

The Impact of E-commerce on Organizational and Financial Performance in SMEs: Evidence from Saudi Arabia

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Received: March 3, 2024

Accepted: April 14, 2024

Online Published: May 14, 2024

doi:10.5539/ijbm.v19n4p1

URL: <https://doi.org/10.5539/ijbm.v19n4p1>

Abstract

Purpose: Small and medium enterprises (SMEs) play a critical role in the growth and development of economies especially when it comes to E-commerce. Previous studies highlighted that the global business environment with SMEs occupies the largest number of companies and contributes up to 70% of the global GDP. However, in developing countries such as Saudi Arabia, E-commerce has not yet been embraced completely and management is still reluctant to adopt E-commerce, hindering organization's ability to achieve full benefits from the technology. The purpose of this study is to examine the impact of E-commerce on organizational and financial performance in SMEs in Saudi Arabia.

Methodology: The primary data were collected through a structured questionnaire distributed to 230 participants (SMEs owners and managers). The use of convenience sampling was imposed. The data collected were analyzed using SPSS. A descriptive analysis, correlation analysis and regression analysis were performed including testing the null hypothesis.

Findings: The study found that the application of E-commerce systems in organizations is very critical, regardless of their size, either small or medium organizations. E-commerce systems improved the operations of the companies, the financial performance, and market-based performance, which led to the development of economic growth. Hence, it has been recommended that SMEs should adopt E-commerce to facilitate performance and ensure that it aligns with the firm strategies and structure.

Originality: The paper is valuable in examining E-commerce's effects on SMEs' organizational performance in a developing country context. It provides a unique opportunity for SMEs to relate organizational performance factors and in turn, to the degree of organizational volatility faced, thus enabling respondents to identify the most appropriate technology.

Keywords: e-commerce, small and medium enterprises, organizational performance, economic growth

1. Introduction

Globalization and the rising trend of the business environment have altered operations management. This is posing problems with how organizations, especially Small and Medium Enterprises (SMEs), are operating. Maximum studies claim that information and Technology play an important role in organizational performance and productivity levels (Corrado et al., 2017; Arshad Khan and Alhumoudi, 2022). As resources become scarce and competition increases in the market, organizations are adopting strategies to gain competitive advantages for growth and development (Alfawaire, & Atan, 2021). It is through ICT that electronic commerce (E-commerce) is advancing and highly adopted by SMEs to enhance their competitive advantage level in the market (Prasanna et al. 2019). E-commerce has emerged as a strategic tactic and platform for the organization to stay competitive. In the global business environment, SMEs occupy the largest number of companies where they are estimated to represent *around 90% of all firms globally*, (Laila et al. 2022). According to the OECD, brand design manufacturing, and logistics are among the early adopters of E-commerce (Gomez-Trujillo et al. 2019). Putra &

Santoso (2020) indicate that SMEs accounted for 95% of the world's enterprises in 2019 and absorbed 60% of employment, which is per the International Finance Corporation's statistics. This indicates that the sector cannot be ruled out when it comes to income generation, job creation, poverty reduction, and the contribution to the GDP within a country. The rapid economic development and profitability of emerging markets across countries have created an opportunity for small businesses in the local and international markets to develop (Mwika et al. 2018). Hence competition has increased in the market. On the other hand, the development of innovation and Technology in the business world has resulted in unprecedented improvement in organizations.

1.1 Statement of the Problem

In today's business environment, E-commerce has become an essential element of business in most developing countries. Most of the major companies have adopted to gain a competitive advantage in the operating market (Aggarwal et al. 2019). The SME industry is vibrant and plays a very crucial role in the growth and development of the economy (Corrado et al., 2017; Mwika et al., 2018). The SME sector plays an important role in wealth creation by employees. SMEs have still not well-adopted E-commerce strategies compared to multinational corporations in the global environment (Liñán et al., 2020; Sutomo et al., 2020). Due to the low penetration of SMEs in the market especially for developing countries, such as the Kingdom of Saudi Arabia, the country have not reaped the full benefits the E-commerce in SMEs. In Saudi Arabia, SMEs represent a significant portion of the productive units in the Saudi economy, and hence the government and the policymakers are highly encouraging them to improve their capabilities by embracing Technology. However, most SMEs have reservations about the adoption of E-commerce due to its aspects of being electronically delivered (Alotaibi et al. 2019; Fuller et al. 2022). Only few Saudi SMEs, mostly from manufacturing, have implemented E-commerce. This means that there is not much evidence of the impact that E-commerce has on SME performance in Saudi Arabia (Aburayya et al. 2019). Therefore, the study evaluates the effect of electronic commerce on organizational performance in SMEs around the Kingdom of Saudi Arabia.

1.2 Research Questions

- 1) To what extent does E-commerce impact the operational performance of small and medium enterprises in KSA?
- 2) What is the impact of E-commerce on the financial performance of small and medium enterprises in KSA?
- 3) What is the impact of E-commerce on market-based performance in small and medium enterprises in KSA?

1.3 Research Objectives

- 1) To assess the impact of E-commerce on operational performance in small and medium enterprises in KSA.
- 2) To examine the impact of E-commerce on the financial performance of small and medium enterprises in KSA.
- 3) To examine the impact of E-commerce on market-based performance in small and medium enterprises in KSA.

2. Literature Review

2.1 Theoretical Review

Based on the relevant theories and literature similar to the past studies with consideration of the research objectives this study explains how Technology like E-commerce has been adopted by SMEs and its benefits has on various areas. Some of these theories include the Technology Acceptance Model (TAM), Perceived Organizational E-Readiness (POER), and Unified Theory of Acceptance and Use of Technology (UTAUT). The research literature explains the understanding perceived from the four theories and uses various principles that go in line with the adoption of E-commerce.

