

Highway to the Danger Zone-A Systematic Review of The Hazard Side of E-Commerce in Small Companies

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ABSTRACT

Small and medium-sized enterprises (SMEs) account for most of the world's business and are an important contributor to global e-commerce (EC) transactions as the number of digital customers continues to climb. Over the past decade research in the field has examined either the positive effect of EC or isolated unfavorable outcomes in EC businesses. From an original perspective, this systematic review analyzes eleven years of research of positive and negative EC outcomes and their tradeoffs in SMEs. Based on a standardized complete coding protocol, 73 selected studies were retrieved and analyzed. Results show that when it is well implemented, EC creates value and enhances firms' performance. In this research, we synthesize the critical success drivers of e-commerce and emphasize the conceptual importance of positive and negative research propositions for theory building.

Keywords: E-commerce, SMEs, internet adoption

1. Introduction

While e-commerce (EC) is acknowledged to have grown tremendously in the past decade, what contributes to its impact on small and medium-sized enterprises (SMEs), remains hazy – clouded for both practitioners and academics (Sombultawee, 2020). Past studies focused on systematic reviews to examine the effects of different dimensions of organizational performance (Rojas-Lema et al., 2020). Surprisingly, research has not paid much attention to the needs of EC in SMEs despite the increasing use of EC among SMEs. Some examples include that in 2019 online retail sales exceeded 3.5 trillion dollars worldwide, and according to the previous source, EC will continue to accelerate (Statista, 2020). Moreover, it is not clearly understood how previous research has studied the positive and negative impacts of EC in SMEs. Considering these gaps, the present article to address three following objectives:

RO1-How does the current body of literature inform about the positive and negative outcomes and their tradeoffs affect EC in small and medium-sized enterprises?

RO2-What does the current literature state about prominent concepts and how they relate to positive and negative effects of EC.

RO3-What future research propositions could add new insights in a conceptual framework?

The main aim of this study is to review theoretical and empirical research published in indexed journals ranked from Quartile 1 to 3, between 2010 and 2021.

2. Literature Review

2.1 *Can e-commerce create value for small and medium-sized enterprises?*

The literature reports much research surrounding the concept of e-commerce (EC), which can be defined as a modern business methodology that meets the needs of companies in the process of buying or selling products using the Internet (Ingaldi & Ulewicz, 2019).

Although there is no formal definition of what the requisites are for a company to be classified as an SME (Curran & Blackburn, 2011), typically SMEs definitions include employee numbers, financial results, and the way business is conducted (Hashim & Abdullah, 2014). These types of enterprises are the backbone of the European economy, as they account for the highest rate of new job creation in the European Union (Papadopoulos et al., 2018). On one hand, EC can help SMEs to expand their businesses, boost sales and revenue, and increase company earnings. Ghobakhloo et al., (2012) suggest that the improvement of internal technical knowledge is a key driver of customer satisfaction in SMEs. On the other hand, due to their small size, financial issues and recruiting skilled employees regularly affect SMEs' productivity in the use of information technology resources (Pham & Pham, 2011). The value of EC is mainly quantified by its impact on organization performance, although there are two special cases in which EC value is assessed directly (Zhu, 2004). DeLone and McLean (2004) state that EC is a technological system, in which the results are quantified by the information, namely service quality, ease of use, user satisfaction, and net benefits. Thus, EC value should be evaluated by its prospective accomplishments rather than immediate results (Wade & Nevo, 2005). Authorities all over the world need to agree on how EC should be taxed—if by the nature of the business or the way it operates (Cockfield, 2006). According to Azam (2007), this is a complex issue since taxes on purchased goods were implemented even before online business existed. From the review of past studies, the main point to conclude is that it is undeniable that EC adds value to SMEs by enhancing company visibility and targeting new marketing opportunities; (Erlanitasari et al., 2020). But can EC create

value to SMEs? Kim and colleagues conclude that, when it is well implemented, EC is unquestionably a path to develop SMEs' resources and strategies to leverage companies to an outstanding performance in the digital economy (Khin et al., 2019). Despite the success of previous EC platforms, the online purchasing experience continues to change with new offers, procedures, experiences, and customers' demands. If companies fail to acknowledge that the future relies heavily on electronic transactions, they will face the consequences of losing clients, failing to gain new customers, and will lack the resources to create a loyal relationship with suppliers and buyers (North & Smallbone, 2000). Stockdale and Standing (2004) sought to determine which barriers SMEs should overcome first when adopting a formal EC strategy. The authors divided these barriers into two groups:

The *internal barriers*, which comprehend the identification of benefits, usually do not have a formal e-commerce planning strategy, and this prevents them from setting their business at the desired stage (Chau, 2003).

