

The Impact of Embracing E-Business on the Competitive Edge of Small and Medium-Sized Enterprises

Al zoubi A. Marwah¹, Al-Nsour H. Belal², Al-Tahayneh W. Faten³

Abstract

Numerous studies have attempted to define effective strategies for examining how small and medium-sized businesses (SMEs) evaluate competitive advantage. This is particularly relevant due to the heightened competition for investment funds in projects. However, achieving a competitive edge in trade has remained unattained in Amman, Jordan. This is evident from analyses of cost-effectiveness and assessments of supply chain operations within SMEs. These evaluations reveal a disconnect between operational production management and the technological capabilities needed to foster competitive advantages. The intricate nature of producing unique goods and services further complicates matters.

The primary aim of this research is to provide insights to researchers and policymakers about the influence of E-Business Adoption on SME competition. The study seeks to uncover several perspectives through its analyses and arguments regarding the adoption of e-business practices by SMEs. By employing a deductive approach in a quantitative research framework, the study integrates exploratory research, which is crucial in developing comprehensive marketing or business strategies. This step aims to shed light on the degree to which E-Business Adoption impacts SME competition in Amman, Jordan.

Through the utilization of structural equalization modeling—a sophisticated multivariate statistical analysis technique—the study's findings reveal a statistically significant relationship between E-Business Adoption and the competitive advantage of SMEs in Amman, Jordan. E-Business Adoption comprises three distinct components: the necessity for Electronic Marketing, Online Customer Communication, and online order taking. These elements collectively exert a substantial impact on SME competition. Among these dimensions, Electronic Marketing has the most profound influence, while the impact of online order-taking is relatively moderate. In light of these findings, the study emphasizes the significance of SMEs actively considering the integration of online order-taking mechanisms as part of their E-Business Adoption strategy, thereby heightening their overall competitive advantage.

Keywords: *E-Business Adoption, Competition, SMEs, Competitive price.*

1. Introduction

Numerous enterprises, especially SMEs, have embraced e-business practices to enhance operational efficiency, profitability, and competitive standing (Wu et al., 2003). The intended adoption of E-Business encompasses facets like enterprise resource planning,

¹ Al-balqa applied university- Prince Hussein Bin Abdullah II Academy for Civil Protection

² Al-balqa applied university- school of business department of planning and project management

³ Al-balqa applied university- school of business- researcher (SMEs)

operations, customer relationship management, purchasing, product sales, and personnel management. E-Business Adoption is synonymous with heightened brand and product visibility, amplified business growth, expanded geographic sales reach, streamlined information exchanges, facilitated business processes, enhanced coordination, substantial cost reduction, and an elevated competitive stance for companies (Oliveira & Martins, 2010). Additionally, E-Business Adoption offers valuable insights for managers and policymakers; advocating for technology infrastructure, IT training programs for employees, and collaborative partnerships with industry peers to achieve corporate objectives (Sani et al., 2020). In essence, E-Business Adoption empowers firms to execute electronic transactions throughout value chain activities. This signifies a novel fusion of internet-based technologies with core business, potentially reshaping the entire business landscape in the years ahead (El Rassi, 2020).

Furthermore, E-Business Adoption introduces innovative concepts for predicting the incorporation of business process innovations by market leaders, utilizing extensive datasets on e-business adoption and technology-enabled practices. These insights provide novel perspectives on firms, markets, and customer dynamics (Zhu et al., 2006). Transformational leadership has also been linked to influencing E-Business Adoption, subsequently impacting SME performance and competitiveness (Alos, 2017).

Organizational elements wield significant influence over the decision to embrace e-business. This aligns with prior studies emphasizing these factors' pivotal role in the adoption of e-technologies and e-business (Oliveira & Martins, 2010). E-business, characterized as a disruptive innovation, reshapes traditional business practices and is entwined with technology, organizational dynamics, senior management commitment to e-business strategy, and performance metrics significantly impacting its success (Fillis et al., 2004). It also opens doors to global markets and domestic performance enhancement (Voola et al., 2012).

Given the smaller firm's agility and flexible approach to "doing business," driven by entrepreneurial orientation, they stand to gain a competitive edge, particularly through swift internet integration (Ifinedo, 2011; Putra & Santoso, 2020; Won & Park, 2020). However, there has been limited exploration of small businesses' expansion in the e-business domain and their role in economic growth and exports. Understanding their receptiveness to e-business in both short and long-term perspectives is crucial (Won & Park, 2020; Wagner et al., 2003; Anggraeni, 2020).

