and the results of automated monitoring of business processes. Thus, further development of this approach can contribute to a deeper scientific understanding of the digital transformation of SMEs, as well as the creation of practical tools to support strategic decisions in the context of accelerating technological change.

4. RESULT AND DISCUSSION

This research finds similar evidence to many previous studies about how strategic management practices positively affect the performance of small and medium-sized businesses. Research carried out in Uganda and in Taiwan found that strategic management processes helped to increase the operational efficiency and financial success of small and medium-sized businesses. Similarly, research carried out in Uganda indicated that strategic management practices increased the ability of small and medium-sized businesses to be adaptable and innovative. Also, as with research carried out in Uganda and Taiwan, this research indicates that strategic flexibility is one way that ICT improves the performance of small and medium-sized businesses. As was seen with research carried out in Nigeria and Taiwan, this research demonstrates that the use of ICT to implement strategic plans will lead to quantifiable improvements in business operations. Unlike these other countries, however, Jordanian small and medium-sized businesses operate in a more resource-constrained environment and have less experience with digital technology. Therefore, this research emphasizes how the use of ICT can assist in addressing the constraints of operating a small and medium-sized business in a developing country and therefore enhancing competitiveness within an emerging Middle Eastern economy.

Digitalization has become an important driver of company development over the last few years. Especially for SMEs in developing countries, the use of ICT provides new possibilities to increase the competitiveness and efficiency of SMEs. In the same way, Jordan, a country with a rapidly growing economy,

supports innovation and actively encourages the integration of ICT in the management practices of its SMEs. The purpose of this study is to analyze the effects of ICT-based strategic management on the performance of Jordanian SMEs [52-54]. The study shows that the use of modern digital management tools and systems can lead to a better functioning of internal processes, cost savings and higher quality services for customers. The use of digital tools and systems is not only important because of the technical aspects, but also because of the need for organizational adaptation and optimization of the business model. Both qualitative and quantitative indicators were used during the study (customer satisfaction, innovation, productivity, financial performance and time of making decisions). The study shows that the companies that successfully implemented ICT in their strategic management processes experienced faster and more stable growth than those that still used traditional management methods. Nevertheless, the implementation of digital strategies is not without difficulties. Some of the most common difficulties include insufficient employee education and training, lack of access to necessary resources and infrastructure, as well as cultural and organizational barriers. To overcome these obstacles, it is necessary to develop a holistic strategy that encompasses not only technical solutions but also educational and institutional measures [55]. The results of the study demonstrate that ICT can be used strategically to increase the efficiency and competitiveness of Jordanian SMEs, but in order to do so effectively, support needs to be provided at all levels - from government policies to corporate cultures.

4.1 Strategic management methods of Jordanian SMEs using ICT: Main directions, features, trends

More recent research has demonstrated that the use of ICT has developed into an essential component in the application of strategies by many SMEs, especially in resource-scarce markets. Therefore, within the Jordanian context, the importance of ICT adoption cannot be overstated in the way it aids decision making, improves operational performance and increases firms' responsiveness to changes in their marketplace. Moreover, the application of digital technologies has significantly contributed to the improvement of strategy formulation, implementation and assessment in SMEs by providing greater accuracy of data, reducing the amount of time spent on core business processes and allowing for continuous interaction with SME's key stakeholders. As such, as shown in Figure 1, the various aspects of strategic management in Jordanian SMEs that are involved with ICT adoption are illustrated, showing five interconnected elements that define how SMEs undergo digital transformation.

The five strategic dimensions outlined in Figure 1 present the context for integrating ICT into the managerial practices of Jordanian SMEs. Each dimension has the potential to contribute to the betterment of each aspect of strategic planning, the execution of those plans, and the assessment of their success.

