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The impact of information systems on the success of e-commerce in small and medium-sized companies

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PhD in Information Science and Technology

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To my family

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Resumo

O desenvolvimento do comércio eletrónico revolucionou a forma como as pequenas e médias empresas realizam transações comerciais. Esta investigação realizou três estudos que foram orientados pela seguinte questão de investigação: Como podem os Sistemas de Informação alavancar o sucesso do comércio eletrónico nas pequenas e médias empresas?

Além disso, esta investigação teve em conta os seguintes objetivos: propor uma agenda de investigação futura e temas específicos envolvendo a utilização do comércio eletrónico nas pequenas e médias empresas, investigar as relações entre as variáveis do modelo proposto nas pequenas e médias empresas que operam no contexto *business to business*, medir e comparar as variáveis que são mais importantes para o modelo, compreender como as pequenas e médias empresas lidam com as falhas nos serviços de comércio eletrónico, identificar como as falhas nos serviços de comércio eletrónico influenciam o envolvimento do cliente e descobrir de que forma o envolvimento do cliente é afetado quando enfrenta falhas de serviço.

Desenvolvendo esta pesquisa sob a forma de três estudos, o primeiro aborda a falta de evidência teórica sobre os benefícios desta tecnologia para as pequenas e médias empresas que operam no contexto do *business to business*. O segundo, amplia os modelos teóricos anteriores que se focam no sucesso dos sistemas de informação, analisando diversos fatores e os seus benefícios no sucesso da nova plataforma de comércio eletrónico. O terceiro, examina o efeito de múltiplas falhas de serviço no envolvimento do cliente.

Esta investigação contribui para uma melhor compreensão dos benefícios do comércio eletrónico.

Palavras-chave: Comércio Eletrónico, Pequenas e Médias Empresas, Comércio por Grosso e a Retalho, Gamificação, Falha de Serviço, Envolvimento do Cliente

Abstract

The electronic commerce development has revolutionized the way small and medium sized enterprises carry out commercial transactions. From an original perspective, this research carried out three studies which were guided by the following research question: How Information Systems can leverage the success of electronic commerce in small and medium sized enterprises? .

Furthermore, this research had in count the following objectives: propose a future research agenda and specific topics involving the use of electronic commerce in small and medium sized enterprises, investigate the relationships between the proposed model variables in the small and medium sized enterprises context that operate in the business to business, measure and compare the variables that are the most important for the model, understand how small and medium sized enterprises deal with electronic commerce service failure, identify how electronic commerce service failures impact customer engagement and find to what degree is customer engagement affected when facing service failures.

Having developed this research in the form of studies, the first addresses the lack of theoretical evidence on the benefits of this technology for small and medium sized enterprises operating in the context of the business to business. The second expands the previous theoretical models that focus on the success of information systems, analyzing several factors and its benefits in the success of the new electronic commerce platform. The latest study fills a research gap by examining the effect of multiple service failures on customer engagement.

This research contributes to a better understanding of the electronic commerce benefits.

Key-words: E-commerce, Small and Medium Sized Enterprises, Business to Business, Gamification, Service Failure, Customer Engagement

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List of Abbreviations

B2B – Business to Business

CFA – Confirmatory Factor Analysis

EC – Electronic - Commerce

EFA – Exploratory Factor Analysis

HORECA – Hotels, Restaurants and Catering

ICT – Information Communication Technology

IS – Information Systems

IT – Information Technology

SEM – Structural Equation Modeling

SMEs – Small and Medium Sized Enterprises

TAM – Technology Acceptance Model

TCCM – Theories, Context, Characteristics and Methodology

TPB – Theory of Planned Behavior

TRA – Theory of Reasoned Action

CHAPTER 1

General Introduction

1.1. Research Gap and problem delimitation

This PhD study is driven by the interest of investigators and company managers in the application of information systems (IS) on the success of e-commerce (EC) in small and medium sized enterprises (SMEs) to increase customer engagement and reduce systems failures. Being efficient and economically viable is crucial for enterprises, especially SMEs.

The existence of businesses of diverse sizes across various sectors serves as a motivation for this study to be broadly inclusive, considering different company sizes and sectors within the SME pool. This approach ensures a clear understanding of data interpretation for diverse audiences.

In the actual intensifying global economic view, SMEs seek effective management practices and favorable business environments to enhance efficiency and competitiveness. SMEs are prominently featured in the business policy agenda due to their pivotal role in job creation, fostering innovation, and nurturing entrepreneurial skills (Ipinnaiye et al., 2017). The past literature review on firm growth, dating back to Gibrat's Law in 1931 (Coad, 2009; Peric & Vitezic, 2016), provides insights into the heterogeneity of firms stemming from various origins, including characteristics specific to the firm (such as ownership, age and size) and strategic variables related to the firm's approach (such as preparation and advanced activities), which play a crucial role in elucidating the growth patterns of SMEs.

Moreover, empirical research distinguishes two primary sets of factors influencing business success. The first pertains to the macro-level impact of the business environment, encompassing external factors that shape companies' performance and solidity and the second focuses on the micro-level company effect, determined by management practices, internal funds investment, and company composition (Ipinnaiye et al., 2017).

Even though, a significant body of literature underscores the company effect's greater influence on business success compared to industry or sectoral effects (Schmalensee, 1984; Simpson et al., 2004; E. Walker & Brown, 2004). DeLone and McLean (2004) assert that "net benefits" offer the most precise explanation for ultimate success.

However, for achieving success in this area some authors define the following objectives: increase in sales volume, improve distribution networks, enhance consumer service, improve cost-effectiveness, create value innovation, develop market expansion, and continue business development (Chatzoglou & Chatzoudes, 2015). In a broader context, a company's performance can be gauged by its operations, processes, and financial outcomes (Sila & Dobni, 2012). According to Pham and Pham (2011), globalization and widespread website usage have simplified global online business, enabling the acquisition of new customers and the exploration of new markets.

Nevertheless, there are also negative effects for SMEs when adopting EC, which include concerns related to "resources," "implications for company security," "increased overall costs for small firms," "necessary infrastructures," "required services," "potential negative impacts on sales," and "limited market share" (Pham & Pham, 2011; Saridakis et al., 2018; J. H. Walker et al., 2016a). Yet, recent findings from Saridakis et al. (2018) indicate SMEs with websites exhibit results that are up to 16% superior compared to firms without an online presence. Additionally, these SMEs demonstrate 4% to 5% better performance than companies lacking an EC website.

Despite the significant growth of EC in the last decade, the factors contributing to its impact on SMEs remain unclear, posing a challenge for both practitioners and academics (Hånell et al., 2019). In the contemporary business landscape, the competitiveness of the market compels SMEs to inevitably use EC. This necessity pushes these enterprises to adopt advanced and informed strategies, ensuring their distinctiveness, success, and profitability in both domestic and international markets (Bertoa et al., 2019).

Existing research has predominantly emphasized the numerous benefits of EC for both companies and customers (Bilal et al., 2016; Rahayu & Day, 2017). For companies aiming to meet customer expectations and enhance their performance, the adoption of the EC is essential. However, a more nuanced approach is required to fully comprehend the comprehensive impact of EC on company performance (Tobon et al., 2020).

The effectiveness of EC from a theoretical perspective requires a distinct approach, as emphasized by Jeyaraj (2020). The author underscores the necessity for a novel model capable of identifying the fundamental elements of EC net benefits and empirically evaluating these aspects within an authentic EC context. It is crucial in the current business landscape to grasp the theoretical and practical underpinnings of business to business (B2B) EC implementation by SMEs, particularly the significance of gamification elements and mechanisms in this context. This provides a fresh perspective for SMEs to capitalize on their online presence and thrive in the B2B context.

The EC development has reshaped the business practices of SMEs, prompting increased reliance on technology. As a result, this evolving landscape presents various challenges, with unresolved issues like EC service failures in SMEs (Das et al., 2019; Noor et al., 2020). Despite recent studies focusing more on service recovery, there is a consensus that understanding EC service failures in SMEs remains limited (Uitz & Jančíková, 2022).

Several theoretical studies and models were proposed regarding EC in SMEs (Bocconcelli et al., 2017; Deng et al., 2019; Jean & Kim, 2020; Lyu et al., 2010). Even though, all these studies left a literature gap regarding the SMEs which use EC on B2B markets. There is a lack of studies which conducted an empirical systematic review on the last years regarding the analyze of the advantages and disadvantages of applying EC. Additionally, there was found an absence on IS models which added new propositions to make EC more competitive in nowadays world. Furthermore, there was no seen evidence on literature research on the effects of systems failures in the EC.

Our PhD is strongly committed to the enhance of these three literatures gaps. Due to the most diverse forms of approach that the object of study can be guided, the dissertation was delimited considering the following:

- Analyze the most recent studies regarding the EC
- Test a gamified EC model in the context of B2B EC
- Analyze the factors that contribute to sales through EC
- Study the impact that gamification has on sales
- Gain insights into how SMEs handle EC service failures
- Investigate the impact of EC service failures on customer engagement
- Determine the extent to which customer engagement is influenced in the presence of service failures.

1.2. Topic motivation and justification

In the digital age, SMEs that are structuring internally for growth are implementing Information Technology (IT) and seeing EC as a business advantage. The advent of emerging technologies, including information and communication technologies, has not only led to the creation of novel products but, through their widespread adoption, has also altered the inherent features of them (Thomas Katua, 2014).

EC aims to increase the competitiveness of organizations through the development of new technological tools that create value for the company itself and for stakeholders, strengthen business relationships, and promote companies through digital platforms (Dave Chaffey et al., 2019). The results obtained through EC are not only due to a single factor but also to something more complex called a multidimensional phenomenon (Ghandour et al., 2011).

To create a website that can reach the target audience, companies must dedicate part of their time and money resources to the development of EC innovative technologies (Ghandour et al., 2011). EC uses electronic platforms and digital technologies to provide commercial exchanges, whether services, products, or information between enterprises or between companies and the final consumer (Manzoor, 2011).

EC is one of the strategies for integrating multiple online services, which play a major role in retaining and attracting new customers, however, EC depends on a set of internal and external factors that must be considered (Choshin & Ghaffari, 2017). Today more than ever, customers have a wide range of offers where they can make their purchases, which leads firms to internally find the business mechanisms that improve the online shopping experience (Karać & Stabauer, 2017). To encourage purchases and increase sales volume, corporations have included elements of games in their sales process, which is known as Gamification (Ziesemer et al., 2014). Multiple studies on online purchasing mechanisms focus on retail purchases, however, these studies do not integrate the online shopping process with elements of games in the B2B business model in SMEs.

One of the main advantages of the application of gamification theories to information systems is allowing users to feel an experience of deep involvement in the website by exploring all its potentialities (Hamari et al., 2014).

Failures in EC services can have a detrimental impact on businesses overall, as consumers may be hesitant to participate in subsequent online transactions due to previous negative experiences, since a setback in any part of an EC transaction can result in an adverse ripple effect, eroding consumers' confidence in other aspects of the transaction process (C. W. Tan et al., 2016). The categorization of elements within system failure may depend on causes of failure, outcomes of failure, or alternative criteria (K. Y. Cai, 1996).

Organizations aim to promote the early identification of errors, open communication, transparent analysis of root causes, and prompt corrective actions (Dimitrova et al., 2017). However, there are still deficiencies in this developing body of literature (Cusin & Flacandji, 2022) and the exploration of failure can be approached both qualitatively and quantitatively (K. Y. Cai, 1996).

In today's fast-paced and interactive business environment, customer engagement stands as a pivotal concept (Sands et al., 2022). Certain extensively engaged customers may tend to develop robust brand preferences and loyalties, while the reverse might be the case for others in the context of Customer Engagement Behaviors (C. Zhang et al., 2021) .

Involved customers play a crucial role in the success and expansion of a company, and assessing brand performance now relies on the metric of customer engagement (Sands et al., 2022). However, for Zhang et al., (2021) it is not certain whether engage customers consistently improve guest loyalty.

A considerable number of B2B companies struggle to adeptly oversee the involvement of their customer base (Sands et al., 2022). Studies indicate that a mere 29% of B2B customers exhibit engagement, while the general part tend to be either indifferent or disengaged (Kamins, 2016). These findings imply a significant potential for firms, as engaged customers are instrumental in achieving top-line growth, establishing resilience against disruption, and ensuring the overall sustainability of companies (Bracke et al., 2019).

1.3. Enhancing the Information Communication Technology (ICT)

In diverse economic environments, SMEs have demonstrated their inherent utilization of ICT competencies. There is compelling evidence that ICT catalyzes economic growth, prompting governments worldwide to encourage SMEs to embrace ICT (Asunka, 2016).

For Vainiomäki and Laaksonen (1999) the intricate nature of ICT utilization in SMEs, considering the presence of diverse internal and external factors affects a firm's capacity to employ IS technologies. However, large enterprises have better explored the potential of ICT to gain a competitive advantage, unlike their smaller counterparts (Asunka, 2016).

Despite significant advancements in ICT, there remains a disparity between the utilization of ICT and the growth of SMEs, and scholarly research to elucidate this gap is still constrained (Chege & Wang, 2019). Since SMEs contribute significantly to the global economy by fostering job creation, revenue generation, and prosperity distribution, thereby contributing to the socioeconomic progress of societies, is paramount to elucidate the importance of ICT to the SMEs in a holistic perspective (Thomas Katua, 2014).

Duan et al., (2002) have identified that technological constraints, stemming from unskilled technicians and a lack of awareness regarding the value of ICTs and return on investment, have been the primary reasons for the lower rate of ICT adoption by SMEs. Also, inadequate telecommunications infrastructure, a shortage of skilled or limited ICT personnel, inefficient integration of ICT into business processes, elevated costs of ICT equipment, and government regulations for EC have been the cause of a minor rate of ICT embracement (C. W. Tan et al., 2016).

ICT plays a crucial role in fostering economic growth, particularly in the age of the Internet and mobile communications (Bankole et al., 2017). Recognizing its significance, many nations, are striving to integrate ICTs into their frameworks to bridge the gap and align with more advanced economies (Asunka, 2016; Bankole et al., 2017).

The utilization of ICT represents a contemporary avenue for job creation, facilitated by networking sites that foster innovative interactions among individuals (Chege & Wang, 2019; Roztocki & Weistroffer Roland, 2011). The digital opportunities provided by ICTs are crucial for enhancing various aspects of developing economies and facilitating their entry into new global markets (Asunka, 2016; Azadnia et al., 2017). In a broad scope, ICTs offer numerous advantages in various business operations and transactions as SME managers, who adopted ICT technologies, have highlighted the positive impacts of ICTs on their businesses, encompassing increased sales, improved communication with stakeholders, and enhanced organizational processes through their integration (Asunka, 2016).

Our research helps SMEs understanding how they can leverage the ICT implementation and take advantage of these types of technologies through EC. EC gives SMEs the possibility to gain access to new markets, reduce transaction costs, increase partnerships with different stakeholders and improve price transparency (Asunka, 2016; Office for National Statistics, 2014; Richard, 2010). With EC, SMEs can also increase revenue by enhancing income generation and gaining national and international competitiveness (Ongori & Migiro, 2010). Several authors also affirm that ICT via EC implementation in SMEs improves work productivity and organizational efficiency by assisting in the automation of business processes (Chege & Wang, 2019; Ongori & Migiro, 2010; Richard, 2010).

A crucial aspect of implementing EC is the presence of a well-organized IS model that can be effectively applied (Abdu'a & Wasiyanti, 2019). As reported by numerous authors, the adoption of new technologies poses challenges for many companies, attributed to the intricacies of systems or a shortage of employees with expertise in IT (Mazzarol, 2015; Morais et al., 2012; Pham & Pham, 2011).

Successful implementation of EC offers companies significant opportunities to engage in key business activities such as trading relationships, information exchange, and coordinating logistics and communications through global or regional supply chains (Kurnia et al., 2015). C. H. Yang and Tsou (2017) posit that companies adopting EC are more likely to develop new strategies and have an 11% higher chance of building their brands.

Despite these distinct characteristics, Mahroeian (2012) argues that the adoption of EC hinges on organizational readiness, external pressures, compatibility, perceived ease of use, and perceived usefulness. 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; Lip-Sam & Hock-Eam, 2011).

1.4. Research Question

Regardless of the various definitions surrounding EC, two general characteristics prevail in the literature. The first pertains to EC actions executed through electronic means, such as sharing business information or engaging in buying and selling transactions. The second attribute is linked to the technological assets enabling these actions (Hashim & Abdullah, 2014).

EC has empowered companies to overcome previously perceived barriers, enabling them to expand their businesses, explore new markets, diverse product portfolios, and enhance their client bases (Peiris et al., 2015). The advantages associated with this business model have led numerous companies to make a transition from traditional business methods to the online business experience, primarily driven by its net benefits (Delone & Mclean, 2014; J. H. Walker et al., 2016).

EC signifies the availability of products and enables around-the-clock shopping, a departure from traditional commerce where customers are limited to purchasing goods during standard business hours (Gupta et al., 2018). Success in EC, internally viewed, hinges on operational performance, hardware, IT infrastructures, customer readiness, and digital transformation. Externally, perceived competitive advantages include fostering a close customer relationship, market growth, increased sales, and revenue (F. Y. M. Chang & Webster, 2019; Sadeghi, 2019). However, Haddoud et al., (2021) contends that product quality, niche products, and a positive country of origin image provide a competitive edge in international trade.

While there is no formal definition of the requisites for a company to be classified as an SME (Curran & Blackburn, 2011), typical SME definitions include employee numbers, financial results, and business conduct (Hashim & Abdullah, 2014). These enterprises are considered the backbone of the European economy, contributing significantly to new job creation in the European Union (Papadopoulos et al., 2018).

SMEs play a strategic role in the national GDP and economic growth by demonstrating their capacity to discover fresh business prospects, extend networks into new markets, and innovate in the development of new products (Vajjhala & Thandekkattu, 2017; Wardati & Er, 2019). Recognizing the significance and impact of these entities on the Union, the European Commission allocated an exclusive program for the competitiveness of SMEs, during the second decade of the 21st Century (Papadopoulos et al., 2018).

Presently, organizations confront the challenge of determining the technology or types of information systems to develop, ensuring a competitive advantage in their business, and subsequently fostering growth and prominence among competitors (Reddy, 2012). Optimizing IT utilization and obtaining maximum net benefits pose a notable challenge for SMEs (Yoon et al., 2021). DeLone and McLean (2003) highlighted the difficulty in quantifying both the Intention to Use and actual use of EC platforms, suggesting that future research should prioritize the measurement of net benefits over surrogate measures.

SMEs serve as the primary drivers of technological innovation, fostering a substantial rate of communal learning among their employees. Even more critically, these companies play a pivotal role in absorbing a significant portion of the commercial shocks experienced during periods of economic transition (Harvie & Lee, 2005).

EC can benefit SMEs by expanding businesses, boosting sales and revenue, and increasing company earnings. Ghobakhloo et al., (2011) suggest that improving internal technical knowledge is a key driver of customer satisfaction in SMEs. Owing to the benefits offered by this business model, numerous companies have shifted from traditional business methods to embracing the online business experience, primarily motivated by its net advantages (DeLone & McLean, 2004; J. H. Walker et al., 2016).

Setbacks also negatively impact the strategic plans of SMEs, causing harm to customer relations (Barroso et al., 2019). This underscores the significance of comprehending service failure to mitigate these adverse consequences in subsequent transactions or activities following a failure (Gelbrich et al., 2016; Rohden & Matos, 2022). S. I. Chang et al., (2011) additionally suggest that SMEs should concentrate on addressing the weaknesses in their EC systems to diminish the likelihood of failure and gain a more profound understanding of the digital industry's dynamics.

For SMEs, engaging in B2B transactions is crucial for establishing and endorsing new business, especially since these enterprises typically possess fewer resources for advancements compared to larger firms (Markovic et al., 2021). To enhance the likelihood of successful B2B interactions, SMEs should forge partnerships with research organizations, suppliers, wholesalers, and even competitors (Bagherzadeh et al., 2020). Furthermore, Markovic et al., (2021) highlight in their study that managerial factors, including choices related to organizational innovation governance and internal firm readiness, also play a pivotal role in influencing the success of B2B.

In 2016, Adam and colleagues identified EC as a business tool that, when appropriately implemented, can confer a commercial advantage and boost sales for numerous SMEs. These value-added services are crucial for small enterprises, enabling them to transition from a technical functionalities perspective to catering to a broader audience's preferences (C.-W. Tan & Pan, 2003). Leung et al., (2020) also note that in EC platforms, a high level of uncertainty arises from unstable shopping priorities and preferences, increasing the complexity of logistics and implications for managing stocks and shipping products.

According to Nyadzayo et al., (2020), owing to consumer uncertainty and competition from other companies, the B2B process should prioritize relational aspects over transactional ones. This implies fostering a highly engaged relationship between SMEs and their clients. In alignment with this perspective, Bongers et al., (2021) elaborate that establishing inter-organizational relationships through personal interactions between companies and buyers has been crucial in B2B contexts for many years. However, SMEs are currently incorporating digital sales channels to achieve this in the digital environment.

Despite encountering limitations based on their size, SMEs that integrate EC services compatible with their systems (demonstrating organizational readiness) recognize that the advantages of adopting EC outweigh the associated risks (Hussein et al., 2020; Pham & Pham, 2011).

To better guide our research, we created the following question:

RQ - How IS can leverage the success of EC in SMEs?

1.5. Thesis Objectives

Much of the research has focused extensively on the numerous advantages that EC offers to both companies and customers (Bilal et al., 2016; Rahayu & Day, 2017). According to Kartiwi and MacGregor (2011), transactions between businesses and consumers through EC represent a swiftly growing strategy.

Previous research indicates that the adoption of EC positively influences both marketplace preparedness and company performance. Adverse consequences are associated with technology adoption and costs, encompassing implementation and delivery expenses. Furthermore, the primary social benefits arising from EC adoption involve increased product sales, seen as a competitive advantage for business development. On the flip side, the considerable costs associated with implementing company security resources, particularly the necessary infrastructures and internet-related services for EC adoption are considered significant drawbacks.

As a result, this emerging environment presents numerous challenges that remain largely unresolved, particularly regarding EC service failures (Das et al., 2019; Noor et al., 2020). While recent studies have focused more on service recovery, there is a consensus that the understanding of EC service failures is still limited.

Typically, any service failure leads to significant customer dissatisfaction, emphasizing the critical importance of an effective recovery process. This becomes even more crucial in EC, as customers assess the service recovery (Kim & Stoel, 2004; Nursimulu & Bossaerts, 2014; Orsingher et al., 2010).

Nonetheless, Ueasangkomsate (2015) notes that internet expansion and technological evolution intensify EC, enabling suppliers to expand their business and customers to choose from a wide range of solutions offered by online companies.

Chapter 2 of this thesis explores the theoretical and empirical research published in indexed journals ranked from Quartile 1 to 3, between 2010 and 2021. To establish a way forward and find new insights based on the analysis of current published literature, this chapter assesses two main objectives:

- Display the positive and negative impacts of the use of EC in SMEs.
- Propose a future research agenda and specific topics involving the use of EC in SMEs.

The current market competitiveness made EC adoption by SMEs a paramount course of action to be taken by the managers. In response to this demand, companies are compelled to adopt innovative and informed strategies to maintain a distinctive, successful, and profitable presence in both domestic and international markets (Bertoa et al., 2019).

Incorporating gamification into EC platforms emerges as a powerful strategy for SMEs to boost their competitiveness and increase online sales, as indicated by Tobon et al. (2020).

One of the pioneering strategies proposed in our study is the inclusion of gamification theories on the De Lone & McLean model. Through the implementation of our new proposed model, we anticipate that SMEs can enhance their comprehension of EC and leverage gamification elements and mechanisms. This, in turn, can contribute to the improvement of customer engagement, loyalty, and satisfaction, ultimately resulting in heightened sales and revenue.

Our enhanced model expands upon the established Intention to Use EC framework by incorporating game dynamics as a pivotal element in its efficacy. Through the integration of gamification, we aim to amplify engagement and user participation, resulting in more substantial advantages for SMEs. We acknowledge the complexities associated with measuring the influence of gamification on the intention to use EC, yet we contend that our approach offers a more comprehensive perspective on the overall benefits of EC.

The IS success model by DeLone and McLean (2003), originally designed for information systems, has been adapted for EC and employed in assessing various information systems (Çelik & Ayaz, 2022). However, there is a paucity of research confirming the validity of this model or its modifications specifically for SMEs operating in the B2B sector. Our revised model incorporates gamification to fortify the intention to use EC, thereby influencing EC net benefits.

Chapter 3 expands upon prior research, delving into both the IS model proposed by DeLone and McLean and the gamification theory. The chapter's priority is to improve SMEs' net benefits by proposing a new model by accomplishes two main objectives:

• Investigate the relationships between the proposed model variables in the SME context that operate in the B2B.

• Measure and compare the variables that are the most important for the model.

Nowadays EC is characterized by a significant volume of financial transactions, where a large spectrum of online goods and services is offered (Lin et al., 2021). The EC development has also revolutionized the business practices of SMEs, compelling them to embrace technology more extensively. Consequently, this new business environment poses several challenges that remain largely unresolved, particularly concerning EC service failures in SMEs (Das et al., 2019; Noor et al., 2020). While recent studies have focused more on service recovery, there is a consensus that our understanding of EC service failures in SMEs is still limited (Uitz & Jančíková, 2022).

The highly dynamic and interactive nature of online business enhances the impact of customer engagement. The concept of customer engagement is fundamentally about attracting customers by increasing their inclination towards products, brands, or businesses across cognitive, emotional, behavioral, and social dimensions (Brodie et al., 2011; Hollebeek et al., 2019).

While there is limited knowledge about the nature and application of company initiatives, techniques, and strategies aimed at enhancing or optimizing customer engagement, a significant research gap, particularly in the context of SMEs, lies in comprehending how customers react to service failures (Sands et al., 2022; C. Zhang et al., 2021). Understanding the company's mechanisms and techniques to face this issue is crucial due to the adverse impact that service failures have on sales, profitability, and, ultimately, customer engagement (C. Zhang et al., 2021).

Few studies have explored the impact of multiple service failures on customer engagement within the SME context. Chapter 4 investigates EC service failures and their detrimental effects on customer engagement in SMEs. This chapter assesses the following main objectives:

- Understand how SMEs deal with E-commerce service failure.
- Identify how e-commerce service failures impact customer engagement.
- Find to what degree is customer engagement affected when facing service failures.

The present research is divided into 5 chapters and aims to study the impact of information systems on the success of EC in SMEs.

1.6. Gaps addressed by the thesis

Prior to undertaking this research, various models, indicators, and studies related to Information Communication Technology (ICT) in the context of EC in SMEs were identified. (Kartiwi & MacGregor, 2011) notes that EC transactions between businesses and consumers serve as a rapid growth strategy, particularly beneficial for SMEs. Past analyses have primarily focused on systematic reviews, investigating the impacts of various dimensions on organizational performance (Rojas-Lema et al., 2021; Stekelorum, 2020). The theoretical viewpoint on the effectiveness of EC necessitates a distinct approach, as emphasized by Jeyaraj (2020).

There exists a research gap in comprehending how prior studies have addressed both the favorable and unfavorable effects of EC on SMEs. There is a need for additional research to explore the extent to which EC can either enhance or impede company outcomes in this context. While SMEs are frequently overshadowed by their larger counterparts, EC provides an opportunity for SMEs to equalize the playing field and compete with larger companies in certain aspects (Minatogawa et al., 2020).

It was found that it is necessary to produce a study which underscores substantial theoretical contributions by expanding upon existing published research. It should identify existing gaps and emphasize the focal points for future research agendas, particularly in the context of EC adoption in SMEs. Our Ph.D. conducted a systematic review, collecting studies regarding the identified theme to address this gap.

Prior studies have often concentrated on isolated elements of EC, neglecting to integrate the cross-implications of various aspects, thereby warranting the need for a comprehensive examination in a new study. Poorangi et al., (2013) study centered on the examination and elucidation of various dimensions related to the adoption of EC in SMEs, drawing inspiration from Rogers' Five Factors of Diffusion of Innovation Model. For this investigation, they used survey methods, where a questionnaire was disseminated to 1,200 managers and employees across the manufacturing, service, and agricultural sectors. Saptadi et al., (2014) provided an empirical study on e-business initiatives in Indonesian manufacturing SMEs. The study encompassed 41 business processes categorized into three focal areas: supplier side, internal side, and customer side.

Rouibah et al., (2015) proposed an improved IS model derived from Wang's model (2008), which introduces several improvements to enhance validity and generalizability. It incorporated the latest SEM techniques, encompassing both monetary and non-monetary value conceptualizations, employs a multidimensional perspective on system quality, and puts forth distinct factors of EC service quality. The authors validated the research model through a truly randomized sampling approach involving 288 experienced B2C consumers in the Arab world. Elbeltagi et al., (2016) conducted a study which employed a structural equation model to examine the impact of B2B EC adoption levels on gaining and sustaining competitive advantage in SMEs manufacturing enterprises, comparing findings between the U.S. and Egyptian contexts.

Vajjhala and Thandekkattu (2017) directed a qualitative approach where interviewed 30 senior managers from enterprises in Albania, representing ten key sectors. The qualitative data from in-depth interviews were coded and analyzed using NVIVO to identify key themes. The findings revealed four key themes and ten subthemes, providing insights to guide organizational leadership in leveraging EC technology strategically, especially in transition economies. Holland and Gutiérrez-Leefmans (2018) developed an article that makes a theoretical contribution by being the first study to delineate the competitive landscape of SME EC platforms in two markets. The analysis, based on business model and strategic group theories, involved examining 144 platforms through online panel data methodology. The study identified 32 leading SME EC platforms in the UK and United States, which were then analyzed at the market level using cluster analysis and website content analysis guided by strategic group theory. The proposed taxonomy incorporates theoretical constructs from business model theory, including value proposition, Web 2.0 sophistication, and revenue model.

Dotzel and Shankar (2019) formulated hypotheses that link the quantity of B2B - Service Innovations (SI) and Business to Consumer (B2C) - SIs to both firm value and firm risk, considering moderators such as the number of product innovations and customer-focus innovations. To assess these hypotheses, the authors construct and apply a model utilizing distinctive panel data encompassing 2,263 SIs across 15 industries. Minatogawa et al. (2020) conducted a research where the objective was to comprehend how SMEs can effectively handle Business Model Innovation (BMI) in an ambidextrous manner. They developed a practical tool, easily accessible to SMEs, to implement BMI through organizational ambidexterity. Bongers et al. (2021) conducted a qualitative approach by utilizing in-depth interviews with key decision-makers from supplier firms (21 interviews) and buyer firms (18 interviews), contributing to existing theoretical understanding by pinpointing three primary challenges for salespeople. The challenges were (1) the intensification of professional purchasing's strategic reorientation, (2) the risk of purchasers juxtaposing personal and digital sales channels, and (3) delicate maneuvers in buyer education.

In a more recent review, Rojas-Lema et al., (2021) examined articles published in the last decade related to the determinants of SMEs' export entries. Surprisingly, despite the increasing utilization of EC among SMEs, research has paid limited attention to the specific needs of EC in this sector. In Jeyaraj (2020) perspective exists the necessity to study a novel model that can identify the essential elements of EC net benefits and empirically evaluate these aspects within an authentic EC context. The model proposed by DeLone and McLean in 2003 is among the most extensively utilized models for evaluating the adoption of EC. It also provides a comprehensive methodology for evaluating IS in a general context, with a specific focus on EC. Its dimensions delineate metrics for EC success, positioning it as an increasingly valuable tool for enhancing overall success in EC (Tam et al., 2020). The implementation of this type of model yields a more thorough comprehension of the influence of EC on company performance, assisting firms in optimizing their utilization of digital sales channels (Yoon et al., 2021).

In their study, Petter, DeLone, and McLean (2008) discovered that specific relationships within the DeLone and McLean model (2003) lacked robust support at the individual level, especially the linkage between system quality and user satisfaction was identified as weak or inconsistent in certain research studies.

Bongers et al. (2021) proposed a direction for future research to concentrate on the impacts of introducing digital sales channels on interactions at various stages of a system, specifically in the context of B2B transactions. Consequently, although the DeLone & McLean model retains significance as a tool for EC success, there is a need for additional research to explore its limitations and potential areas for enhancement (Jeyaraj, 2020).

Nyadzayo et al. (2020) suggested that forthcoming studies should investigate the connection between customers and service providers across the entirety of the purchasing experience. Consequently, despite numerous conclusions and recommendations put forth by various authors concerning the DeLone & McLean (2003) IS model, a gap persists between the model and the practical implementation undertaken by SMEs, particularly in guiding the realization of EC net benefits in a real practical context.

Although recognizing the pivotal role of EC in the contemporary business environment, it becomes crucial to pinpoint innovative strategies that can bolster SMEs, ensuring their competitiveness in the digital space (Fonseca et al., 2020). In pursuit of this objective, this research suggests incorporating gamification theories into the DeLone & McLean (2003) IS Success Model tailored for SMEs. This approach allows SMEs not only to harness gamification for the improvement of EC adoption and success but also to distinguish themselves from other EC systems (Tobon et al., 2020).

Considering the potential advantages of EC for SMEs, it is crucial to delve into this subject, examining the hurdles and prospects that SMEs encounter in the adoption of EC. The highly dynamic and interactive nature of online business places a significant focus on customer engagement. The concept of customer engagement is initially intended to attract customers by enhancing their inclination towards products, brands, or businesses at cognitive, emotional, behavioral, and social levels (Brodie et al., 2011; Hollebeek et al., 2019).

While there is limited understanding of the nature and utilization of corporate initiatives, techniques, and strategies aimed at enhancing or optimizing customer engagement, a significant research gap, particularly within the SME context, exists in comprehending customer responses to service failures (Sands et al., 2022; K. Zhang et al., 2021). Recognizing the adverse impact of service failures on SMEs' sales, profitability, and, ultimately, customer engagement, the importance of gaining insights into these dynamics cannot be overstated (Zhang et al., 2021).

Surprisingly, there is a scarcity of studies examining the influence of multiple service failures on customer engagement in the SME context. Throw our study we will analyze how SMEs deal with EC service failure, how EC service failure impacts customer engagement and how customer engagement is affected when facing service failures.

1.7. Plan of Presentation

Since previous studies have provided little empirical research examining the impact of information systems on the success of EC in SMEs, it appears appropriate to bridge the research gap by probing the implications of unstructured studies in this field. This could greatly improve the understanding of how SMEs leverage business performance by can adopting EC.

To address the research gap, different objectives were defined for each of the three studies presented in this thesis. Although there are three different objectives for all three studies, all of them have in common the main goal of understanding how IS can leverage the success of EC in SMEs.

The first study investigated a systematic review in indexed journals ranked from Quartile 1 to 3, between 2010 and 2021. This examined the positive and negative impacts of the use of EC in SMEs and proposed a future research agenda and specific topics involving the use of EC in SMEs.

We first explore the EC value to SMEs and what lies ahead for EC (Zott & Amit, 2010). It respected the full code protocol following the Page et al. (2021) statement guidelines for systematic reviews. The results are summarized in a concept map along with a discussion of the negative and positive outcomes of EC and research propositions. Practical and theoretical implications, limitations, and future directions are expressed in the research.

The second study proposes a new model based not only on the DeLone and McLean IS model but also on the gamification theories. It also aims to enhance SMEs' net benefits by investigating the relationships between the proposed model variables in the SME context that operate in the B2B and by measuring and comparing the variables that are the most important for the model.

This research identified the best practices and strategies to help SMEs successfully leverage EC to enhance their competitiveness and achieve sustainable growth in today's digital marketplace. The present work provides a fresh opportunity for scholars and enterprises to analyze EC net benefit results as an outcome of the relationship between EC and Gamification.

The last study investigated EC service failures and their negative effect on customer engagement in SMEs. The study also contributes in important ways to invest the company and customer perspectives regarding EC service failures. To do so, investigates how SMEs deal with EC service failure, how EC service failures impact customer engagement and to what degree is customer engagement affected when facing service failures.

The last study provided a review of pertinent literature grounded on the SFR. The study conclusions discuss the research findings in terms of their theoretical and managerial ramifications.

Research Problem

How IS can leverage the success of EC in SMEs?

Research Context

Application of information systems on the success of e-commerce in small and medium-sized companies

Literature Review

E-commerce	Small and medium sized business	Service and System Failure	Business to Business	Customer Engagement and Satisfaction	Gamification	Net Benefits

Studies

I - Highway to the Danger Zone - A Systematic Review of The Hazard Side of E-Commerce in Small Companies	II - The ever-changing business of e-commerce-Net benefits while designing a new platform for small companies	III - Failure is not an option-Service failures and customer engagement in small and medium-size enterprises

Research Questions

• How does the current body of literature inform about the positive and negative outcomes and their tradeoffs that affect use of EC in small and medium-sized enterprises? • What prominent concepts constitute the current literature and how they relate to positive and negative effects of EC? • What propositions should be part of future research and what conceptual framework should be used to establish new insights in use of EC in SMEs?	• How can SMEs enhance their EC net benefits?	• How do SMEs deal with E-commerce service failure? • How do e-commerce service failures impact customer engagement? • To what degree is customer engagement affected when facing service failures?

Main Goals

• Display the positive and negative impacts of the use of EC in SMEs . • Propose a future research agenda and specific topics involving the use of EC in SMEs.	• Investigate the relationships between the proposed model variables in the SME context that operate in the B2B. • Measure and compare the variables that are the most important for the model.	• Understand how SMEs deal with E-commerce service failure. • Identify how e-commerce service failures impact customer engagement. • Find to what degree is customer engagement affected when facing service failures.

Figure 1.1- Research Summary Diagram

Adaped from: (Rodrigues, H., 2017)

1.8. Research Methodology

One of the fundamental principles of the scientific method is reductionism, which involves breaking down a complex phenomenon into simpler elements to explain it. In consequence, the PhD was conducted in three different studies under the scope of the thesis theme.

At each stage of the research plan, a different methodology approach was employed and elaborated upon in the corresponding chapter. Firstly, to understand the state of the art, a systematic literature review between 2010 and 2021 gathering all the articles published in Q1, Q2 and Q3 journals was presented. Secondly, a quantitative approach was implemented and the IBM SPSS Amos software was used to analyze all the data gathered from the questionnaires. The last study used a qualitative approach and Leximancer was also implemented to analyze the data gathered.

1.8.1. Study I

In the first study, a systematic review was essential to condense, assess, and analyze previously documented research on the overall extent of EC in SMEs. This desk study that was carried out using a meta-analysis technique possess a significant challenge in synthesizing studies on EC in SMEs lied in the lack of homogeneity among the studies included in this systematic review, partly attributable to the diversity of disciplinary fields.

The literature review process serves as a fundamental tool for handling the diversity of knowledge within a specific academic inquiry, since it serves as a valuable tool for consolidating and refining dispersed knowledge, for evaluating and advancing the awareness base within a research field, and for gauging the consistency among prior studies (Buldeo Rai & Dablanc, 2022). The primary objective of conducting a literature review is frequently twofold: first, to map and evaluate the existing intellectual landscape, and second, to articulate a research question that contributes to the advancement of the current body of knowledge (Tranfield et al., 2003).

Systematic review use protocols clearly explained, providing a documented trail of the procedures followed for the document search, inclusion and exclusion criteria, and analysis (Christy Nathaniela et al., 2022). Regardless of their sources, systematic reviews aim to gather as much current and evidence-based research as possible that is relevant to the subject under investigation (Buldeo Rai & Dablanc, 2022).

Systematic reviews are recognized for producing rigorous evidence reviews as they require the adoption of various approaches to minimize inaccuracy and bias (Tranfield et al., 2003). The review's proposed research questions often are around understanding the current state of the literature and research on the relationship between EC and SMEs (Christy Nathaniela et al., 2022). The objective of this study was to conduct a systematic literature review to examine the body of knowledge and research concerning the positive and negative impacts of the use of EC in SMEs and to propose a future research agenda and specific topics involving the use of EC in SMEs.

It was applied a full coding protocol in four stages. During the initial search phase, studies were incorporated using keywords such as E-commerce "AND" Small and medium business, along with related terms like Electronic commerce, Electronic commerce research, E-business, Electronic business, Digital Business, E-commerce adoption, Small business "AND" Medium enterprises, Small to medium-sized enterprises, Small business research, SME, SMEs. The search was refined by filtering for "full text" and "peer review" criteria, and it was conducted in English. In the second stage, a preliminary screening was conducted to manage the extensive volume of studies. Additional filters were implemented to exclude non-journal articles and eliminate duplicate articles within Quartile 1 to Quartile 3. In the third stage, we employed the "Exclusion" criterion to further refine the search. During this phase, the authors reviewed the "Abstract" and "keywords" to confirm alignment with the research objectives. In the fourth and concluding step, the 73 identified articles were summarized and categorized into Positive and Negative Outcomes using Leximancer 5.0.

To conduct a comprehensive analysis of the impact of EC on SMEs, initially, the information was organized into a database with two primary categories: positive and negative outcomes. Following the approach of previous systematic reviews, individual study data was then analyzed using Computer Assisted Qualitative Data Analysis (CAQDA), specifically employing the text analytic tool Leximancer.

Previous studies tended to concentrate on individual aspects of EC, lacking a comprehensive examination of cross-implications. S. Al-Somali et al., (2009) conducted a comprehensive review of prior theoretical literature. This study delves into the factors influencing the successful adoption of EC in SMEs. The analysis focuses on four distinct categories of factors: technological, organizational, entrepreneurial, and environmental. Additionally, the study aims to identify and elucidate the stages involved in the adoption process within organizations. Chouki et al., (2020) underscored the significance of barriers hindering IT adoption in SMEs. To achieve this objective, a systematic literature review was conducted to enhance comprehension of the barriers to IT adoption within SMEs. Drawing from a pool of 132 selected studies, the research identified 18 barriers, organized into categories based on internal and external parameters. Meier (2023) published a paper which aims to provide a thorough examination of the impacts of digitalization on SMEs, considering their distinctive features. It seeks to offer a comprehensive overview of the existing knowledge by conducting a systematic literature review spanning two decades and analyzing 99 journal contributions.

This research makes substantial theoretical contributions by extending existing published research, identifying gaps, and proposing a future research agenda related to e-commerce adoption in small companies.

1.8.2. Study II

The practical application of the Delon and McLean IS model is logically supported on the managerial context. Therefore, will define the procedures employed for each success dimension. The choice of success dimensions and specific metrics is contingent on the nature and purpose of the system(s) being assessed (Petter et al., 2008).

Kang et al., (2020) directed a study which examines the issue of source information retrieval in the EC environment and introduces a model based on Bayesian network. The model incorporates a four-layer Bayesian network retrieval structure, which includes the query requirement node layer. Keikhosrokiani and Fye (2023) conducted a study that concentrates on crafting a personalized recommendation system utilizing data sourced from a health supplement EC website. Subsequently, their developed model was applied across the company's EC platform, encompassing the website, mobile application, and email marketing campaigns.

Fatokun (2023) developed a study on the significance of customers' emotional reactions concerning context-specific factors influencing EC adoption in a developing country. The objective was to explore the impact of customers' affective responses on their intention to make online purchases and engage in EC adoption. A preliminary conceptual research framework was crafted based in a fusion of the Technology Acceptance Model (TAM) proposed by Davis (1989) and the Stimulus Organism Response (SOR) theory outlined by Mehrabian and Russel (1974). This conceptual framework only worked to find the emotional dimensions of adopting EC in the retail sector.

The Theory of Planned Behaviour (TPB), introduced by Ajzen (1991), has gained widespread popularity among researchers for predicting human social behavior (Abdelkarim Almajali et al., 2022). This theory posits that behavioral intention serves as a direct precursor to actual behavior and is shaped collectively by subjective norms, attitude, and perceived behavioral control (Ajzen, 1991). Gangwal and Bansal (2016) have highlighted that incorporating perceived behavioral control in technological research encompasses the influence of factors such as ability, skill, accessibility to resources, and support from others on the intention to use technology. Recently, Hamid et al., (2023) investigated consumers' intent to order food and beverage items through EC during COVID-19 by integrating trust into the TPB.

The Theory of Reasoned Action (TRA) has gained popularity among researchers due to its simplicity, strong explanatory power, and ability to incorporate various factors, especially those that influence individual behavior in a linear and sequential manner (Abdelkarim Almajali et al., 2022). TRA has demonstrated strong explanatory power, as evidenced by its application in studies on technology adoption, including research on e-government systems (Rana & Dwivedi, 2015)and the acceptance of Internet banking services (Al-Ajam & Md Nor, 2015).

For Kristalin et al. (2023), TAM contributes for determining user intentions in using EC while IS Succes Model greatly contributes for measuring the intention to use e-commerce. On a recent examination conducted by Çelik and Ayaz (2022), the efficacy of the Student Information System (SIS) was assessed through the lens of DeLone and McLean's (2003) framework. The study revealed that system quality, information quality, and service quality significantly influenced system use but did not notably impact user satisfaction. Interestingly, the investigation found that neither system use nor user satisfaction significantly influenced the overall success of the SIS.

Another inquiry conducted by Millenia et al., (2022) applied DeLone and McLean's (2003) model to scrutinize the e-Filing system. Their findings indicated that information quality exerted a positive and significant influence on taxpayers' use and satisfaction. Moreover, constructs like system quality and service quality were positively and significantly correlated with taxpayers' satisfaction. Additionally, the study demonstrated that both system use and user satisfaction had a positive and significant effect on net benefits.

Despite the introduction of derived models in the literature, DeLone and McLean's (2003) framework remains extensively utilized in prior research within the Information Systems domain. While these derived models have expanded the original framework by incorporating new constructs such as service quality, they are constrained by specific research contexts and may not encompass all dimensions relevant to Information Systems, as noted by Jeyaraj (2020).