The relationship between E-Business Adoption and the competitiveness of small businesses, as well as its implications for success, is examined by Oliveira & Martins (2010). Despite widespread e-business technology adoption, it remains uncertain whether these technologies impact SMEs' international competitiveness (Cataldo et al., 2020). SMEs' competition and their use of databases and networks, particularly in local contexts, are pivotal for leveraging E-Business Adoption (Zhu & Kraemer, 2005).

To bolster SME competition, especially in the production of electrical goods and services in Amman, Jordan, effective e-commerce adoption is imperative. This article seeks to refine research methodologies, enhance the E-Business Adoption framework, and delineate competitive advantage within this context.

2. Literature Review

(Fillis, I., Johannson, U., & Wagner, 2004) elucidate that E-Business Adoption signifies the process by which a company fully integrates e-business technologies as its optimal course of action, while non-adoption entails the decision to abstain. E-business is defined as "the utilization of Internet technologies to connect customers, suppliers, business partners, and employees, encompassing e-commerce websites, customer service platforms, intranets, enterprise portals, extranets, and IP-based electronic data

interchange" (Chen, 2003). The Serbian IT strategy is notably centered on the adoption and growth of e-business within organizational firms. This approach maximizes the potential of e-business applications, particularly in resource planning and logistics, to enhance industrial efficiency and achieve the firm's objectives, thereby augmenting customer value (Oliveira & Martins, 2010).

Hence, E-Business Adoption should serve as a guiding principle, extending across all business functions. It encompasses the scale of electronic activities, incentives for e-business initiatives, and the substantial impacts of e-business endeavors. Integration of e-business into business operations involves incorporating information and communication technologies to facilitate online transactions driven by corporate databases. The constituents of E-Business Adoption operations, as delineated by Fillis, I., Johannson, U., & Wagner (2004), consist of Electronic Marketing, Online Customer Communication, and online order taking. Lin, H. F., & Lee (2005) underscore that E-Business Adoption offers significant benefits to small businesses by lowering transaction costs and fostering international trade, potentially fostering economic growth and competitive prowess. Moreover, (Oliveira & Martins, 2010) affirm that the adoption of E-Business, accompanied by its application, enhances resource management efficiency and expedites communication.

On the flip side, e-business and the internet bestow substantial advantages upon SMEs, including reduced transaction costs, enhanced transaction speed, and reliability (Lin, J., Luo, Z., & Luo, X, 2020; Putra & Santoso, 2020). The involvement of SME managers and owners in E-Business Adoption endeavors elucidates their comprehension of e-business within their ventures. Continuous enhancement of the e-business environment and infrastructure is crucial for successful e-business application in SMEs. This necessitates attributes like high-speed Internet, comprehensive websites, and secure order processing and payment systems. Further, it is imperative to train SME employees in the use of these technologies (Alrousan et al., 2020).

E-Business Adoption, essentially the integration of e-commerce, is burgeoning among small- and medium-sized enterprises due to their compatibility with this commercial avenue. In emerging economies, slow e-commerce adoption in small businesses is attributed to barriers related to perception and economic constraints. Perceived ease emerges as a crucial factor influencing e-commerce adoption, predictive of consumer online purchase behavior. E-Business Adoption aims to underscore the extent of e-business and its implications for growth. To enhance competitive practices, an exploration of factors influencing E-Business Adoption becomes pivotal, inspiring managerial commitment to fostering competitiveness.

3. Assumptions

Defining dimensions and formulating presumptions about E-Business Adoption presents a formidable task. One of the primary challenges lies in dissecting the origins of E-Business Adoption to unveil a broader perspective marked by recurring patterns encompassing three distinct aspects. The foundation of the E-Business Adoption theory draws from the diffusion of innovation (DOI) theory, coupled with the contextual backdrop provided by the technology-organization-environment (TOE) framework. This amalgamation is particularly pertinent when dealing with a multitude of minor initiatives, as comprehensive SME E-Business Adoption studies specific to Jordan are scant. The researchers' formulated model of SME E-Business Adoption revolves around the inclination toward Electronic Marketing, Online Customer Communication, and online order-taking. However, this study omits the environmental factors of competition and trading partners in its E-Business Adoption framework, assuming that businesses inherently appraise both their internal and external landscapes. Therefore, the SME E-

Business Adoption construct becomes centered on the desire for Electronic Marketing, Online Customer Communication, and online order-taking.