The *external barriers* comprehend the lack of understanding of SME needs, common technology standards, and e-competence in the industry sector (Stockdale & Standing, 2004). It is generally accepted in the literature that excellent internet service, information quality, interaction, design quality, and good service providers are the most valued factors in EC (Bodini & Zanoli, 2011).

3. Methodology

Our full coding protocol was carried out in four stages: *First* (Initial Search) Studies were included based on keyword(s) E-commerce "AND" Small and medium business and related words, Electronic commerce: E-business, E-commerce: E-commerce adoption, Small business: Small "AND" Medium enterprises, Small to medium-sized enterprises, Small business research, SME, SMEs. The database EDS-EBSCO Discovery Service was used as it aggregates publications. Thus, the review included all relevant scholarly journals, and a subset of relevant journals (Moher et al., 2009). The *second* stage was a Preliminary Screening, due to the vast number of studies, additional filters were applied excluding non-journal articles, (Paul & Rialp-Criado's, 2020).

At stage *three* we continued using the "Exclusion" criterion to narrow the search. The *fourth* and final step the 73 retrieved articles were summarized and coded into Positive and Negative Outcomes using Leximancer 5.0. The methodology is designed to address the following objectives of the study: 1) To assess the current body of literature its positive and negative outcomes and impact of EC on small and medium-sized enterprises? 2) To investigate prominent concepts and how they relate to positive and negative effects of EC? 3) To propose future insights linking EC with SMEs.

4. Analysis and Results

To address the first research objective of this systematic review, on how does the current body of literature inform about the positive and negative outcomes and their tradeoffs affect EC in small and medium-sized enterprises? two separate concept maps were produced to display the most common positive and negative themes as well the ranked concepts and frequency.

4.1 Concept map of e-commerce positive outcomes

The map in Figure 1 includes four themes (indicated by colored circles) and their related concepts (connected by smaller gray nodes). The four themes identify the main positive effect of e-commerce in small and medium-sized enterprises, the connectivity rate for all themes is

higher than 15%. The main theme is related to the positive effect of “e-commerce” (100% relevance percentage), followed by “technology” (28%). technology “adoption” (44%), and “performance” (15%).

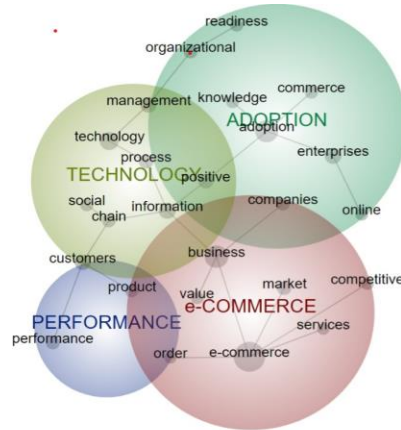


Figure 1. E-commerce positive outcomes for SMEs

4.2 Concept map of e-commerce negative outcomes

Connectivity rates of the four themes (see Figure 2) indicate a negative impact of e-commerce in SME with a connectivity rate higher than 10% and included by importance “e-commerce” (100% relevance); “technology” (50%), technology “adoption” (34%) and its impact on “customers” (11%).



Figure 2. E-commerce negative outcomes for SMEs

4.3. Summarizing the current literature

This section addresses the second and third research objectives, how the current literature state about prominent concepts related to positive and negative effects of EC? (see Figure 1 and 2). Furthermore, we address research propositions covering positive and negative outcomes.

4.3.1 Positive effect of e-commerce in SMEs

Based on the consistency of the lexical results we categorize the positive effects into four major themes (Figure 1). Thus, e-commerce “benefits”, expose the positives effects for companies, consumers, and the market and business in general (Neykova & Miltchev, 2019). The “business development” identified which strategies can be adopted to develop the company’s business (Li et al., 2018). Online “services” are the different potentialities that

EC services can bring to the consumer. The last concept is the increased number of “orders” and sales which is the result of a good strategy applied to the EC (Yoon et al., 2021). Even though further analysis is necessary to assess how EC plays a positive influence in SMEs we propose:

P1. *SMEs that implement e-commerce have a better competitive advantage than those that do not implement online services.*