To propose a new conceptual model based on Delon and McLean IS model a quantitative approach was used. To do so, a questionnaire was distributed among a pool of clients from an SME that operates in the B2B context distributing products (e.g., coffee, chocolates, candies,) to Hotels, Restaurants, and Cafés (Horeca).

Survey data was collected from online clients of the case company between July 2021 and January 2022. A total of 610 responses were obtained, with 88 incomplete questionnaires excluded, resulting in a final sample of 522 valid responses.

The questionnaire consisted of ten sections, with the first nine dedicated to model dimensions and the final section focusing on demographics. The breakdown of sections is as follows: the first section covered Information EC and included 5 dimensions(Loiacono et al., 2014; J. H. Walker et al., 2016a); the second section addressed Service quality EC with 5 dimensions (Kuo et al., 2009); the third section focused on Ease of use with 5 dimensions (Chiew & Salim, 2003); the fourth section delved into Game design EC with 12 dimensions (Thorne et al., 2009); the fifth section explored Game mechanics EC with 5 dimensions (Bovermann & Bastiaens, 2020); the sixth section considered User Satisfaction with 5 dimensions (Kuo et al., 2009); the seventh section delved into Game dynamics with 5 dimensions (Bertoa et al., 2019); the eighth section covered Intentions to Use EC with 4 dimensions (Belanche et al., 2012); and the ninth section focused on EC Net Benefits with 5 dimensions (DeLone & McLean, 2004; Zhuang & Lederer, 2003). The final section encompassed Demographics.

To examine the hypothesized relationships in the new conceptual model, Structural Equation Modeling (SEM) through IBM SPSS Amos 28 was employed. Before conducting SEM, an Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) using SPSS were carried out.

Employing AMOS, there was conducted an EFA in SPSS, preceding the CFA, to unveil the underlying constructs and validate the factor structure for a set of measured variables based on participants' responses.

Introducing a novel model that builds upon the DeLone and McLean (2003) framework allows scholars to assess our findings in comparison with recent studies, notably those conducted by Çelik and Ayaz (2022), Millenia et al., (2022), and Božič and Dimovski (2020). This study contributes by elucidating emerging trends and customer satisfaction perceptions, grounded in the online purchasing experience, influencing EC Net benefits.

1.8.3. Study III

An EC platform involves utilizing Internet technology to efficiently schedule and manage product resources within a network (Wu, 2021a). Following 2018, with the deceleration in the growth rate of Internet users, the acquisition cost for new customers in EC companies has comparatively risen, being the actual customers so much important as the new ones (S. Li, 2020).

The significance of the Internet is evident in its ability to enhance the efficiency of business transactions in terms of speed and accuracy, as highlighted by (Sebora et al., 2009). Numerous potential benefits associated with EC investment have been identified as access to new customers and new markets, enhance the success of entrepreneurship ventures and getting competitive advantage (Al-Tit, 2020). This last advantage is extremely important, since SMEs through EC can boost its competitive advantage when comparing to bigger companies.

In economies worldwide, both developed and developing, SMEs are often regarded as the 'backbone,' contributing significantly to economic activities (Perera & Chand, 2015). These enterprises play a crucial role, constituting nearly 60.0% of private employment (Abou-Shouk et al., 2013; Elbeltagi et al., 2016a). Reports indicate that in developed countries, over 95.0% of enterprises fall within the SME category (Ocloo et al., 2020). In Portugal, 99.9% of businesses are categorized as SMEs, with approximately 96% falling into the micro-SME category (Pordata, 2021). Micro-enterprises significantly influence the country's economy, constituting the predominant type of firm.

Portuguese SMEs have been identified as requiring adjustments in their digital communication strategies with their stakeholders to enhance competitiveness (García-García et al., 2021). Kent and Taylor (2021) states that is recommended that SMEs should create websites that encourage interaction and dialogue with visitors, as this could significantly increase public engagement with the organization. Furthermore, García García et al. (2017) states that displaying content that provides distinctive and enhanced information about corporate identity and culture is essential since both the existence of substantial content and the caliber of that content are crucial factors.

B2B EC has emerged as a primary necessity for enhancing business operations, particularly in SMEs, leveraging the power of the IS (Ifinedo, 2011). Even though scholars have extensively explored the adoption of B2B EC and put forth numerous theories to elucidate it in diverse contexts, there are certain issues that remain insufficiently examined and warrant attention. Prior investigations have scrutinized the impact of different determinants on B2B EC adoption by concentrating on dichotomous variables, distinguishing between adoption and non-adoption (Ocloo et al., 2020).

On his study, Wu (2021a). states supply chains suffer losses amounting to hundreds of billions of dollars annually due to delays in information transmission, distortion of information, and errors in information exchange, meaning that the inability to acquire or obtain timely information for the entire supply chain leads to a layer-by-layer amplification of actual application demand in the information transmission process, resulting in periodic overproduction and shortages of goods. This scenario closely resembles EC system failures, wherein companies encounter similar challenges when they struggle to address and promptly resolve issues.

The current study elucidates the stakeholder perspective by investigating the impact of multiple service failures on customer engagement within the SME context.

Developing a qualitative approach was considered the most suitable methodology for exploring EC service failures and their adverse impact on customer engagement in SMEs. Semi-structured interviews were conducted and iteratively refined, drawing insights from previous scholarly works and established evaluative criteria.

The population for this study were selected from Portuguese SME managers currently engaged in operating an EC platform. To ensure a varied and pertinent sample, participants were recruited through a private network, and the initial contact was made via telephone or email. The participants were chosen based on their proficiency and background in managing SMEs with an EC platform.

The semi-structured interviews were carried out remotely and were conducted in Portuguese to ensure participants' familiarity and comfort. This method encouraged open and honest discussions about their encounters with service failures and strategies for customer engagement. After the interview sessions, the audio recordings were carefully transcribed and translated. This meticulous process aimed to faithfully capture the participants' insights and perspectives, ensuring that no nuances or significant elements were overlooked in the translation.

For this study, a total of 25 interviewees were included, representing various companies. The main objective was to capture a diverse local perspective, encompassing companies from both the northern and southern regions of Portugal.

The information obtained through interviews was analyzed using a Computer Assisted Qualitative Data Analysis (CAQDA) methodology, adhering to the approach detailed by Crofts and Bisman (2010). Specifically, the text-analysis tool Leximancer was selected for its efficiency in structuring a considerable amount of responses into meaningful semantic patterns and themes.

In the context of how SMEs handle EC service failures, our findings underscore the significant role of the "Customer" concept from the company's viewpoint. This study contributes novel insights by highlighting "Customer" as a pivotal concept in EC service failures, suggesting its paramount consideration in future research endeavors.

Concerning the impact of service failures on customer engagement, our results offer valuable insights for future researchers aiming to explore the concepts influencing customer engagement, both positively and negatively. This exploration considers perspectives from both clients and SMEs, providing a nuanced understanding of the dynamics at play.

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

2.1. 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; Tolstoy, Nordman, Hånell & Özbek, 2020). Research has largely concentrated on EC's many benefits for both companies and customers (Khan, 2016; Rahayu, & Day, 2017). MacGregor (2003) states that EC transactions between businesses and consumers are a rapid growth strategy, especially for SMEs. Past studies focused on systematic reviews to examine the effects of different dimensions of organizational performance (de Araújo et al, 2020; Rojas-Lema et al. 2020, and Stekelorum, 2020) or more recently in 2021, Hoddoud et al., 2021 reviewed articles published between 2008-2019 related to the determinants of SME's export entries. 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, and we need more research into the extent to which EC can enhance or inhibit company outcomes. Considering these gaps, the present Systematic Review raises following three questions:

RQ1 - How does the current body of literature inform about the positive and negative outcomes and their tradeoffs that affect use of EC in small and medium-sized enterprises?

RQ2 - What prominent concepts constitute the current literature and how they relate to positive and negative effects of EC?

RQ3 - What propositions should be part of future research and what conceptual framework should be used to establish new insights in use of EC in SMEs?

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. Results from earlier studies report that EC adoption has a positive effect on marketplace readiness and company performance. Negative outcomes are related to technology adoption and costs (implementation and delivery). Additionally, the top social benefits of EC adoption include product sales as a competitive advantage for business development, while the cost to implement company security resources is considered a major setback, especially the infrastructures and internet-related services that are necessary for the adoption of EC in SMEs. Hence, to establish a way forward and find new insights based on the analysis of current published literature, the current study assesses 1) positive and negative impacts with the use of EC in SMEs 2) proposes a future research agenda and specific topics involving use of EC in SMEs.

This study adds significant theoretical contributions building on the current published research, it suggests what gaps exist and what should be the focus of future research agenda linking e-commerce adoption in small companies. Past studies focused on single elements of e-commerce not bringing together cross implications of e-commerce. Based on the findings the authors identify research propositions that can move the e-commerce research stream forward. We agree that the EC has a critical impact on small companies' performance, what these small businesses need is a conceptual tool that helps to implement the best solutions to promote the business using the internet effectively. This systematic review is structured as follows. We first examine the EC value to SMEs and what lies ahead for EC (Zott & Amit, 2010).The methodology section describes the full code protocol following the PRISMA (2020) statement guidelines for systematic reviews (Page et al., 2021). The results are summarized in a concept map along with a discussion of the negative and positive outcomes of EC and research propositions. Practical and theoretical implications, limitations, and future directions are given in the conclusion section.

2.2. Literature Review

2.2.1. *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).

Despite all the existing definitions regarding EC, there are two common characteristics described in the literature. The first addresses EC actions that happen through electronic means, for example sharing business information or buying and selling products. The second characteristic is related to the technological resources that allow these actions to occur (Hashim & Abdullah, 2014). Nonetheless, with these different characteristics, EC adoption depends on organizational innovation, readiness, external pressure, compatibility, perceived ease of use, and perceived usefulness (Zwass, 2003; Mahroeian, 2012).

A good overview of the research in this area is provided when EC is successfully implemented since it has the power to offer companies great opportunities to promote many key business activities such as trading relationships, exchanging information, and coordinating logistics and communications via global or regional supply chains (Kurnia et al., 2015). Yang and Tsou (2017) argue that companies that adopt EC are more likely to develop new strategies and have an 11% higher chance to develop their brands.

Although there is no formal definition of what the requisites are for a company to be classified as an SME (Curran & Blackburn, 2011), typically SME's 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 IT resources (Pham & Pham, 2011). Nonetheless, Ueasangkomsate (2015) mentions that internet expansion and technology evolution lead to the intensification of EC in which suppliers can expand their business and customers have the advantage to choose from a wide range of solutions sold by online companies. 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).

Alam et al. (2011) found that the most ranked relative advantages of EC were organizational readiness, security, and management characteristics. Although there is widespread acknowledgment that it adds value to companies, Santarelli and Altri (2003) found that top managers are unwilling to adopt EC due to their negative experience and achievements that have prevented them from seeing EC as a valuable technological tool. This reluctance to change and chase new market opportunities is a barrier to contend with in the online market (Messner & Vosgerau, 2010).

In 2016 Adam and colleagues identified EC as a business tool that when appropriately implemented can give rise to commercial advantage and increase sales for numerous SMEs. These value-added services are essential for a small enterprise's performance since they deliver a single resource making small businesses capable of transitioning from a technical functionalities' perspective to a broad audience preference (Tan & Pan, 2003). Leung et al. (2020) also agree that in EC platforms, a high level of uncertainty results from unstable shopping priorities and preferences, which in turn can increase the complexity of the logistics with implications for managing stocks and shipping products (Leung et al., 2020).

As EC is a transaction process without physical boundaries, SMEs face the challenge of taxation (Mat Udin et al., 2015). 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 (Holland & Gutiérrez-Leefmans, 2018; Erlanitasari et al., 2020). But can EC create value for 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).

2.2.2. E-commerce growth, adoption and barriers

Despite the success of previous EC platforms, the online purchasing experience continues to change with new offers, procedures, experiences, and customers' demands. The rate of usage shows that in 2016 1.66 billion people were digital buyers and it is expected that in 2021 this number will rise to 2.14 billion. (Ingaldi & Ulewicz, 2019; Coppola, 2020). 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; Yoo, et al., 2013).

While in SMEs the idea of business development is linked with the application of a total quality system and the development of processes, IT adoption by SMEs is an enormous opportunity to develop resources and consequently chase new market opportunities. Nonetheless, an online acquisition can be a convenient way to purchase but will never replace the physical experience in which customers can examine and touch the product before purchasing it (Sengupta et al., 2005).

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* comprehend the identification of benefits, global trading, financial constraints, supply chain integration, and understanding of the e-environment. SMEs usually do not have a formal e-commerce planning strategy, and this prevents them from setting their business at the desired stage (Chau, 2003). Although EC adoption can internally reduce financial, human, and organizational resources, this can also make the companies more susceptible to market oscillation (Wardati & Er, 2019). From an internal perspective, Helfat and Martin (2015) advocate those dynamic managerial capabilities are needed to implement winning strategies for digital transformation and EC performance.

The *external barriers* comprehend the lack of understanding of SME needs, common technology standards, and e-competence in the industry sector (Stockdale & Standing, 2004). On the other hand, Duan et al. (2010) endorse that e-commerce performance relies on the role of the customers, and that it is critical for SMEs to develop technologies in order to maintain a competitive advantage in the market.

According to North and Smallbone (2000), the six innovative principles to be adopted by SMEs are: product and service innovation, market development, marketing methods, process technology, innovation, and use of IT in administration.

The increased use of the internet has launched new trends and technologies to increase sales through social media (Adam et al., 2016). Social media will continue to represent an opportunity for companies to extend communication that can guide SMEs to understand customers' needs, expand their product range, and develop new services (Wardati & Er, 2019). In 2020 3.6 billion people will use social media and it is predicted that in 2025 there will be 4.41 billion social media users (Tankovska, 2021). The expansion of social media has persuaded SMEs to adopt strategies related to these platforms by which they can advertise their goods and services all over the world.

Alternative approaches view e-commerce platforms as a business model because when SMEs incorporate social media, they become part of an enriched system that provides value to these companies (Holland & Gutiérrez-Leefmans, 2018). Thus, through social media companies can manage customer service, problem-solving, advertising, branding, public relations, and marketing, (Chirumalla et al., 2018). Even though EC can extend cross-border sales, SMEs are attentive to the costs associated with international transactions, mainly due to shipment and speedy delivery services (Gessner & Snodgrass, 2015; So & Sun, 2010; Zhuang & Lederer, 2003).

The Resource-Based View (RBV) theory supports the correlation between resources/skills and organizational performance based on the characteristics of a company or the value of the resources and abilities they have for modernization (Maroufkhani et al., 2020). Prior research by T. Yang et al. (2015) on RBV theory found that technological assets by themselves are not enough to produce added value to a company and that SMEs should also invest in personal training and develop employees' technical skills.

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 (Lip-Sam & Hock-Eam, 2011; Bodini & Zanoli, 2011).

2.3. Methodology

2.3.1. *The need to summarize the findings in a systematic review*

A systematic review is necessary to summarize, evaluate, and analyze previously reported research regarding the overall magnitude of the phenomenon (Snyder, 2019; Paul et al., 2021b). A key problem in the aggregate synthesis that studies e-commerce in small and medium-sized enterprises is that the studies that comprise this systematic review are not homogeneous, partly due to the multiplicity of the disciplinary fields, e.g., information and technology, information management, marketing, and accounting, which obscures the interaction between e-commerce in the context of small and medium-sized enterprises.

This jeopardizes the aggregation of knowledge and the integration of findings among different fields (Rousseau, Manning, & Denyer, 2008).

Our full coding protocol was carried out in four stages (detailed Flowchart in Figure 2.1: in the first (Initial Search). Studies were included based on keyword(s) E-commerce "AND" Small and medium business and related words, Electronic commerce: Electronic commerce research, E-business, Electronic business, Digital Business, E-commerce: E-commerce adoption, Small business: Small "AND" Medium enterprises, Small to medium-sized enterprises, Small business research, SME, SMEs, using a simple search of "full text" with "peer review" in English. The database EDS-EBSCO Discovery Service was used as it aggregates publications that deal extensively with the topic. 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, duplicate articles from Quartile 1 to Quartile 3 (Scimagojr), (Paul & Rialp-Criado´s, 2020).

At stage three we continued using the "Exclusion" criterion to narrow the search. At this stage, the authors read the "Abstract" and "keywords" to ensure that the research objectives were covered.

In 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:

To assess the current body of literature, its positive and negative outcomes and impact of EC on small and medium-sized enterprises?

To investigate prominent concepts and how they relate to the positive and negative effects of EC?

To propose future insights through an original conceptual framework linking EC with SMEs.

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┌─────────────────────────────┐         ┌─────────────────────────────────┐
│        IDENTIFICATION        │         │ Identification criteria           │
│                              │◄────────│                                   │
│ Articles identified through  │         │  • Source Type: Academic Journal  │
│ database searching (n= 1.010)│         │  • Search Keywords: e-commerce    │
│                              │         │    and small and medium business  │
└─────────────────────────────┘         │  • Limiters: Full text, Peer      │
                │                        │    Reviewed                       │
                │                        │  • Date Published: 2010 to 2021   │
                ▼                        │  • Search Engine: EDS-EBSCO       │
┌─────────────────────────────┐         │  • Language: English              │
│          SCREENING           │         └─────────────────────────────────┘
│                              │
│ Articles retained after      │         ┌─────────────────────────────────┐
│ screening search             │         │ Screened and excluded (n = 62)    │
│ results (n = 948)            │         │                                   │
│                              │         │  • Non-journal articles:5         │
└─────────────────────────────┘         │  • Duplicate copies: 25           │
                │                        │  • Not Q1, Q2 and Q3 rank: 32     │
                │                        └─────────────────────────────────┘
                ▼
┌─────────────────────────────┐         ┌─────────────────────────────────┐
│         ELIGIBILITY          │         │ Eligibility assessed and          │
│                              │────────►│ excluded (n = 875)                │
│ Articles retained after      │         │                                   │
│ eligibility                  │         │  • Conceptual or empirical        │
│ assessment (n = 73)          │         │    articles but content no        │
│                              │         │    relevant: 798                  │
└─────────────────────────────┘         │  • Content relevant but not       │
                │                        │    conceptual or empirical        │
                │                        │    article: 32 journal articles   │
                ▼                        │  • Not conceptual or empirical    │
┌─────────────────────────────┐         │    article and content not        │
│          INCLUSION           │         │    relevant: 45                   │
│                              │         └─────────────────────────────────┘
│ Articles included in the     │
│ review for concept analysis  │
│ (n = 73)                     │
│                              │
└─────────────────────────────┘
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Figure 2.1. – Flowchart - Article inclusion criterion according to PRISMA (2020) Protocol

2.3.2. *Leximancer as a tool to synthesize evidence*

To achieve a comprehensive analysis of how e-commerce can have an impact on Small and Medium Companies we first categorized the information in a database with two major categories: positive and negative outcomes. As in previous systematic reviews, the information from the individual studies was then analyzed using a Computer Assisted Qualitative Data Analysis (CAQDA) (Crofts & Bisman, 2010). The text analytic tool Leximancer was selected as the CAQDA tool due to its efficiency in categorizing a large number of studies into semantic patterns of themes (Angus, Rintel, & Wiles, 2013). For each concept map presented, the

software was able to identify the themes and their interrelationships from the data with no manual interventions, thereby minimizing the subjective results (Cretchley, Rooney, & Gallois, 2010; Smith & Humphreys, 2006).

2.4.   Analysis and Results

To address the research objectives 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 found in the retrieved articles as well the ranked concepts and frequency of co-occurrences.

2.4.1. *Concept map of e-commerce positive outcomes*

The map in Figure 2.2 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%). The third is related to technology "adoption" (44%), followed by "performance" (15%).

Figure 2.2 - E-commerce positive outcomes for SMEs (source: Leximancer outputs)

2.4.2. *Concept map of e-commerce negative outcomes*

Connectivity rates of the four themes (see Figure 3) indicate a negative impact of e-commerce in SME with a connectivity rate higher than 10% and included by importance "e-commerce" (100% relevance); followed by "technology" (50%), technology "adoption" (34%) and its impact on "customers" (11%).

Figure 2.3. - E-commerce negative outcomes for SMEs (source: Leximancer outputs)

2.4.3. *Dashboard Analysis by positive and negative outcomes of EC*

To further investigate the second research objective of how the current literature stated the research related to positive and negative effects of EC, an automated report dashboard was generated. The information of #future research agenda# was exported to an excel sheet read and coded into positive and negative.

The report in Figure 2.4 is based on the advanced techniques of Leximancer categorized by two "Tags": "negative" and "positive". For that purpose, the analyze was conducted in two steps, 1st the information available in the papers that correspond to #future research agenda# was exported to an excel sheet read and coded into positive and negative outcomes and analyzed in the software; 2nd using the Supporting Text Summary from Leximancer the positive and negative outcomes report was reviewed and used as final data (see dashboard Figure 2.4).

The frequency axis indicates a measure of the conditional probability of each concept; the strength axis is explained as a logarithmic scale. Quadrant 4 contains strong and prominent concepts more likely to co-occur within each category. The most prominent positive outcomes are the social benefits (strength 73%, 3.5 prominence), products (57%, 2.8), customers (57%, 2.7), competitive advantage (55%, 2.6), company development (54%, 2.6), business (54%, 2.6), and process (53%, 2.5). Online (52%, 2.5) success has a significant correlation with performance (50%, 2.4) and growth of the business environment (50%, 2.4). The main negative outcomes for SMEs include the resources (strength 69%, prominence 1.8), implication to company security (66%, 1.8), the heavier overall cost for small firms (66%, 1.8), the necessary infrastructures (58%, 1.5), and the required services (57%, 1.5), as well as a potential negative impact on sales (52%, 1.4) and small market share (51%, 1.4). SMEs are vulnerable to unfavorable economic environments (50%, 1.3) and information (51%, 1.4) security incidents, which cause considerable damages. Quadrant overview indicates that concepts in Quadrant 1 are weak and less prevalent in the opposite.
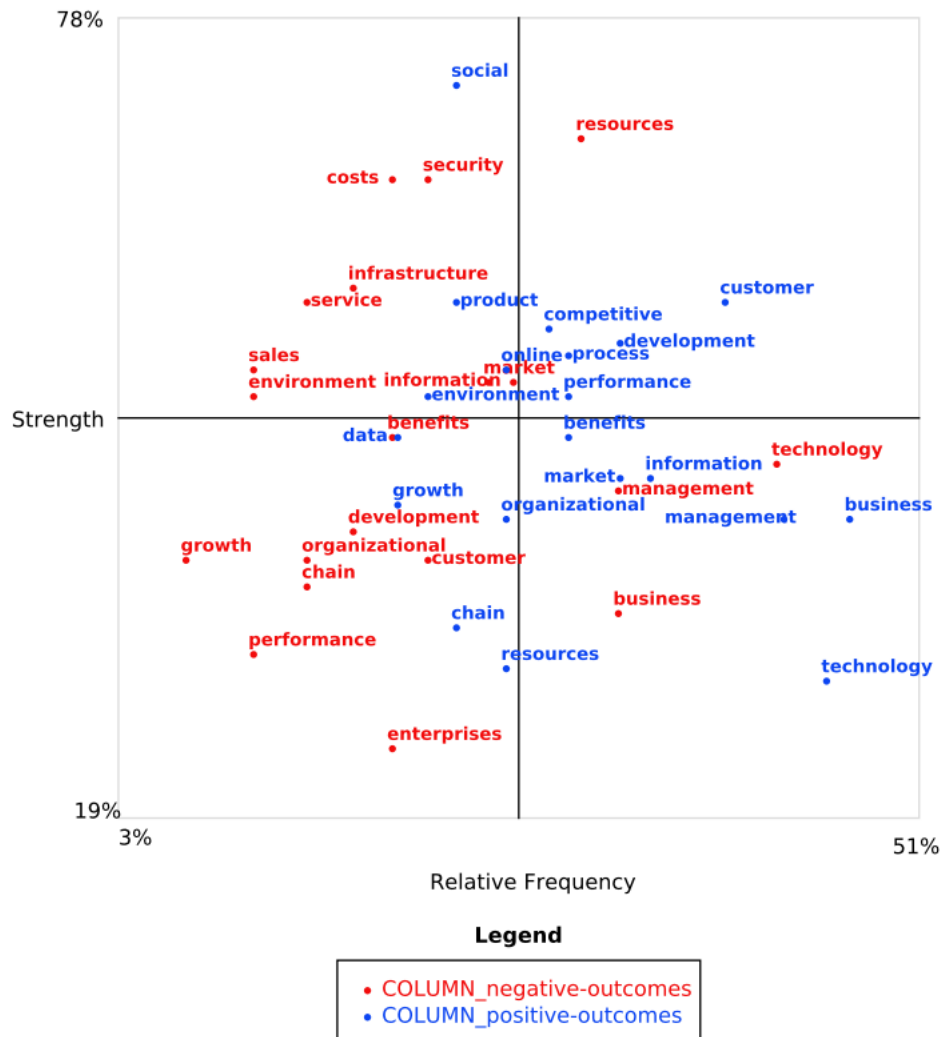
Figure 2.4. - Future research agenda using tags: Positive and Negative (source: Leximancer outputs)

2.4.4. *Summarizing the current literature*

This section addresses the last research objective, how the current literature states prominent concepts related to positive and negative effects of EC? We then discuss positive and negative effects in SMEs and the ranked themes and concepts for each category (see Figures 1 and 2). Second, we analyze the dashboard results (Figure 2.4), which represent how likely it is that the top concepts affect the positive and negative outcomes in SMEs by the percentage of strength.

2.4.4.1. *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 2.2).

The results obtained through this analysis show that the online services available through EC bring competitive advantage to the enterprises, which results in a sales and order increase, market expansion, consumer trust, and better performance.

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).

"Market" size endorses the EC capacity of reaching new consumers and therefore creating new market opportunities for companies (Sohaib et al., 2019). The "company" performance recommends that the top managers not be reluctant toward EC and be patient for its results because it might take time to see the positive effects (Kusuma & Marhaeni, 2019).

"Competitive advantage" can be seen as a positive consequence of EC adoption. Like the last concept, "value" creation is also a result of a good EC implementation and affects not also the company but also the consumers (Woon Kian Chong et al., 2018; Deng et al., 2019).

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" benefits, internally addresses the importance of having employees trained in IT to dominate a large spectrum of technological resources (Poorangi et al., 2013; Wu & Li, 2012b). It also affects "customers", and the need to develop customer initiative which influence market growth leading to an increase of external resources, close relationships, and business development (Poorangi et al., 2013).

According to Elbeltagi and colleagues (2016b), the use of "information" shows that SMEs that adopt e-commerce increase quality standards, which has a direct effect on the progress of information quality and value chain information (Saridakis et al., 2018). Gamache et al. (2019) consider the technology "management" as one of the most important elements of the enterprises' digital performance, and to succeed in this area, companies should take a serious approach to social network management (Li et al., 2018).

Technology has a "positive" effect on the intention to use EC (Nurunnisha & Dalimunthe, 2018) and its adoption improves the company's performance (Sila & Dobni, 2012; Yang et al., 2015) and organizational readiness (Mahroeian, 2012; 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).

The supply "chain" has a colossal impact on business performance related to customer service, satisfaction, innovation, and growth (Woon Kian Chong et al., 2018; Kumar et al., 2015). 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, 2021b).

E-"commerce" centers on the importance of having a trained team focused on the company business and on the positive effects of adding value to the information chain (Saridakis et al., 2018). According to Orouji & Kafashan (2017), "online" "readiness", is considered by many authors as one of the most important subjects of EC adoption. It refers to the importance to be on the web with a strong strategy that is different from that of competitors (Mahroeian, 2012; Pham & Pham, 2011; Walker et al., 2016).

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; Pickernell et al., 2013).

The pattern seen suggests that EC brings added value to SMEs and new business development. 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.*

2.4.4.2. *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 2.3).

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 Das, et al., 2019).

"Business" opportunities can be negatively affected by the lack of EC knowledge and customers' resistance to EC adoption (Pham & Pham, 2011; Poorangi et al., 2013). Another problem is the potential lack of "resources", which can be divided into a human, financial, and technological (Walker et al., 2016). The "information" technology required, addresses concerns about companies' limitations in this area due to low financial resources to be invested (Pham & Pham, 2011; Wirtz & Göttel, 2016). Reaching new "markets" is particularly difficult for SMEs especially in selling their products in foreign countries, and in being competitive cross-border (J. Li et al., 2020). Although "financial" resources is 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 Alam et al. (2011) and 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). Hierarchy "culture" was identified as been negatively related to EC implementation "process" in the initial maturity stage (I. Senarathna et al., 2014a). Customer orientation suppliers' "chain" facilities and customer "readiness" technologies should be sophisticated in order not to harm SMEs' "performance" (Chen et al., 2016; Sila & Dobni, 2012; 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 "adoption" is negatively affected by technical restraints, delay in technology implementation, hierarchy culture, and lack of government support (Elbeltagi et al., 2016a; Janita & Chong, 2013) Sila & Dobni, (2012) explain that "enterprises" have major difficulties in adopting EC mainly as a result of shortage of financial resources dedicated to technology investments, lack of awareness of government support programs, and reluctance to take risks in the IT areas (Alam et al., 2011; Pham & Pham, 2011).

"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 (Poorangi et al., 2013; Kurniawati & Sila Ananda, 2019). 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; Jardim-Goncalves et al., 2013).

According to Jardim-Goncalves et al. (2013), "service implementation in companies" is made difficult by the initial "costs of IT solutions", employees' resistance to change, absence of specialized personal in technological areas, and reservations about payback of the initial investment customers (Nayati Utami 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 (Jardim-Goncalves et al., 2013; Kabanda & Brown, 2017; 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.´*

2.5. Discussion and Conclusion

Based on the work of Paul and Benito, (2018) & Paul et al., (2017), we conclude the present systematic review by presenting a framework (see Figure 2.5) that summarizes the positive and negative Antecedents (A) of e-commerce, the Decisions (D) that companies need to undertake while implementing e-commerce strategies and Outcomes (O), based on the results of the dashboard analyze (in Figure 2.4).

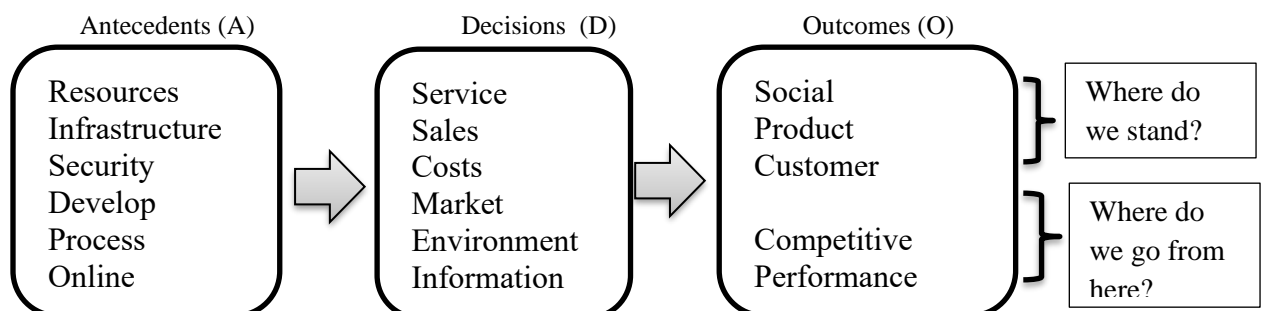| Antecedents (A)	Decisions (D)	Outcomes (O)	
Resources Infrastructure Security Develop Process Online	Service Sales Costs Market Environment Information	Social Product Customer Competitive Performance	Where do we stand? Where do we go from here?

Figure 2.5. Conceptual Framework -antecedents, decisions, and outcomes (ADO)

(Adapted from Paul and Benito 2018, and Paul et al., 2017)

Antecedents (A)

DeLone and McLean (2004) consider "net benefits" as the most precise explanation of the final achievement, but for success in this area two questions should be answered: what is a benefit? Who will have the benefit? Some authors regard benefits as an increase of sales volume, better distribution networks, upgrading in consumer service, cost-effectiveness, value innovation, market expansion, and business development (Chatzoglou & Chatzoudes, 2015). In general, a company's results can be measured by its operational, process, and financial performance (Sila & Dobni, 2012). Other authors share the opinion that globalization and the massive use of websites have contributed to doing online business all over the world and helped to gain new customers and conquer new markets (Pham & Pham, 2011). The main critical negative outcomes for SME comprise (marked in red in the dashboard) 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".

Having solid IT infrastructures positively influences EC adoption (Chatzoglou & Chatzoudes, 2015), while hiring employees with specialization in IT is also a major EC implementation factor because less resistance to new habits facilitates the implementation of new technological processes (Bordonaba-Juste et al., 2012). This issue is crucial not only for the employees but also for the managers because when they become more convinced about the benefits of EC, their confidence level will grow (Poorangi et al., 2013). A similar opinion was proposed by Bernal-Jurado and Moral-Pajarese (2011), who considered technological qualification as a decisive mechanism for improving the electronic channels of commercialization, information, and communication, which also contributed to company value creation (Walker et al., 2016) due to the innovation brought by the EC (Sila & Dobni, 2012).

Decisions (D)

EC is a technology that helps to boost corporate performance as it allows SMEs with a short financial budget and a small infrastructure to develop their services and control cost (Ghobakhloo et al., 2011; Li, 2021). Yu and Dong (2013) consider that business progress is effective only when dynamically implemented through external and internal readiness.

Having solid IT infrastructures positively influences EC adoption (Chatzoglou & Chatzoudes, 2015), while hiring employees with specialization in IT is also a major EC implementation factor because less resistance to new habits facilitates the implementation of the new technological environment (Bordonaba-Juste et al., 2012). This issue is crucial not only for the employees but also for the managers because when they become more convinced about the benefits of EC, their confidence level will grow (Poorangi et al., 2013).

Recent data collected by Saridakis et al. (2018) suggest that SMEs with websites have up to 16% better results when compared to firms without a website and have 4% to 5% better performance compared to companies without an EC website. Also, Nayati Utami et al. (2019) found that EC increases sales performance and profits, company business becomes more popular, and the business network becomes wider.

Based on these findings we conclude that SMEs that implement EC not only enjoy proven benefits and results but can expand their market worldwide and increase sales and offers due to the competitive advantage obtained.

Outcomes (O)

Where do we stand?

One of the main issues that SMEs will face is integrating different strategies (e.g., EC, m-commerce, different platforms, and social media) where heterogeneous customer behavior is significant (Gyenge et al., 2021). EC will represent the availability of products and access to around-the-clock shopping because in traditional commerce customers can only purchase their goods during normal business hours (Gupta, et al., 2018). From the company internal point of view success will rely on operational performance, hardware, IT infrastructures, customer readiness, and digital transformation; from the external point of view perceived competitive advantages are a close customer relationship, market growth increased sales, and revenue (Chang & Webster, 2019; Sadeghi, 2019). Nonetheless, Haddoud, (2021) advocates that product quality and niche products together with a positive country of origin image have a competitive advantage of international trade.

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 (Figure 2.4) that there are five key EC positive outcomes (blue in the dashboard) 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 (marked in red in the dashboard, Figure 2.4) 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.

We addressed the last objective by proposing new insights and eight research propositions linked to EC in SMEs through a new conceptual framework based on the retrieved articles.

2.5.1. Theoretical 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 2.1, and Figure 2.2) 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. According to the Systematic Review on the determinants of SME's firm size is only part of the demographics and it's not accounted for its moderate effect (Haddoud et. al., 2021).

Fourth, through the ADO framework (Figure, 5) this Systematic review identifies the Antecedents Decisions that influence EC Outcomes in SMEs.

The use of a data analysis software that is not manually coded as the previous ADO framework in Systematic Reviews (Paul & Benito, 2017 & Lim, et al., 2021) uses a quantitative focus from the retrieved articles and is designed to provide a quick understanding of the framework.

2.5.2. Practical contribution

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 EC.

Based on the Dashboard quadrant (Figure 2.4) managerial decisions should focus on the concepts (see the upper, right quadrant (also described as magic quadrant) that were identified in this systematic review as key positive aspects of e-commerce (i.e., social benefits, increase product sales, create value to customers and a potential source of competitive advantage and company development.

Although government support to SMEs is an action that cannot control, during our analysis we found that companies benefit from this type of intervention and should not waste this support when available.

2.5.3. *Directions for future research based on the evidence*

Future studies should therefore also consider top managers' perceptions, employees' opinions, and firms results to compare if the theoretical findings are in line with the SMEs' reality. In the past ten years of published articles on e-commerce the great majority of research test theories drawn from management and technology these past studies on the topic of indicating overlapping theories. Thus, we argue that future empirical research by expanding conceptual models including end-user satisfaction both in the context of B2C and B2B small firms, the Methodological approach of those 10 years of research confirm that user-generated content is absent in all the methods used, pairing different stakeholders is a priority. From the service perspective even though SMEs have different business objectives research can provide strategic recommendations for best practices in SMEs. We call for future research to include research in new market potentials such as Africa and Latin America where SMEs have an impact on women startups and small business development.

THEORIES

Business Model Theory
Cooperative Game Theory (CGT)
Design Science Research (DSR) approach
Dynamic Managerial Capabilities (DMC)
Diffusion Of Innovation (DOI) 13x
Fuzzy Theory
Game Theory 2x
Grounded Theory Method
Hofstede Cultural Theory
Information Processing Theory
Innovation Theory 3x
Interaction Theory
Organizational Culture Assessment Instrument (OCAI) *
Relationship-based Commerce Theory
Resource-based View (RBV) 5x
Self-determination Theory (SDT)
Structuration Theory
Technology Acceptance Model (TAM) 9x
Technology-organization-environment Framework (TOE) 11x
Theory of Demand
Theory of Planned Behavior (TPB) 4x
Theory of Reasoned Action (TRA) 5x
Theory of Social Learning
Transaction Theory

CONTEXT

Geographic
Albania
Australia
Bulgaria
Canada
China
Denmark
Egypt
Grece
India
Indonesia
Iran
Italy
Japan
Jordania
Korea
Macedonia
Malaysia
Netherland
Portugal
Quebec
Russia
Romania
Slovakia
Spain
Sri Lanka
Taiwan

CHARACTERISTIC
Small medium scale
Food industry
Micro
Industries
Supply Chain
Manufacturing
Retail
E-commerce
E-market

Psychographics
Performance
Manager Characteristics
Benefits
Threats
Adoption

e) Quantitative
SEM
Regression:
hierarchical stepwise
multiple,
linear
Cluster analyses
MANOVA(ANOVA)
Qualitative
Interviews:
in-depth
semi-structured
Case Study

DATA
Primary
Survey
Interviews
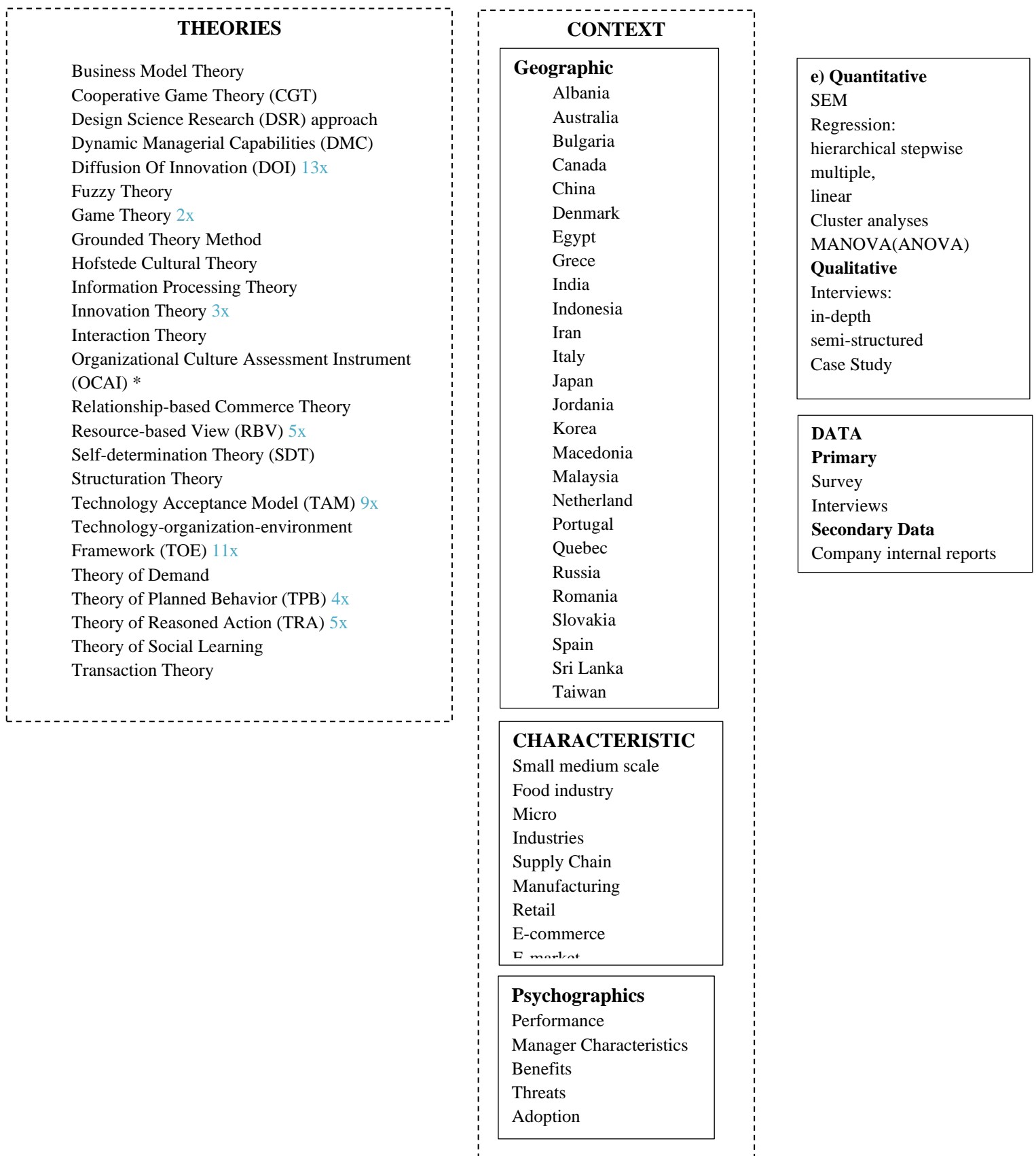**Secondary Data**
Company internal reports

Table 2.1. - Theories, Context, Characteristics and Methodology (TCCM) Framework.

(Adapted from Kumar et al., 2020)

Despite all the results obtained in our study, a significant limitation resides in the origin of our research bibliography, which is not well-distributed. There are still some studies that are not public due to government constraints or due to universities policies, and as a result, are not included in our analysis. Furthermore, 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.

CHAPTER 3 – STUDY II

The ever-changing business of e-commerce-Net benefits while designing a new platform for small companies

3.1 Introduction

EC has allowed small companies to expand their business, overcoming barriers that in the past were thought to be impenetrable, making it possible to reach new markets, expand product portfolios, and grow their client bases (Peiris et al., 2015). Although SMEs are often eclipsed by larger enterprises, EC brings the opportunity for SMEs to level the playing field with larger companies and to compete with them in some features (Minatogawa et al., 2020).

In Portugal EC has experienced rapid growth in recent years, driven not only by the COVID-19 pandemic but also by the ongoing technological revolution (Digital, 2020). According to a report by Digital (2020) EC in Portugal reached 110 billion euros in 2020. This impressive figure underscores the increasing importance of EC in the Portuguese economy and highlights the need for firms to embrace digital technologies to remain competitive in the current business landscape (Tam et al., 2020).

Although only 10% of websites in Portugal are exclusively dedicated to Business-to-Business (B2B) sales, with the majority of Portuguese company websites serving only to present their products and services (76%), online B2B sales are projected to increase by 6 billion euros by 2025 (Digital, 2020). Even though SMEs that sell through B2B have sought to implement strategies allowing them to boost their EC, these plans have had mixed results. On the one hand, there are high rates of EC implementation in SMEs, but on the other hand, B2B sales that require Service quality and customer satisfaction have not moved beyond the initial phase of implementation (Molla et al., 2006).

Today's market competition makes EC adoption inevitable for SMEs, forcing these companies to embrace cutting-edge and knowledgeable strategies to stay unique, successful, and profitable in both home and international markets (Bertoa et al., 2019). According to a report by Salesforce Research (2018), 63% of the 6,700 B2B firms surveyed reported that their customers expect them to offer new and improved services with greater frequency than ever before. This highlights the urgent need for B2B firms to keep pace with technological advancements and meet the changing demands of their customers (Coppola, 2021).

The rise of digital sales has become increasingly important for companies seeking to meet customer expectations and improve their overall performance (Suciu et al., 2019). As noted by Bongers et al., (2021), a practical approach to this issue involves the extension of digital sales capabilities using EC platforms. EC adoption is crucial for companies seeking to meet customer expectations and improve their performance, but a more nuanced approach is needed to understand the full impact of EC on company performance (Tobon et al., 2020).

The theoretical perspective on EC effectiveness requires a different procedure, as Jeyaraj (2020) highlights. The author points out the need for a new model capable of identifying the key elements of EC net benefits and empirically assessing these aspects in a real EC context. Such a model would provide a more comprehensive understanding of the impact of EC on company performance and help companies to optimize their use of digital sales channels (Yoon et al., 2021).