Electronic Marketing pertains to promotional endeavors conducted over the Internet, yielding benefits such as swift response, cost-effectiveness, diminished risk, robust data collection, interactive engagement, and personalized marketing strategies for SMEs. The facet of Online Customer Communication entails attracting new customers through diverse online marketing platforms, nurturing customer relationships by consistently catering to their needs, providing high-quality products or services, and ultimately, carving out a share in the market. Online order-taking, meanwhile, bridges the gap between businesses and customers, driving growth, facilitating direct customer interaction, nurturing loyalty, and streamlining administrative tasks.

Regarding the correlation between E-Business Adoption and competition, prior literature has delved into this aspect, as evidenced by the works of Wu et al. (2003), Alrousan et al. (2020), Lin, J., Luo, Z., & Luo, X (2020), and Fillis, I., Johannson, U., & Wagner (2004). These studies explore methodologies to heighten corporate competition, particularly among SMEs, encompassing factors such as total quality, pricing, response speed, and market focus.

The formulated hypotheses to elucidate these relationships are as follows:

H1: A substantial impact of Electronic Marketing on SME E-Business Adoption exists.

H2: A notable effect of Online Customer Communication on SME E-Business Adoption is evident.

H3: A discernible influence of online order taking on SME E-Business Adoption is present.

H4: A direct correlation exists between the level of E-Business Adoption and the competitive positioning of SMEs.

Illustrating this framework, Fig. 1 depicts the research model, showcasing the intricate interplay between E-Business Adoption and its various dimensions in shaping SME competitiveness.

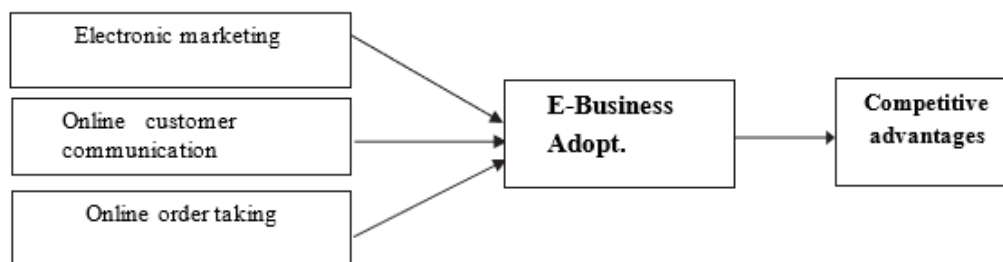


Fig. 1. Research model

4. Research Method

The research employed an online questionnaire survey as its primary data collection method. The study focused on analyzing responses from 107 participants engaged in small projects in Jordan. Additionally, expert interviews were conducted with key professionals in the field from Amman. The research adopted a conceptual model designed to elucidate the causal mechanisms within the system. This model encapsulated both direct and indirect relationships between dimensions. Comprehensive discussions encompassing various multivariate statistical analysis techniques were employed to explore differentiated approaches. Structural Equation Modeling (SEM) analysis tools,

specifically tailored for categorical dimensions, were utilized. Statistical analysts evaluated assumptions through random sampling of the population. The multivariate statistical analysis technique was facilitated by linear structural relations software.

A mixed methods approach was adopted, merging qualitative insights with quantitative data. This approach offers a holistic understanding of the dimensions under study, allowing for a well-rounded analysis. Researchers recognized the accessibility of mixed methods in uncovering qualitative facts and statistics. This research utilized two methodologies: (1) Multivariate techniques, applied to data collected across various dimensions of the same subject, and (2) Weighted regression, employed when the assumption of constant residual variance is breached.

The conclusions of the analyses of the SME E-Business Adoption dimension provide support for integrating its measurement model with elements of the small projects that are used to explain the three dimensions more accurately. Quantitative methods typically involve collecting data that can then be analyzed using various statistical methods, the standardized versions of linear regression weights (path degree), and the t-value measures the size of the difference relative to the variation in your sample data are introduced in Table 1..