2.2 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) model describes how individuals across different organizations have adopted new technologies to facilitate their operations which was developed by Fred Davis in 1989. This model has two most important factors of technology adoption in organizations which include perceived usefulness (PU) and perceived ease of use (PEOU) as indicated by Rafique, et al. (2020). It defines perceived usefulness as the degree to which individuals are convinced that the use of Technology will improve the performance of their work and easing operations.

TAM has been utilized to analyze the adoption of SMEs in the industrial and service sectors in Singapore, Malaysia, and Thailand (Alamri et al. 2019). used to test the valuable paradigm in understanding the ad intention

of customers to adopt E-commerce. This means that it is also used in studies to analyze behaviors and the attitude of the customers in the adoption of E-commerce in SMEs (Alamriet al. 2019). According to Scherer et al. (2019), TAM relies on perceived usefulness as one of the most important acceptance signals, ignoring actual technological use in organizations. TAM model suggests that perceptions that one has in relation to innovation are essential as it led to behaviors that individual's exhibit on the utilization of the innovation (Rafique, et al. 2020).

2.3 Perceived Organizational E-Readiness (POER)

With the spread of internet connectivity in the global environment, labour, lower unit per cost, information on commerce, and internalization/ globalizing of the market, it is possible for organizations, especially in developing economies, to access efficiency, fair competition, and access to the global market (Ulhaq, 2022). However, challenges that organizations experience in the adoption. E-readiness has become a vital topic in the investigation of the importance and impact of e-business adoption in organizations. This model was developed by Linker and Mollar in 2005, where they proposed that multi-perspective assessment of managerial, external contextual elements, and internal organization acts as the main determinant of E-commerce adoption in organizations (Misganaw & Singh, 2020). Organizations that have been able to adopt E-commerce and effectively implement can create more profits and also extend their business operation in the market (Ausat & Suherlan, 2021). The POER model considers internal factors which include the organization's awareness, understanding of the innovation and Technology, and forecast of E-commerce and its possible risks and benefits associated with the Technology (imperative innovation attributes), its managers' engagement, and vital organizational elements such as personnel, procedures, and organization infrastructure.

The factors in the external environment include the e-readiness of governments within a country, e-readiness for market forces, and e-readiness for support industries (Ulhaq, 2022). This indicates that when an organization fails to have enough internal resources and external environmental pressure, there might be challenges in the adoption of E-commerce. PERM addresses E-commerce institutionalization and includes details from the external environment and internal organizational concerns (Lutfi et al., 2022). However, some criticisms have been presented when it comes to the PERM model. This brings out the essential industrial features, such as the scale of the sector or a firm. As a result, the perceived readiness model explains how individuals perceive new Technology and their rate of adoption, especially in E-commerce

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2.4 Technology-Organization-Environment Theory (TOE)

This is a framework that was developed in 1990 by Tornatzky and Fleisher to describe the influence of technology adoption in an organization setup (Hue, 2019). The technology-organization-environment theory describes how various organizations. According to this theory, there are three different variables which include the technological, the organizational, as well as the external environment. All the variables are posited to influence Technology and information. This theory has been highly utilized in studies relating to the uptake of E-commerce by small business organizations such as (Le, 2019; Suhartanto & Utomo, 2017; Tan & Ooi, 2014; Ghobakhloo et al. 2014). The framework uncovers the factors that influence the adoption of E-commerce in organizations (Hue, 2019). Other factors related to the technology context include the perceived gain, technical and organizational capability, complexity and observability, and experimentation ability.

There can be internal, external, and leadership and management features. According to a research study undertaken by Malik et al. (2021), some drawbacks are associated with this framework. undertaken by Malik et al. (2021), some drawbacks are associated with this framework. One of the major drawbacks includes the

construct adopted to predict the adoption. For instance, when it comes to SMEs, the management can't predict the adoption using a similar construct used by bigger companies in the operating environment. On the other hand, the environmental context of this theory involves the size of the operating environment, the competition that the company is experiencing, the rules and regulations that govern the industry, and the economic context (Malik et al., 2021). All these contexts create opportunities along with constraints when it comes to innovative Technology. With this, it is possible for organization management to have a clear understanding of the right condition and environment under which E-commerce can be effectively implemented in organizations (SMEs).

2.5 Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of Technology was created by Venkatesh and other scholars (Wang et al. 2021). This theory explains the intention of the users on the implementation of a system and their successive behaviours. The main idea behind the theory includes facilitating conditions, social influence, effort expectancy, and performance expectancy. This model has highly been utilized to bring about an effective understanding of the uptake of E-commerce in developing nations (Persada, Miraja, & Nadlifatin, 2019). UTAUT is significant by the expectancy of performance, social influence, effort expectancy, etc. (Wang et al. 2021). On the other hand, expectancy is the response that is perceived usefulness in TAM and is represented by the attitude factor. The model impacts the intention of use significantly, with the success expectancy factor placing importance on the intention to use. Hence, it can be said to explain how people collectively accept to adopt and use Technology, which is then linked with the performance of their organizations.

2.6 Empirical Review

2.6.1 Application of Electronic Commerce (E-commerce)

E-commerce is the aspect of sharing organization business, maintaining business relationships, and conducting various business transactions through the support of telecommunications networks. It has become alive, well organized, and growing extremely at a very fast rate hence bringing change within the industries, markets, businesses, and society in general (Grandón & Ramírez-Correa, 2018). Today, for the long-term deployment of E-commerce technologies and methods, E-commerce has become a part of the established businesses that have market brands and financial muscle required. As a result, organizations benefited from significant progress toward the development and application of E-commerce strategies (Hendricks & Mwapwele, 2024). E-commerce studies were first published in 1994. Apăvăloaie, (2014) provided the first survey on how organizations have embraced the Internet in business operations. On the other hand, Cronin et al. (1994), surveyed how the embrace of E-commerce in the business environment has changed how organizations are operating. E-commerce offers organizations with low cost of business transactions, especially concerning mailing and paperwork costs, which is a benefit to the company (Alzahrani, 2018). Previous studies have indicated that most of the developing countries' technological, social, cultural, legal, and institutional constraints have inhibited the application of E-commerce.