The DeLone and McLean (2003) model, introduced in 2003, offers a comprehensive methodology to assess IS (Information System) in general and EC in particular. Its dimensions outline EC success metrics, making it an increasingly important tool for enhancing overall EC success (Tam et al., 2020).

The DeLone and McLean (2003) model is one of the most widely used models for assessing EC adoption. However, previous studies conducted by Urbach et al., (2010) and Petter et al., (2008) have shown that the model lacks strong support in all relationships and has produced mixed results in many cases. Petter, DeLone, and McLean (2008) found that certain connections within the DeLone and McLean model (2003) did not receive strong support at the individual level, specifically, the connection between system quality and user satisfaction was found to be weak or inconsistent in some studies.

Additionally, Iivari, (2005) found that there was no significant link between system quality and actual use in the DeLone and McLean model and Mardiana et al., (2015) further concluded that a deeper understanding of Intention to use was required when using the DeLone & McLean model. Finally, Nyadzayo et al., (2020) recommended that future studies should explore the relationship between customers and service providers throughout the entire buying experience. Additionally, Bongers et al., (2021) suggested that future research should focus on the effects of introducing digital sales channels on interactions at different stages of a system, particularly within a business-to-business (B2B) context. Therefore, while the DeLone & McLean model remains an important tool for EC success, its limitations and potential areas of improvement warrant further research (Jeyaraj, 2020).

Despite all the conclusions and recommendations made by several authors regarding the DeLone & McLean (2003) IS model, there is still a gap between the model and the implementation phase undertaken by SMEs that guide to EC net benefits in a real context. EC holds significant potential for SMEs, but to ensure its continued adoption and success, it is important to explore strategies to overcome potential barriers (Alzahrani, 2019). To this end, this study proposes the integration of gamification theories into the DeLone & McLean (2003) IS Success Model for SMEs. By doing so, not only can SMEs leverage gamification to enhance EC adoption and success, but they can also differentiate themselves from other EC systems (Tobon et al., 2020) . Given the critical role of EC in today's business landscape, it is important to identify innovative approaches to support SMEs and ensure their competitiveness in the digital sphere (Fonseca et al., 2020).

The need to understand the theoretical and practical foundation of B2B EC implementation by SMEs, and the role of gamification elements and mechanisms in this process, is of paramount importance in today's business landscape. However, previous research has reported a lack of clarity in this area (Garg & Choe, 2015; Hussein et al., 2020), highlighting the need for a dedicated study to address this gap. As such, this study aims to fill this methodological gap by investigating the following research question:

How can SMEs enhance their EC net benefits?

The current study extends previous research not only in the domain of the IS model proposed by DeLone and McLean but also in the gamification theory. We aim to enhance SMEs' net benefits by proposing a new model, and defining two main objectives:

- Investigate the relationships between the proposed model variables in the SMEs context that operate in the B2B.
- Measure and compare the variables that are the most important for the model.

The adoption of gamification in EC platforms can be a powerful tool for SMEs to improve their competitiveness and enhance their online sales (Tobon et al., 2020). Therefore, the present study, which extends the De Lone & McLean model and develops a gamified EC platform for an SME in Portugal, offers a novel approach for SMEs to leverage their online presence and succeed in the B2B context. We expect that by implementing the proposed model, SMEs can gain a deeper understanding of EC and take advantage of gamification elements and mechanisms to improve customer engagement, loyalty, and satisfaction, ultimately leading to increased sales and revenue.

SMEs face a significant challenge in optimizing their IT utilization and reaping the maximum net benefits (Yoon et al., 2021). DeLone and McLean (2003) found that quantifying Intention to Use and actual use of EC platforms is challenging, and future research should focus on measuring net benefits instead of surrogate measures. To address this challenge, we propose a revised model that incorporates gamification as a key factor in strengthening Intention to Use EC, ultimately leading to increased net benefits for SMEs.

Our revised model builds on the existing Intention to Use EC framework and introduces Game dynamics as a critical contributor to its effectiveness. By integrating gamification, we seek to increase engagement and user participation, leading to more significant benefits for SMEs. We recognize that measuring the impact of gamification on Intention to Use EC is challenging, but we believe that our approach provides a more holistic view of EC net benefits.

Our proposed model provides a roadmap for SMEs to optimize their EC platforms and reap the full benefits of IT utilization. We believe that our model can be a valuable tool for practitioners and researchers interested in enhancing EC platform effectiveness and improving the performance of SMEs in the digital economy.

Given the potential benefits of EC for SMEs, it is important to study this topic and explore the challenges and opportunities that SMEs face when adopting EC. Through our study we can identify best practices and strategies to help SMEs successfully leverage EC to enhance their competitiveness and achieve sustainable growth in today's digital marketplace. The present work provides a fresh opportunity for scholars and enterprises to analyze EC net benefit results as an outcome of the relationship between EC and Gamification.

3.2. Theoretical Background

3.2.1. E-commerce net benefits for small and medium-size enterprises

EC has the potential to increase SMEs' efficiency and operation levels (Dirgantari et al., 2020). Due to the advantages of this type of business, many companies have migrated from the traditional way of doing business to the online business experience, principally due to its net benefits (Delone & Mclean, 2014; J. H. Walker et al., 2016a).

The concept of Net Benefits was first introduced by DeLone and McLean (2003), combining individual and organizational impact dimensions from their initial model published in 1992. For DeLone and McLean (2003) net benefits contribute not only to companies' success but also to individuals' realization, which has a positive impact on customers. For organizations, these benefits are operations cost reduction (fewer employees), revenue growth, greater competitivity in local and international markets, high customization, increase in companies' performance, and greater engagement with the customer (Dilworth & Kochhar, 2013; Dirgantari et al., 2020; Fu et al., 2018; Senarathna et al., 2014; T. Yang et al., 2015).

On the other hand, several authors report some barriers to the adoption of EC by SMEs. Those problems are related to a lack of capabilities to adopt EC technologies, absence of financial resources to invest in the modernization of technological infrastructures, shortage of qualified human resources, high dependence on outsourcing companies, and lack of security and reliability (Awiagah et al., 2016; Elbeltagi et al., 2016b; Poorangi et al., 2013b; Suciu et al., 2019; Vajjhala & Thandekkattu, 2017).

When implementing EC a key factor is having a well-structured IS model that can be implemented by SMEs (Abdu'a & Wasiyanti, 2019) As several authors report, many SMEs have difficulties in adopting new technologies due to the complexity of systems or lack of employees specialized in IT (Mazzarol, 2015b; Morais et al., 2012; Pham & Pham, 2011).

The IS Success Model proposed by DeLone and McLean (2003) is designed to be a simple and uncomplicated model for companies to use (Hartono et al., 2010; Widiaty et al., 2020). Since its introduction, according to Research Gate, the DeLone and McLean (2003) IS Success Model has been cited more than 8,000 times and has contributed to several articles regarding IS (Gate, 2022).

In 2005 (Iivari, 2005) conducted research that tested the DeLone and McLean (2003) IS Success Model using a field study. He concluded that system quality and information quality are significant predictors of user satisfaction but not of system use, which in consequence affects the Intention to use EC. Additionally, Walker et al. (2016) found in their study that Ease of use is not significantly associated to EC use. For Buttle and Maklan (2019), the more satisfied the consumer, the greater the increase in the inclination to repurchase products. It is also found by Nyadzayo et al. (2020) that the relationship between customers and companies is considered critical to engage the consumer in the IS.

Furthermore, Jeyaraj (2020) emphasized the need to re-examine reciprocal relationships in success models in order to attain success in information systems. This highlights the importance of conducting further research on a novel model that can improve EC Net benefits.

3.2.2. Small and medium-size enterprises in the context of B2B

SMEs are strategic companies for national GDP and economic growth due to their ability to find new business opportunities, expand networks into new markets, and develop new products (Vajjhala & Thandekkattu, 2017; Wardati & Er, 2019) Although SMEs face strong competition from larger companies and have fewer financial and human resources when compared to them, they can still be competitive, especially due to the adoption and use of IS technologies (Bocconcelli et al., 2017). These technologies give companies the possibility to develop their own EC platforms that allow them to conduct business transactions, maintain business relationships, and share business information (Holland & Gutiérrez-Leefmans, 2018b). As Wickramansinghe and Sharma (2005) stated, EC platforms can eliminate some of the competitive advantages of bigger enterprises and provide equal opportunities for all kinds of companies.

B2B is a way of directing business and settling relationships and interactions between the salespeople and the purchaser (Kumar & Pansari, 2016). B2B companies are adjusting their way of conducting business by introducing EC into their sales strategy (Bongers et al., 2021). As Dotzel and Shankar (2019) state, B2B enterprises rely on new services or innovations to develop their business. As a consequence, from 2013 to 2019 the EC gross merchandise volume increased by 6.39 billion dollars in the United States (U.S.) alone (Mehta & Hamke., 2019). More recent data indicate that in 2023 U.S. B2B sales via EC will reach 1.8 trillion dollars, which represents a 4% increase compared to 2019 (Coppola, 2021). B2B is fundamental for SMEs to consolidate and endorse new business, as this type of company usually has fewer resources to improve developments when compared with larger firms (Markovic et al., 2021). To accomplish this and to improve the chance of effective B2B, SMEs should make partnerships with research organizations, providers, wholesalers, and competitors (Bagherzadeh et al., 2020). Additionally, Markovic et al. (2021) conclude in their study that there are managerial factors that also influence the success of B2B, such as organizational innovation governance choice or internal firm readiness.

Nyadzayo et al. (2020) state that due to consumer uncertainty and competition from other companies, the B2B process should be more relational than transactional, which means having a highly engaged relationship between the SMEs and the client. In line with this argument, Bongers et al. (2021) clarify that developing inter-organizational relationships through personal interactions between companies and buyers has been essential in B2B contexts for decades, but that SMEs are now introducing digital sales channels to achieve this in the digital environment.

3.2.3. Model theoretical background

Before the DeLone and McLean (2003) model become one of the most cited IS models, several researchers studied and verified the first model, published in 1992. They conducted empirical tests on the DeLone and McLean (1992) model of IS to verify and validate its effectiveness. In doing so, the model has been tested with modified constructs and relationships and has also been respecified and extended with the inclusion of other constructs and relationships.

Garrity (1998) presented an ISS model that shared similarities with DeLone and McLean (1992) but also had two differences. The model excluded both quality dimensions in DM1992 while expanding the user satisfaction dimension to comprise task support satisfaction, decision support satisfaction, quality of work life satisfaction, and interface satisfaction Jeyaraj (2020). Larsen (2003) presented a wider viewpoint that incorporates IS implementation, user behavior, and performance, and highlighted the similarities and differences between ISS and DeLone and McLean (1992) or DeLone and McLean (2003). In line with the ongoing expansion of EC platforms, Lai (2014) replaced Service quality with e-service convenience in DeLone and McLean (2003) and subsequently assessed it with the e-SERVCON instrument. Later, Božič and Dimovski (2020) investigated the relationship between business intelligence and analytics (BI&A), absorptive capacity, and knowledge creation by applying the DeLone and McLean (2003) and the knowledge-based theory. The study found a significant positive relationship between BI&A use and absorptive capacity enhancement, which ultimately led to knowledge creation.

A recent study by Çelik and Ayaz (2022) evaluated the success of the Student Information System (SIS) using the DeLone and McLean (2003) and showed that system quality, information quality, and Service quality had a significant impact on use, but did not significantly affect user satisfaction. Interestingly, system use and user satisfaction were found to have no significant impact on the success of the SIS. Another study, by Millenia et al., (2022), applied DeLone and McLean (2003) to investigate the e-Filing system. The authors found that information quality had a significant positive impact on the use and satisfaction of taxpayers. Additionally, the quality constructs of system quality and Service quality were also positively and significantly related to taxpayers' satisfaction. Furthermore, the study revealed that system use and user satisfaction had a positive and significant effect on net benefits.

Although derived models have been proposed, DeLone and McLean (2003) has been widely used in previous research on the IS domain. These derived models have extended the original models by introducing new constructs such as Service quality and contributed to the understanding of IS Jeyaraj (2020). However, these models have limitations due to their specific research contexts and may not be limited to the IS dimensions.

Several prior studies on gamification have employed the DeLone and McLean (2003) IS dimensions. For example, Yin et al. (2022) investigated the relationship between gamification dimensions and user satisfaction, while Inan (2022) examined the impact of gamification on m-payment applications and measured the intention to use. Pasca et al. (2021) explored how app perception affects gamification, and how gamification enhances Service quality and user loyalty.

Additionally, Behl et al. (2021) conducted a study that uses game elements and information quality grounded in motivational affordance perspective (MAP) to study the intrinsic and extrinsic participation on a crowdsourcing platform. The study of how gamified systems' elements and mechanisms shape attitudes and behaviors has garnered significant interest in the literature as scholars from various disciplines including computer science, psychology, information systems, and social sciences, have conducted research on this topic (Tobon et al., 2020).

The DeLone and McLean (2003) IS success model has been adapted for EC and has been used to measure various information systems (Çelik & Ayaz, 2022). However, there is a lack of research validating this model or its variations on SMEs that operate in the B2B. Our revisited model uses gamification to strengthen the Intention to Use EC, which will influence EC net benefits. As the Intention to Use EC and actual use are difficult to quantify with DeLone and McLean (2003), we propose in our model to apply Game dynamics as a key factor that leads to the Intention to Use EC, because as DeLone and McLean (2003) recommended in their report, future studies should contain net benefits measures and not be satisfied to gather only surrogate measures.

3.2.3.1. Website Information

Information satisfaction is determined by users' evaluations of website subjects, hence IS contents will influence customers' satisfaction (Palvia, 1996). When EC clients search for a product, they do it quickly, paying little attention to details, thereby obtaining information that is too general (Madu & Madu, 2002). McKinney et al. (2002) concluded that the level of consumer satisfaction is influenced by information and the IS, confirming that one of the factors of EC user satisfaction is the IS.

Shi and Yuan (2019) conducted a study on the impact of EC and defined user satisfaction as a psychological mechanism of the consumer who is seeking to satisfy their desires. Anderson and Srinivasan (2003) defined satisfaction with EC as the satisfaction of the customer's buying experience compared to previous purchases. Chen (2012) mentions that user satisfaction is an aspect that influences customers, guiding them to repeat their online experience in buying products throughout the EC platforms.

Satisfaction evaluates if an IS user is pleased with the available resources, and how committed and engaged with the system the user is (Meng & Agarwal, 2007), and how enjoyable the IS is to the user (Suh et al., 2018)). Satisfaction has been recognized as the strongest link for continued use of IS by the users (Bhattacherjee, 2001)). Furthermore, user satisfaction is an essential criterion for a better understanding of consumer behavior by top managers (Santoso & Nelloh, 2017)).

User satisfaction enhances consumer loyalty in an online and offline environment (Shankar et al., 2003)). The more satisfaction, the more predisposition a customer has to buy from the same enterprise, creating a cooperative relationship between both parts (Buttle & Maklan, 2019)). DeLone and McLean (2003) measured user satisfaction through information quality and system quality, while Goodhue and Thompson (1995)) emphasized the importance of the user opinion about a specific IS on user satisfaction. User satisfaction increases the pleasure, thus leading to greater enjoyment of a gamified IS (Suh et al., 2018)). Mitrevski and Hristoski (2011)) concluded that satisfaction is the overall feeling of customers who are doing online transactions.

User satisfaction has been studied with different theoretical approaches. When studied by psychological theories, which analyzed the relationships among experience, expectation, and user satisfaction, no influence of system use was found to affect user satisfaction (Brown et al., 2008)). Seddon and Kiew (1996) conducted a study regarding information integration (which examined how cognitive elements affect user satisfaction) and found only weak influence of the perception of system attributes on user satisfaction. Sun et al. (2014) studied user satisfaction by using economics theories (adding a quadratic regression equation) and contributed to our understanding that aspects other than consumption could affect user satisfaction. Meanwhile, Seddon and Kiew (1996) state that the type of IS used will have an impact on user satisfaction and influence individual performance. Consequently, it is possible to realize that the greater the user satisfaction with an IS, the higher is the performance (Ratna et al., 2020).

In the business world companies must continuously search for improvement and make the best of their resources to comply with customers' wishes and needs (Bailey & Pearson, 1983). As user satisfaction is a prominent factor for EC success, there must be mechanisms that evaluate the customers' satisfaction by relying on the attributes of the system and information (Muylle et al., 2004). User satisfaction can also be measured by the system success, which relies on the perceived system usage and information quality (Ives et al., 1983). As different users may have different product information wishes, a virtuous assessment of website user satisfaction is therefore crucial for the success of companies (Muylle et al., 2004).

Through satisfaction it is also possible to assess the loyalty and trust generated by customers toward the products or even the enterprise (Martínez-Navalón et al., 2021). Furthermore, other studies report that satisfaction affects other variables such as continuance intention and Service quality, showing the importance of this matter (L. Li et al., 2018; Shakib Hossain et al., 2019). Based on this, we propose the following hypothesis:

H1- The information provided by the EC platform has a positive effect on user satisfaction.

3.2.3.2. Service quality

Success can be determined by the enterprise's skill in providing services that engage the customers. Therefore, Service quality should be one of the first concerns of companies striving for an awareness of user satisfaction (Ratna et al., 2020). Service quality intensifies user satisfaction, encouraging customers to repurchase (Caruana, 2002). For many companies, user satisfaction is a key factor due to the relevance it takes in business development (Bournaris et al., 2013). As Kenett and Salini (2011) stated, companies will achieve great performance levels only if they consider User Satisfaction as a key factor.

Even though quality can be the immediate quantification of a service or product provided to customers, Service quality is an opinion formed over a long period regarding the general assessment of a company's performance (Hoffman & Bateson, 2016; Partap, 2019). In the past, researchers have debated the relationship between Service quality and user satisfaction and concluded that from different perspectives Service quality has always had a positive effect on user satisfaction (Annamdevula & Bellamkonda, 2016; Choshaly & Mirabolghasemi, 2019). For our research it is important to verify if the relationship between these two subjects is in line with previous works. This led us to extend the literature review regarding these two dimensions.

Some studies conducted in previous years found that satisfaction and Service quality prevail in the services literature mainly in the realms of marketing and management (Caruana, 2002; Nguyen, 2009). A consensus exists regarding this theme that Service quality and satisfaction are key factors in companies' development and growth (Mosahab et al., 2010). For marketing researchers it is fundamental to quantify the Service quality, and models that measure this subject have been developed in recent years, including the five-factor SERVQUAL (Parasuraman et al., 1985), the three-dimension model (Gronroos, 1990), and the hierarchical model (Brady & Cronin, 2018). Nevertheless, there is still disagreement in terms of applicability through different areas (Annamdevula & Bellamkonda, 2016).

An online system disrupts the face-to-face encounter between the customer and the company, which makes it a challenge to establish a continuous relationship based on trust (Moorman et al., 1992). Park et al. (2017) found that interactivity boosts the communication levels between the system and the user, and builds a bond of reliability and sympathy among users regarding information, leading to the enrichment of Service quality. Rousseau et al. (1998) state that reliability is a key factor in the use of IS to maintain the success of a system.

Consumption experience is a result of general service fulfillment whereby user satisfaction is dependent on the experience of use accumulated over a long period (Ballester & Alemán, 2001). The value that clients assign to their experiences turns into a bridge between Service quality and user satisfaction (Park et al., 2017). Additionally, Service quality is fundamental for IS development, by helping to maintain existing clients and attract new ones (Alam, 2021). Quality has a positive impact on user satisfaction, which supports the theory that user satisfaction is a key factor in the success of IS (Tam et al., 2020). We therefore propose the following hypothesis:

H2- The Service quality delivered by the EC platform has a positive effect on user satisfaction.

3.2.3.3. Usability of the website (ease of use)

IS users will use a certain type of technology only if they consider that it is easy to be used (Ratna et al., 2020), and if technology being implemented on an IS is perceived as being complex for the user, it will be avoided (Ratna et al., 2020). For Davis (1989), Ease of use is the level to which the user believes that using a certain type of IS is easy regarding the physical, mental, and learning effort required. Ease of use can be measured by how the operator recognizes and uses the technology and if it is easy to become skillful in its use, if it is flexible, understandable, clear, controllable, and easy to learn (Pham & Pham, 2011). Ratna et al. (2020) stated that Ease of use can be measured by the performance of an operator in understanding, using, implementing, controlling, and maintaining a system.

To quantify the complete intellectual reaction that internet users have for websites, Eighmey (1997) introduced six key indexes: interaction, reliability, Ease of use, consultation value, entertainment value, and marketing cognition and concluded that Ease of use is central to user satisfaction. An EC IS with outstanding usability is generally user-oriented with articulated and informative content, fast and suitable navigation system, complete commodity classification, abundant information of personalized services, consistent security procedures that meet customers' requirements, and the ability to generate optimistic operation and high fulfilment (Shi & Yuan, 2019).

Anjos and Gontijo (2017) conducted a qualitative-quantitative study to discover usability issues in EC websites and detect usability metrics. They proposed an instrument that integrates usability into the process of website development. One of the most commonly used usability assessment indicators today is the Microsoft Usability Guidelines (MUG), which measures usability centred on content, Ease of use, promotion, consistency with the medium, and emotion (Shi & Yuan, 2019). Rawashdeh et al. (2021) conducted a study in which their findings contributed to understanding how Ease of use interacts with user satisfaction. As user satisfaction is a crucial managerial aspect that should be assessed by companies, Taherdoost and Madanchian (2021) stated that reaching high Ease of use performance levels is important to attain high Customer satisfaction.

An enterprise IS will be successful if the technology behind the system is applied in the right way by its users, which will boost the performance and strength of the relationship between the employer and the system (Goodhue & Thompson, 1995). Furthermore, Davis (1989) states that the effectiveness of an IS relies on whether or not users have confidence that the system will lead to an enhancement of their performance or simplify their tasks. The persistence usage intention of a system will be shaped by system usage satisfaction, which is a key factor for the simplification of strategy, value-adding tasks, and plans (Rawashdeh et al., 2021). Based on this, we propose the following hypothesis:

H3- The EC platform's Ease of use has a positive effect on user satisfaction.

3.2.3.4. Game Dynamics

Game dynamics is the term given to the characteristics of gamified structures that can predict or control a further situation in the system. Game dynamics comprise "constraints (certain limitations or forced withdrawal), emotions (curiosity, competitiveness, frustration, happiness),

narrative (consistent, continuous and ongoing story), progression (consumer's, as player's, growth and development) and relationships (friendship created by social interaction, status, altruism)" (Werbach & Hunter, 2012).

One of the Game dynamics goals is to capture customer "flow" (Bilgihan et al., 2015). This expression is used to designate a state of mind that is sometimes experienced by people who are involved in some activity with entire immersion, attention, and satisfaction, i.e., being completely absorbed in it (Pace, 2004).

When using an IS, users search for an online experience that can provide benefits, such as visual appeal, good design, and enjoyment, but most importantly, a system that is easy and interactive to use (Bilgihan et al., 2015). Usability can be assessed during the development procedure, during the planning phase, strategy, replication, test sample, or final software and it is fundamental to determine whether the IS is user-friendly, efficient, and effective (Anjos & Gontijo, 2017). Today it is not possible to develop an EC IS without engaging the issue of usability (Gabriel, 2007). To help the development of EC, some authors have proposed the use of usability metrics, which are a series of indicators to use in evaluations (Bertoa & Vallecillo, 2004; Gabriel, 2007). These metrics consist of multiple usability guides, each one to evaluate the usability of a precise feature of the IS (Anjos & Gontijo, 2017).

The combination of different elements from the virtual environment, such as website design, website communication elements, and website content, can be considered to be stimuli (Vaičiukynaitė & Gatautis, 2013). According to Eroglu et al. (2003), stimuli in the virtual environment have an emotional and cognitive impact on consumers, and a more engaged consumer will be more interested in information related to the product (Gatautis et al., 2016). Engaging boosts Game dynamics and strengthens active and interactive engagement, which can be designed by providing more frequent feedback or rewards (Tu et al., 2015). Game dynamics are critical design strategies to stimulate, motivate, and promote learning objectives, and can include the interactions between the learner and the system that will be enhanced by its Ease of use (Prensky, 2001).

Improvements in system Ease of use and utility enhance the navigation experience, raise a sense of trust, and have a positive impact on customers (Lowry et al., 2008). For Bridges and Florsheim (2008) the system and all valuable components that have an impact on usefulness, Ease of use, and enjoyment will shape the flow experience (Bilgihan et al., 2015). Based on this, we propose the following hypothesis:

H4- The EC platform's Ease of use has a positive effect on Game dynamics

Werbach and Hunter (2012) called game components the resources used to engage the consumer and that in turn make the game more enjoyable, thereby motivating and attracting players who are more involved in the IS (Gatautis et al., 2016). The relationship of multiple game elements from different dimensions allows gamification to be applied in multiple situations (Gatautis et al., 2016). Also, IS hedonic aspects are important in promoting positive brand impartiality, strengthening the importance of website esthetics in forming and sustaining an optimistic attitude toward a product (Bilgihan et al., 2015). The combination of virtual elements has an emotional impact on consumers, which in turn prompts positive or negative consumer responses (Gatautis et al., 2016). Positive emotions enhance buying possibilities, while negative feelings may lead to a state of avoidance (Fiore & Jin, 2003).

The system design quality positively affects the consumer's trust in the website, since is a critical element regarding online shopping (Ha & Stoel, 2009). Furthermore, Utz, Kerkhof, and Van Den Bos (2012) state that consumers' trust increases when they believe that the technology is reliable and credible. Website developers are influenced to take inspiration from entertainment industries, such as video games and movies, to introduce more stimulating characteristics to website design. Even though incentives or rewards are a characteristic of gamification, such Game mechanics, rewards, and incentives unaccompanied do not characterize actual gamification design (Tu et al., 2015). In recent years gamification has become a popular topic among scholars and enterprises, resulting in several studies and applications with different game design types (Negruşa et al., 2015; Seaborn & Fels, 2015). Although in the entrepreneurial context, gamification has been applied to boost the engagement level of clients in the B2B context, there is still a gap in the research undertaken by scholars (Nah et al., 2019; Robson et al., 2016; Silva et al., 2019).

The constructive emotions that result from the customer-system interaction intensify consumers' knowledge about the brand and strengthen their association with it. The Game design commonly uses diverse Game dynamics in the Game mechanics to continuously nurture engagement and enjoyment (Tu et al., 2015). The successful design has a high chance of initiating, simplifying, and maintaining desired learning objectives through effective step-by-step gamified prizes and/or a series of level-up rewards, such as leaderboards or scoreboards (Tu et al., 2015). Based on this, we propose the following hypothesis:

H5 - The Game design supplied by the EC platform has a positive effect on EC platform Game dynamics.

Game mechanics are elements created by the game designers to enhance the player engagement in a gamified system (Gatautis et al., 2016). For Werbach and Hunter (2012), these mechanics can be challenges, elements of randomness, contests, shared goals, feedback, resources acquisition, rewards, transactions, extra turns, and win states. For Arnab et al. (2015), Game mechanics are the theoretical concepts of the game such as resources, goals, and dilemmas; and by the rules that are the guidelines of the game. Game mechanics control which stimuli should be attributed and outline when and how incentives should be obtained. Consequently, Game dynamics and Game mechanics are interconnected in such a way that they balance and boost each other (Tu et al., 2015). In addition, sensations such as enjoyment, awakening, fantasy, and happiness are some of the mechanics that enhance the shopping experiences (Xu et al., 2012). As Bilgihan et al. (2015) concluded, the online shopping experience is characterized by complete absorption in what one is doing, and an IS practical characteristics help consumers obtain a sense of self-control and an inherently fulfilling experience.

Game dynamics were defined by Gatautis et al. (2016) as a specific consumer state leading to additional engagement in gamified activities, which in the online world can lead to a consumer-specific state of stimulation. They are also considered to be among the most important subjects regarding gamification, as they can encourage system users to explore new resources by giving them new and unexpected rewards (Tu et al., 2015).

Suh et al. (2018) concluded that Game dynamics satisfy users' essential psychological needs, which is paramount to boosting enjoyment, leading to customer engagement with a gamified IS.

The online shopping experience is associated with the flow experience because as O'Cass and Carlson (2010) state, it stimulates online shopping behaviors, impulse buying, purchase goals, and continuance intentions. Greater awareness of a system's interactivity over its mechanisms can amplify the user's experience and achievements (Bilgihan et al., 2015). Based on this, we propose the following hypothesis:

H6 - Game mechanics on the EC platform have a positive effect on the platform's Game dynamics.

3.2.3.5. Intention to use EC

User satisfaction is a goal that all companies hope to achieve due to its advantages, such as customer loyalty, sustainable profitability, and positive reviews and comments from customers (Y. Liu & Jang, 2009). Customer satisfaction can be defined as the customer's perception of a service received compared to a service expected (Jani & Han, 2011). In addition, Martínez-Navalón et al. (2021) state that if the user has predetermined quality expectations about a certain service and if the service is delivered in line with those expectations, satisfaction is generated.

If satisfaction is generated regarding a service or product, it positively affects the user's trust, which will encourage the user to continue buying the same products or using the same services (Martínez-Navalón et al., 2021). In the EC environment, user satisfaction is defined as the satisfaction of the consumer regarding her/his previous buying experiences with an EC company (Anderson & Srinivasan, 2003). As Shakib Hossain et al. (2019) conclude, a robust relationship with users certainly affects brand loyalty in a positive way. Chen (2012) concluded that achieving user satisfaction is paramount for customer e-loyalty, not only because online Customer satisfaction can be attained through overall user satisfaction, user expectations, and the shopping experience, but also once customers become loyal they express their loyalty toward the e-retailer in different psychological and behavioral dimensions. For Chen (2012), customer loyalty is a significant objective for EC systems due to the advantageous customers' attitudes such as repeat purchase intentions and behaviors. In addition, a loyal regular user should be more likely to seek a product or service in the future than a first-time customer (Basalla et al., 2021).

User satisfaction is important for companies because a satisfied user repurchases, trusts the brand, and is loyal to the enterprise's services and products (Martínez-Navalón et al., 2021). Companies must focus on this matter for users to continue using their services and EC platforms. Based on this, we propose the following hypothesis:

H7- The user satisfaction provided by the EC platform has a positive effect on EC Intention to use.

IS performance is a key attribute in determining user satisfaction in EC and an aspect that affects the consumer's decision to purchase a product or not (Poggi et al., 2014). Website abandonment by EC visitors has a negative impact on companies' revenue and results (Marshak & Levy, 2003). In their most recent study, Taherdoost and Madanchian (2021) stated that performance, trust, usability, user-friendliness, design, training, security, and quality are the most significant features of EC satisfaction and that these must be well planned in order to implement them correctly on an EC system.

For Chen (2012), customer loyalty is a significant objective for EC systems due to the advantageous customers' attitudes such as repeat purchase intentions and behaviors. In addition, a loyal regular user ought to be more likely to acquire a product or service in the future than a first-time customer (Basalla et al., 2021).

Gamification is a theoretical framework that merges game elements and techniques to improve results in a non-game context (Silva et al., 2019). In the business world gamification has the objective of improving Customer satisfaction and sales (Muangsrinoon & Boonbrahm, 2019). Furthermore, game components characterize consumer understanding of website features as well as a different type of enthusiasm to become engaged in games Gatautis et al. (2016). Greipl et al. (2021) conducted a study that identified if participants were engaged in a game or non-game version of a spatial working memory task. The authors concluded that game elements enabled a more emotionally engaging experience. On the other hand, the non-game condition leads to a sense of boredom (Greipl et al., 2021). Game dynamics were defined by (Gatautis et al., 2016) as a specific consumer state leading to additional engagement in gamified activities, which in the online world can lead to a consumer-specific state of stimulation. They are also considered to be among the most important subjects regarding gamification as they can encourage system users to explore new resources by giving them new unexpected rewards (Tu et al., 2015). Suh et al. (2018) concluded that Game dynamics satisfy users' essential psychological needs, which is paramount to boosting enjoyment, leading to customer engagement with a gamified IS.

Based on this, we propose the following hypothesis:

H8- Game dynamics implemented on an EC platform have a positive effect on EC Intention to use.

3.2.3.6. E-commerce net benefits

Via the internet, IS, and applications, it is possible today to buy, sell, market, and commercialize products, services, and information (Ho et al., 2020). EC has become one of the most important approaches in businesses leading to an increase in efficiency in companies' operations (Abdu'a & Wasiyanti, 2019). At the same time, EC also establishes long-term relationships between consumers and enterprises, resulting in repurchase intentions (Agag & El-Masry, 2016). Dirgantari et al. (2020) concluded in their recent study that companies must continue developing EC systems to increase usage level, information quality, information relevance, and client satisfaction. When compared to other companies, enterprises that use this type of IS have the ability to become more resilient and improve their own ability to respond to competitors (Zhuang & Lederer, 2003) . Additionally, as mentioned above, Peiris et al. (2015) state that EC has the ability to retain customers, contributing to their intention to use these types of system.

Lederer et al. (2009) conducted a study to identify IT general benefits and concluded that in general there are 33 benefits categorized in six groups: information, cost savings, competitiveness, productivity, planning and control, and new applications. More specifically, there are several benefits when using EC IS, such as sales increase, cost reduction, and better customer relationship management (Bordonaba-Juste et al., 2012; Lyu et al., 2010). Additionally, Zhuang and Lederer (2003) identified other benefits for B2B EC, which are operational effectiveness and efficiency, better data control, better customer service, and access to new markets.

As Agag (2019) concluded in his study, relationship quality has a great influence on repurchase intention and loyalty, showing the importance of building a solid relationship between the online service provider and buyers. Furthermore, Carvalho and Mamede (2018) conducted a study in which companies top managers pointed out the advantages of implementing and maintaining an EC system, mentioning greater knowledge of their target audience, contracts growth, transactions speed, wider geographic coverage, and turnover increase. EC has reshaped the commercial relationship between the customer and the seller because today it is possible to conduct business exchanges in real-time with no geographical boundaries (Luo et al., 2005).

EC is not only about successes, but also about failures that must be analyzed. "Net benefits" leaves a margin for error margin in the final results because "[no] outcome is wholly positive and without any negative consequences" (DeLone & McLean, 2004). "Net benefits" measure the negative and positive impacts on companies, customers, suppliers, economies, and industries (DeLone & McLean, 2004).

Based on this, we propose the following hypothesis:

H9- The Intention to use EC platform has a positive effect on EC net benefits.

3.2.4. Conceptual model

The new proposed conceptual model (Figure 3.1) summarizes the hypotheses for this research.
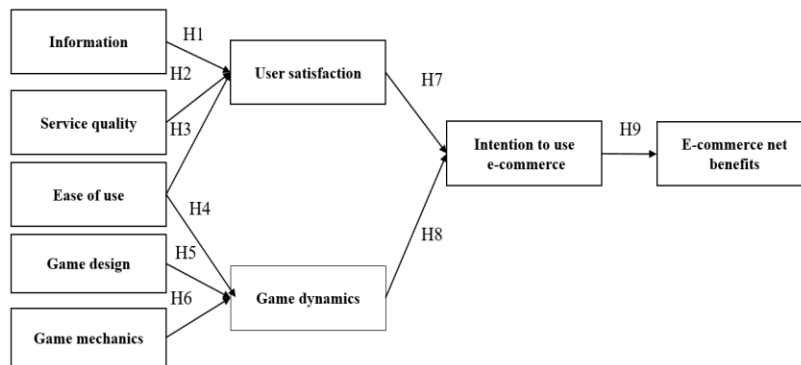

Figure 3.1 - New Proposal of IS Success Model. (source: own elaboration).

The suggested approach uses metrics of Game dynamics and User satisfaction to estimate the Intentions to use EC, which in turn evaluates the EC benefits. User satisfaction and its antecedents, namely Information, Service quality, and Ease of use have been considered as the overall Intention to use EC (Ilieva et al., 2022).

Game dynamics has been considered as the overall user game experience and is considered a fundamental part of the user's Intention to use EC (Yu & Huang, 2022). Thus, three antecedents, Ease of use, Game design, and Game mechanics, were used to estimate Game dynamics. These variables and relationships in the proposed model are relevant for the study in the context of Small and Medium Size Enterprises (Schielzeth, 2010).

3.3. Methodology
3.3.1. Context of the study

The sample for this study is a pool of clients of an SME that operates in the B2B context distributing products (e.g., coffee, chocolates, candies,) to Hotels, Restaurants, and Cafés. This small company seeks to increase online sales by creating a new website.

The survey was distributed among the company clients, i.e., the potential users of the new website. The survey was a fundamental resource to gather relevant information concerning the company, its clients, and their intention to use a new EC platform. It is important for this SME to participate in the project not only to understand and better comprehend the EC in B2B, but also to improve their online sales. As stated by Libai et al. (2010), an online atmosphere empowers corporations to be allied in dynamic new ways.

3.3.2. Data collection and Questionnaire

Data were collected with a survey addressed to online clients of the case company between July 2021 and January 2022. The questionnaire was in Portuguese and available online via a link (https://iscteiul.co1.qualtrics.com/jfe/form/SV_8HaQK1KhPFUEOAC) that redirected the online consumers to the questionnaire (the questionnaire is included in the attachments). A total of 610 responses were received; 88 incomplete questionnaires were eliminated, and the final sample has 522 valid responses.

The questionnaire had ten sections, 9 for the model dimensions and the last for demographics. The first section comprised the Information EC and had 5 dimensions (Loiacono et al., 2014; Walker et al., 2016); the second section contained the Service quality EC and had 5 dimensions (Kuo et al., 2009),; the third section embraced the Ease of use and had 5 dimensions (Chiew & Salim, 2003); the fourth section was for Game design EC and had 12 dimensions (Thorne et al., 2009); the fifth section included the Game mechanics EC and had 5 dimensions (Bovermann & Bastiaens, 2020), the sixth section comprised User Satisfaction and had 5 dimensions (Kuo et al., 2009), the seventh section contained the Game dynamics and had 5 dimensions (Bertoa et al., 2019), the eighth section contained Intentions to Use EC and had 4 dimensions (Belanche et al., 2012), and the nineth section included EC Net Benefits and had 5 dimensions (DeLone & McLean, 2004; Zhuang & Lederer, 2003); the last section comprised the Demographics.

Based on the literature, well-validated measurement items for study constructs were adopted and included in the questionnaire, which measured online consumers and ranked the importance of each attribute in their previous experience in online shopping. The responses used a 7-point Likert scale (1 = "Extremely unimportant"; 7 = "Extremely important").

3.3.2.1. Sampling

The respondents were company clients who had access to the shared link redirecting them to the questionnaire. Most of the respondents were male /54.2% of the sample), with the largest percentage between 18 and 25 years old 39.8%. Also important to remark is that the EC users 46-54 years old represent 23% of our sample. Time spent online by our users is essential for the results, since almost every respondent used the internet regularly (99%); and 200 respondents (38.3%,) reported making online transactions at least once per month, followed by 146 respondents making one online transaction quarterly (28% of the sample). It is also important to mention that 210 respondents had used EC for only 2 to 5 years, representing 40.2%, and 134 respondents had been making online transactions for more than 5 years (25.7% of the sample).

Variable	Category	N	%
Gender	Male	283	54.2
	Female	239	45.8
Age group	18:25	208	39.9
	26:35	68	13
	36:45	83	15.9
	46:54	120	23
	>55	43	8.2
Education	High school	157	30.1
	Four-year university	255	48.9
	Master's	90	17.2
	Doctorate	4	0.8
	MBA	5	0.9
	Other	11	2.1
Internet Profile	Regular user	443	84.9
	Not regular user	79	15.1

Familiarity	Familiar with EC	443	84.9
	Not familiar with EC	79	15.1
Online Transactions Frequency	Weekly	68	13
	Monthly	200	38.3
	Trimestral	146	28
	Annually	96	18.4
	Never	12	2.3
EC years	<1	178	34.1
	2:5	210	40.2
	>5	134	25.7

Table 3.1 – Demographics (source: SPSS AMOS output)

3.3.3. Data Analysis

Analyzing the outcome data of research is a complex task. Conventional statistical techniques for data analysis specify default models assuming that measurement occurs without error and are intransigent to some extent. On the other hand, structural equation modeling (SEM) is a multivariate technique incorporating measured variables and latent constructs, and clearly identifies measurement error (Suhr, 2006).

To test the relationships hypothesized in the proposed conceptual model (Figure 3.2), we used the SEM (IBM SPSS Amos 28 SEM), after performing an exploratory and confirmatory factor analysis with SPSS to estimate a series of interrelated dependence relationships simultaneously. The SEM approach has been used in many fields (social science, IT, and others) to empirically analyze conceptual models, as it tests hypotheses regarding the model relationships; to represent, estimate, and test a model's relationships between variables; and to test hypothesized patterns of directional and nondirectional relationships between measured and latent variables (Boomsma et al., 1995; MacCallum & Austin, 2000; Rigdon, 1998)

Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) guarantee that the precision of this consideration complies with the current measures that are considered reasonable for conceptual model validation (Figure 3.1). Using AMOS we performed an EFA in SPSS before conducting a CFA to identify the underlying constructs and to verify the factor structure for a set of measured variables according to participants responses (see Table 3.1 in appendix).

Inferential statistics regularly count on the supposition that data are regularly distributed. Values that are skewed or occur recurrently along one portion of the measurement scale will affect the variance–covariance among variables, and kurtosis in data will also impact statistics (Schumacker & Lomax, 1996). Because of this, we tested the data for normality and the Skewness and Kurtosis measures were checked (see Table 3 in attachment).

There are several methods to determine the proper number of main components to characterize the data variance and the feature correlation in a principal analysis. One of the most popular methods is the Kaiser-Meyer-Olkin (KMO) statistic test (Table 3.4), which measures the suitability of the data obtained for structure detection, and provides hints about the proportion of variance, given the analyzed variables (or items) that is caused by underlying factors, i.e., KMO indicates how well the items are suited to perform a factor analysis (Kaiser, 1960). Low values of KMO suggests that the sum of partial correlations is greater than the sum of correlations, indicating that the use of factor analysis is unsuitable, while higher values of KMO suggests that the correlations' pattern is fairly compact and the use of factor analysis would give consistent results (Field, 2013).

The reliability of scale is commonly measured by the Cronbach's alpha (Chan et al., 2018) . It defines the mean correlation or the internal consistency between factors in the survey to assess the questionnaire's trustworthiness. The Cronbach's alpha coefficient takes a value between 0 and 1 and the closer to 1, the more consistent the measurement scale is (Reynaldo & Santos, 1999).
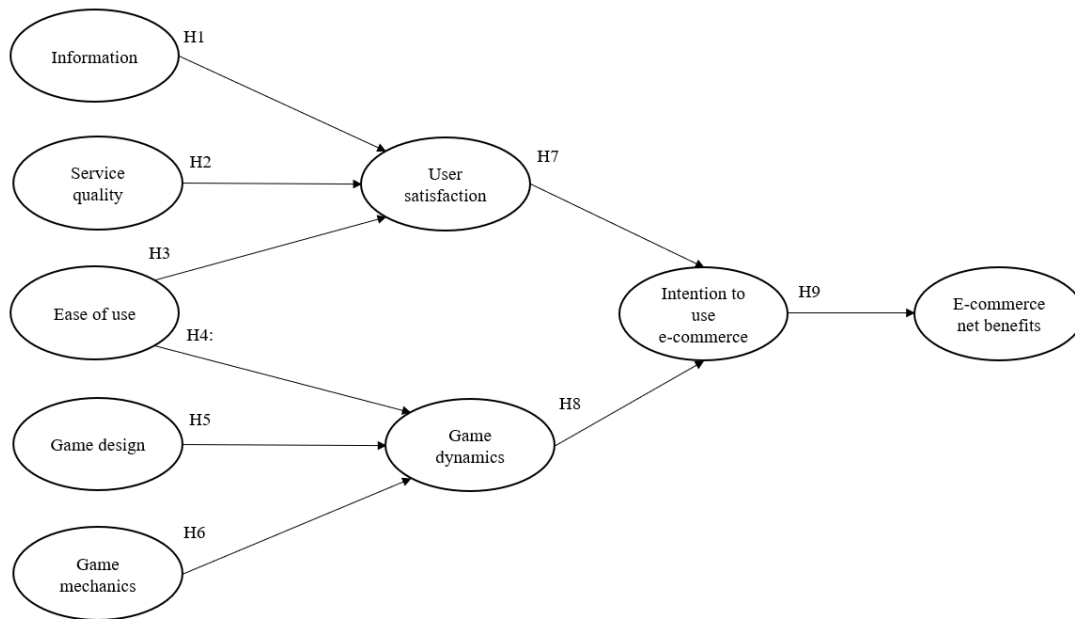
Figure 3.2 - *Proposed Conceptual Model*. (source: own elaboration)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		0.909
Bartlett's Test of Sphericity	Approx. Chi-Square	13764.473
	gl	990
	Sig.	0.000

Table 3.2 - KMO and Bartlett's Test (source: SPSS AMOS output)

The Square root of the AVE (Average Variance Extracted) and CR (Composite Reliability) were used to test whether the discriminant validity exceeded the correlation between the dimensions (Hair et al.,2006). The model has acceptable convergent validity, as shown by the results for CR and AVE (diagonal elements in bold) of all the dimensions (see Table 3), and the CR and AVE are above 0.7 and 0.5, respectively, as suggested by Nunnally and Bernstein (1994), indicating that the discriminant validity is adequate.