Table 1. Analyses of the collected data for SME E-Business Adoption

Variable	fact-finding	R ²	Error Var.	t-arith	t-table	Note
Electronic Marketing(X1)	2.41	0.702	2.63	11.54	1.96	Sig.
Online Customer communication	1.71	0.690	1.54	9.25	1.95	Sig.
Online order taking	1.33	0.654	1.34	8.52	1.95	Sig.
Construct reliability			0.891			
Extracted difference			0.64			

Table 1 presents the findings of the structural model imputation from the direct impact of a dimension (the relationship of every variable to the underlying factor) on the correlation. It can be observed from the table that all dimensions have a track acceptability maximal than 0.50, leading to the conclusion that all dimensions are credible in measuring E-Business Adoption. Building on the conclusions of the assumptions, we can observe in the table that all variables display significant figures in a measurement. Additionally, the structure reliability of constant quantity has an amount of 0.89, more than 0.70, so it can be said that all variable's to ascertain E-Business Adoption. This values also shows that 89% of the variety of the SME E-Business Adoption can be given by three variables: expressly the desires of Electronic Marketing, Online Customer communication, and online order-taking. Furthermore, the extracted difference degree value is 0.64, indicating that 64% of the variety of the four dimensions can be explained by SME E-Business Adoption. From these three dimensions, it is observed that the dimension is most capable of measuring E-Business Adoption.

. The conclusions of the study display that the dimension of Electronic Marketing(X1) has a causal modeling of 2.41, with the conclusions of the examination of the causal modeling being stated as significant with a degree greater than 0.5. This indicates that this dimension can accurately assess E-Business Adoption. The reliability degree R2 of 0.702 states that 70.2% of the diversity of this dimension is affected by E-Business Adoption.

The dimension of Online Customer communication (X2) has a of 1.71 with the conclusions of the examination of the causal modeling being stated significant and a degree more than 0.5 displays that this dimension can accurately assess SME E-Business Adoption. The reliability degree R2 of 0.69 indicates that 67% of the diversity of this dimension is affected by SME E-Business Adoption. The online order taking (X3) has a causal modeling of 1.33, with the conclusions of the examination of the causal modeling being stated as significant and a degree greater than 0.5. This displays that this dimension can accurately assess E-Business Adoption. The reliability degree R2 of 0.654 indicates that 64.4% of the diversity of this dimension is affected by SME E-Business Adoption.

4.1. Competitive price and Quality, Product innovation, Delivery reliability on Competition

The Competition was assessed using four dimensions: competitive price, quality, product innovation, and delivery reliability. computational conclusions for causal modeling (factor loading) of competition (Y) for the four dimensions are presented in Fig. 2.

Table 2. Analyses of Assessment Model of Competition

Competitive price (Y1)	0.91	0.209	11.65	3.32	1.66	Sig.
Quality (Y2)	2.63	0.213	15.63	3.35	1.66	Sig.
Product innovation (Y3)	0.65	0.065	8.63	2.04	1.65	Sig.
Delivery reliability(Y4)	2.36	0.501	4.56	4.14	1.66	Sig.
Construct Reliability			0.89			
Extracted Difference			0.71			