2.6.2 Operational Performance

Operational performance is the process that is used to measure the performance of a firm against the prescribed indicators. The management needs to know how well the company is performing to effectively figure out what strategic changes, if any, to make. This makes it a very crucial concept, and hence more attention has to be paid. According to Carton and Hofer (2006), operation performance in an organization can be subcategorized into market share, new product introduction, product/service quality, marketing effectiveness, and customer satisfaction. Organizational managers rely on multiple measures of performance when gauging the success or failure of their organizations (Bawack et al., 2022). Most organizations adopt a Balanced Scorecard to develop a more predictive set of organizational performance measures. This provides a "balance" between financial measures and other measures that are undertaken by the organization to create sustainable and long-term performance (Yadav et al. 2018). On the other hand, organizations can also adopt business-model approaches. The models promote a link between the existing data from the operational measures and financial measures in the organization, which makes it possible to improve one area at the expense of the other one.

2.6.3 Financial and Accounting Performance

Accounting-based criteria are common in performance evaluations that various organizations in the business market adopt to evaluate their level of performance. With this strategy, organizations evaluate various factors and aspects of accounting-based measures. This is where the management evaluates factors such as return on assets, return on investment, return on sales, and return on equity to measure profitability, market-based measures, which include stock market returns or a mixture of accounting- and market-based measures where the management

evaluates the price-earnings ratio (Nasrallah, & El Khoury, 2022). However, accounting-based figures can easily be misled, as one tries to manipulate them for the numbers to look good. The lack of consistency and standardization in international accounting conventions makes the interpretation of the accounting performance in an organization difficult, along with its comparison (Gunawan and Pratiwi, 2020). From the existing literature, an organization's profitability can be raised in the short term when the management chooses to cut down the expenditures, which can be harmful to a company in the long run. This raises the question of if the organization's performance can truly be evaluated or assessed with the use of accounting-based measures.

2.6.4 Market-based Performance

Similar to financial performance, market performance is also a key indicator that reflects business performance for most organizations. This is shown through the increase in the market share. With the critics provided based on financial and accounting performance, a market-based performance measure strategy is deemed to be an appropriate strategy to indicate the level of performance in organizations (Gupta, & Gregoriou, 2018). Under the assumption that potential investors have to assess an organization's performance before they invest in the firm, the management has to ensure that the level of market-based performance is high.

2.7 Conceptual Framework

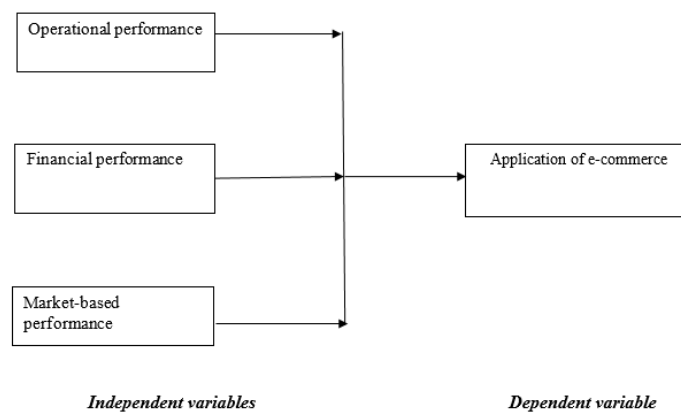


Figure 1. Conceptual framework

3. Research Methodology

Given the nature of this study, a descriptive research design will be selected as it is the most suitable approach. This is where a researcher is solely interested in describing the situation or case under their research study. Consequently, the researcher will be able to explain the evaluate the effects of electronic commerce on organizational performance in small and medium enterprises in KSA.

3.1 Research Design

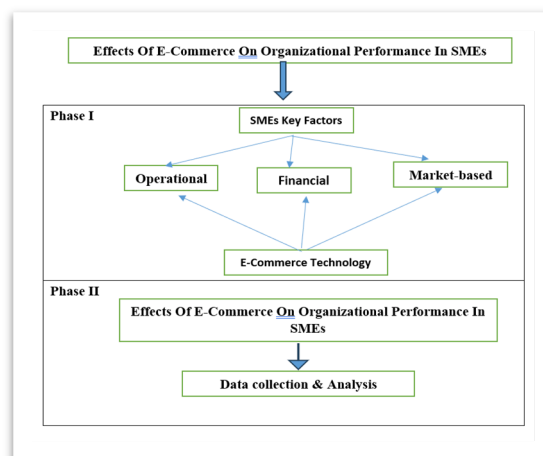


Figure 2. Research design

3.2 Sampling Approach and Sampling Size

During research, the target population can be huge, making it difficult for researchers to collect and analyze data (Alam, 2021). As a result, sampling is usually undertaken to reach a manageable size of the target population. Sampling the target population using 230 respondents (SME's owners and managers) who were conveniently available to the researcher.

3.3 Research Instruments

The electronic methods used include online transactions, electronic data interchange (EDI), mobile commerce, etc. (Mwika et al., 2018). Operational performance- the efficiency and effectiveness of an organization's day-to-day operations and processes in achieving its goals and objectives (Lekmat et al., 2018). Financial performance –A strong financial performance is essential for a company's sustainability and competitiveness, hence enabling the reinvesting of operations (Nasrallah & El Khoury, 2022). Market-based performance - the financial performance of a company as reflected in its stock price and market capitalization, which are determined by the supply and demand of the company's shares in the financial markets (Gupta & Gregoriou, 2018). It measures how an organization is perceived by investors and analysts about growth potential, profitability, and the market position in the operating market.