Correlations between dimensions and AVE

	CR	EC Net benefits	Game dynamics	Game mechanics	Game design	Ease of use	Service quality	Information	Customer satisfaction	Intention to use
EC Net benefits	0.893	0.817								
Game dynamics	0.806	0.599	0.728							
Game mechanics	0.931	0.777	0.514	0.881						
Game design	0.945	0.509	0.775	0.845	0.852					
Ease of use	0.948	0.786	0.512	0.748	0.761	0.794				
Service quality	0.789	0.676	0.719	0.519	0.693	0.667	0.822			
Information	0.813	0.508	0.613	0.604	0.548	0.683	0.792	0.839		
Customer satisfaction	0.969	0.513	0.709	0.786	0.748	0.517	0.653	0.792	0.803	
Intention to use	0.965	0.583	0.712	0.713	0.716	0.619	0.757	0.758	0.752	0.798

Note: The numbers of the diagonal (in bold) are the Square root of the AVE for each dimension. All correlations are significant at $p<0.01$.

Table 3.3 - Correlations between dimensions and AVE. (source: SPSS AMOS output)

3.4. Results

Before analyzing the data from this investigation, the values of Skewness and Kurtosis were examined. These values were gathered for data analysis and therefore SPSS and AMOS 28

were used. To better visualize the results, a descriptive statistics table (Table 3.1 in appendix), Skewness and Kurtosis measures table (Table 3.2 in attachment), KMO, Bartlett's Test table (Table 3.1), and a regression coefficient conceptual model (Figure 3.3) were formulated.

Cronbach's alpha values for constructs were all above the minimum threshold of 0.70, demonstrating internal reliability in measurement items (Reynaldo & Santos, 1999). For this research the variable with the greatest index is Intention to use (0.899), followed by EC Net benefits (0.898), the third variable is Customer satisfaction (0.845), the fourth is Information (0.833), the fifth is Ease of use (0.829), the sixth is Game mechanics (0.818), the seventh is Game design (0.803), the eighth is Service quality (0.783), and the variable with the lowest Cronbach's alpha is Game dynamics (0.760).

The current study found that skewness is between -1.062 and 0.3 (see Table 3.2 in appendix), indicating non-normal dissemination, but still within the presumptions of greatest probability (Field, 2013). The most affected variables are Customer satisfaction 3 and Game mechanics 5.

Kurtosis ranged from -0.806 to 1.257, being recognized as a platykurtic distribution and demonstrating non-normal conveyances, but still inside the suspected range of greatest probability (Kallner, 2018). The most affected variables are Game design 1 and Customer satisfaction 3.

The values for skewness and kurtosis -2 and +2 are considered tolerable and indicate normal univariate distribution (George & Mallery, 2016). Thus, the variables Customer satisfaction 3 (kurtosis = 1.26) and Customer satisfaction 3 (Skewness = -1.062) may alert us to a problem and could be removed, as they suggest a large number of univariate outliers in the dataset. However, they have an acceptable commonality.

A variable is "good" for EFA if its commonality is moderate (above 0.5). When less than or equal to 0.5 it can be considered low, meaning that it shares less than half of its variability in common with the other variables (Velasquez & LaRose, 2015). The commonality values show that all variables are good for an EFA.

Absolute Fit Indices	Value	Recommendations	Author
Chi-Square (X2)	1376.473	X2 five times or less than the df is acceptable	Hair et al., 2006
p-value (P)	0.000	<0.05	Hair et al., 2006

Degree of Freedom Ratio (df)	503		Hu & Bentler, 1999 Schumacker & Lomax, 1996
Chi-Square/degree of freedom ratio (X2/df)	3.645	X2 five times or less than the df is acceptable	Hu & Bentler, 1999 Schumacker & Lomax, 1996
Goodness-of-Fit (GFI)	0.821	>0.80	(Bollen, 1989)
The Root Mean Square Error of Approximation (RMSEA)	0.071	Values closer to 0 represent a good fit. It should be < .08 or < .05.	(Lewis, 2017) (Cai, Chung, and Lee 2021)
Comparative Fit Index (CFI)	0.845	>0.85	(Byrne and Campbell 1999)
Incremental Fit Index (IFI)	0.830	>0.90	(Browne & Cudeck, 1993)

Table 3.4 - Fit Model Values (source: SPSS AMOS output)

A KMO value greater than 0.7 indicates that factor analysis is appropriate for the dataset under consideration and if less than 0.50, is inadequate (Leech et al., 2005). The KMO value for this research is 0.909, which is a high value (close to 1) and is classified as "superb" on the Level of Acceptance, demonstrating that the data are adequate for a factor analysis (Table 3.1) (Field, 2013). To test whether this value is statistically different from zero at p=.05, Bartlett's Test of Sphericity is required. The result χ^2 (522) = 13764.473, p < .000, showing that correlations within items are good and significant (see Table 3.2). In conclusion, the present dataset is suitable to perform an EFA.

A SEM with maximum likelihood estimation procedure was run, with results showing a good model fit, as demonstrated in Table 3.3. The hypothesized relationships were tested. Figure 3 presents the empirical findings from the SEM. Hypotheses 1, 2, and 3 were tested, and their results indicated that User Satisfaction is positively affected by Information ($\beta = 0.17$), Service quality ($\beta=0.19$), and Ease of use ($\beta=0.38$), meaning that EC platform Ease of use has the greatest effect on user satisfaction.

When Hypotheses 4, 5, and 6 were tested, results showed that Ease of use ($\beta = 0.20$), Game design ($\beta = 0.17$), and Game mechanics ($\beta = 0.49$) exerted a substantial impact on Game dynamics, and thus Hypotheses 4, 5, and 6 are also supported. These results also show that Game mechanics brought by the EC platform has the most positive effect on EC platform Game dynamics.

Hypotheses 7 and 8 were then estimated. Intention to use EC is positively affected by User Satisfaction ($\beta = 0.80$) and Game dynamics ($\beta = 0.16$), indicating that Hypotheses 7 and 8 are also supported. The user satisfaction provided by the EC platform has the most positive effect on EC Intention to use. Finally, hypothesis 9 was assessed. EC net benefits are possibly affected by Intention to use EC ($\beta = 0.70$), meaning that the Intention to use EC platforms have a positive effect on EC Net benefits.

			Estimate	S.E.	C.R.	P		Label
Customer satisfaction	<---	Information	.171	.047	3.644	***		H1
Customer satisfaction	<---	Service quality	.199	.034	5.872	***		H2
Customer satisfaction	<---	Ease of use	.381	.047	8.082	***		H3
Game dynamics	<---	Ease of use	.201	.057	3.537	***		H4
Game dynamics	<---	Game design	.160	.105	1.517		.129	H5

			Estimate	S.E.	C.R.	P		Label
Game dynamics	<---	Game mechanics	**.493**	.052	9.393	***		H6
Intention to use	<---	Customer satisfaction	**.804**	.080	10.040	***		H7
Intention to use	<---	Game dynamics	.165	.034	4.845	***		H8
EC Net benefits	<---	Intention to use	**.707**	.064	11.016	***		H9

Table 3.5 - Regression results underling the hypothesis testing (source: SPSS AMOS output)
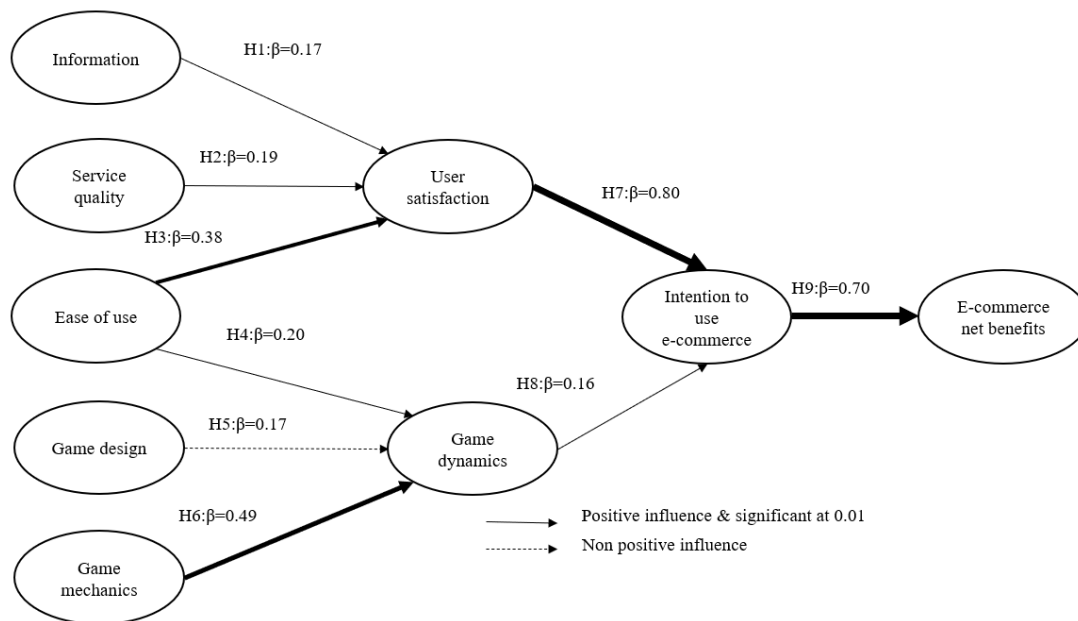
Figure 3.3 - Regression Coefficient Values (source: Own elaboration)

3.5. Discussion

Our study presents an original conceptual model to investigate the potential impact of a new EC website on the performance of a SME in the B2B context. Through an analysis of the

company, its customers, and potential users of the new EC platform, we have identified a strong correlation between Customer Satisfaction and the Intention to Use. This relationship, in turn, has a direct and positive effect on the EC Net benefits as the dependent variable. This highlights the critical role of Customer Satisfaction and Intention to Use in driving the success of EC platforms for SMEs in the B2B context. Our results align with the research conducted by (Shahid Iqbal et al., 2018) , who reported a significant positive correlation between self-service technology Service quality and behavioral intentions. Moreover, (Ma & Wang, 2021) have demonstrated the importance of customer satisfaction in driving re-purchasing intention, especially in the context of service failure. These findings provide further support for the notion that enhancing customer satisfaction and Service quality can lead to improved Intention to Use EC.

Our study indicates that while all variables in the proposed model have some impact on the final results, certain factors may warrant more attention from companies seeking to enhance their net benefits. Our analysis has revealed that the Ease-of-Use variable exerts the greatest influence on Customer Satisfaction, while the Game Mechanics variable has the strongest impact on Game Dynamics. Additionally, we have found that Customer Satisfaction has a more significant positive effect on the Intention to Use EC variable than on the Game Dynamics variable. Notably, the Intention to Use EC variable was identified as having a direct and positive impact on EC net benefits. These findings have important implications for companies seeking to improve their EC performance by prioritizing the most influential variables in the proposed model. Our study's findings are consistent with those of Agarwal and Dhingra (2023), Yadav and Goraya (2018), and Phaphoom et al., (2015), who have reported that Ease of use is the most crucial factor influencing cloud Service quality and, consequently, customer satisfaction.

For small B2B enterprises EC offers a variety of growth opportunities and advantages including cost savings, efficiency enhancements, better customer and supplier relationships, access to new markets, real-time marketing offers, higher profits, and gains in competitive advantage (Elbeltagi et al., 2016b; Walker et al., 2016). Customers tend to use EC if the website delivers the proper service in the period agreed to ensure that what the customer receives is what he or she believed they would get. Furthermore, customers are more likely to share information and conduct online transactions if they feel more secure (Agag, 2019).

Although H1 and H2 had positive effects regarding the Customer satisfaction, H3 stands out more. Our results imply that at these levels of Ease of use customers will be more pleased and inclined to consume, thereby expressing consumer satisfaction. In a study conducted by Filieri et al. (2021) measuring if TripAdvisor is still relevant, the authors found that perceived Ease of use has a positive impact on Customer satisfaction, leading to the continuing relevance of the user generated platforms. On the other hand, the findings differed from those of Shahid Iqbal et al., (2018), who found a strong relationship between self-service technology Service quality and customer satisfaction.

This study contributes to the very limited literature on SMEs that operate in the B2B context and that intent to use gamification as a mechanism to boost sales and increase the customer intention to use an EC website. Regarding the Game dynamics, the hypothesis found to be the most prevalent was H6. Hypotheses 4 and 5 did not have the same outcome values has H6, revealing that for Game dynamics success, developers should focus more on Game mechanics.

One of the earliest mechanics introduced was the frequent flyer program by American Airlines, which was followed by other airline companies. Subsequently car rentals and hotel chains started using mechanics of gathering points and exchanging them for other services and products as an instrument to grow the return rate of customers (Shpakova et al., 2017). Hamari et al. (2014) have reported that mechanics enable game dynamics to create a unique user experience. Moreover, Hofacker et al. (2016) have shown that game mechanics have the ability to shape users' perceptions of expected rewards.

While our study and others have highlighted the potential benefits of effective Game mechanics, Zhang and Huang (2010) have cautioned that the effectiveness of these mechanics may depend on consumer proximity to specific goals and the mechanics of goal achievement. These results suggest that careful attention must be paid regarding the tailoring of game mechanics to the specific needs and goals of users in order to maximize their impact on user behavior and outcomes.

The correlation between Ease of use and Customer satisfaction is slightly higher than the correlation with Game dynamics. Similar results were found in a Technology Acceptance Model (TAM): Ease of use, defined as the degree to which using a system is relatively free from effort; and usefulness, defined as the degree to which using the system enhances an individual's effectiveness (Davis, 1989). Service quality and Information both have a small impact on Customer satisfaction with only Ease of use being relevant. Contrary to our research, Brown et al. (2008) found that the relationship between satisfaction and Ease of use and usefulness was not statistically significant. However, they found that the relationship between the interaction term and satisfaction for usefulness was statistically significant.

In the specific context of the study in which customers use the website for placing their orders, Game mechanics, which include scores, levels, and virtual goals, have a direct positive effect on Game dynamics (Bovermann & Bastiaens, 2020). We found that customers tend to use gamification if it is related to financial benefits or monetary gains, which is in line with the findings of Rodrigues et al., (2016). For example, Game mechanics and Game dynamics might be a successful company strategy if they are related to quantity discounts or other monetary advantages. The non-positive effect of Game design and Game dynamics is that design is related to esthetics and when shopping online, customers may seek functional benefits and usefulness of the website rather than the design (Bridges & Florsheim, 2008).

Another interesting finding is that Game dynamics (e.g., game characteristics such as trophies, rewards, contests, or avatars) have a weak effect on the intention to use the website for commercial transactions. On the other hand, when comparing H7 with H8, it is clear Customer satisfaction is more important than Game dynamics when the main objective is that clients intend to use the EC website. Tu and colleagues found that although gamified websites might include incentives and rewards, these Game mechanics do not constitute a successful gamification design on their own (Tu et al., 2015). For instance, Google's attempt to reward users for reading the news with badges was unsuccessful because they did not want to reveal the specific news they were interested in reading. This is an illustration of how poorly conceived mechanics may result in unfavorable dynamics. Gamification does not necessarily work or represent the best approach merely because it is popular at the present time (Robson et al., 2016).

In a study conducted by Khulood Alhammadi (2022) it was found that actual use mediates the relationship between satisfaction and net benefits. These findings are in line with our results whereby H7 is more important than H8, showing that Customer satisfaction will influence EC Net benefits but will be mediated by Intention to use EC. Our findings also indicate that EC Net benefits are highly dependent on Intention to use EC, resulting in the validation of H9. Similar results were also found by Jimmy (2014), who conducted a case study to measure the net benefits of the University of Surabaya's EC, finding that the net benefits dimension is the most critical one, and is responsible for cost savings, market expansion, additional sales, and time savings.

Our main results are in line with those of previous studies conducted in this area. Tobon et al. (2020) found that gamification enhanced customer engagement and consumer decision, Xi and Hamari (2019) discovered that gamification has a substantially positive effect on users' satisfaction, Rodrigues et al. (2016) state that gamification has a positive impact on customer intention to use a business software, and Blohm and Leimeister (2013) discussed in their study that gamification enhances loyalty and motivation toward a service, brand, or product.

Contrary to our findings, in which Game Mechanics were the gamification element with most impact on EC net benefits, Hofacker et al. (2016) report that Game Design is the gamification element which has the greatest positive impact on customers' decisions. Tobon et al. (2020) also points out the importance to study gamification using psychological theories, as individual desires and needs require understanding to develop new services and products.

3.6. Conclusion

Despite the phenomenal growth in EC, little is known about the way SMEs operating in B2B manage their EC IS. The main goal of this study, therefore, was to develop a theoretical model based on DeLone and McLean's (2003) model that elucidates how SMEs operating in B2B can attain EC Net benefits by considering gamification as a lever and a determining factor for EC success. Our study examined the associations among the proposed model variables to observe the influence of variables on each other and on the EC Net benefits and to measure and compare the importance of User Satisfaction and Game dynamics for the EC Net benefits.

Consistent with earlier research findings, the outcomes of this study substantiated the validity of our proposed model as a theory that can be applied not only to information system adoption, but also to the assessment of SMES EC. Our research has addressed a crucial gap between the model and implementation phases of EC in SMEs and has implications for achieving net benefits in a real-world context.

In general, with the aid of the proposed model, it has been verified that EC adoption plays a critical role in enabling organizations to satisfy customer demands. Therefore, the adoption of the proposed model may prove advantageous to businesses wishing to improve their competitiveness in the market. Our study has provided insights into the theoretical and practical aspects of B2B EC by SMEs as well as the potential of gamification elements and mechanisms in facilitating this process.

In particular, it can be concluded that a well-designed information system with good usability can significantly enhance customer satisfaction, leading to a positive buying experience. While the mechanics of the website also contribute to its overall performance, the impact of graphic design elements on the Intention to use EC is relatively lower compared to that of user satisfaction. Nevertheless, our analysis of the Intention to use EC reveals that greater customer satisfaction can result in greater net benefits for the company. Therefore, businesses should focus on improving the usability of their information systems to optimize customer satisfaction and enhance their overall performance.

The results also suggest that an information system with good usability can lead to increased customer satisfaction and a positive buying experience. While effective website mechanics contribute to improved dynamics, game dynamics have a relatively lower impact on the Intention to use EC compared to user satisfaction. Nonetheless, our analysis indicates that higher levels of Intention to use EC can result in greater net benefits for the company. Therefore, businesses should prioritize the development of user-friendly information systems to optimize customer satisfaction and improve their overall performance.

Additionally, our study successfully integrated gamification into a novel theoretical framework and extended the proposed model to encompass graphic design, game mechanics, and game dynamics, in line with DeLone and McLean's (2003) framework. While we do not claim that our theoretical model is extremely vigorous, it effectively demonstrated the positive impact of user engagement, game mechanics, user satisfaction, and Intention to use EC on the perceived net benefit. Therefore, our proposed model can serve as a useful tool for businesses seeking to enhance customer satisfaction and improve their overall performance through the use of gamification. Undeniably, our proposed model involving these key factors has a strong explanatory power for outcome variables, whereby Ease of use ($\beta = 0.20$), Game mechanics ($\beta = 0.49$), User Satisfaction ($\beta = 0.80$), and Intention to use EC ($\beta = 0.70$) are revealed to be the most significant variables. The investigation brings to light operational relationships among research variables that will offer managers important material for building their own EC IS and attaining EC Net benefits.

A limitation of this study is the method used to collect the data. Although having a company that cooperated with our research was a positive issue, a drawback was that a portion of the sample were clients of this company. Future research could address more companies around the world focusing on more types of clients.

In the future it would be valuable to examine the IS success model for EC in the Arab world, as proposed by Rouibah et al. (2015) in their study on B2C companies. Their model, which builds on Liu and Wang's (2008) model, highlights that has no bearing on user satisfaction in an Arab context. Our study's findings shed light on emerging trends and customers' satisfaction perceptions based on the online buying experience that affects EC Net benefits. As such, it would be interesting to explore how our study aligns with the Arab context and to apply our findings to this context, given that Ease of use is the variable that most strongly affects User Satisfaction.

The study by Wachidin Widjaja et al. (2017) investigates the determinants of a successful B2C EC website in Indonesia, Japan, and South Korea by using an updated DeLone and McLean Information System Success model. Their results reveal that all quality factors of B2C EC impact both user satisfaction and attitude toward the website across all research groups, regardless of the level. Their study concludes that improvements in user satisfaction and attitude toward the site can aid in the advancement of online business. The authors also mention that enhancement on user satisfaction will help in the development of an online business, and it is interesting to consider the outcomes of our study in this context, since our model is a tool for businesses seeking to enhance customer satisfaction and improve their overall performance through the use of gamification.

3.6.1. Theoretical Contribution

The results allow us to conclude that all variables have a strong link, but Ease of use is the one that most affects the User Satisfaction; Game Mechanics is the variable that has the strongest link to Game Dynamics; User Satisfaction reveals having more influence than Game Dynamics; and it was possible to confirm that EC Net Benefits are positively influenced by Intention to Use EC.

In recent years, few academic researchers have conducted studies focused only on the SMEs that operate in the B2B market. Although many of these studies have launched EC models, not all have been tested in the field, as we do. Jeyaraj (2020) pointed out the need for more studies undertaken in specific areas in order to have specialized field studies.

By proposing a new model that extends that of DeLone and McLean (2003), scholars will be able to compare our results with previous studies conducted in this area, especially with the most recent ones, identified in the articles conducted by Çelik and Ayaz (2022), Millenia et al. (2022), and Božič and Dimovski (2020). The present research adds new awareness by explaining the emerging trends and customers' satisfaction perceptions based on the online buying experience that affects EC Net benefits. It was noted by Dirgantari et al. (2020) that it was necessary develop EC systems for improving usage levels, information quality, and client satisfaction. Our study not only enhances the SME literature pertaining to the Intention to use EC, it also helps top managers to develop EC strategies to please their customers and increase net benefits. Agag (2019) reported that the establishment of a strong relationship between the online service provider and buyers is crucial, as it has a significant impact on both repurchase intention and loyalty, highlighting the importance of prioritizing relationship quality in the context of online services. This investigation also provides a fresh opportunity to judge and benchmark results with another research undertaken internationally.

3.6.2. Practical Contribution

SMEs are the backbone of economies, which makes them very important for every country. However, these companies generally have limited resources, which denies top managers the opportunity to invest sufficiently in all departments, and they must choose wisely where to allocate their limited funds. Based on our model, enterprises should focus their investment on a system that provides good Ease of use to their customers in order to reach their satisfaction. By having a website that provides Customer satisfaction, firms will be able to impress their clients in a way that will encourage them to increase their Intention to use EC. The more a consumer intends to use EC systems, the more net benefits a company will obtain, which lets us conclude that EC Net benefits are directly and positively affected by Intention to use EC.

The recent years have shown an immense digital evolution in all ways, making EC a type of business that is indispensable for most companies that sell products, including those operating exclusively in the B2B markets. Those SMEs are now faced with the need to be online to attain EC Net benefits. If in the past there was no defined strategy to operate on the web through the EC, with the model we propose we guide companies to obtain EC Net benefits from the EC adoption. Based on our results companies will be able to focus their EC IS on the variables we identified as the most important. Nevertheless, managers should not forget to analyze their type of business and adapt our proposed model to their own specificities.

Failure is not an option-Service failures and customer engagement in small and medium-size enterprises

4.1. Introduction

E-commerce (hereinafter EC) gained a high profile at the beginning of the 21st Century with rumors and criticism, even though many believed it held out tremendous promise for selling goods and services (Holloway & Beatty, 2016).

With a considerable volume of financial transactions, today's EC platforms provide a wide range of online goods and services, including electronics, high-tech items, food, health and beauty products, fashion, sports, and travel (Tran, 2021). The EC evolution has also transformed how SMEs conduct their business, driving them to use technology more often. Consequently, this new environment raises several challenges that are still mostly unsolved, such as EC service failure in SMEs (Das et al., 2019; Noor et al., 2020). Although recent studies have paid more attention to service recovery, there is general agreement that the knowledge of EC service failure in SMEs is still limited (Uitz & Jančíková, 2022).

The outage of Amazon.com on 19 August 2013, which was believed to have cost the online retail giant USD 4.72 million in lost sales, serves as the best example of the business impact of e-commerce service failures (Parkhurst, 2013). Previous research conducted by a digital marketing company found an alarming 45% failure rate for EC transactions after reviewing modern websites from a variety of businesses (Tan et al., 2016). In addition, 91% of customers who had encountered any kind of EC service failure said they were more likely to doubt the competence of e-merchants to handle private information provided during online transactions (Tan et al., 2016). The very dynamic and interactive online business places a strong emphasis on customer engagement. The concept of customer engagement can be seen originally to attract customers by enhancing the propensity toward products, brands, or businesses on the cognitive, emotional, behavioral, and social levels (Brodie et al., 2011; Hollebeek et al., 2019). Nonetheless, the concept evolved as companies seek sales growth and profitability, sustainable competitive advantage, and customer involvement in product development, and obtaining customer feedback and referrals has quickly become a strategic business priority (Brodie et al., 2013; Kumar & Pansari, 2016).

According to a survey conducted by Gallup (2017), engaged customers make 56% more trips per month to fast food and casual restaurants, respectively, than disengaged customers (Palmatier et al., 2017).

Although little is known about the nature and use of company initiatives, techniques, and strategies that improve or optimize customer engagement, a notable gap in research, particularly in the context of SMEs, is in understanding how customers respond to service failures (Sands et al., 2022; Zhang et al., 2021). Given the negative effect of service failures on SMEs' sales, profitability and ultimately customer engagement, this understanding is crucial (Zhang et al., 2021). There are very few studies that examine the effect of multiple service failures on customer engagement in the context of SMEs.

Considering this, the present study examines EC service failures and their negative effect on customer engagement in SMEs.

Our study contributes in important ways to investigating the company and customer perspectives, and we consider a threefold research question:

RQ1 - How do SMEs deal with E-commerce service failure?

RQ2 - How do e-commerce service failures impact customer engagement?

RQ3 - To what degree is customer engagement affected when facing service failures?

The scope of this study is grounded in the service failure and recovery (SFR) theory. Its application to SMEs is an addition to the current body of the literature.

To better understand our study, we first provide a review of pertinent literature grounded on the SFR. We then go into detail about the research strategy. The conclusion discusses the research findings in terms of their theoretical and managerial ramifications. We end by considering the study's limitations and make suggestions for future research.

4.2. Theoretical Background

4.2.1. Service failure and recovery (SFR) theory

SMEs must often manage customer grievances arising from instances caused by a service failure (Van Vaerenbergh & Orsingher, 2016). Although the literature mentions a comprehensive array of organizational options for rectifying service failures, scholars have traditionally treated these issues as distinct organizational steps that are loosely connected to the dynamic nature of the recovery process (Van Vaerenbergh et al., 2019). Service recovery, which denotes the measures undertaken by service providers following customer complaints, is

an indispensable component of an organization's service operations (Van Vaerenbergh & Orsingher, 2016).

A surge of attention has risen within the domains of service in small enterprises, branding, and product failure literature, focusing on the influence of adverse incidents and the subsequent reactions of consumers to these occurrences (Khamitov et al., 2020). Brands and companies now face growing demands to address moral or performance lapses in their interactions with consumers (Khamitov et al., 2020).

Service recovery is often regarded as one of the most developed areas of study in the literature on service management, as there are more than 1,000 articles reporting SFR research that provide valuable insights into proficient service recovery management. At the same time, the considerable number of organizations encountering challenges in the domain of service recovery management reveals that the substantial amount of research in this sphere has had only a modest influence on the formulation and execution of organizational service recovery strategies (Khamitov et al., 2020; Kunz & Hogreve, 2011; Michel et al., 2009).

Human resource management researchers concentrate on elucidating the ways that organizations can provide support to their employees who manage customer complaints, while marketing management researchers delve into understanding customer reactions to the organization's endeavors in service recovery (A. K. Smith et al., 1999a) Simultaneously, operations management researchers direct their efforts toward comprehending the establishment of service recovery systems (A. K. Smith et al., 1999a). Such compartmentalized disciplinary perspectives prove notably valuable within the domain of organizational science, but there is a potential drawback in failing to recognize service recovery as a holistic interconnection of concepts and theories (Van Vaerenbergh & Orsingher, 2016).

Qualitative and conceptual research in this area remains constrained, leaving researchers insufficient tools to break away from conventional viewpoints and propose transformative perspectives on the process of recovery (Grégoire & Mattila, 2021). Previous studies have additionally proposed a range of fresh and illuminating recovery approaches, including external recovery (Allen et al., 2015), customer inoculation (Mikolon et al., 2015), recovery communication (Van Vaerenbergh et al., 2012), and co-created recovery (Dong et al., 2008).

Despite all of the approaches, the achievement of complete recovery is sometimes not universally attainable, especially in cases involving profound moral injustices (such as racism) or enduring and significant repercussions (such as bankruptcy) (Grégoire & Mattila, 2021). In scenarios such as these, administrators could design interventions centered around urging acceptance. For example, when a customer bears significant responsibility for a failure managers can implement interventions aimed at encouraging customer cognitive and self-expression restructuring, thereby facilitating the process of recuperation (Khamitov et al., 2020).

The SFR perspective offers a valuable contribution by acknowledging the comprehensive scope of service recovery and facilitating the identification of optimal ways for researchers and managers to implement and formulate various response strategies throughout the SFR, ensuring a heightened level of efficacy in the overall recovery process (Van Vaerenbergh et al., 2019). Even though Grégoire and Mattila (2021) state that despite the advanced state of the SFR field, there are numerous paths for exploration that remain open to the community of researchers in this area.

4.2.1.1. E-commerce service failures in SMEs

EC service failure can be described as an instance in which a customer expectation is not fulfilled, leading to disappointment that could be solved by companies' mechanisms to deal with this type of issue (Khamitov et al., 2019; A. K. Smith et al., 1999b).

Forbes et al. (2005) report that in 2001 EC retail customers complained about confused web page information, slow webpages, payment difficulties, late delivery, additional distribution costs, and delivery of incomplete orders or damaged merchandise. Cultural values and norms, market heterogeneity, political issues, and unsatisfactory infrastructures have a high probability of influencing either company policies or customers' behaviors, which in turn influence their reaction to service failure (Borah et al., 2020; Chatterjee, 2020; Schoefer et al., 2019; Sinha & Sheth, 2018).

Although companies develop techniques and mechanisms to prevent EC service failures, it will always be difficult to prevent them entirely due to the complex involvement of customers and employees in the consumer's purchasing journey (Choi & Mattila, 2008). In a study conducted by Augusto de Matos et al. (2011) in Italy, Netherlands, France, and Brazil it was found that clients should not be inhibited in making complaints as they consider it as a basic consumer right and not as an insurrection against companies.

Additionally, Forbes et al. (2005) measured 10 EC service failures namely i) policy failure, ii) slow/unavailable service, iii) system pricing, iv) packaging errors, v) out-of-stock, vi) product defect, vii) hold disaster, viii) alterations and repairs, ix) bad information, and x) web system failure. The authors compared their results with those of Douglas (1993), who measured the same type of failures. Analyzing both results, it was possible to conclude that policy failures and product defects were the most often reported service failures.

Commonly, any service failure results in intense customer displeasure and the need for an efficient recovery, which is even more important in EC, where customers evaluate the service recovery (Kim & Stoel, 2004; Nursimulu & Bossaerts, 2014; Orsingher et al., 2010). In line with this research, Chang et al. (2011) concluded that SMEs should focus on the weaknesses of their EC systems to reduce the chances of failure and to better understand the digital changes.

Failures also have an undesirable effect on SMEs' strategic plans by harming customer relations (Barroso et al., 2019), which in turn enhances the importance of understanding service failure to minimize these negative consequences in post-failure transactions/activities (Gelbrich et al., 2016; Rohden & Matos, 2022).

The flexibility that characterizes most small enterprises gives them the strength to explore other types of business opportunities such as EC (Ghobadian & Gallear, 1996). This type of company also differs from others by not having conventional and formal working relationships, by having smooth administration, and by having limited resources for developing employees' capabilities (Levy & Powell, 1998; Saini et al., 2013). SMEs started implementing EC in their business activity due to benefits such as faster business transactions, lower business costs, and enhanced flexibility (Lee & Whang, 2001; Subba Rao et al., 2003).

On the other hand, Al-Somali et al. (2011), Garg and Choeu (2015), Ghobakhloo et al. (2011), and Hussein et al. (2020) state that SMEs that adopt EC face constraints related to poor technical infrastructures, absence of specialized employees able to develop and sustain EC technologies, and limited budget to develop and sustain EC.

Although SMEs face some constraints due to their size, firms that implement EC services compatible with their systems (which have organizational readiness) acknowledge that the benefits of adopting EC outweigh the risks (Hussein et al., 2020; Pham & Pham, 2011). Chang et al. (2011) also conclude that SMEs should focus on the weaknesses of their EC systems to lower the chances of failure and to better understand the digital industry's changes.

Guchait et al. (2019) state that if SMEs have limited budgets, precluding them from having a department dedicated to service failures recovery, it is important to develop an organizational culture that allows their other employees to deal with this type of situation.

4.2.1.2. Information and system failure

Information System(s) (IS) technologies are used to reduce costs, improve processes, and provide a high degree of flexibility (Dirgantari et al., 2020). Regarding its usefulness and utility, DeLone and McLean (2003) developed a model to measure IS performance that has been widely used by researchers. For DeLone and McLean (2003) the information presented must be pertinent to the purchaser's interest and must above all be complete because as Dirgantari et al. (2020) found, information quality increases EC use and increases user satisfaction.

However, information failures account for a considerable portion of technological problems that users relate to EC websites (Holloway & Beatty, 2016). Tan et al. (2016) describe this issue as a main imperfection of EC that occurs when the information provided prevents customers from completing their activities.

Having convenient information on an EC improves the certainty of a positive purchase experience for a client, and it is a crucial element of positive evaluation (Zeithaml et al., 1993). Furthermore, Pavlou and Gefen (2005) and Turban et al. (2015) concluded that to not discourage clients from carrying out a purchase, an EC website should have complete information regarding its return policies, warranties, cancellations, and security procedures.

Tan et al. (2016) state that information failure on EC is mainly due to inaccurate information, incomplete information, irrelevant information, and untimely information. Research by Chiu et al. (2007) and Maciej Serda et al. (2013) confirms that precise information has a positive influence on customers' assessment of EC websites. Therefore, detailed information is a paramount element of information quality since it captures the extent to which information generated by a technological system is accurate and impartial (Wixom & Todd, 2005).

Having complete information regarding extra costs, company procedures, enterprise policies, and products' general information is fundamental to guaranteeing transparency and creating a relationship based on trust with consumers (Wixom & Todd, 2005). DeLone & McLean, (2003) stated in their work that in the digital revolution, information through the internet has become a strong and universal communication mechanism to simplify the progression of commercial businesses. However, having irrelevant information adds difficulty to the consumers' buying experience by unnecessarily complicating the information search process (McKinney et al., 2002; Waite & Harrison, 2002). It has been demonstrated that system quality improves the capacity of a system to adapt to changing environments (Wixom & Watson, 2001) but when EC IS are insecure, delayed, inaccessible, non-navigable, or non-adaptable there are system failures (Tan et al., 2016).

Tan et al., (2016) defined System Failure as when service content (i.e., information and functionalities) provided by an EC website is not supplied in a way that encourages users to complete their transactional activities and/or objectives. Moreover, navigational challenges have been included as a primary failure dimension in the classification of EC service failures (Holloway & Beatty, 2016). For Jacko et al. (2010), System Failures increase the users' overall transaction costs and make them feel financially and psychologically lost as they are unable to obtain the right good or service in the allotted period.

The ease with which a user may navigate an EC website and ultimately how much cognitive work the customer must exert to complete the transactional activity are both determined by the complexity of the navigational structure (Loiacono et al., 2014; Semeijn et al., 2005). Because the navigability of an EC website influences the consumers' determination and is seen as a service performance standard for EC IS, the non-navigability of EC is characterized as a system failure (Tan et al., 2016).

One of the primary standards for EC website service excellence is accessibility (Surjadjaja et al., 2003). Consequently, the inaccessibility of EC websites is considered a type of system failure and has been mentioned as a crucial issue impacting the accessibility of EC services (Tan et al., 2016).

4.2.2. Customer engagement

Previous research describes qualified customer engagement as a free resource spent in interactions with businesses and other ecosystem players that goes beyond simple exchanges of money for goods (Harmeling et al., 2017; Jaakkola & Alexander, 2014b). A wide range of

definitions in the literature reveal a non-consensual conceptualization of consumer engagement. Nevertheless, researchers agree on two main points: the existence of an interactive core and the multidimensionality of customer engagement (Hollebeek et al., 2019; Marbach et al., 2016). Customer engagement in the interactive core is described as an emotional condition that emerges from interaction experiences with an emphasis on service relations (Storbacka et al., 2016). Customer engagement in multidimensionality is often described as having cognitive, emotive, and behavioral investments in brand or corporate interactions (Brodie et al., 2013; Vivek et al., 2014).

Previous studies have found numerous connections between customer engagement and positive outcomes for both individuals and businesses (Kumar & Pansari, 2016; Marbach et al., 2016). Customer engagement has been found to have a positive impact on client happiness, intentions to purchase or use products or services, and loyalty, as well as company performance, reputation, and worth (Hollebeek et al., 2019; Islam & Rahman, 2016; Kumar & Pansari, 2016). These results have been observed mainly in Business to Consumer (B2C) scenarios that concentrate on customer interactions with businesses or brands (Brodie et al., 2013; Storbacka et al., 2016).

Although most studies focus on positive engagement, Nayman and colleagues advocate that disengagement (a weak or passive kind of engagement that occurs when customers distance themselves from an exchange) and negative engagement (which entails more aggressive and focused unfavorable engagement action toward the company) are two examples of engagement that harm companies (Naumann et al., 2017). An experience that is perceived to be poor can lead to unfavorable consumer engagement, which can have a negative influence on brand value and reputation through negative word-of-mouth, brand switching, avoidance, and rejection, as well as potential retaliation and vengeance behaviors toward a company (Brodie et al., 2013; Dolan et al., 2019; Jaakkola & Alexander, 2014a).

It is emphasized that engagement is not a binary condition (i.e., engaged vs. disengaged) and that it manifests at various intensities (Brodie et al., 2019; Dolan et al., 2019). Thus, customer engagement is influenced by situational factors such as contextual, institutional, and individual contexts, which over time leads to a variety of engagement behaviors, intensities, and valences (Brodie et al., 2019; Van Doorn et al., 2010).

Previous research regarding customer engagement has focused on individual consumers and their interactions with a specific focal object, such as brands, brand communities, organizational services, or social media (Dolan et al., 2019; Naumann et al., 2020; Ng et al., 2020). While online communities and brand involvement have dominated most of the current topics, engagement researchers have realized the need to look at different focal objects both within and outside of the service system (Conduit et al., 2016; Connell et al., 2019). The importance of other focal points may be obscured if brand interaction is the exclusive and ongoing focus of research (Dessart et al., 2016). Thus, by focusing on involvement with service failure, this study aims to broaden this subject.

As mentioned above, service failure is recognized as a service that does not match a customer's expectations and can be critical since consumers often have emotional reactions to these occurrences (Zhang et al., 2021). Studies have shown that poor customer service can expose companies' inadequacies in dealing with clients, elicit unfavorable reactions, and reduce clients' relationship-based commitment (Dutta et al., 2007; Mathwick et al., 2010; Obeidat et al., 2017).

For a variety of reasons, customers sometimes tolerate poor service. As an example, a previously established, fruitful connection could be sufficient to maintain a client's loyalty to the service provider (Sands et al., 2022). Another possibility is that customers are somewhat dependent on the supplier, perhaps because of high switching costs (Sands et al., 2022). Regardless of the justification for tolerating failure, clients are more likely to switch service providers if they experience multiple service failures even if they have been willing to ignore a single negative occurrence (Sands et al., 2020; Spreng et al., 1995).

Service failures often occur in industrial settings, and research indicates that customers' reactions to service failures depend on the nature and strength of the connection they have with the company (Fouroudi et al., 2020). Therefore, service failure might be seen as an inhibitive element that may decrease the effects of positive customer engagement with clients (Zhang et al., 2021).

4.2.3. Service failures and customer satisfaction

Earlier studies mention that service failures were the main motive for customers to switch behaviors or to have a negative assessment of the supplier (Choi & Mattila, 2008; He & Bond, 2015; Keaveney, 1995). Once service fails, clients often rely on causal attributions that prompt

buyers' reactions to service failures (Mattila & Patterson, 2004; van Raaij & Pruyn, 1998; Weiner, 2000).

Choi and Mattila (2008), advocate that the failures they studied were mainly due to customers, companies, and unknown origins. From the customer perspective, Blankertz and Cox (1969) identified three main categories of transactional risks that customers perceive: failing to achieve the desired result, incurring a cost as an effect of attempting to achieve a desired outcome, and confusion about how the desired product is to be obtained. Later, Glover and Benbasat (2014) modified Cox's typology for the setting of online transactions and stated that customers feared the danger of receiving undesirable results and incurring needless expenses. For Tan et al., (2016) this separation between the method, cost, and outcome of EC transactions is consistent with previous research on cost-benefit analysis of technology use.

Jacoby (1998) split the process of the customer purchasing journey into five consecutive stages. He stated that the key to meeting customers is to offer services that would carry transactional activities smoothly through these stages. Additionally, Piccoli (2001) states that as the most innovative services are those that can successfully meet customers' desires, businesses should think imaginatively about how technology may be integrated into goods and customer experiences.

Customers may have expectations about how transactional procedures should advance on EC websites, and these expectations may be thwarted whenever their transactions are interrupted (Tan et al., 2016). Such failures might incur high expenses for the business, such as loss of clients and a negative reputation (Bitner et al., 2000). Additionally, service failure drives customers to switch their behavior since they anticipate efficient recoveries when these disruptions occur (Mccollough et al., 2016).

According to Kelley and Davis (1994), satisfaction with complaint management is highly correlated with both trust and commitment, and it can operate as a crucial mediator between post-complaint attitudes, actions, and perceptions of justice. Additionally, customer satisfaction and the assessment of a service experience may also be enhanced by how complaints are handled (Bitner et al., 2000).

Other studies state that service failure and recovery affect customers' emotional responses, retaliation intentions, perception of fairness, and satisfaction (Gelbrich et al., 2016; Orsingher et al., 2010). The resources lost and gained during the exchange determine how clients rate service failure/recovery incidents, which may have an impact on whether they decide to continue doing business with the enterprise that created the issue (Grégoire et al., 2018; Orsingher et al., 2010).

Customer satisfaction is crucial to the success and expansion of businesses (Martínez-Navalón et al., 2021). The users' perceptions of the service or goods they received in comparison to what they had anticipated is known as user satisfaction (Otto et al., 2020). This indicates that if a consumer expects to obtain goods or services of a given caliber and those goods or services meet or exceed their expectations, contentment is generated (Jani & Han, 2011). Thus, companies may learn about the likes and preferences of their clients through customer satisfaction (Alsini, 2017).

According to Mitrevski and Hristoski (2011), the general attitude of customers who conduct online business is expressed in the satisfaction of website users. These authors also provide a summary of several elements that affect the satisfaction of website visitors, including ease of use, website design, website security, affordability, and information availability (Mitrevski & Hristoski, 2011). Lam and Lee (1999), who addressed customer satisfaction with websites as a comprehensive concept, proposed a framework and found that the logistical support of business, customer service, and product delivery had an impact on online user satisfaction. The authors also made the point that the primary factor influencing repeat acquisitions in online purchasing is consumer pleasure (Lam & Lee, 1999).

Ingaldi and Ulewicz (2019) noted that the success of e-business luxury brands is mostly due to well-designed websites and superior customer experiences. According to J. H. Kim (2019), private and industry consumers demand that Internet platforms continually enhance their offerings. The EC quality is initially determined by the fact that customers want quicker and higher quality services, and therefore businesses must put an evolving emphasis on maintaining client relationships (Yang et al., 2016). EC services must be of the highest caliber and be consistent in their dependability, resulting in successful delivery (J. H. Kim, 2019).

When customers choose to approach companies directly with a complaint, they are often seeking retribution or compensation (Singh, 1988). In these situations, the supplier is given the chance to correct its error (Rohden & Matos, 2022). Therefore, a favorable response is the most beneficial for the business and the one that will most likely lead to customer satisfaction (Zeithaml et al., 2017). Clients can also complain to outside parties about their experiences, and in these situations, they are also looking for fair compensation for the difficulty they encountered (De Matos & Leis, 2013; Singh, 1988).

For Rohden and Matos (2022) customers may also respond negatively by spreading rumors regarding the companies or its products, communicating with their peers, sharing details about goods or services, and calling for wiser purchasing decisions (Babić Rosario et al., 2019; King et al., 2014). Instead of seeking compensation, these dissatisfied customers typically want to tell others and change the conduct of other consumers in the future (De Matos & Leis, 2013; Khamitov et al., 2019).

Due to factors including emotions, breaking of social norms, and forgiveness, customer satisfaction service and recovery processes may affect not just complaint behavior but also enterprise loyalty (Gelbrich et al., 2016; Khamitov et al., 2019). Martínez-Navalón et al. (2021) state that customer satisfaction is a crucial component for businesses since pleased clients are those who plan to repurchase, believe in the company's brand, and are devoted to its goods and services. This implies that the consumer and the enterprise have conditions to establish a long-term connection (Chavdar & Andeva, 2018; J. H. Kim, 2019).

4.3.   Methodology

4.3.1. Research approach

The present research clarifies the stakeholder by examining the effect of multiple service failures on customer engagement in the context of SMEs. Having in mind our three research questions, "how do SMEs deal with E-commerce service failure?", "how do e-commerce service failures impact customer engagement?"; and "to what degree is customer engagement affected when facing service failures?", employing a qualitative approach was deemed the most appropriate methodology for examining EC service failures and their negative effect on customer engagement in SMEs.