Automation is the first dimension; through automation, operational processes can be streamlined, errors decreased, and managerial time redirected to activities with more strategic importance. Digital interaction is the second dimension; through improved communication between customers, suppliers, and other partners, managers are able to gather more information about the marketplace and make decisions in response to that information more quickly. Data analysis is the third dimension; this dimension enables organizations to utilize the operational and market data they collect to generate insights that will support the organization's use of data to support its strategic decision-making and ongoing performance assessments. Cybersecurity is the fourth dimension; it protects an organization's digital resources and allows it to continue doing business despite growing cyber threats. Innovation is the fifth dimension; it represents how ICT enables organizations to develop new business models and improve their products and services, which in turn increases their long term competitiveness. As a whole, the five dimensions illustrate the role of ICT as both a technical tool and as a key element of the strategic management systems in place at Jordanian SMEs.

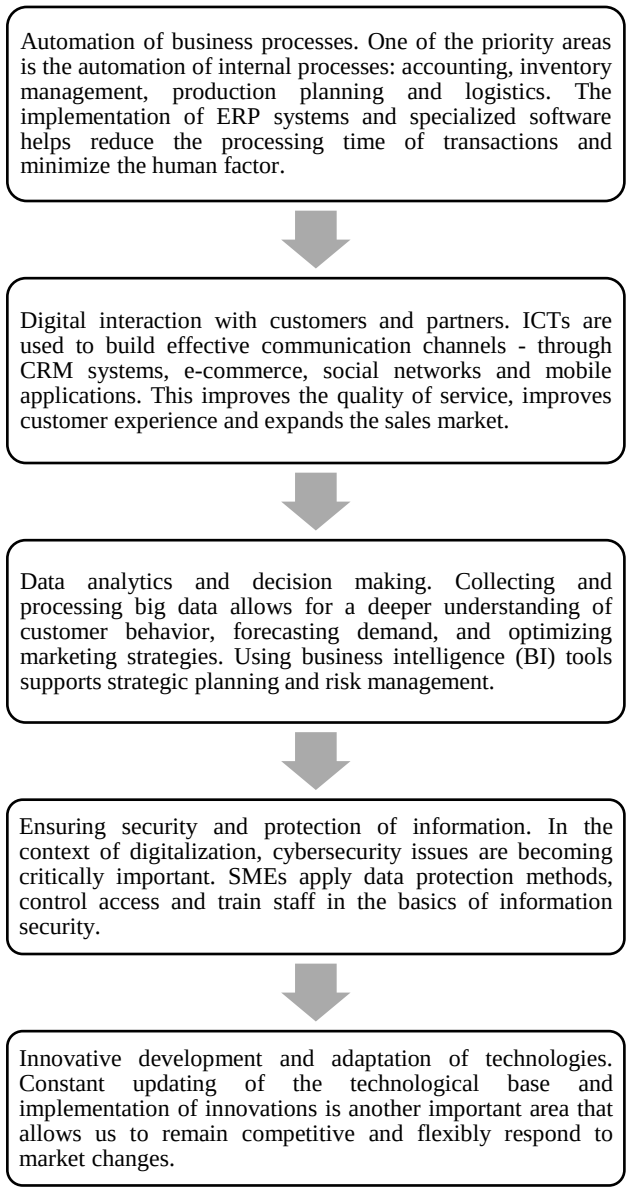

Figure 1. Strategic management methods of SMEs using ICT in Jordan

An examination of the primary domains of strategic management methods employing ICT in Jordanian SMEs demonstrated that an effective digital transformation strategy would be required to be holistic and consistent. ICT impacts both internal enterprise processes (such as accounting, planning, logistics) and external ones, including interactions with customers, partners, and suppliers [56, 57]. Therefore, it