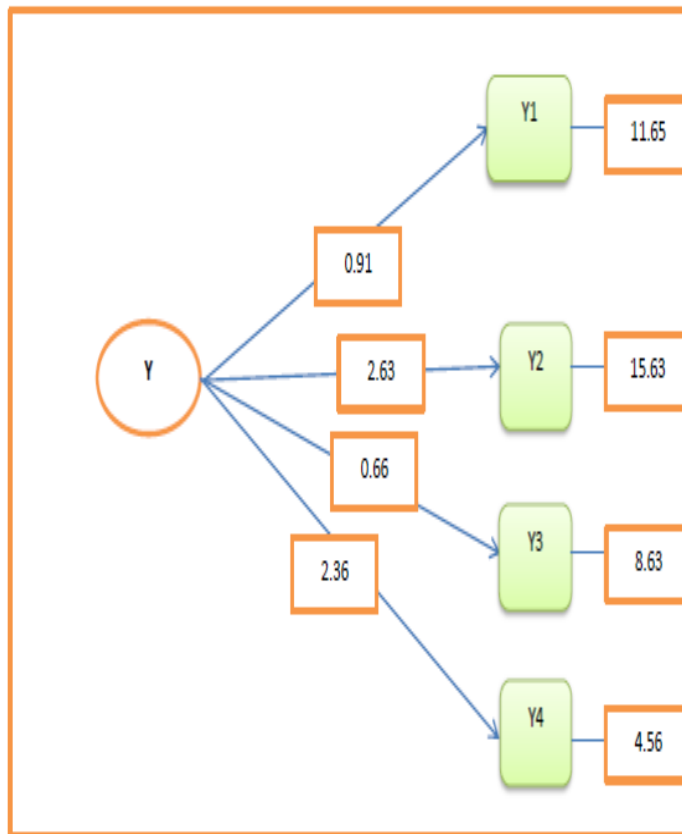


Fig. 2. Model of Competition Assessment

Fig. 2 shows the quantitative assessment model on path assignment for conclusions on the value of the degree of every diminution belonging to competition. The conclusions of the amounts from every variable display intensiveness value are >0.50 . The conclusions of the analyses of the assessment model of competition expressly the causal modeling and the t-value are stated in Table 2, which shows the conclusions of the computation of the assessment model from the causal modeling to the meaningfulness of the correlation coefficient. The delivery reliability (Y_4) has a causal modeling of 2.36 with the examination conclusions of the causal modeling being stated as significant and a degree more than 0.5. This indicates that this dimension accurately assesses competition. A reliability degree R^2 of 0.501 indicates that 50.5% of the difference is affected by competition. Analyze structural relationships and Assumptions Examine

Table 2, which shows the conclusions of the computation of the assessment model from the causal modeling (loading factor) to the significance of the correlation coefficient. The conclusions show that all dimensions have a causal model of greater than 0.50. All the dimensions are positive for measuring the latent dimension of competition. Furthermore, the construct reliability degree has an amount of 0.89, more than 0.70. The conclusions show that all the dimensions invariably assess competition. This value of 89%, which explained variation, measures the proportion of competition and was considered by the four dimensions of competitive price (Y_1), quality (Y_2), product innovation (Y_3), and delivery reliability (Y_4). Moreover, the excerpted difference degree amount of 0.71 appears in that 71% of the variation in the four dimensions can be illustrated by the hidden dimension of competition. It appears that all dimensions have a large degree of loading factor, so these four dimensions are quite capable of reflecting competition. The competitive price (Y_1) has a causal modeling of 0.91, with the conclusions of the examination of the causal modeling being stated as significant and a degree more than 0.5. This indicates that this dimension accurately assesses competition. A reliability degree R^2 of 0.209 indicates that 21% of the difference is affected by competition. The dimension of

quality superiority (Y2) has a causal modeling of 2.63 with the conclusions of the examination of the causal modeling being stated as significant and a degree more than 0.5. This indicates that the dimension can accurately assess competition. A reliability degree R2 of 0.213 indicates that 21.3% of the difference in this dimension is affected by competition. The dimension of fast responses (Y3) has a causal modeling of 0.65 with the conclusions of the examination of the causal modeling stated to be significant and a degree more than 0.5. This displays that this dimension can accurately assess competition. A reliability degree R2 of 0.065 states that 6.5% proportion of the difference in this dimension is affected by competition. The delivery reliability (Y4) has a causal modeling of 2.36 with the examination conclusions of the causal modeling being stated as significant and a degree more than 0.5. This indicates that this dimension accurately assesses competition. A reliability degree R2 of 0.501 indicates that 50.5% of the difference is affected by competition. Analyze structural relationships and Assumptions Examine analyze structural relationships examines the impact of E-Business Adoption on the competition of SMEs. Analyses of the structural model is display in Fig. 3.