Semi-structured interviews were administered and refined based on prior scholarly works and established evaluative criteria (Hartman, 2015; Taplin et al., 2014). Semi-structured interviews adhere to a predetermined yet partially structured framework, while allowing for adaptability through open-ended inquiries, affording a conversational and informal interaction (Longhurst, 2003). This method empowers interviewees to express their thoughts from their standpoint while enabling the interviewer to steer the discussion (Huyler & McGill, 2019). Moreover, it serves as an apt means of data collection for innovatively shaping approaches or identifying possibilities for modifying existing practices (Adams, 2015). Additionally, open-ended questions enable the researcher to gain a holistic understanding of the central issues, while allowing room for pertinent subjects to emerge during the process, contingent upon their relevance as perceived by the interviewer (Harvey-Jordan & Long, 2001).

Following the collection of data through semi-structured interviews, a content analysis was performed using Leximancer v5.0 software. Our findings complement the literature on the multiple service failures in the context of SMEs, elucidating their interconnected-ness.

4.3.2. Data collection

The participants for this research were identified from among Portuguese SME managers who were actively operating an EC platform. To ensure a diverse and relevant sample, participants were sourced through a private network, and initial contact was established through telephone or email. The population addressed was determined based upon their expertise and experience in managing SMEs having an EC platform.

Before the interviews, participants were provided with an online Consent Form describing the confidential nature of the study and requesting their permission for audio recording. The Consent Form also facilitated the collection of demographic variables essential for subsequent analysis, including age, gender, and location of residence.

The semi-structured interviews were conducted remotely and were processed in Portuguese to ensure familiarity and comfort for the participants. This approach facilitated open and candid discussions regarding their experiences with service failures and customer engagement strategies. Following the interview sessions, the audio recordings were meticulously transcribed and translated. This process sought to accurately capture the participants' insights and perspectives, ensuring that no nuances or meaningful elements were lost in translation.

To enhance the credibility and reliability of the data collection, a validation process was implemented. Transcripts of the interviews were shared with the interviewees, allowing them to review and make any necessary adjustments or clarifications. This validation step aligned with the approach advocated by Purchase et al. (2016), thereby contributing to the robustness of the data.

This study adheres to the ethical and data regulation standards outlined by The European Parliament and the European Union (The European Parliament and the Council of the European Union, 2016). To protect the privacy and confidentiality of participants, a numerical code system was implemented to anonymize individuals and institutions, mitigating potential ethical concerns.

Drawing from the literature, which suggests that data saturation is typically reached when no novel insights emerge from additional information, the research was attentive to the issue (Guest et al., 2006). This point of saturation, often observed between 12 and 15 interviews as indicated by Guest et al. (2006), was achieved after conducting 25 interviews, signifying a comprehensive exploration of the research topic.

4.3.2.1. Target companies

Aiming to ensure comprehensive and insightful responses during interviews, several critical factors were taken into account at the stage of participant selection, as highlighted by Whiting (2008). These factors include assessing the interviewees' familiarity with the subjects under consideration, their professional experiences relevant to the research domain, their enthusiasm and willingness to engage, and their capacity to furnish comprehensive and detailed insights.

For the present study, a total of 25 interviewees were examined, each drawn from different companies. The primary goal was to amplify the local perspective, from companies situated in both the northern and southern regions of Portugal. Drawing from the insights of Hagaman and Wutich (2016), who emphasize that achieving data saturation for cross-cultural meta-themes requires between 22 and 40 interviews, our analysis focused on 25 participants.

Importantly, the selection process was purposeful and driven by the relevance each individual could contribute to the research. The goal was to pinpoint Portuguese SMEs capable of significantly advancing the research objectives, in alignment with those defined in our research.

In this study, a non-probabilistic sampling technique, specifically judgment sampling, was employed to define the cohort of respondents. This approach, as outlined by Boyd et al. (2023), permits the selection of participants based on specific and intentionally crafted eligibility criteria, serving to meticulously guide the investigation. The criteria employed for selection encompassed:

i. micro-sized Portuguese companies operating within the e-commerce domain;

ii. small-sized Portuguese companies engaged in e-commerce;

iii. medium-sized Portuguese companies operating within the e-commerce sphere.

As a result, the study involved the participation of 25 companies hailing from Portuguese SMEs.Details concerning the characteristics of the participating SMEs are in Table 4.1.

Code	EC Years	Region	Business Objective	Employees
SME1	>11 Years	Setúbal	47782 - Optical, photographic, cinematographic material and precision instruments	[1:9]
SME2	>11 years	Santarém	90010 - Performing arts activities	[1: 9]
SME3	>11 years	Porto	10822 - Confectionery - manufacturers	[50:249]
SME4	>11 years	Aveiro	10712 - Pastry	[1:9]
SME5	>11 years	Aveiro	10720 - Manufacturers of Biscuits, biscuits, rusks, and preserved pastries	[10:49]
SME6	>11 years	Porto	82990 - Other support services provided to companies	[10:49]
SME7	>11 years	Lisboa	27510 - Household appliances 25992 - Other miscellaneous metallic products	[50:249]
SME8	>11 years	Lisboa	47610 - Books	[50:249]
SME9	6 to 10 years	Lisboa	90040 - Exploitation of concert halls and related activities	[10:49]
SME10	>11 years	Porto	68200 - Lease of real estate	[10:49]
SME11	6 to 10 years	Castelo Branco	68100 - Purchase and sale of real estate	[1:9]
SME12	6 to 10 years	Castelo Branco	47784 - Other new products	[10:49]

SME13	6 to 10 years	Lisboa	47784 - Other new products	[1:9]
SME14	>11 years	Castelo Branco	47523 - DIY material, sanitary equipment, tiles, and other materials	[1:9]
SME15	1 to 5 years	Porto	47711 – Retail adults' apparel	[1:9]
SME16	>11 years	Castelo Branco	32996 - Other miscellaneous manufacturing industries	[1:9]
SME17	1 to 5 years	Lisboa	47711 – Retail adults' apparel	[1:9]
SME18	6 to 10 years	Viseu	46382 - Wholesale of food products	[10:49]
SME19	>11 years	Lisboa	61100 - Telecommunications activities	[50:249]
SME20	>11 years	Porto	46382 - Wholesale of food products	[50:249]
SME21	6 to 10 years	Setúbal	46382 - Wholesale of food products	[1:9]
SME22	6 to 10 years	Santarém	93293 - Tourist activities	[1:9]
SME23	8 years	Amadora	93293 - Tourist activities	[1:9]
SME24	34 years	Alvalade	47740-Wholesale and specialized retail of medical devices and orthopedics	18
SME25	7 years	Santarém	47711-Retail adults' apparel	7

Table 4.1 - SMEs Characteristics (source: own elaboration)

4.3.3. Data analysis tool

To comprehensively examine both the organizational and customer perspectives concerning service failures in EC and their impacts on customer engagement, the data were initially divided into two categories. The first allowed us to understand how SMEs address EC service failures

from their standpoint. The second category sought insights into the implications of EC service failures on customer engagement.

The data collected from interviews underwent analysis using a Computer Assisted Qualitative Data Analysis (CAQDA) approach, following the methodology outlined by Crofts and Bisman (2010). For this purpose, the text-analysis tool Leximancer was chosen due to its effectiveness in organizing a substantial volume of responses into coherent semantic patterns and themes (Angus et al., 2013). Leximancer, a robust content analysis tool, extracted pertinent themes and concepts from the textual and relational data, thereby revealing semantic insights (Sotiriadou et al., 2014). The software autonomously discerned themes and their interconnectedness in the data without manual intervention, thereby minimizing subjectivity in the output (Lin et al., 2019; A. E. Smith & Humphreys, 2006).

According to Leximancer's guidelines (2021), the concept maps (Figures 1 and 2) incorporate word frequency and the co-occurrence of concepts, revealing eight themes clustered contextually for both "how do SMEs deal with EC service failure?" (RQ1). Similarly, six themes are clustered within the context of "how do E-commerce service failures impact customer engagement?" (RQ2). The study adhered to Wolcott's (1994) three-phase approach: description (centered on interviewees' transcripts), analysis (identifying significant concepts), and interpretation (contextualizing meanings within the EC service failure literature).

Additionally, the insight dashboard furnishes a comparative comprehension of the correlation between predefined primary categories (dependent variables) and the corresponding concepts (independent variables). In essence, this conceptual analysis facilitates a clearer comprehension of significance beyond linguistic data (Leximancer User Guide, 2021).

4.4. Results

This section presents the outcomes derived from the analysis of the concept map generated through Leximancer outputs.

4.4.1. Strategies employed by SMEs when dealing with EC service failures

Figure 4.1 is a graphic representation illustrating various dimensions of stakeholders' perceptions concerning the strategies employed by SMEs when dealing with EC service failures. The concept map highlights eight prominent themes: Clients, Website, Order, After-Sale, Problem, Experience, Information, and Security. The visual representation depicts the

concepts that emerge within the text and their connections to other concepts on the map (Leximancer User Guide, 2021).

An examination of the connectivity rates for each of the themes identified reveals a remarkable consistency, with all concepts exhibiting connectivity rates exceeding 22%. The concepts represent groups of words that frequently co-occur within the text. These concepts are assigned weights based on their occurrence in sentences containing the concept, in comparison to their occurrence in the text (Leximancer User Guide, 2021).

Figure 4.1 reveals that the most salient theme is the "Client(s)", which has a remarkable relevance percentage of 100%. Following closely is the theme of "Website", with a relevance percentage of 94%. The next significant theme pertains to "Order", with a relevance percentage of 67%. The "After-Sale" service theme has a relevance percentage of 62%. The "Problem" theme captures stakeholders' concerns about the service failure process and achieves a relevance percentage of 53%. The theme of "Experience" concerning the company's handling of service failure follows with a relevance percentage of 47%. The seventh theme, "Information", emerges as transparent and easily accessible, with a relevance percentage of 46%. The final theme, "Security", which pertains to the safeguarding of personal data, has a relevance percentage of only 17%.

The spatial arrangement of themes in the concept map, as observed, aligns with our initial expectations, demonstrating a coherent and logically organized representation of stakeholder perceptions. These findings have a broader significance, transcending mere visual representation. The proximity of themes on the map mirrors the intricate relationships and interactions inherent in stakeholders' perceptions regarding how SMEs handle EC service failures.

To illustrate the interpretation of the concept map, consider the themes "Clients" and "Website". These two themes overlap and show a close connection, indicating that related concepts such as service and failure are closely intertwined with how customers perceive SME responses to service failures. Another noteworthy example is the theme "Website", which shares the most boundaries with other themes on the map. This boundary-sharing underscores the theme's close relationship with other concepts, emphasizing its pivotal role when SMEs grapple with E-commerce service failure.

Content analysis in the form of reviews serves as a valuable research tool employed to identify the presence of specific words or ideas within textual documents and its primary purpose is to systematically categorize and establish relationships within the material, enabling the quantification and examination of the text's content (Leximancer User Guide, 2021). These measurements then facilitate the conclusion that when it comes to strategies employed by SMEs when dealing with EC service failures, managers should be concerned primarily with the clients and followed by the company websites since they are the two most prominent concepts. The visualization of stakeholder perceptions through the concept map generated by Leximancer offers a comprehensive view of SMEs' strategies in addressing EC service failure. The importance of the "Client" theme reinforces the anticipation that client-centric approaches play a paramount role in mitigating the impact of service failures in the EC domain.

Figure 4.1 - Concept Map for "how do SMEs deal with E-commerce service failure?"

4.4.2. E-commerce service failures, from the company perspective

Figure 4.2, a concept map generated using Leximancer outputs, represents stakeholder viewpoints concerning how e-commerce service failures, from the company perspective, influence customer engagement across six key themes: Clients, Orders, Information, Performance, Reviews, and Personal Data.

Upon inspecting the connectivity rates associated with each theme, a consistent pattern emerges, with all themes exhibiting connectivity rates surpassing 12%. A more comprehensive examination of these themes elucidates their significance within the context of e-commerce service failures and customer engagement.

The theme that stands out is "Client", obtaining a relevance percentage of 100%. Following closely is the theme of "Orders", which assumes a relevance percentage of 67%, underscoring the salience of efficient order management despite service disruptions. The third theme is "Information", achieving a relevance percentage of 46%. This theme highlights the necessity of transparent, easy access and timely information dissemination to customers affected by service failures. Meanwhile, the theme of the website "Performance" is positioned as the fourth most significant, capturing stakeholders' attention with a relevance percentage of 31%. The subsequent theme is related to "Reviews", which registers a relevance percentage of 16%. This theme underscores the influence of customer reviews and feedback in the aftermath of service failures. Lastly, the theme of "Personal Data" in the context of the company's handling of such information obtains a relevance percentage of 12%.

The examination of thematic relevance percentages and spatial arrangements provides a nuanced comprehension of the themes' roles and interactions in the sphere of EC service failures and customer engagement. The prominence of the "Client" theme reinforces the anticipation that customers' priority remains at the top when addressing service failure concerns, encompassing effective order management, transparent information dissemination, and prudent handling of customer data.

The spatial arrangement of these themes in the concept map aligns with the anticipated patterns, reflecting the logical interplay and relationships inherent in stakeholders' perspectives. This arrangement lends credence to the validity of the findings and their representation of the intricate interconnections among the themes identified.

To illustrate the interpretation of the concept map, let us consider the themes "Clients" and "Orders". These two themes not only overlap but also show a strong connection, indicating that interconnected concepts like website and time play a crucial role in how SMEs respond to service failures to ensure ongoing customer engagement. Maintaining customer engagement relies heavily on having a website that provides clear information about service failures and promptly addresses client feedback in the event of a service failure.

Another significant instance is the theme "Orders", which shares boundaries with "Client", "Information", and "Reviews". This shared boundary highlights the theme's close association with other concepts, underscoring its pivotal role in sustaining customer engagement when SMEs grapple with EC service failure.
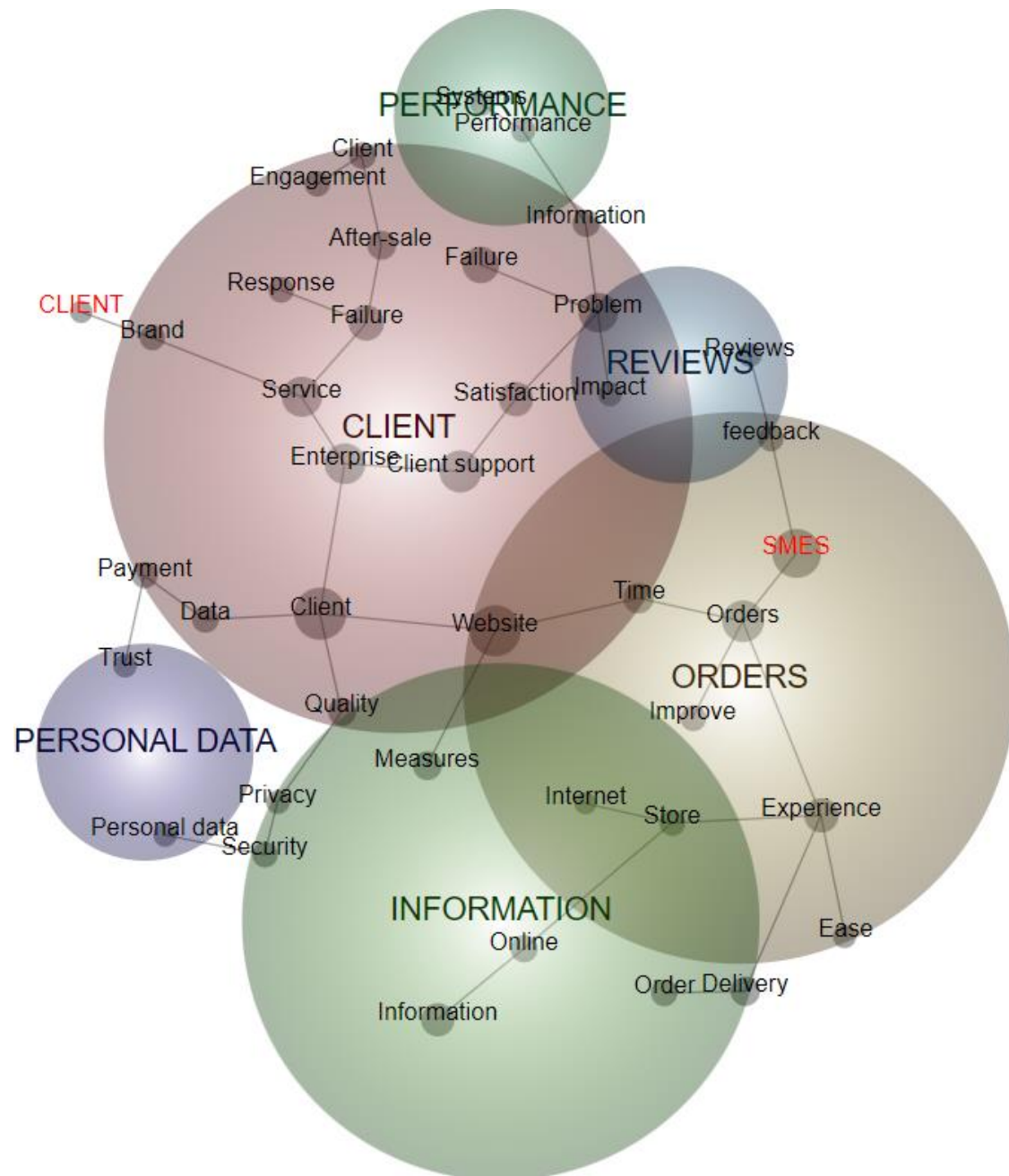
Figure 4.2 - Concept map from the company's perspective on "how do e-commerce service
failures impact their customer?"

(source: Leximancer outputs)

4.4.3. The effect of service failures on customer engagement

Leximancer's ranked concepts for category overview was also employed. This tool provides
valuable insights into the leading concepts within specific categories, customers, and SMEs.
The tool presents the prominent concepts in the form of a ranked bar chart, offering a visual
representation of their significance within the respective category. The essence of this tool

resides in its ability to gauge the importance of these concepts by considering both their strength and frequency attributes (Leximancer User Guide, 2021).

The term "prominence" refers to a measure that is calculated based on the joint probability of these concepts, which is essentially the product of their marginal probabilities (Leximancer User Guide, 2021). This method allows us to obtain not only the frequency of occurrence but also the interconnectedness and influence that these concepts have within their respective categories, providing a comprehensive overview of the most important concepts to be addressed regarding the effect of service failures on customer engagement.

Table 4.2 shows the ranked Concepts for Categories Overview for Customers and Table 4.3 for SMEs. Their analysis provides a comprehensive understanding of how various concepts influence customer engagement in the aftermath of service failures. This analysis allows us to identify which concepts contribute positively or negatively to customer engagement following a service failure. The customer related outputs, "Brand", "Failures", and "Service" are the concepts with the most positive influence on customer engagement. These concepts seem to enhance engagement following service failures. Conversely, "Website", "Purchase", and "Client" are identified as concepts that apply a more negative impact on customer engagement in such scenarios.

Turning to the outputs related to SMEs, the analysis reveals that "Experience", "Information", and "Website" are the concepts that have the most positive effect on customer engagement after service failures. In contrast, "Failures", "Service", and "Company" are the concepts that seem to have a more adverse impact on customer engagement in the context of SMEs.

These findings highlight the significance of certain concepts in shaping customer engagement following service failures, emphasizing the need for businesses to focus on areas such as brand management, addressing failures effectively, and improving the online experience to enhance engagement. It is essential for organizations to tailor their strategies based on these insights to improve customer engagement in the face of service failures.

Customer expectations for prompt resolution of service failures are evident, and proactive measures taken by SMEs can have a positive impact on maintaining and increasing customer engagement levels.

Concept	Rel Freq (%)	Strength (%)	Prominence
Brand	71	38	4.4
Failures	79	15	1.8
Service	93	15	1.7
SME	93	14	1.7
Failure	64	14	1.7
Problem	79	13	1.5
Support	79	11	1.3
Client	100	8	1.0
Purchase	64	8	1.0
Website	86	8	0.9

Concept	Rel Freq (%)	Strength (%)	Prominence
Experience	51	100	1.1
Information	48	95	1.1
Website	95	92	1.0
Order	66	91	1.0
Customers	99	91	1.0
Support	60	88	1.0
Problem	50	86	1.0
Company	52	85	0.9
Service	50	84	0.9
Failures	40	84	0.9

Table 4.2 - Ranked Concepts for Categories Overview – Extent of influence on customer engagement when encountering service failures (source: Leximancer outputs)

Table 4.3 - Ranked Concepts for Categories Overview – SMEs outputs on the effect of service failures on customer engagement (source: Leximancer outputs)

4.5. Discussion

This section synthesizes our findings by juxtaposing insights drawn from the interviews with those reported in literature. At the outset of our study, we posed three fundamental questions: how do SMEs deal with E-commerce service failure? How do e-commerce service failures impact customer engagement? and to what degree is customer engagement affected when facing service failures? These inquiries emerged from a noticeable gap in the research landscape, which lacked comprehensive investigations into the ramifications of multiple service failures on customer engagement within the context of SMEs. Our study set out to explore EC service failures and their adverse effects on customer engagement in the context of SMEs.

4.5.1. E-commerce service failures in SMEs

A noteworthy insight gleaned from the results is the unequivocal importance attributed to the "Client" concept. This theme emerges as the cornerstone, amounting to the very foundation upon which stakeholders' considerations begin when grappling with service failure issues. The

resounding relevance percentage of 100% underscores the centrality of client-centric approaches in the domain of EC service failure mitigation. This pivotal position highlights the overarching significance of clients as the prime focal point for SMEs' remedial undertakings.

The interviews revealed that customers are more likely to place orders when they experience a sense of connection or engagement with a brand or company. Clients (100 % relevance) tend to purchase products from a company that has an EC website as they can also access relevant information on the company (e.g., detailed product information, return policy, delivery policies) (Ghobakhloo et al., 2011). The results show that customers tend to refrain from making purchases from companies that fail to address service issues adequately, leading to disengagement and ultimately abandoning their purchasing intentions. These findings are in line with those of Naumann et al. (2017), Fitriati et al. (2020), and Jo and Park (2023).

The following was stated in an interview with a manager who responded by sharing his opinion regarding purchases from websites: "I do not buy an article with outdated information. These types of situations take away my confidence and make me feel more disengaged with the brand." (Code: SME20).

Following "Client" is "Website" with a relevance percentage of 94%. The interviews revealed that websites incorporate functionalities enabling customers to address service failures without enduring lengthy waits for a company response. These findings go in line with a recent study by Yu et al. (2020), the results of which support previous research indicating that as response times increase, user experience tends to diminish. In one interview it was stated "(…) having bad service will always negatively influence performance, responding in the best way, more capable and quickly, will always be the solution." (Code: SME19).

The third most prominent theme, "Order", obtains a relevance percentage of 67%. Interviewees expressed their concern, as some customers abandon their orders without the managers being aware of the underlying reasons, while others urgently request expedited order processing within very tight timeframes, which can lead to an episode of service failure. A breakdown in any part of an e-commerce transaction can lead to an adverse ripple effect, eroding consumer confidence in other aspects of the transaction process (Tan et al., 2016). In the interviews, managers reported that "(…) our customers highly value the ease of finalizing orders and the fact that this is an efficient process with just a few clicks, with our platform having several options available, from the delivery method that best suits customers' needs and preferences to how the customer wants to make payment." (Code: SME3).

The "After-Sale" service theme has a relevance percentage of 62%. Interviewers reported that the optimal scenario would involve having a designated individual handling responses to service failures, but this proves to be highly impractical due to the associated costs. Furthermore, managers emphasized the significance of metrics in formulating effective responses following a service failure episode, as they can anticipate some of the customer's needs. After-sale functionalities are intended to provide consumers with peace of mind, and their absence may be considered as functional shortcomings (Tan et al., 2016). In line with this are the findings of the Gnewuch et al. (2018) study in which it was found that response time has a great importance in customer satisfaction following a service failure.

Research into service recovery typically depends on perceptual measurements such as perceived fairness, contentment, and behavioral inclinations (Grégoire & Mattila, 2021). These metrics are especially important when showcasing the benefits of investing in recovery efforts at the individual customer level and fostering a greater understanding of the significance of service recovery across the entire organization (Van Vaerenbergh et al., 2019). It was stated in one interview that, "we analyze after-sale feedback and try to make improvements where it is most feasible. We also analyze whether any of the comments will bring about any changes that can be taken on by my company because the more satisfied customers are, the greater the performance of my business." (Code: SME18).

The next prominent theme is "Problem", which captured stakeholders' concerns about the service failure process, and obtained a relevance percentage of 53%. Interviewees revealed that the response time for certain service failures is problematic, particularly for those that involve complexity and require time to diagnose the causes. Additionally, interviewers also mentioned that when customers are used to a high level of service quality any occurrence of service failure can detrimentally impact the company's reputation and customer satisfaction. The speed of EC service failure response serves as a considerable obstacle to consumers using EC websites and extended delays result in complaints of frustration, expressions of dissatisfaction, a feeling of being disoriented, and ultimately abandonment (Tan et al., 2016). One interviewee gave an example of a situation that occurred: "(…) We have had failures in after-sales service, for example, there was a certain time when we were unable to respond adequately to our customers, which resulted in complaints about the poor quality of customer service." (Code: SME4).

"Experience" regarding the company's handling of service failure has a relevance percentage of 47%. It was revealed through interviews that company's primary goals include enhancing the user navigation experience to attract customer interest, setting themselves apart from competitors, and ensuring a robust system-failure response in order to retain clients. Through the application of HR practices, organizations can shape the actions of their frontline employees, particularly during the initial stages of responding to service recovery (Guchait et al., 2014). Empowering these frontline employees in service recovery scenarios is vital in this context, as granting them autonomy enables them to independently tailor their problem-solving efforts or responses to customers' needs, without requiring managerial approval (Cusin & Flacandji, 2022). As an example of this experience, in one interview the following was stated: "(…) We recognize the importance of providing complete and accurate information about our products so that customers can make informed decisions (...)." (Code: SME20).

The next theme, "Information", emerges as transparent and easily accessible, with a relevance percentage of 46%. Interviewees indicated that customers' expectations for product and brand information seams to facilitate purchasing when compared to other websites. Furthermore, in the event of a system failure, accessibility becomes crucial as customers can quickly gather the necessary information to initiate a complaint with the seller. E-commerce websites provide valuable information when the content supplied aligns with the specific choices that consumers are making regarding their purchases (McKinney et al., 2002). The inclusion of irrelevant information increases the workload on consumers during transactions by needlessly complicating their information search process as they sift through excessive content to find the pertinent information they need for their specific task (Waite & Harrison, 2002). One interviewee stated, "on our website, we seek to present only pertinent and essential information to provide a good shopping experience to the customer. We want to have the content as simplified as possible and have clear and direct communication. We want them to easily find the information they are looking for to make informed decisions." (Code: SME8).

"Security", the final theme, which pertains to the safeguarding of personal data, has a relevance percentage of 17%. The interviews uncovered that concerning security concerns, companies aim to maintain a transparent and forthright data policy. When confronted with a system failure, organizations make efforts to provide customers with a clear explanation of the issue and a timeline for a resolution. Additionally, some company representatives mentioned that they seek to mitigate the impact of such failures by offering special commercial incentives. Security on EC websites refers to protective measures put in place to shield transactional data from unauthorized or unlawful access by external parties (Collier & Bienstock, 2015). It serves as the primary defense against any form of abuse or improper use of confidential personal information (A. Sengupta et al., 2005). Regarding this subject, one interviewee stated, "(…) We make a continuous effort to offer the most popular and convenient payment methods for our customers, currently offering options such as mbway, ATM reference, and credit card, among others. We seek to provide a fluid and secure payment experience." (Code: SME5).

4.5.2. E-commerce service failures' impact on customer engagement

In a broader scope the outcomes presented herein offer valuable insights into the perceptions of SMEs regarding the impact of e-commerce service failures on customer engagement. The analysis illuminates the prioritization of client-centric strategies, underscoring the pivotal role played by customer relationships and satisfaction even during instances of service shortcomings. An essential takeaway from these results is the unequivocal primacy assigned to the "Client" theme. This theme emerges as the very basis of stakeholder considerations, with its relevance percentage of 100% identifying its unmatched significance in shaping strategies aimed at mitigating the repercussions of service failures on customer engagement.

Managers expressed a strong interest in implementing measures aimed at safeguarding clients against personal data theft, minimizing clients' waiting times for responses, adjusting client sales conditions after a service failure episode, and enhancing service quality based on client feedback. This goes in line with the findings of Dimitrova et al. (2017) and Frese and Keith (2015), that organizations aim to promote the early identification of errors, transparent communication, systematic analysis, and prompt corrective measures to reduce the adverse consequences and to preempt the recurrence of similar errors in the future. One interviewee stated, "depending on the impact of the failure, we will speak to the customer and resolve the problem verbally, analyzing the cost-benefit. We will propose more advantageous conditions to the customer through offers and we will try to entice the customer to compensate them for the service failure. This way, if the service failure is resolved correctly, customer engagement will not be affected." (Code: SME18).

"Orders", which has a relevance percentage of 67%, emphasizes the salience of efficient order management despite service disruptions. Briefly, interviewees' apprehensions revolve around the timing of order placement and product availability. They emphasize that companies should strive to ensure delivery within a maximum of two days after an order is placed, emphasize the importance of an efficient refund service to address customer dissatisfaction, advocate for enabling customers to compare similar products on the website, and stress the significance of real-time order tracking capabilities. Piccoli (2001) emphasized that technological features regarding orders and payment have the potential to streamline the acquisition process. Nonetheless, failure to acquire essential components, as with failures in ordering and payment functions, can be detrimental to EC websites (Holloway & Beatty, 2016). One interviewer gave a practical example of this situation: "(…) when a customer purchases a product that remains undelivered, we immediately inform him that we are awaiting the arrival of the book and that we will do our best to keep the client updated on the progress. As soon as the book arrives, we will immediately notify the customer. We do not usually send an estimated delivery time to the customer because since we deal with different publishers, each one has its own shipping time. Instead, we tell customers that we will be in touch soon with more information about product availability. We know that this lack of a defined deadline creates some uncertainty for customers, but we prefer to be realistic about this variable delivery time for books we have never had." (Code: SME8).

"Information", the third prominent theme, has a relevance percentage of 46%. This theme highlights the necessity of transparent, easy access and timely information dissemination to customers affected by service failures. Furthermore, the interviews determined that customers tend to abandon their orders when they encounter challenges in transportation details, when stock information is lacking, and when general data about the company's terms and conditions is not easily accessible. This goes in line with the findings of Van Vaerenbergh et al. (2019), in which customers require additional time to prepare their complaints and assemble pertinent information after a service failure. Mittal et al. (2008) also indicated that customers who file complaints have a strong desire for information and clarification. Providing information throughout the customer journey could serve to fulfil this need and not lose customer engagement with the company (Van Vaerenbergh et al., 2019). Regarding this theme, one interviewee stated that, "(…) as well as obtaining detailed information about some characteristics such as color, fabric, measurements, and extra information such as type of foam and customization options. We recognize the importance of providing complete and accurate information about our products so that our customers can make informed decisions. (Code: SME18)".

The concept of website "Performance" is positioned as the fourth most significant, with a relevance percentage of 31%. Findings indicated that to achieve optimal service failure website performance, businesses must allocate resources toward implementing systems that enable customers to store their wish lists, facilitate personalized shopping carts, and ensure a swift website browsing experience. Even in companies that uphold rigorous performance standards, service breakdowns are bound to happen and do so regularly (Van Vaerenbergh et al., 2019). In such instances, businesses must initiate service recovery protocols to prevent customers from diminishing their engagement with the company (Haruna et al., 2018). Examining the service failure outcomes concerning how customers perceive and behave can provide insights into which organizational strategies can improve service recovery performance (Guchait et al., 2019). The following was stated by one of the managers interviewed: "the better the accuracy of the information, the greater the engagement of my customers will be as they will be more satisfied. (…) the systems will have to be constantly monitored by someone responsible for managing the website because if the information is inaccurate customers will feel discouraged from purchasing on the website (…) which will contribute negatively to customer engagement" (Code: SME19).

"Reviews", which has a relevance percentage of 16%, shows the influence of customer reviews and feedback in the aftermath of service failures. Additionally, several companies disclosed that they send new products to specific clients aiming to create a favorable initial impression, which subsequently influences the product's overall presentation and sales performance. Organizations place strong emphasis on the findings from satisfaction surveys and online reviews, as these assessments help them to pinpoint areas that need enhancement (Cusin & Flacandji, 2022). In line with this are the conclusions of Grégoire and Mattila (2021) suggesting that by implementing some changes suggested in the reviews and crafting readily applicable synthesized knowledge, they believe that this concept can be a source of valuable insights for managers. One interviewee stated, "(…) we appreciate all opinions and comments, both positive and negative. When we receive negative comments, we always respond attentively (…) we express regret when the customer's shopping experience was not as expected (…) we seek to resolve issues appropriately and find satisfactory solutions for the customer (…) we understand that negative comments can affect customers and can generate distrust and doubts about the quality of our products" (Code: SME21).

"Personal Data" in the context of the company's handling of such information obtains a relevance percentage of 12%. A few interviewees indicated a preference for maintaining a substantial database rather than deleting certain client records, as they occasionally rely on this data to address complaints that arise long after the initial purchase. Furthermore, some interviewees noted that some of their clients use the website chat to seek clarification on personal data protection policies. Related to this concept is security, which in this context serves as the initial line of defense against the improper use or abuse of confidential personal information (Collier & Bienstock, 2015).

Our study aligns with the findings reported by Sim et al. (2022), which suggest that decreased engagement can be linked to the intricacies associated with regulations and policies, as well as variations in consumer attributes such as time perspectives, self-confidence, and perceptions of financial security. In one interview the following was stated, "I see changing the way customer data is protected. If there is a data leak, my customers' privacy will be affected, and I will certainly lose some of the engagement I have with them. Personal data is one of my biggest concerns." (Code: SME7).

4.5.3. Customer engagement repercussions after service failures

Comparing the findings in Table 4.2 with those in Table 4.3 it is possible to gain valuable insights into the relationship between concepts and their impact on customer engagement. Specifically, the comparison reveals that "Brand", "Failure", "Service", and "SME" are the categories most profoundly influenced when customer engagement is considered and "Experience", "Information", "Website" and "Order" when SMEs are considered.

The tables' data suggest the positive influence that "Brand", "Failure", "Service", and "SME" have on customer engagement, and the EC service failures and the not-so-positive effects on this theme from the "Support", "Clients", "Order", and "Website". Since it is valuable to take into account the customer's intention when initiating engagement, the following three key questions addressed by Van Doorn et al. (2010) are in line with our findings: who is the engagement targeted toward?, how meticulously is the engagement premeditated?, and to what degree do the customer's objectives align with those of the firm?

Indeed, the results shown in Tables 4.1 and 4.2 regarding the category SMEs suggest that "Experience", "Information", "Website", and "Order" have positive effects on engagement in SMEs. On the other hand, results show that "Problem", "Company", "Service", and "Failure" have less impact on this subject. For Sim et al. (2022) the interactions with the service provider have emerged as a pivotal factor in gaining a holistic comprehension of customer engagement tendencies, and various aspects of disposition are connected to and made evident by the customer's relationship with the service provider.

It is crucial to recognize that when confronted with a system failure, customers' initial response is to associate the incident with the specific brand responsible for the failure. Subsequently, they engage in a comprehensive evaluation of all prior failures tied to the associated service. Following the resolution of the immediate issue, customers expect that SMEs will thoroughly assess the failure and employ the available support mechanisms within the company to rectify any associated problems encountered by the customer.

The "Brand" concept appears 89 times in all the interviews, has a 56% relevance, and is composed of the following concepts: support, after-sale, trust, data, company, engagement, failure, failures, information, payment, personal, problem, answer, satisfaction, security, service, and time. Our findings are in line with those of Van Doorn et al. (2010), who conclude that customer engagement behaviors extend beyond mere transactions and can be precisely characterized as the way that a customer expresses their involvement with a brand or company, going beyond purchases, and stemming from motivational factors. Also, other engagement researchers report that "Brand" plays an important role in customer engagement (Gummerus et al., 2004; Sim et al., 2022).

In one interview the following was stated: "when buying I feel more engaged to a company which gives me all the product information. I usually don't purchase anything from a company which does not have up-to-date data" (Code: SME20).

It is of utmost importance to acknowledge that when SMEs encounter a system failure, they actively draw upon their reservoir of experience and leverage all the information at their disposal to retain customer engagement. This information is not limited to the policies outlined on the company's website, but also encompasses the broader framework of company rules and guidelines. SMEs prioritize the well-being of the client, and as such, they are committed to providing the highest level of support within their means to effectively address and resolve any problems stemming from system failures.

The "Experience" concept appears 71 times in all the interviews, has a 44% relevance, and is composed of the following concepts: deliver and easy. These findings are in line with those of Ding et al. (2007), who found that engagement with companies is of particular interest to situations in which the service provider is paramount to the service experience. Customers who engage in the service process are inclined to experience a decrease in both financial and performance risks since their participation enables them to provide direct input, achieve greater customization, and optimize their choices, ultimately enhancing their knowledge and feelings of control (Eberhardt et al., 2021).

In one interview the following was stated: "we look forward all the time to improve customer delivery experience, by reducing all the delivery time to the minimum and by making easy all buying processes. This will enhance customer experience and engagement with our website" (Code: SME 8).

The examination of thematic relevance not only affords us an understanding of stakeholder perceptions but also provides a platform to discern customer expectations. Customers seek a brand that can effectively address service failures without compromising their overall engagement. This sentiment is especially pronounced in cases for which customer complaints remain unresolved, as it becomes evident that unresolved service failures exert a substantial negative influence on customer engagement.

In light of these results, it becomes evident that SMEs have a pivotal role in shaping customer engagement following service failures. Since EC adoption plays a critical role in enabling organizations to satisfy customer demands (Costa et al., 2023), by offering exemplary service and diligently addressing failures, SMEs can maintain or even enhance customer engagement levels. This implies that a proactive and customer-centric approach can effectively mitigate the adverse effects of service failures on customer engagement.

4.6. Conclusion

EC customers often experience failures, and to prevent unfavorable outcomes service providers make efforts to deliver recovery solutions that aim to restore equilibrium in the relationship between the parties involved (S. Sengupta et al., 2018). This is a consequence of service failures, which are inevitable and occur regularly even among companies with high levels of performance standards (Cusin & Flacandji, 2022).

With this in mind and given the need to gain a deeper comprehension of consumer actions during service failure occurrences, our main goal was to investigate EC service failures and their negative effect on customer engagement in SMEs. In recent years there has been considerable interest from both scholars and practitioners in the concept of customer engagement and this subject now has heightened attention at individual and organizational levels (Eberhardt et al., 2021; Naumann et al., 2020; Sim et al., 2022). Our study examined how SMEs deal with EC service failures, how EC service failures affected customer engagement, and the degree of influence on customer engagement following service failures.

Regarding the way that SMEs deal with EC service failures, findings reveal the paramount importance of the "Client" concept. It is clear that this concept is the central issue for stakeholders dealing with service failures, emphasizing the importance of prioritizing clients as the primary focal point for SMEs' efforts to remedy service failures in the EC sector. It also highlights the notion that a client-centric approach is fundamental to address and rectify service issues effectively.

Concerning the way that EC service failures impacted customer engagement from the company's perspective, the analysis underscores the continued importance of "Client" approaches, emphasizing the vital role that customer relationships and satisfaction play. Once again, a pre-eminent concept from these findings is the "Client" theme, which stands at the core of stakeholder considerations, with a remarkable relevance percentage of 100%, highlighting its unparalleled significance in shaping strategies to address the impact of service failures on customer engagement.

Managers who were interviewed demonstrated a keen interest in implementing various measures to ensure client protection, reduce response times, adjust sales conditions after service failures, and improve service quality based on client feedback. These insights emphasize the commitment of businesses to prioritize their clients and maintain strong relationships, recognizing that such efforts are essential for mitigating the repercussions of service failures on customer engagement and overall success.

Relating to the degree of influence of service failures on customer engagement, the insights allow us to assess the distribution of concepts and their proximity within their respective categories. Notably, for customers the concept "Brand" has the greatest strength value, while for SMEs, it is "Experience". Conversely, the concepts "Website" and "Failures" have the lowest strength values for customers and SMEs, respectively.

These findings emphasize the importance for businesses to concentrate on key areas such as effective brand management, efficient resolution of failures, and enhancing the online customer experience to boost engagement levels. Proactive measures taken by SMEs can have a positive impact not only on retaining customers but also on increasing their engagement levels, highlighting the significance of addressing service failures promptly and efficiently.

4.6.1. Theoretical contribution

Notable progress is seen in recent years in the domain of service failures, with every literature having its own strengths, weaknesses, and areas calling for further exploration (Khamitov et al., 2020; Laufer & Wang, 2018). Regarding the impact of multiple service failures on customer engagement within the SMEs context, research has been limited – our study being a pioneer in this matter. Our research enhances theory by investigating the repercussions of customer engagement when EC service failures occur on SMEs.

Following a qualitative approach that provided a comprehensive understanding and that allowed relevant topics to arise spontaneously during discussions, this study brought out new findings for scholars. Regarding the way that SMEs deal with EC service failures, from the company perspective, it was possible to conclude that "Customer" has a major importance. The present research adds new awareness by indicating the most prominent concept, "Customer", which should be addressed by future researchers as a paramount concept on EC service failures.

Regarding the effect of service failures on customer engagement, our results provide future researchers with guidance in conducting studies into the concepts that influence customer engagement most positively and negatively, from the perspectives of clients and SMEs.

This not only enriches the body of knowledge in the context of SMEs' EC service failure, but also assists senior executives in formulating effective EC strategies to satisfy clients and boost customer engagement. Furthermore, this study offers a new avenue for evaluating and comparing findings.

4.6.2. Practical contribution

SMEs are crucial contributors to national economies in every country. Nevertheless, these enterprises typically operate with constrained resources, imposing restrictions on top managers' ability to allocate ample investments across all departments. Therefore, they must make judicious decisions regarding the allocation of their limited financial resources. Regarding EC service failures and the effect they have on customer engagement in SMEs with this research, managers can gain insight into the fundamental importance of adopting a client-centric approach. This highlights the value of prioritizing clients as the central focus for SMEs when addressing service issues.

Furthermore, as Adams (2015) states, such a policy serves as an effective approach for gathering data that can be used to creatively shape strategies or identify opportunities for adjusting current practices Concerning the degree to which service failures influence customer engagement, the current findings allow managers to realize that to protect their company's customer engagement "Brand" holds the highest strength value, while for SMEs, it is "Experience".

Our research made significant contributions in two critical dimensions, shedding light on both the organizational and customer perspectives. This study expanded upon the literature by delving into the sphere of SFR theory within the SME context, enriching the current body of knowledge in this domain.

4.6.3. Limitations

The study identifies three constraints. The first is that since EC is a worldwide phenomenon, the data collection sample does not fully represent every country, which would be ideal (Khamitov et al., 2020). Therefore, further research on this subject is recommended. Second, the study did not take into account other important players such as firm suppliers, regulators, competitors, or employees (Van Doorn et al., 2010). Third, in some countries the application of EC is still restricted by internal policies and bureaucratic regulations, hindering a comprehensive understanding of its outcomes in terms of service failures.

4.6.4. Future research

A future research topic worth exploring is whether large firms would yield outcomes similar to those of SMEs regarding the subject under examination. Such research might shed light on whether our conclusions are specific to SMEs or if they apply universally to the broader field of EC. Additionally, future investigations could explore the influence of cultural factors on service failures in various countries, potentially revealing new prominent concepts that may arise in different cultural contexts.

CHAPTER 5

Thesis Conclusions

5. Overview

Our research demonstrates that there are five primary positive outcomes in EC, which are "social benefits," "products," "customers," "competitive advantage," "company development," "business," and "process." From this, we infer that companies should prioritize these aspects to enhance their websites and maintain competitiveness in other markets. On the other hand, the main critical negative outcomes for SMEs 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".

SMEs willing to invest in EC platforms and display patience in terms of generated revenues can anticipate growth in sales, market expansion, new business opportunities, and improved performance. Conversely, businesses hesitant to allocate funds to EC, driven by factors like economic constraints, a shortage of specialized human resources, security concerns, and limited control over business environments, face a competitive disadvantage compared to those adopting online services.

Chapter three investigated the relationships among the variables in the proposed model, aiming to understand how these variables influence each other, and their impact on EC Net benefits, and to assess and compare the significance of User Satisfaction and Game dynamics about EC Net benefits. The results provided evidence supporting the credibility of the proposed model, establishing it as a theory applicable not just to information system adoption but also to evaluating EC in SMEs. By bridging the gap between the model and the implementation phases of EC in SMEs, Chapter three holds implications for realizing net benefits in real-world scenarios.

Chapter three suggested model has confirmed that EC adoption is pivotal in meeting customer needs for organizations. Consequently, businesses aiming to enhance their competitiveness in the market may find the adoption of the proposed model beneficial. The research has offered insights into both the theoretical and practical dimensions of B2B EC among SMEs, highlighting the potential impact of gamification elements and mechanisms in facilitating this process.

In terms of how SMEs address EC service failures, the results underscore the crucial significance of the "Client" concept. This concept represents the central concern for stakeholders dealing with service failures, underscoring the need for SMEs to prioritize clients as the primary focal point in their endeavors to address service failures in the EC sector. This emphasizes the fundamental role of a client-centric approach in effectively managing and resolving service issues.