can be seen early on that the employment of ICT enhances the operational efficiency of organizations through reduced operational costs, faster decision-making capabilities, and improved quality of services provided to customers. The fact that only partial adoption of digital solutions can provide the foundation for innovative development and enhance the resilience of businesses to environmental changes in the marketplace should be noted. Organizations employing ICT are more adaptable and flexible, enabling them to respond more rapidly to changing customer requirements and provide new ways of conducting business. Therefore, while strategic management methods utilizing ICT may enhance existing process optimization, they will also establish the conditions necessary for sustainable growth and enhanced competitiveness. Understanding the specific areas of strategic management methods employing ICT will allow consideration of the practical applications of those strategies. The success of digital transformation is not solely dependent upon the selection of technology; rather the organizational culture, infrastructure, and other factors in which Jordanian SMEs operate will greatly affect the degree and rate of ICT adoption in strategic management processes. The characteristics of Jordanian SMEs present several distinct attributes that will affect how ICT is employed in managing these companies, and are illustrated in Table 3.

Table 3. Characteristics of the application of strategic management methods with ICT in Jordanian SMEs

Specifics	Features of Application
Limited resources and infrastructure	Compared to larger companies, Jordanian SMEs often lack the financial and technical resources to implement ICT on a large scale. Internet and mobile infrastructure in some regions of the country remain poor, slowing down digitalization.
Cultural and organizational barriers	A number of companies maintain a conservative approach to management, which manifests itself in resistance to change and low digital literacy of staff. This requires additional work on training and developing a digital culture.
Government support and initiatives	The Jordanian government implements programs to stimulate the digital transformation of SMEs through subsidies, training, and the creation of technology parks. This creates favorable conditions for the implementation of ICT, but the level of involvement of enterprises varies.
Small scale of business	Many SMEs in Jordan have limited staff and narrow specialization, which requires adapting universal ICT solutions to specific needs, without redundant functions and costs.

It can be noted that the way in which a company in an SME in Jordan implements the specifics of Strategic Management Methods through ICT is not limited by the availability of technologies; however, it is determined by the combined impact of organizational, cultural, and infrastructural elements [57, 58]. The lack of sufficient resources and the limited scale of business operations require a customized adaptation of the solution, and the low level of digital literacy among employees and the cultural specifics of the organization often determine the speed of the implementation. However, governmental initiatives as well as other types of support for SMEs in general create the necessary conditions to gradually overcome the identified limitations and encourage the use of new models of managing a business. Thus, it has been shown that a long-term effect from the introduction of ICT into the company can be achieved if the technological solution is integrated with organizational changes, such as employee training, building a corporate digital culture, and adjusting internal processes to new management tools.

Therefore, the specifics of implementing Strategic Management Methods in Jordanian SMEs constitute a specific model of digital transformation of a business, and its success is determined by the degree of harmony between technical capabilities and the human factor. The observed aspects serve as a base for the study of modern trends in the development of ICT in the field of SME management, since the understanding of the current features will allow us to forecast which area of digitalization will have the greatest influence on increasing the effectiveness and competitiveness of a business [59]. An analysis of current trends indicates that Jordanian SMEs follow the global trend while adapting it to the local context:

- Mobile and Cloud Technologies. Cloud services for data storage and process management are growing in popularity, reducing IT infrastructure costs. Mobile applications are becoming the main tool for customer interaction and remote management.
- Integration of Social Media and E-Commerce. Using social media to promote products and services, as well as developing online sales through marketplace platforms, are key areas of the marketing strategy. Implementation of Artificial Intelligence and Automation Systems. Although the level of AI penetration is still low, some SMEs are starting to use chatbots, automated customer support systems, and user behavior analysis to improve efficiency.
- Cybersecurity and Personal Data Protection. With the growth of digital threats, the issue of information security is becoming a priority, which is reflected in the strengthening of access control and employee training.
- Using digital platforms for staff training and development. Online courses and webinars help overcome the shortage of qualified personnel and improve overall digital literacy [46].