3.4 Data Collection

The primary data collected through a questionnaire that were administered to the respondents. The questionnaire can be used as it is an approach that is known to be a fast, efficient, and inexpensive method of gathering data using a sizeable sample size (Ricci et al. 2019). Additionally, it is particularly effective in measuring the study population's behaviours, preferences, intentions, and opinions testing their reliability and validity.

3.5 Data Analysis

The researcher has proposed the use of a Statistical Package for Social Science (SPSS) software. In the first section, which involves the demographic of the respondents, the basic frequency will be adopted. The quantitative data were analyzed using descriptive and inferential statistics, which will then be presented using graphs and tables.

3.6 Research Hypothesis

1. There is a significant impact of E-commerce on operational performance in small and medium enterprises in KSA.
2. There is a significant impact of E-commerce on the financial performance of small and medium enterprises in KSA
3. There is a significant impact of E-commerce on market-based performance in small and medium enterprises in KSA

4. Results and Findings

4.1 Demographic Information

4.1.1 Gender

From the findings presented in Table 4.1 below, the respondents in this study were 230 individuals, where the males constitute 70.0% of the population, while females make up 30.0% of the population. This indicates that the study was male dominated.

Table 1. Gender

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	161	70.0	70.0	70.0
	female	69	30.0	30.0	100.0
	Total	230	100.0	100.0	

4.1.2 Age

The table above represent the age group of the respondents in the SME industry. According to the data presented on the data below, the highest level of respondents are between the ages 31 to 40 years, which constituted 60.9%

of the respondents; the Age set between 20 to 30 years follows with 26.1% of the total respondents, followed by individuals between age 41 to 50 years which accounts for 26.1% of the population. The least of the respondents in their study are of above 50 years old. This means that individuals in the SME industry in Saudi Arabia are between the Age of 31 to 40 years.

Table 2. Age

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 to 30 years	60	26.1	26.1	26.1
	31 to 40 years	80	34.8	34.8	60.9
	41 to 50 years	53	23.0	23.0	83.9
	Above 50 years	37	16.1	16.1	100.0
	Total	230	100.0	100.0	

4.1.3 Work Experience

According to the finding of the data presented below most of the respondents have a work experience of between 16-20 years which is 23.9% of the respondents, 21.3% of the respondents have a work experience of 11-15 years, 20.9% of the respondents have a work experience of above 21 years, 18.3% of the respondents have, and experience of below 5 years and 14.8% of the respondents have the experience of 5-10 years. Most of the respondents have had an experience of several years in the SME sector, which is between 16-20 years.

Table 3. Work experience

		Work experience			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 5 years	44	18.3	18.3	19.1
	5-10 years	34	14.8	14.8	33.9
	11-15 years	49	21.3	21.3	55.2
	16-20 years	55	23.9	23.9	79.1
	Above 21 years	48	20.9	20.9	100.0
	Total	230	100.0	100.0	

4.1.4 Education

According to the findings, the majority of the respondents (51.3%) had a university Bachelor's Degree. 29.6% had a postgraduate degree. 19.1% had a diploma, 5.9% had Secondary diploma.

Table 4. Education

		Education			
		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	High school diploma	44	19.1	19.1	19.1
	Bachelors' degree	118	51.3	51.3	70.4
	Master's degree or higher	68	29.6	29.6	100.0
	Total	230	100.0	100.0	

4.1.5 IT Personals

When a firm embraces electronic commerce technology, it means that it has to employ Its personnel to run the systems. As shown in the table below, most of the respondents indicate that their forms have less than 20 IT personnel, 13.9% indicate that their firms have 21-40 employees. IT employees, 10.0% indicate that the company has more than 60 IT employees, and 8.7% indicates that their firms have 41-60 employees.

Table 5. IT personel

		IT personals			
		Frequency	Percent	Valid Percent	Cumulative Percent
	Below 20 employees	155	67.0	67.0	67.4
	21-40 employees	32	13.9	13.9	81.3
Valid	41-60 employees	20	8.7	8.7	90.0
	Above 60 employees	23	10.0	10.0	100.0
	Total	230	100.0	100.0	

4.1.6 Number of Employees

From the data presented the age category that has a huge number of employees is the below 20 age group. 67 employees in the below Age 20 category, which accounts for 29.1% of the total number of employees, 60 employees in the 21-40 age category, which represents 26.1%, 56 employees in the above 61 age category, represents 24.3% and 47 employees in this category, accounting for 20.4% of the total respondents. This indicates that most of the respondents are employees below the Age of 20 years.

Table 6. Number of employees

		Number of employees			
		Frequency	Percent	Valid Percent	Cumulative Percent
	Below 20	67	29.1	29.1	29.1
	21-40	60	26.1	26.1	55.2
Valid	41-60	47	20.4	20.4	75.7
	above 61	56	24.3	24.3	100.0
	Total	230	100.0	100.0	

4.2 Descriptive Analysis

4.2.1 Operational Performance

In this section, we examining the impact of E-commerce on operational performance in small and medium enterprises in KSA and the findings are presented in the table below, showing that the respondents rated the improvement in operational efficiency due to E-commerce as 4.0261; the increase in sales revenue due to E-commerce adoption is 4.0783, the ability of E-commerce to expand their customer base as 4.1696 and the impact of E-commerce on customer satisfaction is 4.0826.