Regarding how EC service failures influenced customer engagement from the company's viewpoint, the examination highlights the sustained significance of "Client" strategies, underscoring the crucial role played by customer relationships and satisfaction. Relating of the extent of the impact of service failures on customer engagement, the observations enable us to evaluate the arrangement of concepts and their proximity within their relevant categories. Significantly, among customers, the concept "Brand" exhibits the highest strength value, whereas for SMEs, it is "Experience." Conversely, the concepts "Website" and "Failures" have the lowest strength values for customers and SMEs, respectively.

Proactive initiatives implemented by SMEs can positively influence not only customer retention but also elevate their levels of engagement, underscoring the importance of promptly and efficiently addressing service failures.

5.1. Contribution and implications

This research builds upon prior systematic reviews, such as Chouki et al. (2020), which focused on the organizational environment and EC adoption. It expands from examining the singular implications of EC to adopting a holistic perspective, analyzing both the positive and negative effects of EC adoption within the specific context of SMEs. Additionally, the study introduces eight research propositions that explore the desired and undesired effects of EC implementation in SMEs, contributing novel insights to a conceptual framework. The research addresses a methodological gap by utilizing a text mining tool to represent the primary EC themes studied over the past 11 years, along with associated concepts, within the SME context. Furthermore, the findings highlight that company size plays a significant role in influencing EC adoption.

Pioneering companies drive technological improvement. For Chege and Wang (2019) are not greater systems that enhance economic development but efficient learning organizations which seize technological and market opportunities creatively.

Managerial decisions should prioritize concepts identified in this systematic review as key positive aspects of EC. These include social benefits, increased product sales, value creation for customers, and the potential for competitive advantage and company development.

While government support for SMEs is beyond the control of businesses, our analysis revealed that companies stand to gain from such interventions. Therefore, they should make the most of available support when it is provided. In line with the following is also Jean & Kim (2020) where they state   Politics should not only enhance access to ICT but also exploit guidelines that boost the progress of the skills and proficiencies of SMEs' owner-managers and employees.

By introducing a novel model that builds upon the framework of DeLone and McLean (2003), researchers can make comparisons between our findings and prior studies in this field, with a particular emphasis on the latest research. This study contributes with new insights by elucidating emerging trends and customer satisfaction perceptions derived from the online purchasing experience, influencing the EC net benefits.

Our research not only contributes to the existing literature on SMEs regarding the intention to use EC but also provides valuable insights for top managers to formulate EC strategies that enhance customer satisfaction and increase net benefits AS Asunka (2016) recommends in his study regarding ICT, SMEs and their managers should build an environment that is promising to technology and modernization.

In the absence of a previously defined strategy for online operations through EC, our proposed model serves as a guide for companies to achieve EC Net benefits through its adoption. By using our results, companies can prioritize the variables we have identified as the most crucial in optimizing their EC Information Systems. However, managers need to analyze their specific business type and tailor our proposed model to accommodate their unique characteristics. As Consoli (2012) states implementing ICT in SMEs must be defined in a business strategy and be in line with the company approach and the internal organization to take maximum advantage of the technological potential.

Concerning the influence of multiple service failures on customer engagement in the context of SMEs, there has been limited research, with our study pioneering this exploration. Our research contributes to the theoretical understanding by examining the consequences of EC service failures on SMEs' customer engagement.

Regarding how SMEs address EC service failures, the study emphasizes the significant role of "Customer" from the company's perspective. This research provides fresh insights by highlighting "Customer" as a crucial concept in EC service failures, suggesting its importance for future researchers to explore further.

Relating the impact of service failures on customer engagement, our findings offer future researchers valuable direction for exploring the concepts that exert the most positive and negative influences on customer engagement, considering the perspectives of both clients and SMEs.

Concerning service failures in EC and their impact on customer engagement in SMEs, this research provides managers with insights into the crucial significance of adopting a client-centric approach. It underscores the importance of prioritizing clients as the primary focus for SMEs when dealing with service issues.

Contrary to our study, researchers have tried to analyze the causes of SMEs' difficulty to embrace ICT and the failure to originate substantial profits from it (Chege & Wang, 2019). Still, a great amount of research has tended to emphasis on demands between general ICT and its context.

5.2.   Limitations and future research

Considering the study presented in Chapter 2, subsequent studies should encompass the viewpoints of top managers, employees, and overall company performance to assess the alignment of theoretical findings with the realities faced by SMEs. Over the past decade, the majority of published articles on EC have predominantly tested theories rooted in management and technology, leading to a notable overlap in theoretical frameworks.

Despite SMEs having distinct business objectives, research can contribute strategic recommendations for optimal practices within SMEs from a service perspective. This have a tremendous impact, since Duan et al., (2002) stated that limitations in technology, stemming from unskilled technicians and a lack of understanding regarding the value and return on investment of ICTs, are primary factors contributing to a lower rate of adoption.

We advocate for future research to explore new market potentials, particularly in regions such as Africa and Latin America, where SMEs play a crucial role in empowering women startups and fostering small business development. For Kamunge et al. (2014)African SMEs encounter numerous obstacles that hold back their progress. This observation is mostly substantiated due to various challenges hindering the long-term survival of SMEs, despite its positive developmental impacts (Wekesa Bunyasi & Bwisa Gregory Namusonge, 2014).

Having counted the study available in Chapter 3, this study has a limitation related to the data collection method, since a portion of the sample consisted of clients from a particular company. Subsequent research endeavors could involve multiple companies globally, targeting diverse types of clients for a more comprehensive investigation since the advantages of ICT become evident only after a period of adoption, and relying on factors such as the nature of the business, internal transformations and interactions with suppliers and customers (Consoli, 2012).

The results of our study illuminate emerging trends and customer satisfaction perceptions derived from the online purchasing experience, impacting EC Net benefits. Our recommendations go in line with Asunka (2016) that SMEs should allocate resources to educate their staff and management about ICT and its benefits since they could invest in recruiting or outsourcing knowledgeable ICT specialists or focusing on the most prominent variables that best for their business.

Considering the study presented in Chapter 4, the research recognizes three limitations. Firstly, as EC is a global phenomenon, the data collection sample may not comprehensively represent every country, secondly, the study did not consider other significant stakeholders and lastly, in certain countries, the application of EC is constrained by internal policies and bureaucratic regulations, impeding a comprehensive understanding of its outcomes in terms of service failures. As Chege and Wang (2019) suggest governments should enhance not only ICT accessibility but also formulate policies that foster the enhancement of skills and capabilities among SMEs' managers and employees.

An intriguing avenue for future research involves investigating whether comparable outcomes would be observed in large firms as in SMEs concerning the examined subject. As Consoli (2012) stated examining factors related to ICT adoption and their effects on organizations is crucial for comprehending how to encourage the process of investment in new technologies within SMEs, aiming to attain competitive advantages and favorable business performances.

References

Chapter 1 References

Abdelkarim Almajali, D., Masa, E., & Md Dahalin, Z. (2022). Dahalin (2022) Factors influencing the adoption of Cryptocurrency in Jordan: An application of the extended TRA model. Cogent Social Sciences, 8(1). https://doi.org/10.1080/23311886.2022.2103901

Abdu'a, A. R., & Wasiyanti, S. (2019). Pengukuran Kualitas E-Commerce Shopee Terhadap Kepuasan Pengguna Menggunakan Metode Webqual 4.0. Paradigma - Jurnal Komputer Dan Informatika, 21(2), 143–148. https://doi.org/10.31294/p.v21i2.6357

Abou-Shouk, M., Megicks, P., & Lim, W. M. (2013). Perceived Benefits and E-Commerce Adoption by SME Travel Agents in Developing Countries: Evidence from Egypt. Journal of Hospitality and Tourism Research, 37(4), 490–515. https://doi.org/10.1177/1096348012442544

Adam, A., Jizat, J. E. M., & Noor, M. A. M. (2016). A Review Of Factors That Influenced The Intention Of Acceptance And Use of Social Commerce Among Small Medium-Sized Enterprizes In Malaysia. Advances in Business-Related Scientific Research, 7, 15–26. http://eds.a.ebscohost.com/eds/pdfviewer/pdfviewer?vid=19&sid=bdb68982-5b0a-4a27-b61a-9950bc85c0d0%40sessionmgr4008

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Al-Ajam, A. S., & Md Nor, K. (2015). Challenges of adoption of internet banking service in yemen. International Journal of Bank Marketing, 33(2), 178–194. https://doi.org/10.1108/IJBM-01-2013-0001/FULL/PDF

Alshehri, A., & O'Keefe, R. (2019). Analyzing Social Media to Assess User Satisfaction with Transport for London's Oyster. International Journal of Human-Computer Interaction, 35(15), 1378–1387. https://doi.org/10.1080/10447318.2018.1526442

Al-Somali, S. A., Gholami, R., & Clegg, B. (2011). Determinants of B2B E-Commerce Adoption in Saudi Arabian Firms.

Al-Somali, S., Gholami, R., & Clegg, B. (2009). Theories and factors affecting electronic commerce adoption in small and medium enterprises (SMES): A review. E-Business In The 21st Century: Realities, Challenges And Outlook, 301–330. https://doi.org/10.1142/9789812836755_0011

Al-Tit, A. A. (2020). E-commerce drivers and barriers and their impact on e-customer loyalty in small and medium-sized enterprises (SmMES). Business: Theory and Practice, 21(1), 146–157. https://doi.org/10.3846/btp.2020.11612

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

Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. Psychology and Marketing, 20(2), 123–138. https://doi.org/10.1002/mar.10063

Asunka, B. A. (2016). The Significance of Information and Communication Technology for SMEs in Rural Communities. Journal of Small Business and Entrepreneurship Development, 4(2). https://doi.org/10.15640/JSBED.V4N2A4

Awiagah, R., Kang, J., & Lim, J. I. (2016). Factors affecting e-commerce adoption among SMEs in Ghana. Information Development, 32(4), 815–836. https://doi.org/10.1177/0266666915571427

Azadnia, M., Zahedi, S., Majjedin, A., & Pourabedy, M. R. (2017). Analysis of the Impact of ICT on Sustainable Development using Sustainability Indicators. International Journal of Computer Applications, 169(6), 13–24. https://doi.org/10.5120/IJCA2017914766

Bagherzadeh, M., Markovic, S., Cheng, J., & Vanhaverbeke, W. (2020). How Does Outside-In Open Innovation Influence Innovation Performance? Analyzing the Mediating Roles of Knowledge Sharing and Innovation Strategy. IEEE Transactions on Engineering Management, 67(3), 740–753. https://doi.org/10.1109/TEM.2018.2889538

Bailey, J. E., & Pearson, S. W. (1983). Development of a tool for measuring and analyzing computer user satisfaction. Management Science, 29(5), 530–545. https://doi.org/10.1287/mnsc.29.5.530

Bankole, F., Mimbi, L., & Bankole, F. O. (2017). Article 1. Bankole ICT and its Impact on National Development: A Research Direction for. Africa The African Journal of Information Systems, 9(2), 77.

Barroso, R. M. R., Ferreira, F. A. F., Meidutė-Kavaliauskienė, I., Banaitienė, N., Falcão, P. F., & Rosa, Á. A. (2019). Analyzing the determinants of e-commerce in small and medium-sized enterprises: A cognition-driven framework. Technological and Economic Development of Economy, 25(3), 496–518. https://doi.org/10.3846/tede.2019.9386

Belanche, D., Casaló, L. V., & Guinalíu, M. (2012). Website usability, consumer satisfaction and the intention to use a website: The moderating effect of perceived risk. Journal of Retailing and Consumer Services, 19(1), 124–132. https://doi.org/10.1016/J.JRETCONSER.2011.11.001

Bertoa, M. F., Vallecillo, A., Anjos, T. P., Gontijo, L. A., Shi, M., Yuan, H., Silva, L. F. S. da, Verschoore, J. R., Bortolaso, I. V., Brambilla, F. R., Walker, J. H., Saffu, K., Mazurek, M., Dirgantari, P. D., Hidayat, Y. M., Mahphoth, M. H., Nugraheni, R., Hussein, L. A., Kiumarsi, S., … Gatautis, R. (2019). Impact of e-commerce website usability on user satisfaction. Journal of Business Research, 22(3), 91–96. https://doi.org/10.20965/jaciii.2019.p0091

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. MIS Quarterly: Management Information Systems, 25(3), 351–370. https://doi.org/10.2307/3250921

Bilal, A. R., Khan, A. A., & Akoorie, M. E. M. (2016). Constraints to growth: a cross country analysis of Chinese, Indian and Pakistani SMEs. Chinese Management Studies, 10(2), 365–386. https://doi.org/10.1108/CMS-06-2015-0127/FULL/XML

Bocconcelli, R., Cioppi, M., & Pagano, A. (2017). Social media as a resource in SMEs' sales process. Journal of Business and Industrial Marketing, 32(5), 693–709. https://doi.org/10.1108/JBIM-11-2014-0244

Bodini, A., & Zanoli, R. (2011). Competitive factors of the agro-food E-commerce. Journal of Food Products Marketing, 17(2–3), 241–260. https://doi.org/10.1080/10454446.2011.548696

Bollen, K. A. (1989). Structural equations with latent variables. Structural Equations with Latent Variables. https://doi.org/10.1002/9781118619179

Bongers, F. M., Schumann, J. H., & Schmitz, C. (2021). How the introduction of digital sales channels affects salespeople in business-to-business contexts: a qualitative inquiry. Journal of Personal Selling and Sales Management, 41(2), 150–166. https://doi.org/10.1080/08853134.2021.1906260

Bovermann, K., & Bastiaens, T. J. (2020). Towards a motivational design? Connecting gamification user types and online learning activities. Research and Practice in Technology Enhanced Learning, 15(1). https://doi.org/10.1186/s41039-019-0121-4

Božič, K., & Dimovski, V. (2020). The Relationship between Business Intelligence and Analytics Use and Organizational Absorptive Capacity: Applying the DeLone & Mclean Information Systems Success Model. Economic and Business Review, 22(2), 2. https://doi.org/10.15458/ebr99

Bracke, H., Dickson, D., Favilla, J. R., & Lin, S. (2019). Business-to-business (B2B) customer engagement presents unique challenges for industrial products organizations Talking points Revolutionizing B2B customer engagement. IBM Research Insights.

Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer Engagement. Http://Dx.Doi.Org/10.1177/1094670511411703, 14(3), 252–271. https://doi.org/10.1177/1094670511411703

Brown, S. A., Venkatesh, V., Kuruzovich, J., & Massey, A. P. (2008). Expectation confirmation: An examination of three competing models. Organizational Behavior and Human Decision Processes, 105(1), 52–66. https://doi.org/10.1016/j.obhdp.2006.09.008

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In Newbury Park, CA Sage. - References - Scientific Research Publishing. K. A. Bollen and J. S. Long (Eds.), Testing Structural Equation Models. Newbury Park, CA: Sage., 136–162. https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=213477

Buldeo Rai, H., & Dablanc, L. (2022). Hunting for treasure: a systematic literature review on urban logistics and e-commerce data. https://doi.org/10.1080/01441647.2022.2082580

Buttle, F., & Maklan, S. (2019). Customer Relationship Management. Routledge. https://doi.org/10.4324/9781351016551

Byrne, B. M., & Campbell, T. L. (1999). Cross-Cultural Comparisons and the Presumption of Equivalent Measurement and Theoretical Structure: A Look Beneath the Surface. Http://Dx.Doi.Org/10.1177/0022022199030005001, 30(5), 555–574. https://doi.org/10.1177/0022022199030005001

Cai, K. Y. (1996). System failure engineering and fuzzy methodology An introductory overview. Fuzzy Sets and Systems, 83(2), 113–133. https://doi.org/10.1016/0165-0114(95)00385-1

Cai, L., Chung, S. W., & Lee, T. (2021). Incremental Model Fit Assessment in the Case of Categorical Data: Tucker–Lewis Index for Item Response Theory Modeling. Prevention Science, 1, 1–12. https://doi.org/10.1007/S11121-021-01253-4/TABLES/8

Çelik, K., & Ayaz, A. (2022). Validation of the Delone and McLean information systems success model: a study on student information system. Education and Information Technologies, 27(4), 4709–4727. https://doi.org/10.1007/S10639-021-10798-4

Chang, F. Y. M., & Webster, C. M. (2019). Influence of Innovativeness, Environmental Competitiveness and Government, Industry and Professional Networks on SME Export Likelihood. Journal of Small Business Management, 57(4), 1304–1327. https://doi.org/10.1111/JSBM.12446

Chang, S. I., Wu, H. C., & Cho, C. M. (2011). The development of digital divide assessment mechanism for smes: A perspective from the taiwan manufacturing industry. Journal of Global Information Technology Management, 14(1), 6–34. https://doi.org/10.1080/1097198X.2011.10856529

Chatzoglou, P., & Chatzoudes, D. (2015). Factors affecting e-business adoption in SMEs: an empirical research. Journal of Enterprise Information Management, 327–358. https://doi.org/10.1108/JEIM-03-2014-0033

Chege, S., & Wang, D. (2019). Technology Analysis & Strategic Management Information technology innovation and its impact on job creation by SMEs in developing countries: an analysis of the literature review. Technology Analysis & Strategic Management. https://doi.org/10.1080/09537325.2019.1651263

Chen, S. C. (2012). The customer satisfaction-loyalty relation in an interactive e-service setting: The mediators. Journal of Retailing and Consumer Services, 19(2), 202–210. https://doi.org/10.1016/j.jretconser.2012.01.001

Chiew, T. K., & Salim, S. S. (2003). WEBUSE: Website Usability Evaluation Tool. Malaysian Journal of Computer Science, 16(1), 47–57, 16, 47–57. https://ejournal.um.edu.my/index.php/MJCS/article/view/6118/

Choshin, M., & Ghaffari, A. (2017). An investigation of the impact of effective factors on the success of e-commerce in small- and medium-sized companies. Computers in Human Behavior, 66, 67–74. https://doi.org/10.1016/J.CHB.2016.09.026

Chouki, M., Talea, M., Okar, C., & Chroqui, R. (2020). Barriers to Information Technology Adoption Within Small and Medium Enterprises: A Systematic Literature Review. Https://Doi.Org/10.1142/S0219877020500078, 17(1). https://doi.org/10.1142/S0219877020500078

Christy Nathaniela, T., Purnomo, A., Fadil Persada, S., & Rosyidah, E. (2022). A Systematic Review of Business Process Management in E-Commerce. Proceedings - 4th International Conference on Informatics, Multimedia, Cyber and Information System, ICIMCIS 2022, 66–70. https://doi.org/10.1109/ICIMCIS56303.2022.10017500

Coad, A. (2009). The Growth of Firms: A Survey of Theories and Empirical Evidence. In The Growth of Firms: A Survey of Theories and Empirical Evidence. Edward Elgar Publishing. https://www.elgaronline.com/monobook/9781848443273.xml

Connell, C., Marciniak, R., Carey, L. I., & McColl, J. (2019). Customer engagement with websites: a transactional retail perspective. European Journal of Marketing, 53(9), 1882–1904. https://doi.org/10.1108/EJM-10-2017-0649/FULL/PDF

Consoli, D. (2012). Literature Analysis on Determinant Factors and the Impact of ICT in SMEs. Procedia - Social and Behavioral Sciences, 62, 93–97. https://doi.org/10.1016/J.SBSPRO.2012.09.016

Coppola, D. (2021). Share of U.S. B2B sales via e-commerce 2019-2023. Statista. https://www.statista.com/statistics/273104/us-b2b-e-commerce-share/

Curran, J., & Blackburn, R. (2011). Researching the Small Enterprise. In Researching the Small Enterprise. SAGE Publications, Ltd. https://doi.org/10.4135/9781849209847

Cusin, J., & Flacandji, M. (2022). How can organizational tolerance toward frontline employees' errors help service recovery? Journal of Personal Selling and Sales Management, 42(2), 91–106. https://doi.org/10.1080/08853134.2021.2005612

Das, S., Mishra, A., & Cyr, D. (2019). Opportunity gone in a flash: Measurement of e-commerce service failure and justice with recovery as a source of e-loyalty. Decision Support Systems, 125. https://doi.org/10.1016/J.DSS.2019.113130

Dave Chaffey, Tanya Hemphill, & David Edmundson-Bird. (2019). Digital Business and E-Commerce Management von Dave Chaffey, Tanya Hemphill, David Edmundson-Bird. Bücher | Orell Füssli.

De Matos, C. A., & Leis, R. P. (2013). The antecedents of complaint behaviour for Brazilian and French consumers of services. International Journal of Consumer Studies, 37(3), 327–336. https://doi.org/10.1111/IJCS.12002

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. Journal of Management Information Systems, 19(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone and McLean Information Systems Success Model. International Journal of Electronic Commerce, 9(1), 31–47. https://doi.org/10.1080/10864415.2004.11044317

Delone, W. H., & Mclean, E. R. (2014). Journal of Management Information Systems The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. https://doi.org/10.1080/07421222.2003.11045748

Deng, H., Duan, S. X., Jie, D., & Fu, J. (2019). An efficiency-based approach for selecting electronic markets in sustainable electronic business: A SME's perspective. Sustainability (Switzerland), 11(7). https://doi.org/10.3390/su11071858

Digital, A. E. (2020). Economia Digital em Portugal.

Dilworth, J., & Kochhar, A. (2013). Modelling the E-business requirements of manufacturing organisations. IFAC Proceedings Volumes (IFAC-PapersOnline), 46(9), 561–566. https://doi.org/10.3182/20130619-3-RU-3018.00362

Dimitrova, N. G., van Hooft, E. A. J., van Dyck, C., & Groenewegen, P. (2017). Behind the wheel: What drives the effects of error handling? Journal of Social Psychology, 157(6), 658–672. https://doi.org/10.1080/00224545.2016.1270891

Dirgantari, P. D., Hidayat, Y. M., Mahphoth, M. H., & Nugraheni, R. (2020). Level of use and satisfaction of e-commerce customers in covid-19 pandemic period: An information system success model (issm) approach. Indonesian Journal of Science and Technology, 5(2), 261–270. https://doi.org/10.17509/ijost.v5i2.24617

Dotzel, T., & Shankar, V. (2019). The Relative Effects of Business-to-Business (vs. Business-to-Consumer) Service Innovations on Firm Value and Firm Risk: An Empirical Analysis. Journal of Marketing, 83(5), 133–152. https://doi.org/10.1177/0022242919847221

Duan, Y., Mullins, R., Hamblin, D., Stanek, S., Sroka, H., Machado, V., & Araujo, J. (2002). Addressing ICTs skill challenges in SMEs: Insights from three country investigations. Journal of European Industrial Training, 26(9), 430–441. https://doi.org/10.1108/03090590210451524

Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016a). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. Journal of Global Information Technology Management, 19(1), 6–25. https://doi.org/10.1080/1097198X.2016.1134169

Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016b). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. Journal of Global Information Technology Management, 19(1), 6–25. https://doi.org/10.1080/1097198X.2016.1134169

Fatokun, B. (2023). Customers' Affective Responses Towards the Key Factors Influencing E-Commerce Adoption: Extended Technology Acceptance Model (TAM) Approach. https://doi.org/10.24377/LJMU.T.00019920

Fonseca, J. P. C., Ferreira, F. A. F., Pereira, L. F., Govindan, K., & Meidutė-Kavaliauskienė, I. (2020). Analyzing determinants of environmental conduct in small and medium-sized enterprises: A sociotechnical approach. Journal of Cleaner Production, 256. https://doi.org/10.1016/j.jclepro.2020.120380

Fu, H. P., Yeh, H., & Ma, R. L. (2018). A study of the CSFs of an e-cluster platform adoption for microenterprises. Information Technology and Management, 19(4), 231–243. https://doi.org/10.1007/s10799-017-0284-x

Gangwal, N., & Bansal, V. (2016). Application of decomposed theory of planned behavior for M-commerce adoption in India. ICEIS 2016 - Proceedings of the 18th International Conference on Enterprise Information Systems, 2, 357–367. https://doi.org/10.5220/0005627503570367

García García, M., Carrillo-Durán, M. V., & Tato Jimenez, J. L. (2017). Online corporate communications: website usability and content. Journal of Communication Management, 21(2), 140–154. https://doi.org/10.1108/JCOM-08-2016-0069/FULL/PDF

García-García, M., Carrillo-Durán, M. V., & Maia, J. (2021). The Maturity of Corporate Websites as a Digital Communication Channel in Portuguese SMEs' Process of Adopting E-Commerce. Sustainability, 13(21). https://doi.org/10.3390/SU132111972

Garg, A. K., & Choeu, T. (2015). The adoption of electronic commerce by Small and Medium Enterprises in Pretoria East. Electronic Journal of Information Systems in Developing Countries, 68, 1–23. https://doi.org/10.1002/J.1681-4835.2015.TB00493.X

Gate, R. (2022). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. https://www.researchgate.net/publication/220591866_The_DeLone_and_McLean_Model_of_Information_Systems_Success_A_Ten-Year_Update

Gelbrich, K., Gäthke, J., & Grégoire, Y. (2016). How a firm's best versus normal customers react to compensation after a service failure. Journal of Business Research, 69(10), 4331–4339. https://doi.org/10.1016/J.JBUSRES.2016.04.010

Ghandour, A., George, G., & Deans, K. R. (2011). Measuring the Performance of eCommerce Websites– An Owner 's Perspective. Pacific Asia Journal of the Association for Information Systems, 1–27. https://doi.org/10.17705/1PAIS.03101

Ghobakhloo, M., Arias-Aranda, D., & Benitez-Amado, J. (2011). Adoption of e-commerce applications in SMEs. Industrial Management and Data Systems, 111(8), 1238–1269. https://doi.org/10.1108/02635571111170785/FULL/XML

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. MIS Quarterly: Management Information Systems, 19(2), 213–233. https://doi.org/10.2307/249689

Gupta, A., Evans, R. K., Koch, L. B., Littleton, A. J., & Biggins, S. (2018). Purification of kinetochores from the budding yeast Saccharomyces cerevisiae. Methods in Cell Biology, 144, 349–370. https://doi.org/10.1016/bs.mcb.2018.03.023

Gyenge, B., Máté, Z., Vida, I., Bilan, Y., & Vasa, L. (2021). A New Strategic Marketing Management Model for the Specificities of E-Commerce in the Supply Chain. Journal of Theoretical and Applied Electronic Commerce Research, 16(4), 1136–1149. https://doi.org/10.3390/jtaer16040064

Haddoud, M. Y., Onjewu, A. K. E., & Nowiński, W. (2021). Environmental commitment and innovation as catalysts for export performance in family firms. Technological Forecasting and Social Change, 173, 121085. https://doi.org/10.1016/J.TECHFORE.2021.121085

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis. In Upper Saddle River, NJ: Pearson Prentice Hall (Vol. 06).

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? - A literature review of empirical studies on gamification. Proceedings of the Annual Hawaii International Conference on System Sciences, 3025–3034. https://doi.org/10.1109/HICSS.2014.377

Hamid, S., Azhar, M., & Sujood. (2023). Behavioral intention to order food and beverage items using e-commerce during COVID-19: an integration of theory of planned behavior (TPB) with trust. British Food Journal, 125(1), 112–131. https://doi.org/10.1108/BFJ-03-2021-0338/FULL/PDF

Hånell, S. M., Rovira Nordman, E., Tolstoy, D., & Özbek, N. (2019). "It's a new game out there": e-commerce in internationalising retail SMEs. International Marketing Review, 37(3), 515–531. https://doi.org/10.1108/IMR-03-2018-0107

Hartono, E., Li, X., Na, K. S., & Simpson, J. T. (2010). The role of the quality of shared information in interorganizational systems use. International Journal of Information Management, 30(5), 399–407. https://doi.org/10.1016/J.IJINFOMGT.2010.02.007

Harvie, C., & Lee, B.-Chye. (2005). Sustaining growth and performance in East Asia : the role of small and medium sized enterprises. 372. https://www.e-elgar.com/shop/gbp/sustaining-growth-and-performance-in-east-asia-9781840648089.html

Hashim, N. A., & Abdullah, N. L. (2014). Catastrophe of e-commerce among Malaysian SMEs - Between its perceived and proven benefits. Jurnal Pengurusan, 42, 145–157. https://doi.org/10.17576/pengurusan-2014-42-12

Holland, C. P., & Gutiérrez-Leefmans, M. (2018a). A Taxonomy of SME E-Commerce Platforms Derived from a Market-Level Analysis. International Journal of Electronic Commerce, 22(2), 161–201. https://doi.org/10.1080/10864415.2017.1364114

Holland, C. P., & Gutiérrez-Leefmans, M. (2018b). A Taxonomy of SME E-Commerce Platforms Derived from a Market-Level Analysis. International Journal of Electronic Commerce, 22(2), 161–201. https://doi.org/10.1080/10864415.2017.1364114

Hollebeek, L. D., Srivastava, R. K., & Chen, T. (2019). S-D logic–informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM. Journal of the Academy of Marketing Science, 47(1), 161–185. https://doi.org/10.1007/S11747-016-0494-5/TABLES/5

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Hussein, L. A., Kiumarsi, S., Baharudin, A. S., & Hilmi, M. F. (2020). Factors Influencing the Intention to Continue using B2B e-Commerce in Manufacturing SMEs. Technology & Applied Science Research, 10(2), 5528–5533. www.etasr.com

Ifinedo, P. (2011). An Empirical Analysis of Factors Influencing Internet/E-Business Technologies Adoption by SMEs in Canada. International Journal of Information Technology and Decision Making, 10(4), 731–766. https://doi.org/10.1142/S0219622011004543

Iivari, J. (2005). An Empirical Test of the DeLone-McLean Model of Information System Success. Data Base for Advances in Information Systems, 36(2), 8–27. https://doi.org/10.1145/1066149.1066152

Ipinnaiye, O., Dineen, D., & Lenihan, H. (2017). Drivers of SME performance: a holistic and multivariate approach. Small Business Economics, 48(4), 883–911. https://doi.org/10.1007/S11187-016-9819-5/TABLES/14

Ives, B., Olson, M. H., & Baroudi, J. J. (1983). THE MEASUREIVENT OF USER INFORMATION SATISFACTION. Center Fo Digital Economy Research, 26(10), 785–793.

Jean, R. J., & Kim, D. (2020). Internet and SMEs' internationalization: The role of platform and website. Journal of International Management, 26(1), 100690. https://doi.org/10.1016/j.intman.2019.100690

Jeyaraj, A. (2020). DeLone & McLean models of information system success: Critical meta-review and research directions. International Journal of Information Management, 54. https://doi.org/10.1016/J.IJINFOMGT.2020.102139

Kamins, C. (2016). B2B customers are indifferent. Gallup Research Business Journal. Retrieved from: Https://News.Gallup.Com/Businessjournal/194678/B2b-Customers-Indifferent.

Kamunge, M. S., Njeru, A., & Tirimba, O. I. (2014). Factors Affecting the Performance of Small and Micro Enterprises in Limuru Town Market of Kiambu County, Kenya. International Journal of Scientific and Research Publications, 4(12). www.ijsrp.org

Kang, L., Chu, Y., Leng, K., & Van Nieuwenhuyse, I. (2020). Construction of fast retrieval model of e-commerce supply chain information system based on Bayesian network. Information Systems and E-Business Management, 18(4), 705–722. https://doi.org/10.1007/S10257-018-00392-6

Karać, J., & Stabauer, M. (2017). Gamification in e-commerce a survey based on the octalysis framework. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10294 LNCS, 41–54. https://doi.org/10.1007/978-3-319-58484-3_4

Kartiwi, M., & MacGregor, R. C. (2011). Electronic Commerce Adoption Barriers in Small to Medium-Sized Enterprises (SMEs) in Developed and Developing Countries. In Electronic Commerce (pp. 1441–1457). IGI Global. https://doi.org/10.4018/978-1-59904-943-4.ch115

Keikhosrokiani, P., & Fye, G. M. (2023). A hybrid recommender system for health supplement e-commerce based on customer data implicit ratings. Multimedia Tools and Applications. https://doi.org/10.1007/S11042-023-17321-6

Kent, M. L., & Taylor, M. (2021). Fostering Dialogic Engagement: Toward an Architecture of Social Media for Social Change. Https://Doi.Org/10.1177/2056305120984462, 7(1). https://doi.org/10.1177/2056305120984462

Kim, S., & Stoel, L. (2004). Dimensional hierarchy of retail website quality. Information & Management, 41(5), 619–633. https://doi.org/10.1016/J.IM.2003.07.002

Kristalin, D. B., Rahmi, A., Mayada, A. Z., Gui, A., Ganesan, Y., & Shaharudin, M. S. (2023). Factors Affecting Consumer Purchase Intention to Using E-Commerce in Indonesia. Proceedings of 2023 International Conference on Information Management and Technology, ICIMTech 2023, 78–83. https://doi.org/10.1109/ICIMTECH59029.2023.10277983

Kumar, V., & Pansari, A. (2016). Competitive Advantage through Engagement: Https://Doi.Org/10.1509/Jmr.15.0044, 53(4), 497–514. https://doi.org/10.1509/JMR.15.0044

Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. Computers in Human Behavior, 25(4), 887–896. https://doi.org/10.1016/J.CHB.2009.03.003

Kurnia, S., Choudrie, J., Mahbubur, R. M., & Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. Journal of Business Research, 68(9), 1906–1918. https://doi.org/10.1016/j.jbusres.2014.12.010

Leung, K. H., Lee, C. K. M., & Choy, K. L. (2020). An integrated online pick-to-sort order batching approach for managing frequent arrivals of B2B e-commerce orders under both fixed and variable time-window batching. Advanced Engineering Informatics, 45, 101125. https://doi.org/10.1016/j.aei.2020.101125

Lewis, T. F. (2017). Evidence Regarding the Internal Structure: Confirmatory Factor Analysis. Https://Doi.Org/10.1080/07481756.2017.1336929, 50(4), 239–247. https://doi.org/10.1080/07481756.2017.1336929

Li, J., Sun, J., Wang, H., & Sheng, X. (2020). Cost Control of Small and Medium-Sized E-commerce Enterprises under Trans-ocean Trade Mode. Journal of Coastal Research, 110(sp1). https://doi.org/10.2112/JCR-SI110-027.1

Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. Information Systems Journal, 28(6), 1129–1157. https://doi.org/10.1111/isj.12153

Li, S. (2020). Structure Optimization of e-Commerce Platform Based on Artificial Intelligence and Blockchain Technology. Wireless Communications and Mobile Computing, 2020. https://doi.org/10.1155/2020/8825825

Lin, J., Li, T., & Guo, J. (2021). Factors influencing consumers' continuous purchase intention on fresh food e-commerce platforms: An organic foods-centric empirical investigation. Electronic Commerce Research and Applications, 50, 101103. https://doi.org/10.1016/J.ELERAP.2021.101103

Lip-Sam, T., & Hock-Eam, L. (2011). Estimating the Determinants of B2B E-Commerce Adoption Among Small and Medium Enterprises. International Journal of Business and Society, 12, 15–30.

Liu, W. B., & Wang, X. J. (2008). An evolutionary game based particle swarm optimization algorithm. Journal of Computational and Applied Mathematics, 214(1), 30–35. https://doi.org/10.1016/j.cam.2007.01.028

Loiacono, E. T., Watson, R. T., & Goodhue, D. L. (2014). WebQual: An Instrument for Consumer Evaluation of Web Sites. Http://Dx.Doi.Org/10.2753/JEC1086-4415110302, 11(3), 51–87. https://doi.org/10.2753/JEC1086-4415110302

Lyu, J.-J., Huang, Y.-C., & Li, S.-C. (2010). A Synthetic Assessment of E-business for SMEs' in Taiwan.: Discovery Service for ISCTE - Instituto Universitário de Lis. Contemporary Management Research, 6(4), 291–304. http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=143&sid=ab92421e-f9ce-4e0f-8b46-0a6a113a0aea%40pdc-v-sessmgr05

Madu, C. N., & Madu, A. A. (2002). Dimensions of e-quality. International Journal of Quality and Reliability Management, 19(3), 246–258. https://doi.org/10.1108/02656710210415668/FULL/XML

Mahroeian, H. (2012). A study on the effect of different factors on e-Commerce adoption among SMEs of Malaysia. Management Science Letters, 2, 2679–2688. https://doi.org/10.5267/j.msl.2012.08.021

Manzoor, Q.-A. (2011). Impact of Employees Motivation on Organizational Effectiveness. Business Management and Strategy, 3(1). https://doi.org/10.5296/BMS.V3I1.904

Mardiana, S., Tjakraatmadja, J. H., & Aprianingsih, A. (2015). Validating the Conceptual Model for Predicting Intention to Use as Part of Information System Success Model: The Case of an Indonesian Government Agency. Procedia Computer Science, 72, 353–360. https://doi.org/10.1016/J.PROCS.2015.12.150

Maria Correia Neves Cordeiro Rodrigues, H., Doctor, C.-S., Louis Troilo, M., & Professor, A. (2017). A scoping review: Exploring the world of medical and wellness tourism. Tesis Doctoral, 141. https://repositorio.iscte-iul.pt/handle/10071/14496

Markovic, S., Koporcic, N., Arslanagic-Kalajdzic, M., Kadic-Maglajlic, S., Bagherzadeh, M., & Islam, N. (2021). Business-to-business open innovation: COVID-19 lessons for small and medium-sized enterprises from emerging markets. Technological Forecasting and Social Change, 170, 120883. https://doi.org/10.1016/J.TECHFORE.2021.120883

Martínez-Navalón, J. G., Gelashvili, V., & Gómez-Ortega, A. (2021). Evaluation of User Satisfaction and Trust of Review Platforms: Analysis of the Impact of Privacy and E-WOM in the Case of TripAdvisor. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.750527

Mazzarol, T. (2015a). SMEs engagement with e-commerce, e-business and e-marketing. Small Enterprise Research, 22(1), 79–90. https://doi.org/10.1080/13215906.2015.1018400

Mazzarol, T. (2015b). SMEs engagement with e-commerce, e-business and e-marketing. Small Enterprise Research, 22(1), 79–90. https://doi.org/10.1080/13215906.2015.1018400

McKinney, V., Yoon, K., & Zahedi, F. (2002). The measurement of Web-customer satisfaction: An expectation and disconfirmation approach. Information Systems Research, 13(3), 296–315. https://doi.org/10.1287/ISRE.13.3.296.76

Md Husin, M., & Haron, R. (2020). Micro, small and medium enterprises' competitiveness and micro-takāful adoption. ISRA International Journal of Islamic Finance, 12(3), 367–380. https://doi.org/10.1108/IJIF-03-2019-0038

Mehta, D., & Hamke., A.-K. (2019). In-Depth: B2B ECommerce 2019. In-Depth: B2B ECommerce 2019. https://www.statista.com/statistics/273104/us-b2b-e-commerce-share/

Meier, A. (2023). Impacts of Digitalization on Small- And Medium-Sized Enterprises - Framework Development Based on a Systematic Review of the Literature From Two Decades. International Journal of Innovation and Technology Management, 20(1). https://doi.org/10.1142/S021987702230004X/ASSET/IMAGES/LARGE/S021987702230004 XFIGF13.JPEG

Meng, M., & Agarwal, R. (2007). Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities. Information Systems Research, 18(1), 42–67. https://doi.org/10.1287/isre.1070.0113

Millenia, S., Kristianti, T., & Prawati, L. D. (2022). The Success Factors of e-Filing Tax Reporting in Indonesia: An Empirical Analysis Using the DeLone & McLean IS Success Model. ACM International Conference Proceeding Series, 90–97. https://doi.org/10.1145/3512676.3512691

Minatogawa, V., Franco, M., Durán, O., Quadros, R., Holgado, M., & Batocchio, A. (2020). Carving out new business models in a small company through contextual ambidexterity: The case of a sustainable company. Sustainability (Switzerland), 12(6). https://doi.org/10.3390/su12062337

Mitrevski, P., & Hristoski, I. (2011). e-Consumer online behavior: A basis for obtaining e-Commerce performance metrics. Communications in Computer and Information Science, 83 CCIS, 142–151. https://doi.org/10.1007/978-3-642-19325-5_15

Molla, A., Heeks, R., & Balcells, I. (2006). Adding clicks to bricks: A case study of e-commerce adoption by a Catalan small retailer. European Journal of Information Systems, 15(4), 424–438. https://doi.org/10.1057/palgrave.ejis.3000623

Morais, E. P., Pires, J. A., & Gonçalves, R. M. (2012). E-Business Maturity: Constraints Associated With Their Evolution. Journal of Organizational Computing and Electronic Commerce, 22(3), 280–300. https://doi.org/10.1080/10919392.2012.696952

Muylle, S., Moenaert, R., & Despontin, M. (2004a). The conceptualization and empirical validation of web site user satisfaction. Information and Management, 41(5), 543–560. https://doi.org/10.1016/S0378-7206(03)00089-2

Muylle, S., Moenaert, R., & Despontin, M. (2004b). The conceptualization and empirical validation of web site user satisfaction. Information and Management, 41(5), 543–560. https://doi.org/10.1016/S0378-7206(03)00089-2

Noor, A., Suryana, M., Novianti, S., & Amalia, S. (2020). Assessing E-business at small and medium-sized travel agencies. Utopia y Praxis Latinoamericana, 25(Extra1), 176–183. https://doi.org/10.5281/zenodo.3774603

Nursimulu, A., & Bossaerts, P. (2014). Excessive Volatility is Also a Feature of Individual Level Forecasts. Http://Dx.Doi.Org/10.1080/15427560.2014.877016, 15(1), 16–29. https://doi.org/10.1080/15427560.2014.877016

Nyadzayo, M. W., Casidy, R., & Thaichon, P. (2020). B2B purchase engagement: Examining the key drivers and outcomes in professional services. Industrial Marketing Management, 85, 197–208. https://doi.org/10.1016/j.indmarman.2019.11.007

Ocloo, C. E., Xuhua, H., Akaba, S., Shi, J., & Worwui-Brown, D. K. (2020). The Determinant Factors of Business to Business (B2B) E-Commerce Adoption in Small- and Medium-Sized Manufacturing Enterprises. Journal of Global Information Technology Management, 1–26. https://doi.org/10.1080/1097198X.2020.1792229

Office for National Statistics. (2014). Monitoring e-commerce - Office for National Statistics. https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/articles/monitoringec ommerce/2014-08-07

Ongori, H., & Migiro, S. O. (2010). Information and communication technologies adoption in SMEs: literature review. Journal of Chinese Entrepreneurship, 2(1), 93–104. https://doi.org/10.1108/17561391011019041

Orsingher, C., Valentini, S., & de Angelis, M. (2010). A meta-analysis of satisfaction with complaint handling in services. Journal of the Academy of Marketing Science, 38(2), 169–186. https://doi.org/10.1007/S11747-009-0155-Z/TABLES/7

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. The BMJ, 372. https://doi.org/10.1136/BMJ.N71

Palvia, P. C. (1996). A Model and Instrument for Measuring Small Business User Satisfaction with Information Technology. In Information & Management (Vol. 31).

Papadopoulos, G., Rikama, S., Alajääskö, P., Salah-Eddine, Z., Airaksinen, A., & Luomaranta, H. (2018). Statistics on small and medium-sized enterprises - Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_small_and_medium-sized_enterprises#General_overview

Peiris, P. M., Kulkarni, D., & Mawatha, C. R. de S. (2015). An Empirical Study of Customer Adoption of E-Commerce: A Customer Trust Mod...: Discovery Service for ISCTE - Instituto Universitário de Lis. International Journal of Business and Information, 10(4), 491–518. http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=71&sid=ab92421e-f9ce-4e0f-8b46-0a6a113a0aea%40pdc-v-sessmgr05

Perera, D., & Chand, P. (2015). Issues in the adoption of international financial reporting standards (IFRS) for small and medium-sized enterprises (SMES). Advances in Accounting, 31(1), 165–178. https://doi.org/10.1016/J.ADIAC.2015.03.012

Peric, M., & Vitezic, V. (2016). Impact of global economic crisis on firm growth. Small Business Economics, 46(1), 1–12. https://doi.org/10.1007/S11187-015-9671-Z/TABLES/4

Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. European Journal of Information Systems 2008 17:3, 17(3), 236–263. https://doi.org/10.1057/EJIS.2008.15

Pham, L., & Pham, L. N. (2011). Determinants Of E-Commerce Adoption In Vietnamese Small And Medium Sized Enterprises. In International Journal of Entrepreneurship (Vol. 15).

Poorangi, M. M., Khin, E. W. S., Nikoonejad, S., & Kardevani, A. (2013a). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. Anais Da Academia Brasileira de Ciencias, 85(4), 1593–1604. https://doi.org/10.1590/0001-37652013103512

Poorangi, M. M., Khin, E. W. S., Nikoonejad, S., & Kardevani, A. (2013b). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. Anais Da Academia Brasileira de Ciencias, 85(4), 1593–1604. https://doi.org/10.1590/0001-37652013103512

Pordata. (2021). Dados de pequenas e médias empresas em Portugal | Pordata. https://www.pordata.pt/Portugal/Pequenas+e+m%c3%a9dias+empresas+em+percentagem+do+total+de+empresas+total+e+por+dimens%c3%a3o-2859

Rahayu, R., & Day, J. (2017). E-commerce adoption by SMEs in developing countries: evidence from Indonesia. Eurasian Business Review, 7(1), 25–41. https://doi.org/10.1007/S40821-016-0044-6

Rana, N. P., & Dwivedi, Y. K. (2015). Citizen's adoption of an e-government system: Validating extended social cognitive theory (SCT). Government Information Quarterly, 32(2), 172–181. https://doi.org/10.1016/J.GIQ.2015.02.002

Ratna, S., Nayati Utami, H., Siti Astuti, E., Wilopo, E., & Muflih, M. (2020). The technology tasks fit, its impact on the use of information system, performance and users' satisfaction. VINE Journal of Information and Knowledge Management Systems, 50(3), 369–386. https://doi.org/10.1108/VJIKMS-10-2018-0092

Reddy, M. (2012). Barriers to collaborative information seeking in organizations. Proceedings of the American Society for Information Science and Technology. https://www.academia.edu/30120756/Barriers_to_collaborative_information_seeking_in_organizations

Research, S. (2018). State of the Connected Customer.