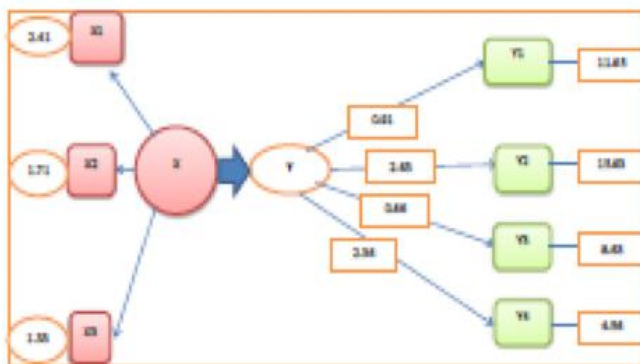


Fig. 3. Std. Degree E-Business Adoption for Competition s of SMEs

Table 3 Influences of E-Business Adoption on competition of SMEs

Dimension	Degree	t-arith.	t-table
E-Busin Adoptio	0.8	3.	1.96

Fig.3 shows a multivariate statistical analysis technique that reflects the conceptual model and assessment equations. analyze structural relationships to display the relationship between (E-Business Adoption) and (competition). The conclusions display an interconnection between E-Business Adoption and competition. From the computation conclusions, the degree of the E-Business Adoption track to the competition of SMEs is 0.80 with a calculated amount of 3.46 with an error difference of 0.29. The causal modeling of 0.80 shows that the impact of E-Business Adoption on competition of SMEs is 0.83 a standard deviation. By squaring the path degree, the degree of consideration is acquired with an amount of 0.70 This value explains that 70% of the proportion of the difference in competition was explained by E-Business Adoption. The result of t-value. (3.44) > t-table (1.96); thus, these assumptions were accepted (Table 3). Table 4 shows the values of the direct and indirect impacts of E-Business Adoption on the indicators of competition.

Table 4. Direct and indirect impacts of E-Business Adoption on competition s

Endogenous Dimensions	Direct	E-Business	
		Adoption	Total
Competition	0.80		0.80
Competitive price (Y1)	-	0.752	0.752
Quality (Y2)	-	2.139	2.139
Product innovation (Y3)	-	0.661	0.661
Delivery reliability(Y4)	-	0.601	0.601

Table 4 displays the direct impact of E-Business Adoption on SME competition at 0.832. Moreover, the influence of SME E-Business Adoption indirectly on the index of competitive price is 0.749, the impact on the indicator of quality is 2,139, for product innovation is 0.661, and for delivery reliability is equal to 0.601. The results show that the impact of E-Business Adoption on SME competition is observed from changes in the indicators of competitive price and quality. The conclusions indicate that the competitive price indicator is indirectly affected by the E-Business Adoption dimension. The conclusion is intended to help the reader understand the findings of previous studies that display information from a tabulated relationship between competitive price and competition. E-Business Adoption is to develop and manufacture their products so that they compete in the market, mostly in support of competitive prices when improving E-Business Adoption.

5. Conclusion

The integration of E-Business Adoption within firms often encounters challenges as it may not unfold exactly as planned. Nevertheless, E-Business Adoption holds the potential to enhance both the efficiency and effectiveness of a firm, thereby contributing to improved competition. E-Business Adoption holds significant importance due to the enduring nature of business goals and the considerable efforts required to attain them.

This study's conclusions shed light on SME E-Business Adoption within Amman's business landscape, representing a shift in the perspective of dimension acquisition. Among the dimensions, online order taking exhibits below-average capacity to embrace E-Business Adoption, whereas external contracting demonstrates superior capability. The analyses further establish that SME E-Business Adoption exerts a substantial influence on the competitiveness of SMEs. This interrelationship underscores the substantial contribution that the structure of SME E-Business Adoption makes to SME competitiveness.

Results from significance tests for the model's paths are presented, with online customer communication manifesting a notably significant path outcome. Notably, the examination reveals that the measurement of this dimension is influenced by E-Business Adoption. Online customer communication emerges as a crucial assessment, outpacing online order taking and even outperforming electronic marketing. These findings underscore the impact of elements like E-Business Adoption on competition, particularly in dimensions such as quality. In this context, E-Business Adoption encompasses efforts to enhance product offerings, thereby securing a competitive advantage.

In essence, the study underscores the nuanced nature of E-Business Adoption and its significance in driving SME competition. The results provide valuable insights into the intricate relationships between E-Business Adoption and competition, particularly

emphasizing dimensions like quality. This research enhances our understanding of how businesses can strategically leverage E-Business Adoption to bolster their competitive edge, thus influencing their overall success in the marketplace.