Table 7. Operational performance

Descriptive Statistics				
	N	Minimum	Maximum	Mean Std. Deviation
E-commerce has significantly improved the efficiency of operations in my firm	2302.00	5.00	4.0261.79804	
My firm has experienced an increase in sales revenue as a result of adopting E-commerce	2302.00	5.00	4.0783.69493	
E-commerce has enabled my enterprise to reach a wider customer base.	2302.00	5.00	4.1696.70055	
The implementation of E-commerce has led to better customer satisfaction in my small/medium enterprise	2302.00	5.00	4.0826.72819	
Valid N (listwise)	230			

4.2.2 Financial Operation

In this section, we are examining the impact of E-commerce on the financial performance of small and medium enterprises (SMEs) in the Kingdom of Saudi Arabia (KSA). In relation to the subsections, the average rating for the impact of E-commerce on reducing operational costs is 4.0609, the impact of E-commerce implementation on profitability is 3.9826, and the improvement in financial performance due to E-commerce is 4.0000. The mean values suggest that, according to the respondents' perceptions, E-commerce has been effective in reducing

operational costs and improving the financial performance of SMEs in KSA.

Table 8. Financial performance

	Descriptive Statistics			
	N	Minimum	Maximum	Mean Std. Deviation
E-commerce has helped my small/medium enterprise reduce operational costs	2302.00	5.00	4.0609	73332
The implementation of E-commerce has led to an increase in the profitability of my firm	2302.00	5.00	3.9826	72969
The use of E-commerce has led to an overall improvement in the financial performance of my enterprise	2302.00	5.00	4.0000	75922
Valid N (listwise)	230			

4.2.3 Market-Based Performance

From the data presented by the respondents, the following were the means obtained on the subsections in the research questions, the mean on the E-commerce on expanding customer base and reaching new markets is 4.1435, the impact of E-commerce on improving visibility in the market is 4.0522, and the impact of E-commerce on brand recognition and awareness is 4.0261. The mean values indicate that, according to the respondents' perceptions, E-commerce has had a positive impact on market-based performance in SMEs in KSA.

Table 9. Market based performance

	Descriptive Statistics			
	N	Minimum	Maximum	Mean Std. Deviation
E-commerce has enabled my enterprise to expand its customer base and reach new markets.	2302.00	5.00	4.1435	73069
E-commerce has improved the visibility of my small/medium enterprise in the market.	2302.00	5.00	4.0522	76316
The use of E-commerce has increased my enterprise's brand recognition and awareness	2302.00	5.00	4.0261	85100
E-commerce has helped my small/medium enterprise to stay competitive in the market.	2302.00	5.00	4.0870	78818
Valid N (listwise)	230			

4.3 Correlation Analysis

Correlation analysis is a statistical technique used to measure the relationship between two or more variables. It helps determine the degree to which changes in one variable are associated with changes in another variable. A positive correlation ($r > 0$) indicates that as one variable increases, the other variable tends to increase as well, while a negative correlation ($r < 0$) indicates that as one variable increases, the other variable tends to decrease. However, if the correlation is close to zero ($r \approx 0$) suggests little to no linear relationship between the variables. As shown in the table below, there is a positive between operational performance (0.704), financial performance (0.712), and market base (0.86). This shows that there is a positive relationship between operational performance, financial performance, market base, and organizational performance in SMEs. When the SMEs increase the adoption of the E-commerce system, operational performance, financial performance, market base, and organizational performance.

Table 10. Correlation analysis

		Correlations			
		operation	finance	market	performance
operations	Pearson Correlation	1	.753**	.741**	.704**
	Sig. (2-tailed)		.000	.000	.000
	N	230	230	230	230
finance	Pearson Correlation	.753**	1	.748**	.712**
	Sig. (2-tailed)	.000		.000	.000
	N	230	230	230	230
marketbase	Pearson Correlation	.741**	.748**	1	.816**
	Sig. (2-tailed)	.000	.000		.000
	N	230	230	230	230
performance	Pearson Correlation	.704**	.712**	.816**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	230	230	230	230

Note. **. Correlation is significant at the 0.01 level (2-tailed).

4.4 Regression Analysis

The model summary shown below indicates that the base, organization operations, and finances account for R is 0.835, which indicates that there is a positive relationship between the predictors (market base, operation, finance) and performance. The R Square value of 0.697 suggests that approximately 69.7% of the variance in the dependent variable is explained by the predictors. The standard error of the estimate is .36628, which represents the average distance between the observed and predicted values.

Table 11. Model analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.835 ^a	.697	.693	.36628

Note. a. Predictors: (Constant), market base, operation, finance.

The table below represents the ANOVA results. The main purpose is to determine whether there are statistically significant differences among the means of the variables. The goal is to test the null hypothesis that the means of the groups are equal against the alternative hypothesis that at least one group's mean differs from the others with the help of F-statistic and p-value. When the p-value obtained is less than .05, the difference between the mean, then it is statistically significant. As shown in the table below, the F statistic is s 173.280, which indicates that the predictors in the model are jointly contributing to explaining the variation in the dependent variable. The p-value of 000 (or <.001) indicates that market base, operation, and finance can significantly contribute to predicting the performance of SMEs.

Table 12. ANOVA analysis

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69.744	3	23.248	173.280	.000 ^b
	Residual	30.321	226	.134		
	Total	100.065	229			

Notes. a. Dependent Variable: per

b. Predictors: (Constant), market base, operation, finance.

Coefficients are essential in interpreting regression models and understanding the relationships between

variables. The table below shows the coefficient of the firm's operations, finance, and market base. The coefficient values include operation .156, finance .056, and market base .553 while holding the variables constant. The coefficient values as shown in the table below, firm's operations ($\beta = .149$, $p = .015$), finance ($\beta = .165$, $p = .008$), and market base ($\beta = .583$, $p = .000$). This indicates that there is a statistically significant positive association of firm's operations, finance, and market base with organization performance. Therefore, improving these areas can have a positive impact on the performance of the organization.