Richard, H. (2010). Do information and communication technologies (ICTs) contribute to development? Journal of International Development, 22(5), 625–640. https://doi.org/10.1002/JID.1716

Rohden, S. F., & Matos, C. A. de. (2022). Online service failure: how consumers from emerging countries react and complain. Journal of Consumer Marketing, 39(1), 44–54. https://doi.org/10.1108/JCM-01-2021-4366/FULL/PDF

Rojas-Lema, X., Alfaro-Saiz, J. J., Rodríguez-Rodríguez, R., & Verdecho, M. J. (2021). Performance measurement in SMEs: systematic literature review and research directions. Total Quality Management and Business Excellence, 32(15–16), 1803–1828. https://doi.org/10.1080/14783363.2020.1774357

Rouibah, K., Lowry, P. B., & Almutairi, L. (2015). Dimensions of business-to-consumer (B2C) systems success in Kuwait: Testing a modified DeLone and McLean IS success model in an e-commerce context. Journal of Global Information Management, 23(3), 41–71. https://doi.org/10.4018/JGIM.2015070103

Roztocki, N., & Weistroffer Roland, H. (2011). Information technology success factors and models in developing and emerging economies. Information Technology for Development, 17(3), 163–167. https://doi.org/10.1080/02681102.2011.568220

Sadeghi, M. (2019). A Shift from Classroom to Distance Learning: Advantages and Limitations. International Journal of Research in English Education, 4(1), 80–88. https://doi.org/10.29252/IJREE.4.1.80

Sands, S., Campbell, C., Ferraro, C., & Plangger, K. (2022). Buffering B2B service failure: The role of customer engagement. Industrial Marketing Management, 103, 47–60. https://doi.org/10.1016/J.INDMARMAN.2022.03.007

Santoso, A. S., & Nelloh, L. A. M. (2017). User Satisfaction and Intention to Use Peer-to-Peer Online Transportation: A Replication Study. Procedia Computer Science, 124, 379–387. https://doi.org/10.1016/j.procs.2017.12.168

Saptadi, S., Sudirman, I., Samadhi, T. A., & Govindaraju, R. (2014). E-Business Initiatives in Indonesian Manufacturing SMEs. Jurnal Teknik Industri, 16(2). https://doi.org/10.9744/jti.16.2.139-148

Saridakis, G., Lai, Y., Mohammed, A. M., & Hansen, J. M. (2018). Industry characteristics, stages of E-commerce communications, and entrepreneurs and SMEs revenue growth. Technological Forecasting and Social Change, 128, 56–66. https://doi.org/10.1016/j.techfore.2017.10.017

Schmalensee, R. (1984). Do Markets Differ Much. The American Economic Review.

Schumacker, R., & Lomax, R. (1996). A beginner. s guide to structural equation modeling (electronic version). In Mahwah, NJ: Lawrence Erlbaum Associates. Seeram …. https://www.routledge.com/A-Beginners-Guide-to-Structural-Equation-Modeling-Fourth-Edition/Schumacker-Lomax/p/book/9781138811935

Sebora, T. C., Lee, S. M., & Sukasame, N. (2009). Critical success factors for e-commerce entrepreneurship: An empirical study of Thailand. Small Business Economics, 32(3), 303–316. https://doi.org/10.1007/S11187-007-9091-9/FIGURES/2

Seddon, P., & Kiew, M.-Y. (1996). A Partial Test and Development of Delone and Mclean's Model of IS Success. Australasian Journal of Information Systems, 4(1). https://doi.org/10.3127/ajis.v4i1.379

Senarathna, I., Warren, M., Yeoh, W., & Salzman, S. (2014). The influence of organisation culture on E-commerce adoption. Industrial Management & Data Systems, 1007–1021. https://doi.org/10.1108/IMDS-03-2014-0076

Shakib Hossain, M., Hasan, M. R., Kabir, S. B., & Zayed, N. M. (2019). Customer Participation, Value, Satisfication, Trust And Loyalty: An Interactive and Collaborative Strategic Action. In Academy of Strategic Management Journal (Vol. 18, Issue 3).

Shankar, V., Smith, A. K., & Rangaswamy, A. (2003). Customer satisfaction and loyalty in online and offline environments. International Journal of Research in Marketing, 20(2), 153–175. https://doi.org/10.1016/S0167-8116(03)00016-8

Shi, M., & Yuan, H. (2019). Impact of e-commerce website usability on user satisfaction. Journal of Advanced Computational Intelligence and Intelligent Informatics, 91–96. https://doi.org/10.20965/jaciii.2019.p0091

Sila, I., & Dobni, D. (2012). Patterns of B2B e-commerce usage in SMEs. Industrial Management & Data Systems, 1255–1271. https://doi.org/10.1108/02635571211264654

Simpson, M., Tuck, N., & Bellamy, S. (2004). Small business success factors: The role of education and training. Education + Training, 46, 481–491. https://doi.org/10.1108/00400910410569605

Stekelorum, R. (2020). The roles of SMEs in implementing CSR in supply chains: a systematic literature review. International Journal of Logistics Research and Applications, 23(3), 228–253. https://doi.org/10.1080/13675567.2019.1679101

Suciu, M. C., Năsulea, C., & Năsulea, D. F. (2019). The Long-Term Effectiveness of Advertising Driven Sales for E-Commerce SMEs. Proceedings of the International Conference on Business Excellence, 13(1), 1180–1191. https://doi.org/10.2478/picbe-2019-0104

Suh, A., Wagner, C., & Liu, L. (2018). Enhancing User Engagement through Gamification. Journal of Computer Information Systems, 58(3), 204–213. https://doi.org/10.1080/08874417.2016.1229143

Sun, H., Fang, Y., & Hsieh, J. J. P. A. (2014). Consuming information systems: An economic model of user satisfaction. Decision Support Systems, 57(1), 188–199. https://doi.org/10.1016/j.dss.2013.09.002

Tam, C., Loureiro, A., & Oliveira, T. (2020). The individual performance outcome behind e-commerce: Integrating information systems success and overall trust. Internet Research, 30(2), 439–462. https://doi.org/10.1108/INTR-06-2018-0262

Tan, C. W., Benbasat, I., & Cenfetelli, R. T. (2016). An exploratory study of the formation and impact of electronic service failures. MIS Quarterly: Management Information Systems, 40(1), 1–29. https://doi.org/10.25300/MISQ/2016/40.1.01

Tan, C.-W., & Pan, S.-L. (2003). Managing E-Transformation in Public Sector: An E-Government Study of Inland Revenue Authority of Singapore (IRAS). European Journal of Information Systems, 12(4), 269–281. https://research.cbs.dk/en/publications/managing-e-transformation-in-public-sector-an-e-government-study-

Thomas Katua, N. (2014). The Role of SMEs in Employment Creation and Economic Growth in Selected Countries. International Journal of Education and Research, 2(12). www.ijern.com

Thorne, S. L., Black, R. W., & Sykes, J. M. (2009). Second Language Use, Socialization, and Learning in Internet Interest Communities and Online Gaming. The Modern Language Journal, 93(SUPPL. 1), 802–821. https://doi.org/10.1111/J.1540-4781.2009.00974.X

Tobon, S., Ruiz-Alba, J. L., & García-Madariaga, J. (2020). Gamification and online consumer decisions: Is the game over? Decision Support Systems, 128, 113167. https://doi.org/10.1016/J.DSS.2019.113167

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review *. British Journal of Management, 14, 207–223. https://doi.org/10.1111/1467-8551.00375

Ueasangkomsate, P. (2015). Adoption E-Commerce for Export Market of Small and Medium Enterprises in Thailand. Procedia - Social and Behavioral Sciences, 207, 111–120. https://doi.org/10.1016/j.sbspro.2015.10.158

Uitz, T. O., & Jančíková, E. (2022). ANALYZING SERVICE FAILURES WHEN SHOPPING FOR SUPPLEMENTS ONLINE AMONG COLLEGE STUDENTS. Management (Croatia), 27(1), 17–30. https://doi.org/10.30924/MJCMI.27.1.2

Urbach, N., Smolnik, S., & Riempp, G. (2010). An empirical investigation of employee portal success. The Journal of Strategic Information Systems, 19(3), 184–206. https://doi.org/10.1016/J.JSIS.2010.06.002

Vainiomäki, J., & Laaksonen, S. (1999). Technology, job creation and job destruction in Finnish manufacturing. Applied Economics Letters, 6(2), 81–88. https://doi.org/10.1080/135048599353681

Vajjhala, N. R., & Thandekkattu, S. G. (2017). Potential and Barriers to Adoption of B2B E-Commerce in SMEs in Transition Economies: Case of Albania. Management, 155–169. https://doi.org/10.26493/1854-4231.12.155-169

Walker, E., & Brown, A. (2004). What Success Factors are Important to Small Business Owners? Http://Dx.Doi.Org/10.1177/0266242604047411, 22(6), 577–594. https://doi.org/10.1177/0266242604047411

Walker, J. H., Saffu, K., & Mazurek, M. (2016a). An Empirical Study of Factors Influencing E-Commerce Adoption/Non-Adoption in Slovakian SMEs. Journal of Internet Commerce, 15(3), 189–213. https://doi.org/10.1080/15332861.2016.1191049

Walker, J. H., Saffu, K., & Mazurek, M. (2016b). An Empirical Study of Factors Influencing E-Commerce Adoption/Non-Adoption in Slovakian SMEs. Journal of Internet Commerce, 15(3), 189–213. https://doi.org/10.1080/15332861.2016.1191049

Wardati, N. K., & Er, M. (2019). The impact of social media usage on the sales process in small and medium enterprises (SMEs): A systematic literature review. Procedia Computer Science, 161, 976–983. https://doi.org/10.1016/j.procs.2019.11.207

Wekesa Bunyasi, G. N., & Bwisa Gregory Namusonge, H. (2014). Effect of Access to Business Information on the Growth of Small and Medium Enterprises in Kenya. International Journal of Business and Social Science, 5(10). www.ijbssnet.com

Werbach, K., & Hunter, D. (2012). For the Win: How Game Thinking Can Revolutionize Your Business. In undefined (Wharton Di).

Wickramansinghe, N., & Sharma, S. K. (2005). Key factors that hinder SMEs in succeeding in today's knowledge-based economy. International Journal of Management and Enterprise Development, 2(2), 141–158.

Widiaty, I., Riza, L. S., Abdullah, A. G., & Mubaroq, S. R. (2020). Multiplatform Application Technology – Based Heutagogy on Learning Batik: A Curriculum Development Framework. Indonesian Journal of Science and Technology, 5(1), 45–61.

Wu, M. (2021a). Optimization of E-Commerce Supply Chain Management Process Based on Internet of Things Technology. Complexity, 2021, 1–12. https://doi.org/10.1155/2021/5569386

Wu, M. (2021b). Optimization of E-Commerce Supply Chain Management Process Based on Internet of Things Technology. Journal of Theoretical & Applied Electronic Commerce Research, 16(4), 1136–114. https://doi.org/10.1155/2021/5569386

Yang, C. H., & Tsou, M. W. (2017). Does an own-brand produce higher profitability? Evidence from Taiwan's manufacturing firms. Journal of Business and Industrial Marketing, 32(7), 925–936. https://doi.org/10.1108/JBIM-05-2016-0104

Yang, T., Xun, J., & He, X. (2015). British SMEs' e-commerce technological investments and firm performance: an RBV perspective. Technology Analysis and Strategic Management, 27(5), 586–603. https://doi.org/10.1080/09537325.2015.1019453

Yoon, Y. L., Yoon, Y., Nam, H., & Choi, J. (2021). Buyer-supplier matching in online B2B marketplace: An empirical study of small- and medium-sized enterprises (SMEs). Industrial Marketing Management, 93, 90–100. https://doi.org/10.1016/j.indmarman.2020.12.010

Zhang, C., Ma, S., Li, S., & Singh, A. (2021). Effects of customer engagement behaviors on action loyalty: moderating roles of service failure and customization. International Journal of Contemporary Hospitality Management, 33(1), 286–304. https://doi.org/10.1108/IJCHM-08-2019-0740

Zhang, K., Qian, Y., He, J., & Cao, F. (2021). Construction and analysis of the user satisfaction evaluation system for Baidu Scholar. Journal of Academic Librarianship, 47(5). https://doi.org/10.1016/j.acalib.2021.102435

Zhuang, Y., & Lederer, A. L. (2003). An Instrument for Measuring the Business Benefits of E-Commerce Retailing. International Journal of Electronic Commerce, 7(3), 65–99. https://doi.org/10.1080/10864415.2003.11044274

Ziesemer, A. D. C. A., Müller, L., & Silveira, M. S. (2014). Just rate it! Gamification as part of recommendation. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 8512 LNCS(PART 3), 786–796. https://doi.org/10.1007/978-3-319-07227-2_75/COVER

Zott, C., & Amit, R. (2010). Business Model Design: An Activity System Perspective. Long Range Planning, 43(2–3), 216–226. https://doi.org/10.1016/J.LRP.2009.07.004

Chapter 2 References

*Abou-Shouk, M., Megicks, P., & Lim, W. M. (2013). Perceived Benefits and E-Commerce Adoption by SME Travel Agents in Developing Countries: Evidence from Egypt. Journal of Hospitality and Tourism Research, 37(4), 490–515.

Adam, A., Jizat, J., & Noor, M. (2016). A review of factors that influenced the intention of acceptance and use of social commerce among small medium-sized enterprises in Malaysia. Advances in Business-Related Scientific Research Journal, 7(2), 15-26.

*Ahmad, S. Z., Abu Bakar, A. R., Faziharudean, T. M., & Mohamad Zaki, K. A. (2015). An Empirical Study of Factors Affecting e-Commerce Adoption among Small- and Medium-Sized Enterprises in a Developing Country: Evidence from Malaysia. Information Technology for Development, 21(4), 555–572.

*Ahmed, F., Qin, Y. J., & Martínez, L. (2019). Sustainable change management through employee readiness: Decision support system adoption in technology-intensive British e-businesses. Sustainability (Switzerland), 11(11).

*Al-Bakri, A. A., & Katsioloudes, M. I. (20115). The factors affecting e-commerce adoption by Jordanian SMEs. Management Research Review, 38(7), 726–749.

*Alam, S. S., Ali, M. Y., & Jani, M. F. M. (2011). An empirical study of factors affecting electronic commerce adoption among SMEs in Malaysia. Journal of Business Economics and Management, 12(2), 375–399.

*Anwar, S. T. (2017). Alibaba: Entrepreneurial growth and global expansion in B2B/B2C markets. Journal of International Entrepreneurship, 15(4), 366–389.

*Argoneto, P., & Renna, P. (2010). Production planning, negotiation and coalition integration: A new tool for an innovative e-business model. Robotics and Computer-Integrated Manufacturing, 26(1), 1–12.

*Azlin Ismail, N. (2017). The Roles Of International Entrepreneur Orientation And Geographical Scope Level To Determine International Performance: A Case In The Malaysian Halal Food Industry. In International Journal of Entrepreneurship (Vol. 21, Issue 1).

*Barroso, R. M. R., Ferreira, F. A. F., Meidutė-Kavaliauskienė, I., Banaitienė, N., Falcão, P. F., & Rosa, Á. A. (2019). Analyzing the determinants of e-commerce in small and medium-sized enterprises: A cognition-driven framework. Technological and Economic Development of Economy, 25(3), 496–518.

*Bazini, E., Ilia, D., & Qarri, A. (2011). Barriers of ICT implementation within SMEs in service sector in Albania. EuroEconomica, 29(3), 114-120.

*Bernal-Jurado, E., & Moral-Pajares, E. (2010). Internet and international trade by manufacturers: An approach using industrial sectors data. Innovar, 20(38), 191-202.

*Bi, R., Davison, R. M., & Smyrnios, K. X. (2017). E-business and fast growth SMEs. Small Business Economics, 48(3), 559–576.

*Bodini, A., & Zanoli, R. (2011). Competitive factors of the agro-food E-commerce. Journal of Food Products Marketing, 17(2–3), 241–260.

*Bordonaba-Juste, V., Lucia-Palacios, L., & Polo-Redondo, Y. (2012). The influence of organizational factors on e-business use: Analysis of firm size. Marketing Intelligence and Planning, 30(2), 212–229.

*Carlucci, D., De Gennaro, B., Roselli, L., & Seccia, A. (2014). E-commerce retail of extra virgin olive oil: an hedonic analysis of Italian SMEs supply. British Food Journal, 116(10), 1600–1617.

Chang, F. Y., & Webster, C. M. (2019). Influence of innovativeness, environmental competitiveness and government, industry and professional networks on SME export likelihood. Journal of small business management, 57(4), 1304-1327.

*Chang, S. I., Wu, H. C., & Cho, C. M. (2011). The development of digital divide assessment mechanism for SMEs: A perspective from the Taiwan manufacturing industry. Journal of Global Information Technology Management, 14(1), 6–34.

*Chatzoglou, P., & Chatzoudes, D. (2015). Factors affecting e-business adoption in SMEs: an empirical research. Journal of Enterprise Information Management, 327–358.

Chau, S. (2003). The use of E-commerce amongst thirty-four Australian SMEs: An experiment or a strategic business tool? Journal of Systems and Information Technology (Vol. 7, Issues 1–2, pp. 49–66).

*Chen, Q., & Zhang, N. (2015). Does e-commerce provide a sustained competitive advantage? An investigation of survival and sustainability in growth-oriented enterprises. Sustainability (Switzerland), 7(2), 1411–1428.

*Chen, Y. Y. K., Jaw, Y. L., & Wu, B. L. (2016). Effect of digital transformation on organisational performance of SMEs: Evidence from the Taiwanese textile industry's web portal. Internet Research, 26(1), 186–212.

Chirumalla, K., Oghazi, P., & Parida, V. (2018). Social media engagement strategy: Investigation of marketing and R&D interfaces in manufacturing industry. Industrial Marketing Management, 74, 138–149.

*Chong, W. K., Man, K. L., & Zhang, N. (2011). An Interoperable B2B e-Commerce Framework for e-Marketing Capabilities. Engineering Letters, 19(3).

*Chong, Woon Kian, Man, K. L., & Kim, M. (2018). The impact of e-marketing orientation on performance in Asian SMEs: a B2B perspective. Enterprise Information Systems, 12(1), 4–18.

Cockfield, A. (2006). The Rise of The OECD As Informal "World Tax Organization" Through National Responses To E-Commerce Tax Challenges. Yale Journal of Law and Technology, 8(1). https://digitalcommons.law.yale.edu/yjolt/vol8/iss1/5.

*Concha, D., Espadas, J., Romero, D., & Molina, A. (2010). The e-HUB evolution: From a Custom Software Architecture to a Software-as-a-Service implementation. Computers in Industry, 61(2), 145–151.

Coppola, D. (2020). Digital buyers worldwide 2021 Statista. https://www.statista.com/statistics/251666/number-of-digital-buyers-worldwide/

Chouki, M., Talea, M., Okar, C., & Chroqui, R. (2020). Barriers to information technology adoption within small and medium enterprises: A systematic literature review. International Journal of Innovation and Technology Management, 17(01), 2050007.

Curran, J., & Blackburn, R. (2011). Researching the Small Enterprise. In Researching the Small Enterprise. SAGE Publications, Ltd.

Das, S., Mishra, A., & Cyr, D. (2019). Opportunity gone in a flash: Measurement of e-commerce service failure and justice with recovery as a source of e-loyalty. Decision Support Systems, 125, 113130.

de Araújo Lima, P. F., Crema, M., & Verbano, C. (2020). Risk management in SMEs: A systematic literature review and future directions. European Management Journal, 38(1), 78-94.

DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone and McLean Information Systems Success Model. International Journal of Electronic Commerce, 9(1), 31–47.

*Deng, H., Duan, S. X., Jie, D., & Fu, J. (2019). An efficiency-based approach for selecting electronic markets in sustainable electronic business: A SME's perspective. Sustainability (Switzerland), 11(7).

Drew, S. (2003). Strategic uses of e-commerce by SMEs in the east of England. European Management Journal, 21(1), 79-88.

Duan, X., Deng, H., & Corbitt, B. (2010). A multi-criteria analysis approach for the evaluation and selection of electronic market in electronic business in small and medium sized enterprises. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 6318 LNCS(M4D), 128–137.

*Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016a). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. Journal of Global Information Technology Management, 19(1), 6–25.

Erlanitasari, Y., Rahmanto, A., & Wijaya, M. (2020). Digital economic literacy micro, small and medium enterprises (SMES) go online. Informasi, 49(2), 145–156.

*Fu, H. P., Yeh, H., & Ma, R. L. (2018). A study of the CSFs of an e-cluster platform adoption for microenterprises. Information Technology and Management, 19(4), 231–243.

*Gamache, S., Abdul-Nour, G., & Baril, C. (2019a). Development of a digital performance assessment model for Quebec manufacturing SMEs. Procedia Manufacturing, 38, 1085–1094.

*Gessner, G. H., & Snodgrass, C. R. (2015). Designing e-commerce cross-border distribution networks for small and medium-size enterprises incorporating Canadian and U.S. trade incentive programs. Research in Transportation Business and Management, 16, 84–94.

*Ghobakhloo, M., Hong, T. S., Sabouri, M. S., & Zulkifli, N. (2012). Strategies for successful information technology adoption in small and medium-sized enterprises. Information (Switzerland) (Vol. 3, Issue 1, pp. 36–67).

*Grandón, E. E., Nasco, S. A., & Mykytyn, P. P. (2011a). Comparing theories to explain e-commerce adoption. Journal of Business Research, 64(3), 292–298.

*Gyenge, B., Máté, Z., Vida, I., Bilan, Y., & Vasa, L. (2021). A New Strategic Marketing Management Model for the Specificities of E-Commerce in the Supply Chain. Journal of Theoretical and Applied Electronic Commerce Research, 16(4), 1136–1149.

Gupta, D. C., Bindal, M., Agarwal, N., & Khandelwal, K. (2018). Traditional Commerce v/s E-commerce and Impact of Demonetization on E-commerce. International Journal of Engineering and Management Research (IJEMR), 8(2), 136-142.

*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).

Haddoud, M. Y., Onjewu, A. K. E., Nowiński, W., & Jones, P. (2021). The determinants of SMEs' export entry: A systematic review of the literature. Journal of Business Research, 125, 262-278.

*Hanafizadeh, P., Behboudi, M., Ahadi, F., & Varkani, F. G. (2012). Internet advertising adoption: a structural equation model for Iranian SMEs. Internet Research, 499–526.

Hashim, N. A., & Abdullah, N. L. (2014). Catastrophe of e-commerce among Malaysian SMEs - Between its perceived and proven benefits. Journal Pengurusan, 42, 145–157.

Helfat, C. E., & Martin, J. A. (2015). Dynamic Managerial Capabilities. Journal of Management, 41(5), 1281–1312.

*Holland, C. P., & Gutiérrez-Leefmans, M. (2018). A Taxonomy of SME E-Commerce Platforms Derived from a Market-Level Analysis. International Journal of Electronic Commerce, 22(2), 161–201.

Hussein, L. A., Kiumarsi, S., Baharudin, A. S., & Hilmi, M. F. (2020). Factors Influencing the Intention to Continue using B2B e-Commerce in Manufacturing SMEs. In Technology & Applied Science Research (Vol. 10, Issue 2) www.etasr.com.

Ingaldi, M., & Ulewicz, R. (2019). How to Make E-Commerce More Successful by Use of Kano's Model to Assess Customer Satisfaction in Terms of Sustainable Development. Sustainability, 11(18), 4830.

Jabeur, F., Mohiuddin, T. M., & Karuranga, E. (2013). Adoption of e-Business Among Quebec Forestry SMEs. Jabeur, Mohiuddin & Karuranga Communications of the IIMA ©2013 (Vol. 1).

Janita, I., & Chong, W. K. (2013). Barriers of B2B e-business adoption in Indonesian SMEs: A literature analysis. Procedia Computer Science, 17, 571–578.

*Jardim-Goncalves, R., Agostinho, C., Sarraipa, J., Griloc, A., & Mendonca, J. P. (2013). Reference framework for enhanced interoperable collaborative networks in industrial organisations. International Journal of Computer Integrated Manufacturing, 26(1–2), 166–182.

*Kabanda, S., & Brown, I. (2017). A structuration analysis of Small and Medium Enterprise (SME) adoption of E-Commerce: The case of Tanzania. Telematics and Informatics, 34(4), 118–132.

*Khin, A. A., Chiun, F. Y., & Seong, L. C. (2019). Identifying the Factors of the Successful Implementation of Belt and Road Initiative on Small–Medium Enterprises in Malaysia. China Report, 55(4), 345–363.

*Kim, Y., & Baik, N. (2013). B2B evaluation framework on e financial guarantee service. Mathematical and Computer Modelling, 58(1–2), 49–55.

*Kloch, C., Petersen, E. B., & Madsen, O. B. (2011). Cloud based infrastructure, the new business possibilities and barriers. Wireless Personal Communications, 58(1), 17–30.

*Ko, S. Y., Sari, R. P., Makhmudov, M., & Ko, C. S. (2020). Collaboration Model for Service Clustering in Last-Mile Delivery. Sustainability, 12(14), 5844.

*Koe, W. L., & Afiqah Sakir, N. (2020). The motivation to adopt e-commerce among Malaysian entrepreneurs. Organizations and Markets in Emerging Economies, 11(1), 189–202.

Kumar, A., Paul, J., & Unnithan, A. B. (2020). 'Masstige'marketing: A review, synthesis and research agenda. Journal of Business Research, 113, 384-398.

*Kumar, R., Singh, R. K., & Shankar, R. (2015). Critical success factors for implementation of supply chain management in Indian small and medium enterprises and their impact on performance. IIMB Management Review, 27(2), 92–104.

Kurnia, S., Choudrie, J., Mahbubur, R. M., & Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. Journal of Business Research, 68(9), 1906–1918.

Ko, S. Y., Sari, R. P., Makhmudov, M., & Ko, C. S. (2020). Collaboration model for service clustering in last-mile delivery. Sustainability (Switzerland), 12(14).

Kusuma, T. M., & Marhaeni, A. A. I. N. (2019). International Journal of Human Capital in Urban Management E-commerce and related factors on the performance of small and medium scale industries,International Journal of Human Capital Urban Management, 4(1), 61–68.

Leung, K. H., Lee, C. K. M., & Choy, K. L. (2020). An integrated online pick-to-sort order batching approach for managing frequent arrivals of B2B e-commerce orders under both fixed and variable time-window batching. Advanced Engineering Informatics, 45, 101125.

*Leyton, D., Pino, J. A., & Ochoa, S. F. (2015). EBTAM: technology acceptance in e-Business environments. Information Systems and E-Business Management, 13(2), 211–234.

*Li, J., Sun, J., Wang, H., & Sheng, X. (2020). Cost Control of Small and Medium-Sized E-commerce Enterprises under Trans-ocean Trade Mode. Journal of Coastal Research, 110(sp1).

*Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. Information Systems Journal, 28(6), 1129–1157.

*Li, M., Shao, S., Ye, Q., Xu, G., & Huang, G. Q. (2020). Blockchain-enabled logistics finance execution platform for capital-constrained E-commerce retail. Robotics and Computer-Integrated Manufacturing, 65.

Lim, W. M., Yap, S. F., & Makkar, M. (2021). Home sharing in marketing and tourism at a tipping point: What do we know, how do we know, and where should we be heading?. Journal of business research, 122, 534-566.

Lip-Sam, T., & Hock-Eam, L. (2011). Estimating the Determinants of B2B E-Commerce Adoption Among Small and Medium Enterprises. International Journal of Business and Society, 12, 15–30.

*Lu, J., Shambour, Q., Xu, Y., Lin, Q., & Zhang, G. (2013). A web-based personalized business partner recommendation system using fuzzy semantic techniques. Computational Intelligence, 29(1), 37–69.

* Lyu, J., Huang, Y. C., & Li, S. C. (2010). A Synthetic Assessment of E-business for SMEs' in Taiwan. Contemporary Management Research, 6(4).

*Mahroeian, H. (2012). A study on the effect of different factors on e-Commerce adoption among SMEs of Malaysia. Management Science Letters, 2, 2679–2688.

Maroufkhani, P., Tseng, M. L., Iranmanesh, M., Ismail, W. K. W., & Khalid, H. (2020). Big data analytics adoption: Determinants and performances among small to medium-sized enterprises. International Journal of Information Management, 54.

Mazzarol, T. (2015). SMEs engagement with e-commerce, e-business and e-marketing. Small Enterprise Research, 22(1), 79–90.

Messner, C., & Vosgerau, J. (2010). Cognitive Inertia and the Implicit Association Test. Journal of Marketing Research, 47(2), 374–386.

*Minatogawa, V., Franco, M., Durán, O., Quadros, R., Holgado, M., & Batocchio, A. (2020). Carving out new business models in a small company through contextual ambidexterity: The case of a sustainable company. Sustainability (Switzerland), 12(6).

*Morais, E. P., Pires, J. A., & Gonçalves, R. M. (2012). E-Business Maturity: Constraints Associated With Their Evolution. Journal of Organizational Computing and Electronic Commerce, 22(3), 280–300.

*Nayati Utami, H., Siti Astuti, E., Maulani Ramadhan, H., Trialih, R., & Alief Aprilian, Y. (2019). The interests of small- and medium-sized enterprises (SMEs) actor in using mobile commerce in effort to expand business network. Journal of Science and Technology Policy Management, 10(3), 493–508.

Neykova, M., & Miltchev, R. (2019). Conceptual Approach To Introduce An Integrated Model Improving SMEs E-business Technologies. Management Theory and Studies for Rural Business and Infrastructure Development, 41(3), 381–399.

*Noor, A., Suryana, M., Novianti, S., & Amalia, S. (2020). Assessing E-business at small and medium-sized travel agencies. Utopia y Praxis Latinoamericana, 25(Extra1), 176–183.

North, D., & Smallbone, D. (2000). Innovative activity in SMEs and rural economic development: Some evidence from England. European Planning Studies, 8(1), 87–106.

Nurunnisha, G. A., & Dalimunthe, G. P. (2018). The Effect of E-Commerce Awareness in E-Commerce Technology Acceptance on MSME in Bandung. DeReMa (Development Research of Management): Journal Manajemen, 13(2), 198.

*Orouji, S., & Kafashan, A. (2017). Recent trend of e-business in Canada. International Journal of Data and Network Science, 5–10.

Papadopoulos, G., Rikama, S., Alajääskö, P., Salah-Eddine, Z., Airaksinen, A., & Luomaranta, H. (2018). Statistics on small and medium-sized enterprises - Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_small_and_medium-sized_enterprises#General_overview

Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know?. International Business Review, 29(4), 101717.

Paul, J., & Benito, G. R. (2018). A review of research on outward foreign direct investment from emerging countries, including China: what do we know, how do we know and where should we be heading?. Asia Pacific Business Review, 24(1), 90-115

Paul, J., Lim, W. M., O'Cass, A., Hao, A. W., & Bresciani, S. (2021a). Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR). International Journal of Consumer Studies.

Paul, J., Merchant, A., Dwivedi, Y. K., & Rose, G. (2021b). Writing an impactful review article: What do we know and what do we need to know?. Journal of Business Research, 133, 337-340.

*Pham, L., & Pham, L. N. (2011). Determinants of e-commerce adoption in vietnamese small and medium sized enterprises. International Journal of Entrepreneurship (Vol. 15).

Pickernell, D., Jones, P., Packham, G., Thomas, B., White, G., & Willis, R. (2013). E-commerce trading activity and the SME sector: an FSB perspective. Journal of Small Business and Enterprise Development, 20(4), 1462–6004.

*Poorangi, M. M., Khin, E. W. S., Nikoonejad, S., & Kardevani, A. (2013). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. Anais Da Academia Brasileira de Ciencias, 85(4), 1593–1604.

*Rachana Harish, A., Liu, X. L., Zhong, R. Y., & Huang, G. Q. (2021). Log-flock: A blockchain-enabled platform for digital asset valuation and risk assessment in E-commerce logistics financing. Computers and Industrial Engineering, 151.

´*Raymond, L., Bergeron, F., Croteau, A. M., & St-Pierre, J. (2015). Developing Absorptive Capacity through e-Business: The Case of International SMEs. Journal of Small Business Management, 53, 75–94.

Rifat Azam. (2007). E-Commerce Taxation and Cyberspace Law: The Integrative Adaptation Model. Virginia Journal of Law and Technology,12,1.

Rojas-Lema, X., Alfaro-Saiz, J. J., Rodríguez-Rodríguez, R., & Verdecho, M. J. (2020). Performance measurement in SMEs: systematic literature review and research directions. Total Quality Management & Business Excellence, 1-26.

Sadeghi, V. J., Nkongolo-Bakenda, J. M., Anderson, R. B., & Dana, L. P. (2019). An institution-based view of international entrepreneurship: A comparison of context-based and universal determinants in developing and economically advanced countries. International BUHIOKL809OPL'980POÇL'0OP«'´+Ç«´+Ç. '«+º+usiness Review, 28(6), 101588.

Santarelli, E., & D'Altri, S. (2003). The Diffusion of E-commerce among SMEs: Theoretical Implications and Empirical Evidence. Small Business Economics (Vol. 21, Issue 3, pp. 273–283).

*Saridakis, G., Lai, Y., Mohammed, A. M., & Hansen, J. M. (2018). Industry characteristics, stages of E-commerce communications, and entrepreneurs and SMEs revenue growth. Technological Forecasting and Social Change, 128, 56–66.

*Senarathna, I., Warren, M., Yeoh, W., & Salzman, S. (2014a). The influence of organisation culture on E-commerce adoption. Industrial Management & Data Systems, 11(7), 1007–1021.

Sengupta, A., Mazumdar, C., & Barik, M. S. (2005). e-Commerce security - A life cycle approach. Sadhana - Academy Proceedings in Engineering Sciences, 30(2–3), 119–140.

Sharda, P. (2017). Export potential of MSMEs in Indore Region. Journal of Commerce and Management Thought, 8(3), 602.

*Sila, I., & Dobni, D. (2012). Patterns of B2B e-commerce usage in SMEs. Industrial Management & Data Systems, 1255–1271.

Systematic Reviews (OPEN ACCESS) Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Systematic Reviews 2021;10:89

*So, S., & Sun, H. (2010). Supplier integration strategy for lean manufacturing adoption in electronic-enabled supply chains. Supply Chain Management, 15(6), 474–487.

*Sohaib, O., Naderpour, M., Hussain, W., & Martinez, L. (2019). Cloud computing model selection for e-commerce enterprises using a new 2-tuple fuzzy linguistic decision-making method. Computers and Industrial Engineering, 132, 47–58.

Stekelorum, R. (2020). The roles of SMEs in implementing CSR in supply chains: A systematic literature review. International Journal of Logistics Research and Applications, 23(3), 228-253.

Stockdale, R., & Standing, C. (2004). Benefits and barriers of electronic marketplace participation: an SME perspective. Journal of Enterprise Information Management.

Suciu, M. C., Năsulea, C., & Năsulea, D. F. (2019). The Long-Term Effectiveness of Advertising Driven Sales for E-Commerce SMEs. Proceedings of the International Conference on Business Excellence, 13(1), 1180–1191.

Tan, C.-W., & Pan, S.-L. (2003). Managing E-Transformation in Public Sector: An E-Government Study of Inland Revenue Authority of Singapore (IRAS). European Journal of Information Systems, 12(4), 269–281.

*Tang, W., & Zhu, J. (2020). Informality and rural industry: Rethinking the impacts of E-Commerce on rural development in China. Journal of Rural Studies, 75, 20–29.

Tankovska, H. (2021). • Number of social media users 2025 Statista. https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/

*Tsatsou, P., Elaluf-Calderwood, S., & Liebenau, J. (2010). Towards a taxonomy for regulatory issues in a digital business ecosystem in the EU. Journal of Information Technology, 25(3), 288–307.

Ueasangkomsate, P. (2015). Adoption of E-Commerce for Export Market of Small and Medium Enterprises in Thailand. Procedia - Social and Behavioral Sciences, 207, 111–120.

*Uwizeyemungu, S., Raymond, L., Poba-Nzaou, P., & St-Pierre, J. (2018). The complementarity of IT and HRM capabilities for competitive performance: a configurational analysis of manufacturing and industrial service SMEs. Enterprise Information Systems, 12(10), 1336–1358.

Wade, M. R., & Nevo, S. (2005). Development and validation of a perceptual instrument to measure e-commerce performance. International Journal of Electronic Commerce, 10(2), Senarathna, R., & Wickramasuriya, H. (2011). *Walker, J. H., Saffu, K., & Mazurek, M. (2016). An Empirical Study of Factors Influencing E-Commerce Adoption/Non-Adoption in Slovakian SMEs. Journal of Internet Commerce, 15(3), 189–213.

*Walker, J. H., Saffu, K., & Mazurek, M. (2016). An Empirical Study of Factors Influencing E-Commerce Adoption/Non-Adoption in Slovakian SMEs. Journal of Internet Commerce, 15(3), 189–213.

Wardati, N. K., & Er, M. (2019). The impact of social media usage on the sales process in small and medium enterprises (SMEs): A systematic literature review. Procedia Computer Science, 161, 976–983.

Wirtz, B. W., & Göttel, V. (2016). Technology acceptance in social media: Review, synthesis and directions for future empirical research. Journal of Electronic Commerce Research, 17(2), 97.

Wu, C.-C., & Li, C.-C. (2012). E-Business Skill Demand of SMEs in Taiwan: A Comparative Study with LSEs in Japan, and U.S.A. IERI Procedia, 2, 398–405.

*Wu, M. (2021). Optimization of E-Commerce Supply Chain Management Process Based on Internet of Things Technology. Journal of Theoretical & Applied Electronic Commerce Research, 16(4), 1136–114.

Yang, C. H., & Tsou, M. W. (2017). Does an own-brand produce higher profitability? Evidence from Taiwan's manufacturing firms. Journal of Business and Industrial Marketing, 32(7), 925–936.

*Yang, T., Xun, J., & He, X. (2015). British SMEs' e-commerce technological investments and firm performance: an RBV perspective. Technology Analysis and Strategic Management, 27(5), 586–603.

*Yee-Loong Chong, A., Ooi, K.-B., Bao, H., & Lin, B. (2013). Can e-business adoption be influenced by knowledge management? An empirical analysis of Malaysian SMEs. Journal Of Knowledge Management, 18(1), 121–136.

Exploring the effect of e-WOM participation on e-Loyalty in e-commerce. Decision Support Systems, 55(3), 669-678.

*Yoon, Y. L., Yoon, Y., Nam, H., & Choi, J. (2021). Buyer-supplier matching in online B2B marketplace: An empirical study of small- and medium-sized enterprises (SMEs). Industrial Marketing Management, 93, 90–100.

Yu, C.-S., & Dong, X.-B. (2013). A conceptual framework for E-Commerce innovation in Chinese SMEs. Journal of International Technology and Information Management, 22, 17–41.

Zhu, K. (2004). The complementarity of information technology infrastructure and E-commerce capability: A Resource-based assessment of their business value. Journal of Management Information Systems, 21(1), 167–202.

Zhuang, Y., & Lederer, A. L. (2003). An Instrument for Measuring the Business Benefits of E-Commerce Retailing. International Journal of Electronic Commerce, 7(3), 65–99.

Zott, C., Amit, R., & Donlevy, J. (2000). Strategies for value creation in e-commerce:: best practice in Europe. European Management Journal, 18(5), 463-475prism (2003). Electronic commerce and organizational innovation: Aspects and opportunities. International Journal of Electronic Commerce, 7(3), 7-37.

.* Articles used in the Systematic Review

Web References:

Leximancer 5.0 User Manual: Retrieved from: https://doc.leximancer.com/doc/lexiportal/manual/index.html

Statista, 2020: Retrieved from: https://www.statista.com/statistics/11

Chapter 3 References

Abdu'a, A. R., & Wasiyanti, S. (2019). Pengukuran Kualitas E-Commerce Shopee Terhadap Kepuasan Pengguna Menggunakan Metode Webqual 4.0. Paradigma - Jurnal Komputer Dan Informatika, 21(2), 143–148. https://doi.org/10.31294/p.v21i2.6357

Agag, G. (2019). E-commerce Ethics and Its Impact on Buyer Repurchase Intentions and Loyalty: An Empirical Study of Small and Medium Egyptian Businesses. Journal of Business Ethics, 389–410. https://doi.org/10.1007/s10551-017-3452-3

Agag, G., & El-Masry, A. A. (2016). Understanding consumer intention to participate in online travel community and effects on consumer intention to purchase travel online and WOM: An integration of innovation diffusion theory and TAM with trust. Computers in Human Behavior, 60, 97–111. https://doi.org/10.1016/j.chb.2016.02.038

Agarwal, R., & Dhingra, S. (2023). Factors influencing cloud service quality and their relationship with customer satisfaction and loyalty. Heliyon, e15177. https://doi.org/10.1016/J.HELIYON.2023.E15177

Alam, M. J. (2021). Effects of service quality on satisfaction in Eastern University Library, Bangladesh. IFLA Journal, 47(2), 209–222. https://doi.org/10.1177/0340035220959099

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

Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. Psychology and Marketing, 20(2), 123–138. https://doi.org/10.1002/mar.10063

Anjos, T. P., & Gontijo, L. A. (2017). Usability tool to support the development process of e-commerce website. Communications in Computer and Information Science, 713, 11–18. https://doi.org/10.1007/978-3-319-58750-9_2

Annamdevula, S., & Bellamkonda, R. S. (2016). Effect of student perceived service quality on student satisfaction, loyalty and motivation in Indian universities Development of HiEduQual. Journal of Modelling in Management, 11(2), 488–517. https://doi.org/10.1108/JM2-01-2014-0010

Arnab, S., Lim, T., Carvalho, M. B., Bellotti, F., de Freitas, S., Louchart, S., Suttie, N., Berta, R., & de Gloria, A. (2015). Mapping learning and game mechanics for serious games analysis. British Journal of Educational Technology, 46(2), 391–411. https://doi.org/10.1111/bjet.12113

Awiagah, R., Kang, J., & Lim, J. I. (2016). Factors affecting e-commerce adoption among SMEs in Ghana. Information Development, 32(4), 815–836. https://doi.org/10.1177/0266666915571427

Bagherzadeh, M., Markovic, S., Cheng, J., & Vanhaverbeke, W. (2020). How Does Outside-In Open Innovation Influence Innovation Performance? Analyzing the Mediating Roles of Knowledge Sharing and Innovation Strategy. IEEE Transactions on Engineering Management, 67(3), 740–753. https://doi.org/10.1109/TEM.2018.2889538

Bailey, J. E., & Pearson, S. W. (1983). Development of a tool for measuring and analyzing computer user satisfaction. Management Science, 29(5), 530–545. https://doi.org/10.1287/mnsc.29.5.530

Basalla, M., Schneider, J., Luksik, M., Jaakonmäki, R., & vom Brocke, J. (2021). On Latency of E-Commerce Platforms. Journal of Organizational Computing and Electronic Commerce, 31(1), 1–17. https://doi.org/10.1080/10919392.2021.1882240

Behl, A., Sheorey, P., Chavan, M., Jain, K., & Jajodia, I. (2021). Empirical Investigation of Participation on Crowdsourcing Platforms: A Gamified Approach. Journal of Global Information Management, 29(6). https://doi.org/10.4018/JGIM.20211101.OA14

Belanche, D., Casaló, L. V., & Guinalíu, M. (2012). Website usability, consumer satisfaction and the intention to use a website: The moderating effect of perceived risk. Journal of Retailing and Consumer Services, 19(1), 124–132. https://doi.org/10.1016/J.JRETCONSER.2011.11.001

Bertoa, M. F., & Vallecillo, A. (2004). Usability metrics for software components. Proceedings of the 8th ECOOP Workshop on Quantitative Approaches in Object-Oriented Software Engineering.

Bertoa, M. F., Vallecillo, A., Anjos, T. P., Gontijo, L. A., Shi, M., Yuan, H., Silva, L. F. S. da, Verschoore, J. R., Bortolaso, I. V., Brambilla, F. R., Walker, J. H., Saffu, K., Mazurek, M., Dirgantari, P. D., Hidayat, Y. M., Mahphoth, M. H., Nugraheni, R., Hussein, L. A., Kiumarsi, S., … Gatautis, R. (2019). Impact of e-commerce website usability on user satisfaction. Journal of Business Research, 22(3), 91–96. https://doi.org/10.20965/jaciii.2019.p0091

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. MIS Quarterly: Management Information Systems, 25(3), 351–370. https://doi.org/10.2307/3250921

Bilgihan, A., Nusair, K., Okumus, F., & Cobanoglu, C. (2015). Applying flow theory to booking experiences: An integrated model in an online service context. Information and Management, 52(6), 668–678. https://doi.org/10.1016/j.im.2015.05.005

Blohm, I., & Leimeister, J. M. (2013). Gamification Design of IT-Based Enhancing Services for Motivational Support and Behavioral Change The Authors. Business and Information Systems Engineering, 5, 275–278. https://doi.org/10.1007/s12599-013-0273-5

Bocconcelli, R., Cioppi, M., & Pagano, A. (2017). Social media as a resource in SMEs' sales process. Journal of Business and Industrial Marketing, 32(5), 693–709. https://doi.org/10.1108/JBIM-11-2014-0244

Bollen, K. A. (1989). Structural equations with latent variables. Structural Equations with Latent Variables. https://doi.org/10.1002/9781118619179

Bongers, F. M., Schumann, J. H., & Schmitz, C. (2021). How the introduction of digital sales channels affects salespeople in business-to-business contexts: a qualitative inquiry. Journal of Personal Selling and Sales Management, 41(2), 150–166. https://doi.org/10.1080/08853134.2021.1906260

Boomsma, A., Hoyle, R. H., & Panter, A. T. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. N Structural Equation Modeling: Concepts, Issues, and Applications, 1–15.