4.2 Specifics and comparative analysis of the application of strategic management methods with ICT in Jordanian SMEs: International practice

SMEs are a vital element of Jordan's economic structure, providing jobs, driving innovation, and generating a significant portion of the country's GDP. In the context of global digital transformation, SMEs are faced with the need to adapt to new business standards based on the use of ICT [60]. Despite the general trend towards digitalization, the specifics of Jordanian SMEs have a number of features that determine the nature and depth of the implementation of strategic management methods using ICT.

In order to identify the strengths and weaknesses of current practices, it is useful to compare them with international experience, primarily with developing countries in the Middle East, North Africa, as well as some countries in Eastern Europe and Southeast Asia, where SMEs play a similar role in the economy. International practice of SME management using ICT demonstrates a higher level of maturity and digital integration.

The results of the comparative analysis in key areas of implementation of strategic management methods using ICT

and their impact on the effectiveness of Jordanian SMEs are presented in Table 4.

Table 4. Results of the comparative analysis in key areas of implementation of strategic management methods using ICT and their impact on the effectiveness of Jordanian SMEs

Parameter	Jordanian SMEs	International Practice (Developing Countries)	International Practice (Developed Countries)
Process automation	Partial, focus on accounting and the warehouse	Mid-level, basic ERP and CRM	Full automation, ERP and BI integration
Customer interaction	Social media and basic	CRM Online sales, mobile applications	Omnichannel platforms and AI analytics
Business analytics	Limited due to staff shortages	Entry-level BI	Advanced analytics and Big Data
Cybersecurity	Local measures and staff training	Basic solutions with support from government programs	Multi-level protection and certification
Innovation	Sporadic, resource-dependent	Partially implemented through partnerships	Ongoing, with a focus on AI and automation

Developing country data were generated using the World Bank's regional assessment of digital development in the Middle East, North Africa, and Southeast Asia [61], while benchmark characteristics of developed countries were obtained from the European Commission's Digital Economy and Society Index [62], the OECD Digital Transformation Framework [63], and research-based studies on ICT integration into SME innovation in Germany, South Korea, and Singapore. These sources collectively provide a robust empirical foundation for comparing automation levels, customer management systems, analytics capabilities, cybersecurity maturity, and innovation intensities across national contexts. Accordingly, the comparative analysis conducted in this study draws upon globally recognized datasets and reflects international trends in SME digital transformation.

International benchmarks used in Table 4 were derived from global reports and comparative studies on SME digitalization. Data for developing countries were collected from the World Bank's 2022 digital development assessment [62], the International Telecommunication Union's digital readiness indicators [64], and the OECD SME Policy Index (2020) [65]. These sources provide standardized indicators related to ICT adoption, automation, and overall digital readiness within emerging economies across the Middle East, North Africa, and Southeast Asia. Benchmark characteristics for developed countries were obtained from the DESI 2023 report [62], the OECD Digital Transformation Framework [63], and empirical studies examining ICT-driven innovation within SMEs in technologically advanced economies such as Germany, South Korea, and Singapore. Together, these datasets establish a coherent empirical basis for comparing automation, customer management systems, analytics capabilities, cybersecurity maturity, and innovation intensity across different national contexts. Therefore, the comparative analysis in this study is anchored in internationally validated datasets and accurately reflects global patterns of SME digital transformation.

The specifics of Jordanian SMEs are defined by a mix of resource constraints, local cultural norms and a growing governmental support for digital transformation [66, 67]. A comparative analysis of Jordanian SMEs relative to global practices shows there is considerable potential for rapid adoption of ICT in the management processes of Jordanian SMEs, particularly via cloud and mobile technologies. If Jordanian SMEs are to develop a comparable degree of application of ICT in their management processes as is seen in international SMEs, then a number of steps will need to be taken, including investing in infrastructure, providing employee training, stimulating innovation and utilizing international best practices.