5. Discussion of the FINDINGS

Objective one: To evaluate the impact of E-commerce on operational performance in small and medium enterprises in KSA. According to the findings of this study, there is a positive relationship between the implementation of E-commerce and the operational performance of SMEs. This suggests that SMEs should also embrace the implementation of E-commerce platforms to enhance operational efficiency. The respondents have agreed that E-commerce systems in organizations increase the efficiency of operations, which makes it possible for SMEs to not only reach out to more customers but also ensure that there is satisfaction with the services being offered. The efficiency of operations and hence improving the performance of the organizations. According to the Unified Theory of Acceptance and Use of Technology (UTAUT) organizations that have adopted E-commerce as part of their operations aim at having successful behaviour such as the improvement of performance (Wang et al. 2021). The Technology Acceptance Model (TAM) model supports the findings by indicating that the use of Technology will improve the performance of their work.

Objective two: To examine the impact of E-commerce on the financial performance of small and medium enterprises in KSA. According to this study, E-commerce has been effective in reducing operational costs and improving the financial performance of SMEs in KSA. This is in support of the study undertaken by (Ausat & Suherlan, 2021), which indicates that organizations that have been able to adopt E-commerce and effectively implement it can create more profits and also extend their business operation in the market. The Perceived Organizational E-Readiness (POER) indicates that organizations that have adopted E-commerce can create more profits by reducing the cost of operations. The cost gets lower since fewer individuals handle data within an organization which is a benefit to the company (Alzahrani, 2018; Alakkas et al., 2023). This reduces the operational cost within organizations, which is a financial benefit. Agyemang (2020), indicates that the implementation of E-commerce systems increases corporate profits.

Objective three: To examine the impact of E-commerce on market-based performance in small and medium enterprises in KSA. From the findings of the studies, E-commerce has had a positive impact on market-based performance in SMEs in KSA. It has enabled the expansion of the customer base, improved market visibility, increased brand recognition and awareness, and facilitated competitiveness in the market. This is in support of the study undertaken by Gupta & Gregoriou (2018) and Agyemang (2020) increasing market share and enhancing a positive image in the market. A market-based performance measure strategy is deemed to be an appropriate strategy to indicate the level of performance in organizations. The perceived Organizational E-Readiness (POER) model supports the findings of the study as it indicates that organizations that have been able to adopt E-commerce and effectively implement can create more profits and extend their business operation in the market (Alakkas, et al., 2023; Alhumoudi and Juyer, 2023).

6. Conclusion

In today's world of globalization and economic acceleration has been recognized that Technology and knowledge are the core competencies of accumulating wealth for organizations. To take advantage of the opportunities and curb the challenges, SMEs are adopting technologies such as electronic commerce systems and applications. According to the findings of this study, the application of E-commerce systems in organizations is very critical for all organizations, regardless of their size, either small or medium organizations. It not only helps to improve the operations of the companies, the financial performance, and market-based performance but also improves the general performance like marketing processes, assists in improving the payment system of the organization, and ultimately helps to increase the efficiency of the workers and profit of the organization.

7. Implication of the Study

The study has shed light on how E-commerce adoption can positively impact the performance of SMEs in Saudi Arabia. As a result, it enhances their growth in the operating market. These findings can encourage more SMEs to embrace E-commerce, thereby boosting their overall performance. The study also raises awareness among SME owners and managers in Saudi Arabia about the potential benefits of E-commerce. Providing an insight into the E-commerce application in organizations increases the understanding and encourages SMEs to explore and adopt E-commerce solutions, leading to a more competitive business environment.

8. Limitations and Suggestions for Further Studies

One of the major limitations experienced by the researcher was when the respondents overlooked the email sent on the questionnaire. Due to privacy concerns, lack of interest, or scepticism about the study's purpose, some members were also unwilling to participate. Also, the demographic findings show that the respondents were composed of where 70 % were male whereas 30% were female, whereby males were significantly higher, and this could influence the responses. Therefore, it is important to conduct a study to determine whether gender differences have a significant effect on consumer perceptions. Future studies about this research topic can be extended to explore how the adoption of E-commerce on SMEs affects the long-term operations and performance of the firms. However, this will build more literature on studies relating to the research topic.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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References

- Aburayya, A. (2019). A conceptual framework for implementing TQM in the primary healthcare centers and examining its impact on patient satisfaction. *International Journal of Advanced Research*, 7(3), 1047-1065. <https://doi.org/10.21474/ijar01/8735>
- Aggarwal, A., Aeran, H., & Rathee, M. (2019). Quality Management in Healthcare: The pivotal desideratum. *Journal of Oral Biology and Craniofacial Research*, 9(2), 180-182. <https://doi.org/10.1016/j.jobcr.2018.06.006>
- Agyemang, K. (2020). The relationship between audit committee characteristics and financial performance of listed banks in Ghana. *Research Journal of Finance and Accounting* [Preprint]. <https://doi.org/10.7176/rjfa/11-10-03>
- Al Naimi, S. M. (2021). Economic diversification trends in the gulf: The case of Saudi Arabia. *Circular Economy and Sustainability*, 2(1), 221-230. <https://doi.org/10.1007/s43615-021-00106-0>
- Alakkas, A. Alhebry, A., Alhumoudi, H., El-Matari, E., & Ahmad Khan, I. (2023). The Influence of the Cost Management System on the Business Indicators of SMEs. *Review of Economics and Finance*, 21(1), 484-490. <https://doi.org/doi.org/10.55365/1923.x2023.21.49>
- Alam, Md. K. (2020). A systematic qualitative case study: Questions, data collection, NVIVO analysis and saturation. *Qualitative Research in Organizations and Management: An International Journal*, 16(1), 1-31. <https://doi.org/10.1108/qrom-09-2019-1825>
- Alamri, M. M. et al. (2019). Towards adaptive e-learning among university students: By applying technology acceptance model (TAM). *International Journal of Engineering and Advanced Technology*, 8(6s3), 270-276. <https://doi.org/10.35940/ijeat.f1043.0986s319>
- Alaskar, T. H., & Alsadi, A. K. (2023). Drivers of mobile commerce adoption intention by Saudi SMEs during the COVID-19 pandemic. *Future Business Journal*, 9(1). <https://doi.org/10.1186/s43093-023-00190-8>