References

- Alos-Simo, L., Verdu-Jover, A. J., & Gomez-Gras, J. M. (2017). How transformational leadership facilitates e-business adoption. *Industrial Management & Data Systems*.
- Alrousan, M. K., Al-Adwan, A. S., Al-Madadha, A., & Al Khasawneh, M. H. (2020). Factors Affecting the Adoption of E-Marketing by Decision Makers in SMEs: Evidence From Jordan. *International Journal of E-Business Research (IJEBR)*, 16(1), 1-27.
- Cataldo, A., Astudillo, C. A., Gutiérrez-Bahamondes, J. H., González-Martínez, L., & McQueen, R. (2020). Towards an integrated maturity model of system and E-business applications in an emerging economy. *Journal of theoretical and applied electronic commerce research*, 15(2), 1-14.
- Chen, M. (2003). Factors affecting the adoption and diffusion of XML and Web services standards for E-business systems. *International Journal of Human-Computer Studies*, 58(3), 259-279.
- El Rassi, M. A. B. (2020). Why one e-business adoption model won't fit all firm sizes: The case of Lebanon's e-service industry. *The Electronic Journal of Information Systems in Developing Countries*, 86(5), e12135.
- Fillis, I., Johannson, U., & Wagner, B. (2004). Factors impacting on e-business adoption and development in the smaller firm. *International Journal of Entrepreneurial Behavior & Research*.
- Fillis, I., Johannson, U., & Wagner, B. (2004). Factors impacting on e-business adoption and development in the smaller firm. *International Journal of Entrepreneurial Behavior & Research*.
- Fillis, I., Johannson, U., & Wagner, B. (2004). Factors impacting on e-business adoption and development in the smaller firm. *International Journal of Entrepreneurial Behavior & Research*.
- Ifinedo, P. (2011). An empirical Analyses of factors influencing Internet/e-business technologies adoption by SMEs in Canada. *International Journal of Information Technology & Decision Making*, 10(04), 731-766.
- Lin, H. F., & Lee, G. G. (2005). Impact of organizational learning and knowledge management factors on e-business adoption. *Management Decision*.
- Lin, J., Luo, Z., & Luo, X. (2020). Understanding the roles of institutional pressures and organizational innovativeness in contextualized transformation toward e-business: Evidence from agricultural firms. *International Journal of Information Management*, 51, 102025.
- Oliveira, T., & Martins, M. F. (2010). Understanding e-business adoption across industries in European countries. *Industrial Management & Data Systems*.
- Oliveira, T., & Martins, M. F. (2010). Understanding e-business adoption across industries in European countries. *Industrial Management & Data Systems*.
- Oliveira, T., & Martins, M. F. (2010). Understanding e-business adoption across industries in European countries. *Industrial Management & Data Systems*.
- Oliveira, T., & Martins, M. F. (2010). Understanding e-business adoption across industries in European countries. *Industrial Management & Data Systems*.
- Putra, P. O. H., & Santoso, H. B. (2020). Contextual factors and performance impact of e-business use in Indonesian small and medium enterprises (SMEs). *Heliyon*, 6(3), e03568.
- Putra, P. O. H., & Santoso, H. B. (2020). Contextual factors and performance impact of e-business use in Indonesian small and medium enterprises (SMEs). *Heliyon*, 6(3), e03568.

- Sani, A., Khristiana, Y., Zailani, A. U., & Husain, T. (2020, October). E-Business Adoption Models in Organizational Contexts on The TAM Extended Model: A Preliminary Assessment. In 2020 8th International Conference on Cyber and IT Service Management (CITSM) (pp. 1-5). IEEE.
- Voola, R., Casimir, G., Carlson, J., & Agnihotri, M. A. (2012). The effects of market orientation, technological opportunism, and e-business adoption on performance: A moderated mediation analysis. *Australasian Marketing Journal (AMJ)*, 20(2), 136-146.
- Wagner, B. A., Fillis, I., & Johansson, U. (2003). E-business and e-supply strategy in small and medium sized businesses (SMEs). *Supply Chain Management: An International Journal*.
- Won, J. Y., & Park, M. J. (2020). Smart factory adoption in small and medium-sized enterprises: Empirical evidence of manufacturing industry in Korea. *Technological Forecasting and Social Change*, 157, 120117.
- Wu, F., Mahajan, V., & Balasubramanian, S. (2003). An analysis of e-business adoption and its impact on business performance. *Journal of the Academy of Marketing science*, 31(4), 425-447.
- Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. *Information systems research*, 16(1), 61-84.
- Zhu, K., Kraemer, K. L., & Xu, S. (2006). The process of innovation assimilation by firms in different countries: a technology diffusion perspective on e-business. *Management science*, 52(10), 1557-1576.
- Zhu, K., Kraemer, K. L., & Xu, S. (2006). The process of innovation assimilation by firms in different countries: a technology diffusion perspective on e-business. *Management science*, 52(10), 1557-1576.