The conducted study of strategic management methods using ICT in Jordanian small and medium enterprises (SMEs) allowed us to identify patterns and factors that determine their effectiveness in the context of modern digital transformation. The main result is that the introduction of ICT into management processes has a positive and comprehensive impact on the key performance indicators of SMEs. The use of ICT in strategic management allows us to achieve the following effects:

- Optimization of internal business processes - automation of accounting, logistics and document flow reduces operating costs and increases productivity.
- Improved customer interaction - the introduction of CRM systems, online platforms and mobile applications contributes to the growth of customer loyalty and expansion of the sales market.
- Support for strategic planning - the use of data analytics (BI, basic elements of Big Data) allows us to forecast demand, assess sales dynamics and make informed management decisions.
- Increased innovation potential - digital technologies form the basis for the creation of new products and services, as well as for entering international markets [67].

Thus, ICT acts not only as a tool for improving operational efficiency but also as a factor in the strategic development of SMEs, determining their sustainability and competitiveness. The specifics of ICT application in the management of Jordanian SMEs are determined by a combination of resource constraints, cultural characteristics and infrastructure conditions. Firstly, most SMEs in Jordan have a small scale of operations, limited staff and modest investment potential. This predetermines the choice of point ICT solutions: companies prefer to use cloud services, simple CRM and basic ERP modules, which reduces the burden on the budget. Secondly, the human factor plays a key role. Some companies retain a conservative organizational culture, a low level of digital literacy among employees and resistance to change. This slows down the implementation of modern management practices, even with the availability of technical capabilities [29, 68].

Thirdly, uneven infrastructure also affects strategic management. In Amman and large cities, there is access to high-speed Internet and IT services, but in regional centers, the speed and quality of communication remain limited, which hinders the use of cloud and online solutions. Despite these barriers, the study found that companies that have implemented at least basic ICT in their management demonstrate a 15–20% increase in productivity, reduced costs,

and increased customer satisfaction. This confirms that even partial digitalization forms the basis for long-term business development.

5. CONCLUSIONS

The research results reveal a complex interdependence between digital transformation and SME performance in the Jordanian context. They confirmed that even partial integration of modern ICT solutions has a significant impact on major SME activity areas. For example, automation of accounting, planning, and logistics processes reduces operational expenses and the possibility of error; the application of CRM systems and e-platforms improves the quality of communication and builds customer trust. Basic business analytics (limited by the availability of resources) provides the opportunity for a better forecast of consumer demand and more informed strategic decisions based on available information. The uniqueness of Jordanian SMEs lies in a combination of limited resources, various levels of infrastructure heterogeneity and cultural specifics affecting the speed of ICT implementation. Small-staffed SMEs with limited specialization have to implement solutions that fit their size; they usually opt for cloud services and mobile apps as cheaper alternatives to enterprise software. Human element is still the most critical to success: employees' level of digital literacy, their willingness to adopt changes and managers' ability to adapt and integrate new technologies play a crucial role in determining the effectiveness of strategic management methods. Companies, where digitalization was combined with employee education and optimization of internal processes, showed a noticeable improvement in productivity, shortened time to fulfill orders and enlarged the scope of their customer bases. The comparison with international experience shows that Jordanian SMEs are at the initial stage of digital transformation, whereas in developed countries, ICT is already a full-fledged component of strategic management supporting the development of innovative business models. Enterprises from developing economies structurally similar to Jordan demonstrate a faster implementation of cloud technologies, mobile solutions and marketplaces, thus enabling them to rapidly overcome the limitations imposed by local infrastructure. This suggests a large potential for catching up in the development of Jordanian companies if there is targeted governmental support and if digital education programs are expanded. The research results confirm that strategically applied ICT can provide Jordanian SMEs not only with greater operational efficiency, but also with lasting competitive advantages. As such, digital transformation becomes a natural part of modern management, providing enterprises with greater flexibility to respond to changes in the market environment, creating new products and services, and integrating into regional and global value chains. Therefore, one of the main directions of future development should be the creation of a digital corporate culture, combining the technological equipment of SMEs with the education of personnel able to effectively utilize new managerial tools. In this way, ICT-based strategic management methods become for Jordanian SMEs a tool for continuous optimization, and also a basis for sustainable growth and innovation.