- Alharbi, R. K. (2022). Saudi Arabia's small and medium enterprises (SMEs) Sector Post-covid-19 recovery: Stakeholders' perception on investment sustainability. *International Journal of Organizational Analysis*, 31(6), 2222-2238. <https://doi.org/10.1108/ijoa-10-2021-2993>
- Alhumoudi, H., & Juayr, A. (2023). Exploring the impact of artificial intelligence and digital transformation on auditing practices in Saudi Arabia: A cross-sectional study. *Asian Journal of Finance & Accounting*, 15(2), 1-30. <https://doi.org/10.5296/ajfa.v15i2.18976>
- Aljuhani, F., & Balubaid, M. (2020). Developing the performance of business incubators to increase the percentage of the contribution of SMEs in the Saudi GDP to achieve Vision 2030. *International Journal of Advanced Engineering Research and Applications*, 6(02), 22-34. <https://doi.org/10.46593/ijaera.2020.v06i02.001>
- Alotaibi, G. B. et al. (2020). Total Quality Management: Perspective of Saudi Healthcare Organizations. *Journal of Business Management and Accounting*, 9(1), 89-93. <https://doi.org/10.32890/jbma2019.9.1.8769>
- Alzahrani, J. (2019). The impact of E-commerce adoption on business strategy in Saudi Arabian small and medium enterprises (SMEs). *Review of Economics and Political Science*, 4(1), 73-88. <https://doi.org/10.1108/reps-10-2018-013>
- Amirat, A., & Zaidi, M. (2019). Estimating GDP growth in Saudi Arabia under the Government's Vision 2030: A knowledge-based economy approach. *Journal of the Knowledge Economy*, 11(3), 1145-1170. <https://doi.org/10.1007/s13132-019-00596-2>
- Apăvăloaie, E. I. (2014). The impact of the internet on the business environment. *Procedia Economics and Finance*, 15, 951-958. [https://doi.org/10.1016/s2212-5671\(14\)00654-6](https://doi.org/10.1016/s2212-5671(14)00654-6)
- Arshad Khan, M., & Alhumoudi, H. A. (2022). Performance of E-banking and the mediating effect of customer satisfaction: A structural equation model approach. *Sustainability*, 14(12), 7224. <https://doi.org/10.3390/su14127224>
- Bakr, S. A., & Napier, C. J. (2020). Adopting the International Financial Reporting Standard for small and medium-sized entities in Saudi Arabia. *Journal of Economic and Administrative Sciences*, 38(1), 18-40. <https://doi.org/10.1108/jeas-08-2018-0094>
- Bawack, R. E. et al. (2022). Artificial Intelligence in E-commerce: A bibliometric study and literature review. *Electronic Markets*, 32(1), 297-338. <https://doi.org/10.1007/s12525-022-00537-z>
- Blanchflower, T. M. (2018). Leavy, P. (2017). Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches. New York, NY: The Guilford Press. *Family and Consumer Sciences Research Journal*, 47(1), 101-102. <https://doi.org/10.1111/fcsr.12276>
- Campbell, S. et al. (2020a). Purposive sampling: Complex or simple? research case examples. *Journal of Research in Nursing*, 25(8), 652-661. <https://doi.org/10.1177/1744987120927206>
- Cheung, A.K. L. (2021). Structured questionnaires. *Encyclopedia of Quality of Life and Well-Being Research*, 1-3. https://doi.org/10.1007/978-3-319-69909-7_2888-2
- Cronin, B. et al. (1994). The internet and competitive intelligence: A survey of current practice. *International Journal of Information Management*, 14(3), 204-222. [https://doi.org/10.1016/0268-4012\(94\)90060-4](https://doi.org/10.1016/0268-4012(94)90060-4)
- Fuller, R. M. (2022). The impact of E-commerce capabilities on online retailer performance: Examining the role of timing of adoption. *Information & Management*, 59(2), 103584. <https://doi.org/10.1016/j.im.2021.103584>
- Gao, X. et al. (2020). To buy or not buy food online: The impact of the covid-19 epidemic on the adoption of E-commerce in China. *PLOS ONE*, 15(8). <https://doi.org/10.1371/journal.pone.0237900>
- Gomez-Trujillo, A. M. et al. (2019a). E commerce and sales potentialization of SME in emerging countries. *Indian Journal of Science and Technology*, 12(7), 1-11. <https://doi.org/10.17485/ijst/2019/v12i7/140167>
- Grandón, E. E., & Ramírez-Correa, P. (2018). Managers/owners' innovativeness and electronic commerce acceptance in Chilean SMEs: A multi-group analysis based on a structural equation model. *Journal of theoretical and applied electronic commerce research*, 13(3), 1-16. <https://doi.org/10.4067/s0718-18762018000300102>
- Gunawan, J., & Pratiwi, D. (2020). Corporate Social Responsibility, corporate governance, and Corporate Financial Performance. *Indonesian Management and Accounting Research*, 16(1), 49-70. <https://doi.org/10.25105/imar.v16i1.7887>