Technology has a “positive” effect on the intention to use EC (Nurunnisha & Dalimunthe, 2018) and its adoption improves the company’s performance (Yang et al., 2015) and organizational readiness (Walker et al., 2016). Online business “processes” are easier to implement when having workers specialized in IT (Bordonaba-Juste et al., 2012) since human capital is vital in technology implementation and development (Jabeur et al., 2013). Also, “social” media, is an IT tool that can reach more consumers due to advertising and has a positive impact on sales performance (Suciu et al., 2019), but all of these advantages always depend on the firm’s strategy and design sophistication (Saridakis et al., 2018). We conclude that technology should be in the mind of every SME, so we propose:

P2. *SMEs that use technology to improve customer services and organizational readiness have better sales performance than those that do not use technology in human capital.*

Concerning the EC “adoption” – the third most important theme of our research – we analyzed seven semantically connected concepts (“adoption”, “enterprises”, “organizational”, “commerce”, “readiness”, “online”, and “knowledge”).

E-commerce “adoption” is positively influenced by organizational readiness and the amount of investment made in human resources (Walker et al., 2016). “Organizational” readiness endorses the importance of having technological competencies that are crucial for EC adoption (Wu, 2021). The last concept, “knowledge” is a variable that can be divided into two, knowledge application and knowledge acquisition, which is only achievable as the last process in EC adoption (Yee-Loong Chong et al., 2013). Results indicate that human resources skills are critical in the adoption of EC, especially in SMEs, leading us to propose that:

P3. *SMEs that invest in human resources and knowledge-sharing management enhance their market value.*

The last positive theme found in the literature is company “performance”, with two semantically connected concepts (“performance” and “products”).

“Performance” for Yanf et al. (2015) and for Saridakis et al., (2018) is a consequence of the sophistication brought by the EC, and can be divided into business process performance, operational performance, and financial performance (Sila & Dobni, 2012). “Products” are the focus of the EC because, via the electronic platforms, companies can enhance product competitiveness (Fu et al., 2018). The results obtained through this analysis show that the online services available through the EC bring competitive advantage to the enterprises, which results in a sales and order increase, market expansion, consumer trust, and better performance. Extending this theory that EC enhances the process, operational, and financial performance we propose:

P4. *SMEs that add EC platforms to their businesses have more and better market performance compared to those that have no online platform.*

4.3.2 Negative effect of e-commerce in SMEs

Based on the consistency of the lexical results we categorize the negative effects into four major themes (Figure 2).

The main theme “EC”, which is also the main concept, indicates that EC can be difficult to implement, mainly due to the lack of economic resources and absence of specialized human resources (Walker et al., 2016), technical restraints (Elbeltagi et al., 2016a), non-existence market culture (I. Senarathna et al., 2014a), lack of security (Saridakis et al., 2018), and limited control over the business environment (Pham & Pham, 2011). Reaching new “markets” is particularly difficult for SMEs especially in selling their products in foreign countries, and in being competitive cross-border (Li et al., 2020). Although “financial” resources are the last concept that negatively affects SMEs, it is considered to be one of the main barriers for the EC adoption process (Walker et al., 2016). Due to the research pattern suggesting that a lack of financial resources affects e-commerce implementation, we propose that:

P5. *Lack of financial resources and specialized customers in technological areas has a negative impact on the adoption of e-commerce in SMEs.*

The second most prominent theme, “technology” negative outcomes, shows its effect in six semantically connected concepts (“technology”, “management”, “culture”, “process”, “chain”, and “readiness”). For Elbeltagi et al. (2016a) “technology” is difficult to implement due to technical complexity and human adoption limitations. “Management” concerns the EC adoption rate, which is low due to the existence of only small teams dedicated to IT or to no teams existing at all (Pham & Pham, 2011). Customer orientation suppliers’ “chain” facilities and customer “readiness” technologies should be sophisticated in order not to harm SMEs’ “performance” (Noor et al., 2020). Even though further analysis is necessary, these results indicate that technology is difficult to implement in enterprises that lack resources. We need to further investigate that:

P6. *SMEs are low on implementing new technology resources because these are expensive and hard to be applied by unspecialized IT employees.*

The subsequent key data were acquired from the third most noted theme “adoption” negative outcomes with six semantically connected concepts, namely “adoption”, “enterprises”, “commerce”, “security”, “employees”, and “influence”. “E-commerce” raises concerns related to the technical implementation process (Elbeltagi et al., 2016a; I. Senarathna et al., 2014a). One of the main apprehensions related to this subject is “security”. Tsatsou et al., (2010) pointed out that online risks that are present nowadays discourage many SMEs from adopting EC. “Employees” resistance to change, which causes a negative “influence” on the adoption of a new organizational culture, is seen by the authors as another distress associated with the technical implementation process. Compared to other themes, e-commerce adoption problems need careful analysis in the context of SMEs, so we propose:

P7. *Security risks, resistance to change, and lack of government support negatively influence SMEs’ adoption of EC.*

The following key data were developed from the last most noted theme “customers” negative outcomes, revealing its effect in five semantically connected concepts (“customers”, “model”, “service implementation in companies”, “cost of IT solutions”, and “human resources”). The first concept, “customers” raises concerns about the way employees communicate with consumers (Gyenge et al., 2021). Companies should have their own guiding “model”, allowing their workers to adopt the best communication strategy (Barroso et al., 2019). Although every company knows the importance of their “human resources”, few can give new technological skills to their employees to realize better sales performance (Noor et al., 2020). E-commerce also brings negative outcomes, and research should thus

bear in mind that enterprises with small infrastructures might have a final negative effect on their customers. This leads us to further propose that.

P8. SMEs lack sufficient resources to keep their technologies updated enough to keep every customer satisfied.

5. Discussion and Conclusion

Where do we go from here?

The broad conclusions drawn from the results pertain to the two research objectives: How the current body of literature its positive and negative outcomes and impact of EC on small and medium-sized enterprises? And how current published prominent concepts relate to positive and negative effects of EC? In summary, this study shows that there are five key EC positive outcomes are the “social benefits”, “products”, “customers”, “competitive advantage”, “company development”, “business” and “process”. From this, we conclude that these are the subjects that companies should prioritize to boost their website and to be competitive in other markets. The main critical negative outcomes for SME comprise are the “resources”, “implication to company security”, “the heavier overall cost for small firms”, “the necessary infrastructures”, the “required services” “a potential negative impact on sales”, and “small market share”. This leads us to conclude that when adopting EC, firms should take seriously these themes and concepts to enhance their business and avoid being negatively affected by them.

Overall, the findings suggest that SMEs that are willing to invest in EC platforms and are patient regarding the derived revenues can expect to see an increase in sales, market expansion, new business opportunities, and better performance. On the other hand, companies that are reluctant to put some of their funds into EC due to lack of economic and specialized human resources, absence of security, and/or limited control over the business environments have a competitive disadvantage compared to those that implement online services. The findings from this research show that the positive effect of “e-commerce”, “technology”, technology “adoption”, and “performance” are the most important themes regarding the EC adoption among SMEs. Furthermore, this research shows that when it is well applied, EC is a tool that enhances firms’ results, competitive advantage, and business expansion. Finally, we addressed the last objective by proposing new insights and eight research propositions linked to EC in SMEs based on the retrieved articles.

5.1 Theoretical and practical contribution

The present systematic review is an attempt to address multiple gaps and contributes in four ways to the literature that targets and contributes towards companies' strategic decisions in EC in the context of SMEs. First, although many systematic review studies suggest that there is a strong relationship between e-commerce positive and negative effects in SMEs, not many studies empirically examine these relationships. Therefore, this research extends other systematic reviews Chouki et al., (2020) on the organizational environment and the adoption of e-commerce by moving from the single implications of e-commerce to a holistic perspective and analyzing the positive and negative effects of EC adoption in the specific context of SMEs.

Second, the study contributes through the outcomes of eight research propositions which explored desired and undesired effect of e-commerce implementation in SMEs thereby adding new insights in a conceptual framework. The study fills a methodological gap as it adopts a text mining tool to represent the main EC themes (Figure 1, and Figure 2) that have

been studied in the past 11 years and associated concepts through the strength of connectivity yield in the context of SMEs.

Third, findings indicate that company size influences e-commerce adoption. Consequently, we additionally propose that the type of company should moderate the relationship between predictor variables and e-commerce criterion variables. Our results have enormous practical implications for both scholars and company managers. For academics, this research compiled all the available bibliography between 2010 and 2021 regarding the value of EC for SMEs and what lies ahead for EC. We summarize the most important concepts and themes that influence EC adoption and non-adoption by SMEs. Practically, this research reveals what the SMEs' priorities should be when implementing e-commerce. Our results may have practical implications for understanding the reluctance of some SMEs regarding EC adoption. Our findings suggest minimizing the bottom-line negative effects that can undermine EC adoption in SMEs (i.e., financial resources, employees specialized in IT, and address security concerns) were revealed to be a barrier for technological advancement in e-commerce. This work is limited by the conclusions and results reported in previous studies, which sometimes represent researchers' beliefs and conclusions more than the SMEs' reality.

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