6. FUTURE ENHANCEMENT

The dynamics of digital global transformations, changing consumption trends, and increasing complexity of the competitive environment provide the basis for further research and improvement in the field of strategic management of Jordanian SMEs using ICT. As noted above, although the study has demonstrated the level of realization of the potential for digitalizing management processes in SMEs has been low, a full understanding of the effect of ICT on the performance of businesses requires the expansion of scientific and practical approaches to include not only the short- and medium-term effects of digitalization and their connection to the sustainability of corporations, but the long-term impacts of digitalization and its influence on the sustainability of corporations. Digital corporate culture is one of the critical future research areas regarding the application of ICT to enhance the effectiveness of SMEs. In this regard, it is apparent from the findings of the study that the availability of modern technological solutions is insufficient to promote increased productivity if the organizational environment does not enable the incorporation of these technological solutions into operational processes. Consequently, it is essential to develop methods to establish a sustainable digital environment that will assist in employee training, encourage innovation and diminish resistance to change. Given the preeminence of the human factor as a determinant of success for Jordanian SMEs and the fact that management practices continue to have a traditional nature, this area is particularly relevant for Jordanian SMEs. Additionally, another promising area for further research includes an examination of the long-term consequences of cloud and mobile technologies on the competitiveness of SMEs. Currently, most organizations apply cloud and mobile technologies only to singular activities (e.g., accounting or customer relations), whereas the potential for the incorporation of these technologies across all functional areas of the enterprise remains unexploited. Future studies should investigate whether the incremental process of transitioning to a digital ecosystem, which may include ERP, CRM, BI, and cybersecurity solutions, improves the capacity of enterprises to penetrate new markets, to develop collaborative relationships among enterprises and to improve their resilience to exogenous economic disturbances. Furthermore, another significant area of research is the investigation of the correlation between governmental digitalization efforts and increases in the efficiency of private sector business operations. Although support programs, grants, and educational projects are available to support the digitalization of SMEs, there exists a disparity between macro-strategies developed to support the digitalization of SMEs and the reality of the capacity of SMEs to capitalize on these opportunities. Researching the results of studies that are analyzing the feasibility of the mentioned types of programs as well as determining the parameters required to tailor government digitalization efforts to meet the needs of SMEs, will increase the relevance of national digitalization plans to the day-to-day operations of SMEs. Another area for future research includes exploring whether there is an opportunity to incorporate international experiences and technology transfer. International comparative studies have demonstrated that the application of cloud-based services, mobile apps and electronic markets in other developing countries can substantially accelerate digitalization at low cost by minimizing the need to build domestic infrastructure.

Therefore, future research may focus on developing models for adapting successful international digitalization methods to the Jordanian economy while taking into consideration both cultural and legal frameworks. Regarding the practical development of SMEs in Jordan, the development of SMEs requires a systematic approach to digitalization. In addition to achieving technical modernization, a systemic approach to digitalization requires organizational restructuring in order to develop innovation potential. Essential elements of this approach would be extending vocational training programs, introducing internal mentorship, and improving the data management abilities of employees across the organization. In addition, future research can determine the best practices for combining local resources and international partnerships to enable SMEs to grow their businesses through the application of new technologies and to better position themselves globally. As such, the future research and improvement opportunities represent both the theoretical and practical aspects. One aspect represents the comprehensive study of the impact of ICT on the long-term strategy and sustainability of a company; the other aspect represents the development of specific models and tools for digital transformation in the context of the Jordanian economy. The implementation of these aspects will result in the improvement of the operational efficiency of individual companies and ultimately create a sustainable and innovation-oriented SME ecosystem that can participate in global value chain systems and adapt to the changing conditions of the modern digital market.

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