- Gupta, J., & Gregoriou, A. (2018). Impact of market-based finance on SMEs failure. *Economic Modelling*, 69, 13-25. <https://doi.org/10.1016/j.econmod.2017.09.004>
- Hadi Putra, P. O., & Santoso, H. B. (2020). Contextual factors and performance impact of e-business use in Indonesian small and Medium Enterprises (SMEs). *Heliyon*, 6(3). <https://doi.org/10.1016/j.heliyon.2020.e03568>
- Hendricks, S., & Mwapwele, S. D. (2024). A systematic literature review on the factors influencing E-commerce adoption in developing countries. *Data and Information Management*, 8(1), 100045. <https://doi.org/10.1016/j.dim.2023.100045>
- Hue, T. T. (2019). The determinants of innovation in Vietnamese manufacturing firms: An empirical analysis using a Technology-Organization-Environment Framework. *Eurasian Business Review*, 9(3), 247-267. <https://doi.org/10.1007/s40821-019-00125-w>
- Laila, N. et al. (2022). The intention of small and Medium Enterprises' owners to participate in WAQF: The case of Malaysia and Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(3), 429-447. <https://doi.org/10.1108/imefm-01-2022-0014>
- Liñán, F., Paul, J., & Fayolle, A. (2019). SMEs and entrepreneurship in the era of globalization: Advances and theoretical approaches. *Small Business Economics*, 55(3), 695-703. <https://doi.org/10.1007/s11187-019-00180-7>
- Lutfi, A., Alkelani, S. N., Alqudah, H., Alshira'h, A. F.; Alshirah, M. H., Almaiah, M. A., Alsyouf, A., Alrawad, M., Montash, A., & Abdelmaksoud, O. (2022). The Role of E-Accounting Adoption on Business Performance: The Moderating Role of COVID-19. *J. Risk Financial Management*, 15, 617. <https://doi.org/10.3390/jrfm15120617>
- Malik, S. et al. (2021). Factors affecting the organizational adoption of blockchain technology: Extending the technology-organization-environment (TOE) framework in the Australian context. *Sustainability*, 13(16), 9404. <https://doi.org/10.3390/su13169404>
- Misganaw, A. A., & Singh, A. (2020a). The diffusion of e-marketing in tourism businesses of Ethiopia: An empirical investigation of organizational e-readiness perspectives. *European Journal of Tourism, Hospitality and Recreation*, 10(1), 1-13. <https://doi.org/10.2478/ejthr-2020-0001>
- Nasrallah, N., & El Khoury, R. (2021). Is corporate governance a good predictor of SMEs financial performance? evidence from developing countries (the case of Lebanon). *Journal of Sustainable Finance & Investment*, 12(1), 13-43. <https://doi.org/10.1080/20430795.2021.1874213>
- Persada, S. F., Miraja, B. A., & Nadlifatin, R. (2019). Understanding the generation Z behavior on D-learning: A unified theory of acceptance and use of technology (UTAUT) approach. *International Journal of Emerging Technologies in Learning (IJET)*, 14(5), 20. <https://doi.org/10.3991/ijet.v14i05.9993>
- Prasanna, R. et al. (2019). Sustainability of SMEs in the competition: A systemic review on technological challenges and SME Performance. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(4), 100. <https://doi.org/10.3390/joitmc5040100>
- Rafique, H. et al. (2020). Investigating the acceptance of mobile library applications with an extended technology acceptance model (TAM). *Computers & Education*, 145, 103732. <https://doi.org/10.1016/j.compedu.2019.103732>
- Rawashdeh, A., & Rawashdeh, B. S. (2023). The effect cloud accounting adoption on organizational performance in SMEs, *International Journal of Data and Network Science*, 7(1), 411-424. <https://doi.org/10.5267/j.ijdns.2022.9.005>
- Ricci, L. et al. (2018). Qualitative methods used to generate questionnaire items: A systematic review. *Qualitative Health Research*, 29(1), 149-156. <https://doi.org/10.1177/1049732318783186>
- Šaković Jovanović, J. et al. (2020). The relationship between E-commerce and firm performance: The mediating role of internet sales channels. *Sustainability*, 12(17), 6993. <https://doi.org/10.3390/su12176993>
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in Education. *Computers & Education*, 128, 13-35. <https://doi.org/10.1016/j.compedu.2018.09.009>

- Seraj, A. H., Fazal, S. A., & Alshebami, A. S. (2022). Entrepreneurial competency, Financial Literacy, and sustainable performance—examining the mediating role of Entrepreneurial Resilience among Saudi entrepreneurs. *Sustainability*, *14*(17), 10689. <https://doi.org/10.3390/su141710689>
- Setyowati, W., Widayanti, R., & Supriyanti, D. (2021). Implementation of E-business information system in Indonesia: Prospects and challenges. *International Journal of Cyber and IT Service Management*, *1*(2), 180-188. <https://doi.org/10.34306/ijcitsm.v1i2.49>
- Sutomo, E., Abdul Rahman, N. S., & Romli, A. (2020a). Determination of the influence factors on social commerce in SMEs: A Review. *International Journal of Software Engineering and Computer Systems*, *6*(2), 74-83. <https://doi.org/10.15282/ijsecs.6.2.2020.4.0072>.
- Tzavlopoulos, I. et al. (2019). Determining the impact of E-commerce quality on customers' perceived risk, satisfaction, value and loyalty. *International Journal of Quality and Service Sciences*, *11*(4), 576-587. <https://doi.org/10.1108/ijqss-03-2019-0047>
- Ulhaq, R. N., Munandarr, J. M., & Rifin, A. (2022). Effect of SME's E-readiness and online food delivery apps adoption toward business performance. *Journal Research of Social Science, Economics, and Management*, *2*(04), 445-462. <https://doi.org/10.59141/jrssem.v2i04.281>
- Van Waeyenberg, T., Peccei, R., & Decramer, A. (2020). Performance management and teacher performance: The role of affective organizational commitment and exhaustion. *The International Journal of Human Resource Management*, *33*(4), 623-646. <https://doi.org/10.1080/09585192.2020.1754881>
- Wang, J. (2021). Research trend of the unified theory of acceptance and use of technology theory: A Bibliometric analysis. *Sustainability*, *14*(1), 10. <https://doi.org/10.3390/su14010010>
- Yadav, V. (2019). The impact of Lean practices on the operational performance of SMEs in India. *Industrial Management & Data Systems*, *119*(2), 317-330. <https://doi.org/10.1108/imds-02-2018-0088>

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