Bordonaba-Juste, V., Lucia-Palacios, L., & Polo-Redondo, Y. (2012). The influence of organizational factors on e-business use: Analysis of firm size. Marketing Intelligence and Planning, 30(2), 212–229. https://doi.org/10.1108/02634501211211984

Bournaris, T., Manos, B., Moulogianni, C., Kiomourtzi, F., & Tandini, M. (2013). Measuring Users Satisfaction of an e-Government Portal. Procedia Technology, 8, 371–377. https://doi.org/10.1016/j.protcy.2013.11.049

Bovermann, K., & Bastiaens, T. J. (2020). Towards a motivational design? Connecting gamification user types and online learning activities. Research and Practice in Technology Enhanced Learning, 15(1). https://doi.org/10.1186/s41039-019-0121-4

Božič, K., & Dimovski, V. (2020). The Relationship between Business Intelligence and Analytics Use and Organizational Absorptive Capacity: Applying the DeLone & Mclean Information Systems Success Model. Economic and Business Review, 22(2), 2. https://doi.org/10.15458/ebr99

Brady, M. K., & Cronin, J. J. (2018). Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach: Https://Doi.Org/10.1509/Jmkg.65.3.34.18334, 65(3), 34–49. https://doi.org/10.1509/JMKG.65.3.34.18334

Bridges, E., & Florsheim, R. (2008). Hedonic and utilitarian shopping goals: The online experience. Journal of Business Research, 61(4), 309–314. https://doi.org/10.1016/j.jbusres.2007.06.017

Brown, S. A., Venkatesh, V., Kuruzovich, J., & Massey, A. P. (2008). Expectation confirmation: An examination of three competing models. Organizational Behavior and Human Decision Processes, 105(1), 52–66. https://doi.org/10.1016/j.obhdp.2006.09.008

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In Newbury Park, CA Sage. - References - Scientific Research Publishing. K. A. Bollen and J. S. Long (Eds.), Testing Structural Equation Models. Newbury Park, CA: Sage., 136–162. https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=213477

Buttle, F., & Maklan, S. (2019). Customer Relationship Management. Routledge. https://doi.org/10.4324/9781351016551

Byrne, B. M., & Campbell, T. L. (1999). Cross-Cultural Comparisons and the Presumption of Equivalent Measurement and Theoretical Structure: A Look Beneath the Surface. Http://Dx.Doi.Org/10.1177/0022022199030005001, 30(5), 555–574. https://doi.org/10.1177/0022022199030005001

Cai, L., Chung, S. W., & Lee, T. (2021). Incremental Model Fit Assessment in the Case of Categorical Data: Tucker–Lewis Index for Item Response Theory Modeling. Prevention Science, 1, 1–12. https://doi.org/10.1007/S11121-021-01253-4/TABLES/8

Caruana, A. (2002). Service loyalty. European Journal of Marketing, 36(7/8), 811–828. https://doi.org/10.1108/03090560210430818

Carvalho, M., & Mamede, H. S. (2018). The impact of e-commerce on the success of microenterprise retail sector of the Pinhal Interior Norte sub-region of Portugal. Procedia Computer Science, 138, 571–579. https://doi.org/10.1016/j.procs.2018.10.077

Çelik, K., & Ayaz, A. (2022). Validation of the Delone and McLean information systems success model: a study on student information system. Education and Information Technologies, 27(4), 4709–4727. https://doi.org/10.1007/S10639-021-10798-4

Chan, A. P. C., Darko, A., Olanipekun, A. O., & Ameyaw, E. E. (2018). Critical barriers to green building technologies adoption in developing countries: The case of Ghana. Journal of Cleaner Production, 172, 1067–1079. https://doi.org/10.1016/J.JCLEPRO.2017.10.235

Chen, S. C. (2012). The customer satisfaction-loyalty relation in an interactive e-service setting: The mediators. Journal of Retailing and Consumer Services, 19(2), 202–210. https://doi.org/10.1016/j.jretconser.2012.01.001

Chiew, T. K., & Salim, S. S. (2003). WEBUSE: Website Usability Evaluation Tool. Malaysian Journal of Computer Science, 16(1), 47–57, 16, 47–57.

Choshaly, S. H., & Mirabolghasemi, M. (2019). Using SEM-PLS to assess users satisfaction of library service quality: evidence from Malaysia. Library Management, 40(3–4), 240–250. https://doi.org/10.1108/LM-03-2018-0023/FULL/XML

Coppola, D. (2021). Share of U.S. B2B sales via e-commerce 2019-2023. Statista. https://www.statista.com/statistics/273104/us-b2b-e-commerce-share/

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly: Management Information Systems, 13(3), 319–339. https://doi.org/10.2307/249008

Delgado Ballester, E., & Luis Munuera Alemán, J. (2001). Brand trust in the context of consumer loyalty. European Journal of Marketing, 35(11/12), 1238–1258. https://doi.org/10.1108/eum0000000006475

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. Journal of Management Information Systems, 19(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone and McLean Information Systems Success Model. International Journal of Electronic Commerce, 9(1), 31–47. https://doi.org/10.1080/10864415.2004.11044317

Delone, W. H., & Mclean, E. R. (2014). Journal of Management Information Systems The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. https://doi.org/10.1080/07421222.2003.11045748

Digital, A. E. (2020). Economia Digital em Portugal. https://www.comerciodigital.pt/media/2587/acepi-apresentação-estudo-economia-digital-2020.pdf

Dilworth, J., & Kochhar, A. (2013). Modelling the E-business requirements of manufacturing organisations. IFAC Proceedings Volumes (IFAC-PapersOnline), 46(9), 561–566. https://doi.org/10.3182/20130619-3-RU-3018.00362

Dirgantari, P. D., Hidayat, Y. M., Mahphoth, M. H., & Nugraheni, R. (2020). Level of use and satisfaction of e-commerce customers in covid-19 pandemic period: An information system success model (issm) approach. Indonesian Journal of Science and Technology, 5(2), 261–270. https://doi.org/10.17509/ijost.v5i2.24617

Dotzel, T., & Shankar, V. (2019). The Relative Effects of Business-to-Business (vs. Business-to-Consumer) Service Innovations on Firm Value and Firm Risk: An Empirical Analysis. Journal of Marketing, 83(5), 133–152. https://doi.org/10.1177/0022242919847221

Eighmey, J. (1997). Profiling user responses to commercial Web sites. Journal of Advertising Research, 37(3), 59–66. https://psycnet.apa.org/record/1997-05831-006

Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016a). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. Journal of Global Information Technology Management, 19(1), 6–25. https://doi.org/10.1080/1097198X.2016.1134169

Elbeltagi, I., Hamad, H., Moizer, J., & Abou-Shouk, M. A. (2016b). Levels of business to business e-commerce adoption and competitive advantage in small and medium-sized enterprises: A comparison study between Egypt and the United States. Journal of Global Information Technology Management, 19(1), 6–25. https://doi.org/10.1080/1097198X.2016.1134169

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2003). Empirical testing of a model of online store atmospherics and shopper responses. Psychology and Marketing, 20(2), 139–150. https://doi.org/10.1002/mar.10064

Field, A. (2013). Discovering Statistics using IBM SPSS Statistics (3rd ed.). SAGE Publications Ltd.

Filieri, R., Acikgoz, F., Ndou, V., & Dwivedi, Y. (2021). Is TripAdvisor still relevant? The influence of review credibility, review usefulness, and ease of use on consumers' continuance intention. International Journal of Contemporary Hospitality Management, 33(1), 199–223. https://doi.org/10.1108/IJCHM-05-2020-0402/FULL/XML

Fiore, A. M., & Jin, H. J. (2003). Influence of image interactivity on approach responses towards an online retailer. Internet Research, 13(1), 38–48. https://doi.org/10.1108/10662240310458369

Fonseca, J. P. C., Ferreira, F. A. F., Pereira, L. F., Govindan, K., & Meidutė-Kavaliauskienė, I. (2020). Analyzing determinants of environmental conduct in small and medium-sized enterprises: A sociotechnical approach. Journal of Cleaner Production, 256. https://doi.org/10.1016/j.jclepro.2020.120380

Fu, H. P., Yeh, H., & Ma, R. L. (2018). A study of the CSFs of an e-cluster platform adoption for microenterprises. Information Technology and Management, 19(4), 231–243. https://doi.org/10.1007/s10799-017-0284-x

Gabriel, I. J. (2007). Usability Metrics for Measuring Usability of Business-to-Consumer (B2C) E-Commerce Sites. Computer Science. https://www.semanticscholar.org/paper/Usability-Metrics-for-Measuring-Usability-of-(B2C)-Gabriel/8996c5216f16427b2f1ece4afc2248d871a31696

Garg, A. K., & Choeu, T. (2015). The adoption of electronic commerce by Small and Medium Enterprises in Pretoria East. Electronic Journal of Information Systems in Developing Countries, 68, 1–23. https://doi.org/10.1002/J.1681-4835.2015.TB00493.X

Garrity, E. (1998). Dimensions of Information Systems Success. In E. Garrity & G. Sanders (Eds.), Information Systems Success Measurement (Vol. 2). Idea Group Publishing

Gatautis, R., Vitkauskaite, E., Gadeikiene, A., & Piligrimiene, Z. (2016). Gamification as a mean of driving online consumer behaviour: Sor model perspective. Engineering Economics, 27(1), 90–97. https://doi.org/10.5755/j01.ee.27.1.13198

Gate, R. (2022). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. https://www.researchgate.net/publication/220591866_The_DeLone_and_McLean_Model_of_Information_Systems_Success_A_Ten-Year_Update

George, D., & Mallery, P. (2016). IBM SPSS Statistics 23 Step by Step. IBM SPSS Statistics 23 Step by Step. https://doi.org/10.4324/9781315545899/IBM-SPSS-STATISTICS-23-STEP-STEP-DARREN-GEORGE-PAUL-MALLERY

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. MIS Quarterly: Management Information Systems, 19(2), 213–233.

Grandón, Elizabeth E., Suzanne A. Nasco, and Peter P. Mykytyn. 2011. "Comparing Theories to Explain E-Commerce Adoption." Journal of Business Research 64 (3): 292–98. https://doi.org/10.1016/j.jbusres.2009.11.015.

Greipl, S., Bernecker, K., & Ninaus, M. (2021). Facial and Bodily Expressions of Emotional Engagement: How Dynamic Measures Reflect the Use of Game Elements and Subjective Experience of Emotions and Effort. Proceedings of the ACM on Human-Computer Interaction, 5(CHIPLAY). https://doi.org/10.1145/3474667

Gronroos, C. (1990). Relationship approach to marketing in service contexts: The marketing and organizational behavior interface. Journal of Business Research, 20(1), 3–11. https://doi.org/10.1016/0148-2963(90)90037-E

Ha, S., & Stoel, L. (2009). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. Journal of Business Research, 62(5), 565–571. https://doi.org/10.1016/j.jbusres.2008.06.016

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis (Upper Sadd, Vol. 06).

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? - A literature review of empirical studies on gamification. Proceedings of the Annual Hawaii International Conference on System Sciences, 3025–3034. https://doi.org/10.1109/HICSS.2014.377

Hartono, E., Li, X., Na, K. S., & Simpson, J. T. (2010). The role of the quality of shared information in interorganizational systems use. International Journal of Information Management, 30(5), 399–407. https://doi.org/10.1016/J.IJINFOMGT.2010.02.007

Ho, M. H. W., Chung, H. F. L., Kingshott, R., & Chiu, C. C. (2020). Customer engagement, consumption and firm performance in a multi-actor service eco-system: The moderating role of resource integration. Journal of Business Research. https://doi.org/10.1016/j.jbusres.2020.02.008

Hofacker, C. F., de Ruyter, K., Lurie, N. H., Manchanda, P., & Donaldson, J. (2016). Gamification and Mobile Marketing Effectiveness. Journal of Interactive Marketing, 34, 25–36. https://doi.org/10.1016/J.INTMAR.2016.03.001

Hoffman, K. D., & Bateson, J. E. G. (2016). Services marketing : concepts, strategies, & cases. https://books.google.com/books/about/Services_Marketing_Concepts_Strategies_C.html?hl=pt-PT&id=dBxTCwAAQBAJ

Holland, C. P., & Gutiérrez-Leefmans, M. (2018). A Taxonomy of SME E-Commerce Platforms Derived from a Market-Level Analysis. International Journal of Electronic Commerce, 22(2), 161–201. https://doi.org/10.1080/10864415.2017.1364114

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Hussein, L. A., Kiumarsi, S., Baharudin, A. S., & Hilmi, M. F. (2020). Factors Influencing the Intention to Continue using B2B e-Commerce in Manufacturing SMEs. Technology & Applied Science Research, 10(2), 5528–5533. www.etasr.com

Iivari, J. (2005). An Empirical Test of the DeLone-McLean Model of Information System Success. Data Base for Advances in Information Systems, 36(2), 8–27. https://doi.org/10.1145/1066149.1066152

Ilieva, G., Yankova, T., Klisarova, S., & Dzhabarova, Y. (2022). Customer Satisfaction in e-Commerce during the COVID-19 Pandemic. Systems 2022, Vol. 10, Page 213, 10(6), 213. https://doi.org/10.3390/SYSTEMS10060213

Inan, D. I. (n.d.). Gamification on Mobile Payment Application: Uses and Gratification Perspective Evaluating a disaster risk for developing special autonomous region View project Mobile medical record View project. https://doi.org/10.14329/apjis.2022.32.4.750

Ives, B., Olson, M. H., & Baroudi, J. J. (1983). THE MEASUREIVENT OF USER INFORMATION SATISFACTION. Center Fo Digital Economy Research, 26(10), 785–793.

Jani, D., & Han, H. (2011). Investigating the key factors affecting behavioral intentions: Evidence from a full-service restaurant setting. International Journal of Contemporary Hospitality Management, 23(7), 1000–1018. https://doi.org/10.1108/09596111111167579

Jeyaraj, A. (2020). DeLone & McLean models of information system success: Critical meta-review and research directions. International Journal of Information Management, 54. https://doi.org/10.1016/J.IJINFOMGT.2020.102139

Jimmy, J. (2014). Measuring the Net Benefit of an E-Commerce for a University: A Case Study of the University of Surabaya's E-Commerce.

Kaiser, H. F. (1960). The Application of Electronic Computers to Factor Analysis: In http://dx.doi.org/10.1177/001316446002000116 (Vol. 20, Issue 1). Sage PublicationsSage CA: Thousand Oaks, CA. https://doi.org/10.1177/001316446002000116

Kallner, A. (2018). Laboratory Statistics. In Elsevier. Elsevier. https://doi.org/10.1016/C2017-0-00959-X

Kenett, R. S., & Salini, S. (2011). Modern analysis of customer satisfaction surveys: comparison of models and integrated analysis. Applied Stochastic Models in Business and Industry, 27(5), 465–475. https://doi.org/10.1002/asmb.927

Khulood Alhammadi, Assoc. P. Dr. S. S. (2022). Actual Use, Satisfaction, and Quality Factors' Impacts on Virtual Youth Programs' Net Benefits. Mathematical Statistician and Engineering Applications, 71(4), 462–475. https://www.philstat.org.ph/index.php/MSEA/article/view/527

Kumar, V., & Pansari, A. (2016). Competitive Advantage through Engagement: Https://Doi.Org/10.1509/Jmr.15.0044, 53(4), 497–514. https://doi.org/10.1509/JMR.15.0044

Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. Computers in Human Behavior, 25(4), 887–896. https://doi.org/10.1016/J.CHB.2009.03.003

Lai, J. Y. (2014). E-SERVCON and E-Commerce Success: Applying the DeLone and McLean Model. Journal of Organizational and End User Computing, , 3(26), 1–122. https://doi.org/10.4018/978-1-4666-8619-9.CH038

Larsen, K. R. T. (2003). A Taxonomy of Antecedents of Information Systems Success: Variable Analysis Studies. Journal of Management Information Systems, 20(2), 169–246. https://doi.org/10.1080/07421222.2003.11045768

Lederer, A. L., Mirchandani, D. A., & Sims, K. (2009). The Link Between Information Strategy and Electronic Commerce. Http://Dx.Doi.Org/10.1207/S15327744joce0701_2, 7(1), 17–34. https://doi.org/10.1207/S15327744JOCE0701_2

Leech, N. L., Barrett, K. C., & Morgan, G. A. (2005). SPSS for Intermediate Statistics: Use and Interpretation Second Edition (P. LAWRENCE ERLBAUM ASSOCIATES, Ed.; 2nd ed.).

Lewis, T. F. (2017). Evidence Regarding the Internal Structure: Confirmatory Factor Analysis. Https://Doi.Org/10.1080/07481756.2017.1336929, 50(4), 239–247. https://doi.org/10.1080/07481756.2017.1336929

Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. Information Systems Journal, 28(6), 1129–1157. https://doi.org/10.1111/isj.12153

Libai, B., Bolton, R., Bügel, M. S., de Ruyter, K., Götz, O., Risselada, H., & Stephen, A. T. (2010). Customer-to-Customer Interactions: Broadening the Scope of Word of Mouth Research: Http://Dx.Doi.Org/10.1177/1094670510375600, 13(3), 267–282. https://doi.org/10.1177/1094670510375600

Liu, W. B., & Wang, X. J. (2008). An evolutionary game based particle swarm optimization algorithm. Journal of Computational and Applied Mathematics, 214(1), 30–35. https://doi.org/10.1016/j.cam.2007.01.028

Liu, Y., & Jang, S. C. (Shawn). (2009). Perceptions of Chinese restaurants in the U.S.: What affects customer satisfaction and behavioral intentions? International Journal of Hospitality Management, 28(3), 338–348. https://doi.org/10.1016/j.ijhm.2008.10.008

Loiacono, E. T., Watson, R. T., & Goodhue, D. L. (2014). WebQual: An Instrument for Consumer Evaluation of Web Sites. Http://Dx.Doi.Org/10.2753/JEC1086-4415110302, 11(3), 51–87. https://doi.org/10.2753/JEC1086-4415110302

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Read, A. (2008). Explaining and predicting the impact of branding alliances and web site quality on initial consumer trust of E-commerce web sites. Journal of Management Information Systems, 24(4), 199–224. https://doi.org/10.2753/MIS0742-1222240408

Luo, Y., Zhao, J. H., & Du, J. (2005). The internationalization speed of e-commerce companies: An empirical analysis. International Marketing Review, 22(6), 693–709. https://doi.org/10.1108/02651330510630294

Lyu, J.-J., Huang, Y.-C., & Li, S.-C. (2010). A Synthetic Assessment of E-business for SMEs' in Taiwan.: Discovery Service for ISCTE - Instituto Universitário de Lis. Contemporary Management Research, 6(4), 291–304. http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=143&sid=ab92421e-f9ce-4e0f-8b46-0a6a113a0aea%40pdc-v-sessmgr05

Ma, R., & Wang, W. (2021). Smile or pity? Examine the impact of emoticon valence on customer satisfaction and purchase intention. Journal of Business Research, 134, 443–456. https://doi.org/10.1016/J.JBUSRES.2021.05.057

MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. Annual Review of Psychology, 51, 201–226. https://doi.org/10.1146/ANNUREV.PSYCH.51.1.201

Madu, C. N., & Madu, A. A. (2002). Dimensions of e-quality. International Journal of Quality and Reliability Management, 19(3), 246–258. https://doi.org/10.1108/02656710210415668/FULL/XML

Mardiana, S., Tjakraatmadja, J. H., & Aprianingsih, A. (2015). Validating the Conceptual Model for Predicting Intention to Use as Part of Information System Success Model: The Case of an Indonesian Government Agency. Procedia Computer Science, 72, 353–360. https://doi.org/10.1016/J.PROCS.2015.12.150

Markovic, S., Koporcic, N., Arslanagic-Kalajdzic, M., Kadic-Maglajlic, S., Bagherzadeh, M., & Islam, N. (2021). Business-to-business open innovation: COVID-19 lessons for small and medium-sized enterprises from emerging markets. Technological Forecasting and Social Change, 170, 120883. https://doi.org/10.1016/J.TECHFORE.2021.120883

Marshak, M., & Levy, H. (2003). Evaluating web user perceived latency using server side measurements. Computer Communications, 26(8), 872–887. https://doi.org/10.1016/S0140-3664(02)00220-7

Martínez-Navalón, J. G., Gelashvili, V., & Gómez-Ortega, A. (2021). Evaluation of User Satisfaction and Trust of Review Platforms: Analysis of the Impact of Privacy and E-WOM in the Case of TripAdvisor. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.750527

Mazzarol, T. (2015). SMEs engagement with e-commerce, e-business and e-marketing. Small Enterprise Research, 22(1), 79–90. https://doi.org/10.1080/13215906.2015.1018400

McKinney, V., Yoon, K., & Zahedi, F. (2002). The measurement of Web-customer satisfaction: An expectation and disconfirmation approach. Information Systems Research, 13(3), 296–315. https://doi.org/10.1287/ISRE.13.3.296.76

Mehta, D., & Hamke., A.-K. (2019). In-Depth: B2B ECommerce 2019. In-Depth: B2B ECommerce 2019. https://www.statista.com/statistics/273104/us-b2b-e-commerce-share/

Meng, M., & Agarwal, R. (2007). Through a glass darkly: Information technology design, identity verification, and knowledge contribution in online communities. Information Systems Research, 18(1), 42–67. https://doi.org/10.1287/isre.1070.0113

Millenia, S., Kristianti, T., & Prawati, L. D. (2022). The Success Factors of e-Filing Tax Reporting in Indonesia: An Empirical Analysis Using the DeLone & McLean IS Success Model. ACM International Conference Proceeding Series, 90–97. https://doi.org/10.1145/3512676.3512691

Minatogawa, V., Franco, M., Durán, O., Quadros, R., Holgado, M., & Batocchio, A. (2020). Carving out new business models in a small company through contextual ambidexterity: The case of a sustainable company. Sustainability (Switzerland), 12(6). https://doi.org/10.3390/su12062337

Mitrevski, P., & Hristoski, I. (2011). e-Consumer online behavior: A basis for obtaining e-Commerce performance metrics. Communications in Computer and Information Science, 83 CCIS, 142–151. https://doi.org/10.1007/978-3-642-19325-5_15

Molla, A., Heeks, R., & Balcells, I. (2006). Adding clicks to bricks: A case study of e-commerce adoption by a Catalan small retailer. European Journal of Information Systems, 15(4), 424–438. https://doi.org/10.1057/palgrave.ejis.3000623

Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations. Journal of Marketing Research, 29(3), 314–328. https://doi.org/10.1177/002224379202900303

Morais, E. P., Pires, J. A., & Gonçalves, R. M. (2012). E-Business Maturity: Constraints Associated With Their Evolution. Journal of Organizational Computing and Electronic Commerce, 22(3), 280–300. https://doi.org/10.1080/10919392.2012.696952

Mosahab, R., Mahamad, O., & Ramayah, T. (2010). SERVICE QUALITY, CUSTOMER SATISFACTION AND LOYALTY: A TEST OF MEDIATION. International Business Research, 3(4), p72. https://doi.org/10.5539/IBR.V3N4P72

Muangsrinoon, S., & Boonbrahm, P. (2019). Game Elements from Literature Review of Gamification in Healthcare Context. Journal of Technology and Science Education. https://eric.ed.gov/?id=EJ1204843

Muylle, S., Moenaert, R., & Despontin, M. (2004). The conceptualization and empirical validation of web site user satisfaction. Information and Management, 41(5), 543–560. https://doi.org/10.1016/S0378-7206(03)00089-2

Nah, F. F. H., Eschenbrenner, B., Claybaugh, C. C., & Koob, P. B. (2019). Gamification of enterprise systems. Systems, 7(1). https://doi.org/10.3390/SYSTEMS7010013

Negruşa, A. L., Toader, V., Sofică, A., Tutunea, M. F., & Rus, R. V. (2015). Exploring Gamification Techniques and Applications for Sustainable Tourism. Sustainability 2015, Vol. 7, Pages 11160-11189, 7(8), 11160–11189. https://doi.org/10.3390/SU70811160

Nguyen, T. D. (2009). Signal quality and service quality: A study of local and international MBA programs in Vietnam. Quality Assurance in Education, 17(4), 364–376. https://doi.org/10.1108/09684880910992331/FULL/XML

Nunnally, J., & Bernstein, I. (1994). Psychometric Theory (3rd editio). MacGraw-Hill, New York.

Nyadzayo, M. W., Casidy, R., & Thaichon, P. (2020). B2B purchase engagement: Examining the key drivers and outcomes in professional services. Industrial Marketing Management, 85, 197–208. https://doi.org/10.1016/j.indmarman.2019.11.007

O'Cass, A., & Carlson, J. (2010). Examining the effects of website-induced flow in professional sporting team websites. Internet Research, 20(2), 115–134. https://doi.org/10.1108/10662241011032209

Pace, S. (2004). A grounded theory of the flow experiences of Web users. International Journal of Human-Computer Studies, 60(3), 327–363. https://www.academia.edu/28911438/A_grounded_theory_of_the_flow_experiences_of_Web _users

Palvia, P. C. (1996). A Model and Instrument for Measuring Small Business User Satisfaction with Information Technology. In Information & Management (Vol. 31). http://www.elsevier.com

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing, 49(4), 41. https://doi.org/10.2307/1251430

Park, S. W., Cho, C. H., & Choi, S. B. (2017). Social multimedia network service quality, user satisfaction, and prosumer activity. Multimedia Tools and Applications, 76(16), 17213–17229. https://doi.org/10.1007/s11042-016-3983-0

Partap, B. (2019). A Review of Service Quality Assessment of Library and Information Centres. Library Philosophy and Practice (e-Journal). https://digitalcommons.unl.edu/libphilprac/2333

Pasca, M. G., Guglielmetti Mugion, R., Toni, M., Di Pietro, L., & Renzi, M. F. (2021). Gamification and service quality in bike sharing: an empirical study in Italy. TQM Journal, 33(6), 1222–1244. https://doi.org/10.1108/TQM-05-2020-0118

Patton, Ryan, Robert W. Sweeny, Ryan Shin, and Lilly Lu. 2020. "Teaching Digital Game Design With Preservice Art Educators." Studies in Art Education 61 (2): 155–70. https://doi.org/10.1080/00393541.2020.1738165.

Peiris, P. M., Kulkarni, D., & Mawatha, C. R. de S. (2015). An Empirical Study of Customer Adoption of E-Commerce: A Customer Trust Mod...: Discovery Service for ISCTE - Instituto Universitário de Lis. International Journal of Business and Information, 10(4), 491–518. http://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=71&sid=ab92421e-f9ce-4e0f-8b46-0a6a113a0aea%40pdc-v-sessmgr05

Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. European Journal of Information Systems 2008 17:3, 17(3), 236–263. https://doi.org/10.1057/EJIS.2008.15

Pham, L., & Pham, L. N. (2011). Determinants Of E-Commerce Adoption In Vietnamese Small And Medium Sized Enterprises. In International Journal of Entrepreneurship (Vol. 15).

Phaphoom, N., Wang, X., Samuel, S., Helmer, S., & Abrahamsson, P. (2015). A survey study on major technical barriers affecting the decision to adopt cloud services. Journal of Systems and Software, 103, 167–181. https://doi.org/10.1016/J.JSS.2015.02.002

Poggi, N., Carrera, D., Gavaldà, R., Ayguadé, E., & Torres, J. (2014). A methodology for the evaluation of high response time on E-commerce users and sales. Information Systems Frontiers, 16(5), 867–885. https://doi.org/10.1007/s10796-012-9387-4

Poorangi, M. M., Khin, E. W. S., Nikoonejad, S., & Kardevani, A. (2013). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. Anais Da Academia Brasileira de Ciencias, 85(4), 1593–1604. https://doi.org/10.1590/0001-37652013103512

Prensky, M. (2001). Digital Game-Based Learning From Digital Game-Based Learning (McGraw-Hill, 2001) The Digital Game-Based Learning Revolution Fun at Last!

Ratna, S., Nayati Utami, H., Siti Astuti, E., Wilopo, E., & Muflih, M. (2020). The technology tasks fit, its impact on the use of information system, performance and users' satisfaction. VINE Journal of Information and Knowledge Management Systems, 50(3), 369–386. https://doi.org/10.1108/VJIKMS-10-2018-0092

Rawashdeh, A. M., Elayan, M. B., Alhyasat, W., & Shamout, M. D. (2021). Electronic Human Resources Management Perceived Usefulness, Perceived Ease of Use and Continuance Usage Intention: the Mediating Role of User Satisfaction in Jordanian Hotels Sector. International Journal for Quality Research, 15(2), 679–696. https://doi.org/10.24874/IJQR15.02-20

Research, S. (2018). State of the Connected Customer.

Reynaldo, J. A., & Santos, A. (1999). Cronbach's Alpha A Tool for Assessing the Reliability of Scales. Journal of Extension, 37, 1–4.

Rigdon, E. E. (1998). Structural equation modeling. Modern Methods for Business Research, 251–294.

Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2016). Game on: Engaging customers and employees through gamification. Business Horizons, 59(1), 29–36. https://doi.org/10.1016/J.BUSHOR.2015.08.002

Rodrigues, L. F., Oliveira, A., & Costa, C. J. (2016). Playing seriously – How gamification and social cues influence bank customers to use gamified e-business applications. Computers in Human Behavior, 63, 392–407. https://doi.org/10.1016/J.CHB.2016.05.063

Rouibah, K., Lowry, P. B., & Almutairi, L. (2015). Dimensions of business-to-consumer (B2C) systems success in Kuwait: Testing a modified DeLone and McLean IS success model in an e-commerce context. Journal of Global Information Management, 23(3), 41–71. https://doi.org/10.4018/JGIM.2015070103

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. In Academy of Management Review (Vol. 23, Issue 3, pp. 393–404). Academy of Management Briarcliff Manor, NY 10510 . https://doi.org/10.5465/AMR.1998.926617

Santoso, A. S., & Nelloh, L. A. M. (2017). User Satisfaction and Intention to Use Peer-to-Peer Online Transportation: A Replication Study. Procedia Computer Science, 124, 379–387. https://doi.org/10.1016/j.procs.2017.12.168

Schielzeth, H. (2010). Simple means to improve the interpretability of regression coefficients. Methods in Ecology and Evolution, 1(2), 103–113. https://doi.org/10.1111/J.2041-210X.2010.00012.X

Schumacker, R., & Lomax, R. (1996). A beginner. s guide to structural equation modeling (electronic version). In Mahwah, NJ: Lawrence Erlbaum Associates. Seeram …. https://www.routledge.com/A-Beginners-Guide-to-Structural-Equation-Modeling-Fourth-Edition/Schumacker-Lomax/p/book/9781138811935

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. International Journal of Human-Computer Studies, 74, 14–31. https://doi.org/10.1016/J.IJHCS.2014.09.006

Seddon, P., & Kiew, M.-Y. (1996). A Partial Test and Development of Delone and Mclean's Model of IS Success. Australasian Journal of Information Systems, 4(1). https://doi.org/10.3127/ajis.v4i1.379

Senarathna, I., Warren, M., Yeoh, W., & Salzman, S. (2014). The influence of organisation culture on E-commerce adoption. Industrial Management & Data Systems, 1007–1021. https://doi.org/10.1108/IMDS-03-2014-0076

Shahid Iqbal, M., Ul Hassan, M., & Habibah, U. (2018). Impact of self-service technology (SST) service quality on customer loyalty and behavioral intention: The mediating role of customer satisfaction. Http://Www.Editorialmanager.Com/Cogentbusiness, 5(1), 1423770. https://doi.org/10.1080/23311975.2018.1423770

Shakib Hossain, M., Hasan, M. R., Kabir, S. B., & Zayed, N. M. (2019). Customer Participation, Value, Satisfication, Trust And Loyalty: An Interactive and Collaborative Strategic Action. In Academy of Strategic Management Journal (Vol. 18, Issue 3).

Shankar, V., Smith, A. K., & Rangaswamy, A. (2003). Customer satisfaction and loyalty in online and offline environments. International Journal of Research in Marketing, 20(2), 153–175. https://doi.org/10.1016/S0167-8116(03)00016-8

Shi, M., & Yuan, H. (2019). Impact of e-commerce website usability on user satisfaction. Journal of Advanced Computational Intelligence and Intelligent Informatics, 91–96. https://doi.org/10.20965/jaciii.2019.p0091

Shpakova, A., Dörfler, V., & MacBryde, J. (2017). Changing the game: a case for gamifying knowledge management. World Journal of Science, Technology and Sustainable Development, 14(2/3), 143–154. https://doi.org/10.1108/WJSTSD-01-2017-0002

Silva, L. F. S. da, Verschoore, J. R., Bortolaso, I. V., & Brambilla, F. R. (2019). The effectiveness of game dynamics in cooperation networks. European Business Review, 31(6), 870–884. https://doi.org/10.1108/EBR-06-2018-0118

Suciu, M. C., Năsulea, C., & Năsulea, D. F. (2019). The Long-Term Effectiveness of Advertising Driven Sales for E-Commerce SMEs. Proceedings of the International Conference on Business Excellence, 13(1), 1180–1191. https://doi.org/10.2478/picbe-2019-0104

Suh, A., Wagner, C., & Liu, L. (2018). Enhancing User Engagement through Gamification. Journal of Computer Information Systems, 58(3), 204–213. https://doi.org/10.1080/08874417.2016.1229143

Suhr, D. (2006). The Basics of Structural Equation Modeling.

Sun, H., Fang, Y., & Hsieh, J. J. P. A. (2014). Consuming information systems: An economic model of user satisfaction. Decision Support Systems, 57(1), 188–199. https://doi.org/10.1016/j.dss.2013.09.002

Taherdoost, H., & Madanchian, M. (2021). Empirical modeling of customer satisfaction for e-services in cross-border e-commerce. Electronics (Switzerland), 10(13). https://doi.org/10.3390/electronics10131547

Tam, C., Loureiro, A., & Oliveira, T. (2020). The individual performance outcome behind e-commerce: Integrating information systems success and overall trust. Internet Research, 30(2), 439–462. https://doi.org/10.1108/INTR-06-2018-0262

Thorne, S. L., Black, R. W., & Sykes, J. M. (2009). Second Language Use, Socialization, and Learning in Internet Interest Communities and Online Gaming. The Modern Language Journal, 93(SUPPL. 1), 802–821. https://doi.org/10.1111/J.1540-4781.2009.00974.X

Tobon, S., Ruiz-Alba, J. L., & García-Madariaga, J. (2020). Gamification and online consumer decisions: Is the game over? Decision Support Systems, 128, 113167. https://doi.org/10.1016/J.DSS.2019.113167

Tondello, Gustavo F., Dennis L. Kappen, Elisa D. Mekler, Marim Ganaba, and Lennart E. Nacke. 2016. "Heuristic Evaluation for Gameful Design." In CHI PLAY 2016 - Proceedings of the Annual Symposium on Computer-Human Interaction in Play Companion, 315–23. Association for Computing Machinery, Inc. https://doi.org/10.1145/2968120.2987729.

Tu, C. H., Yen, C. J., Sujo-Montes, L., & Roberts, G. A. (2015). Gaming personality and game dynamics in online discussion instructions. Educational Media International, 52(3), 155–172. https://doi.org/10.1080/09523987.2015.1075099

Urbach, N., Smolnik, S., & Riempp, G. (2010). An empirical investigation of employee portal success. The Journal of Strategic Information Systems, 19(3), 184–206. https://doi.org/10.1016/J.JSIS.2010.06.002

Utz, S., Kerkhof, P., & van den Bos, J. (2012). Consumers rule: How consumer reviews influence perceived trustworthiness of online stores. Electronic Commerce Research and Applications, 11(1), 49–58. https://doi.org/10.1016/j.elerap.2011.07.010

Vaičiukynaitė, E., & Gatautis, R. (2013). Website atmosphere: Towards revisited taxonomy of website elements. ECONOMICS AND MANAGEMENT, 18(3). https://doi.org/10.5755/j01.em.18.3.5285

Vajjhala, N. R., & Thandekkattu, S. G. (2017). Potential and Barriers to Adoption of B2B E-Commerce in SMEs in Transition Economies: Case of Albania. Management, 155–169. https://doi.org/10.26493/1854-4231.12.155-169

Velasquez, A., & LaRose, R. (2015). Social Media for Social Change: Social Media Political Efficacy and Activism in Student Activist Groups. Journal of Broadcasting and Electronic Media, 59(3), 456–474. https://doi.org/10.1080/08838151.2015.1054998

Wachidin Widjaja, A., Yuda Patria Lai Wie, A., & Korea, S. (2017). B2C E-commerce Site Success Factors: A Comparison between Indonesia. International Journal of Economics and Management Journal Homepage, 11(S2), 505–527. http://www.econ.upm.edu.my/ijem

Walker, J. H., Saffu, K., & Mazurek, M. (2016). An Empirical Study of Factors Influencing E-Commerce Adoption/Non-Adoption in Slovakian SMEs. Journal of Internet Commerce, 15(3), 189–213. https://doi.org/10.1080/15332861.2016.1191049

Wardati, N. K., & Er, M. (2019). The impact of social media usage on the sales process in small and medium enterprises (SMEs): A systematic literature review. Procedia Computer Science, 161, 976–983. https://doi.org/10.1016/j.procs.2019.11.207

Werbach, K., & Hunter, D. (2012). For the Win: How Game Thinking Can Revolutionize Your Business. In undefined (Wharton Di).

Wickramansinghe, N., & Sharma, S. K. (2005). Key factors that hinder SMEs in succeeding in today's knowledge-based economy. International Journal of Management and Enterprise Development, 2(2), 141–158. https://econpapers.repec.org/article/idsijmede/v_3a2_3ay_3a2005_3ai_3a2_3ap_3a141-158.htm

Widiaty, I., Riza, L. S., Abdullah, A. G., & Mubaroq, S. R. (2020). Multiplatform Application Technology – Based Heutagogy on Learning Batik: A Curriculum Development Framework. Indonesian Journal of Science and Technology, 5(1), 45–61. https://ejournal.upi.edu/index.php/ijost/article/view/18754

Xi, N., & Hamari, J. (2019). Does gamification satisfy needs? A study on the relationship between gamification features and intrinsic need satisfaction. International Journal of Information Management, 46, 210–221. https://doi.org/10.1016/J.IJINFOMGT.2018.12.002

Xu, C., Ryan, S., Prybutok, V., & Wen, C. (2012). It is not for fun: An examination of social network site usage. Information and Management, 49(5), 210–217. https://doi.org/10.1016/j.im.2012.05.001

Yadav, N., & Goraya, M. S. (2018). Two-way Ranking Based Service Mapping in Cloud Environment. Future Generation Computer Systems, 81, 53–66. https://doi.org/10.1016/J.FUTURE.2017.11.027

Yang, T., Xun, J., & He, X. (2015). British SMEs' e-commerce technological investments and firm performance: an RBV perspective. Technology Analysis and Strategic Management, 27(5), 586–603. https://doi.org/10.1080/09537325.2015.1019453

Yin, S., Cai, X., Wang, Z., Zhang, Y., Luo, S., & Ma, J. (2022). Impact of gamification elements on user satisfaction in health and fitness applications: A comprehensive approach based on the Kano model. Computers in Human Behavior, 128. https://doi.org/10.1016/J.CHB.2021.107106

Yoon, Y. L., Yoon, Y., Nam, H., & Choi, J. (2021). Buyer-supplier matching in online B2B marketplace: An empirical study of small- and medium-sized enterprises (SMEs). Industrial Marketing Management, 93, 90–100. https://doi.org/10.1016/j.indmarman.2020.12.010

Yu, N., & Huang, Y. T. (2022). Why do people play games on mobile commerce platforms? An empirical study on the influence of gamification on purchase intention. Comput. Hum. Behav., 126. https://doi.org/10.1016/J.CHB.2021.106991

Zhang, Y., & Huang, S. C. (2010). How endowed versus earned progress affects consumer goal commitment and motivation. Journal of Consumer Research, 37(4), 641–654. https://doi.org/10.1086/655417/2/M_37-4-641-FG1.JPEG

Zhuang, Y., & Lederer, A. L. (2003). An Instrument for Measuring the Business Benefits of E-Commerce Retailing. International Journal of Electronic Commerce, 7(3), 65–99. https://doi.org/10.1080/10864415.2003.11044274

Chapter 4 References

Adams, W. C. (2015). Conducting Semi-Structured Interviews. Handbook of Practical Program Evaluation: Fourth Edition, 492–505. https://doi.org/10.1002/9781119171386.CH19

Allen, A. M., Brady, M. K., Robinson, S. G., & Voorhees, C. M. (2015). One firm's loss is another's gain: capitalizing on other firms' service failures. Journal of the Academy of Marketing Science, 43(5), 648–662. https://doi.org/10.1007/S11747-014-0413-6/FIGURES/3

Alsini, I. (2017). Investigating Effects Of Perceived Service Quality On Overall Service Quality And Customer Satisfaction: Case Of Saudi Airlines. Journal of Spatial and Organizational Dynamics, 5(4), 463–470. https://www.jsod-cieo.net/journal/index.php/jsod/article/view/113

Al-Somali, S. A., Gholami, R., & Clegg, B. (2011). Determinants of B2B E-Commerce Adoption in Saudi Arabian Firms.

Angus, D., Rintel, S., & Wiles, J. (2013). Making sense of big text: A visual-first approach for analysing text data using Leximancer and Discursis. International Journal of Social Research Methodology, 16(3), 261–267. https://doi.org/10.1080/13645579.2013.774186

Augusto de Matos, C., Von der Heyde Fernandes, D., Pinto Leis, R., Trez, G., & Augusto de Matos Daniel Von der Heyde Fernandes Rodrigo Pinto Leis Guilherme Trez, C. (2011). A Cross-Cultural Investigation of Customer Reactions to Service Failure and Recovery. Journal of International Consumer Marketing, 23, 211–228. https://doi.org/10.1080/08961530.2011.578058

Babić Rosario, A., de Valck, K., & Sotgiu, F. (2019). Conceptualizing the electronic word-of-mouth process: What we know and need to know about eWOM creation, exposure, and evaluation. Journal of the Academy of Marketing Science 2019 48:3, 48(3), 422–448. https://doi.org/10.1007/S11747-019-00706-1

Barroso, R. M. R., Ferreira, F. A. F., Meidutė-Kavaliauskienė, I., Banaitienė, N., Falcão, P. F., & Rosa, Á. A. (2019). Analyzing the determinants of e-commerce in small and medium-sized enterprises: A cognition-driven framework. Technological and Economic Development of Economy, 25(3), 496–518. https://doi.org/10.3846/tede.2019.9386

Bitner, M. J., Brown, S. W., & Meuter, M. L. (2000). Technology infusion in service encounters. Journal of the Academy of Marketing Science 2000 28:1, 28(1), 138–149. https://doi.org/10.1177/0092070300281013

Blankertz, D. F. & Cox, D. F. (1969). Risk taking and information handling in consumer behavior. Journal of Marketing Research, 6(1), 110. https://doi.org/10.2307/3150012

Borah, S. B., Prakhya, S., & Sharma, A. (2020). Leveraging service recovery strategies to reduce customer churn in an emerging market. Journal of the Academy of Marketing Science, 48(5), 848–868. https://doi.org/10.1007/S11747-019-00634-0/TABLES/8

Brodie, R. J., Fehrer, J. A., Jaakkola, E., & Conduit, J. (2019). Actor Engagement in Networks: Defining the Conceptual Domain. Journal of Service Research, 22(2), 173–188. https://doi.org/10.1177/1094670519827385/ASSET/IMAGES/LARGE/10.1177_1094670519827385-FIG1.JPEG

Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer Engagement. Http://Dx.Doi.Org/10.1177/1094670511411703 , 14(3), 252–271. https://doi.org/10.1177/1094670511411703

Brodie, R. J., Ilic, A., Juric, B., & Hollebeek, L. (2013). Consumer engagement in a virtual brand community: An exploratory analysis. Journal of Business Research, 66(1), 105–114. https://doi.org/10.1016/J.JBUSRES.2011.07.029

Chang, S. I., Wu, H. C., & Cho, C. M. (2011). The development of digital divide assessment mechanism for SMEs: A perspective from the Taiwan manufacturing industry. Journal of Global Information Technology Management, 14(1), 6–34. https://doi.org/10.1080/1097198X.2011.10856529

Chatterjee, S. (2020). Order of justice in queues of emerging markets. Journal of Consumer Marketing, 37(6), 605–616. https://doi.org/10.1108/JCM-04-2019-3178/FULL/PDF

Chavdar, K. & Andeva, M. (2018). Electronic signing of sale agreement - the case of Republic of Macedonia.: Discovery Service for ISCTE - Instituto Universitário de Lis. Economic Development. http://eds.a.ebscohost.com/eds/pdfviewer/pdfviewer?vid=40&sid=b20b742e-fdeb-46cf-b3bb-d5b2d177d5d5%40sdc-v-sessmgr03

Chiu, C. M., Chiu, C. S., & Chang, H. C. (2007). Examining the integrated influence of fairness and quality on learners' satisfaction and Web-based learning continuance intention. Information Systems Journal, 17(3), 271–287. https://doi.org/10.1111/J.1365-2575.2007.00238.X

Choi, S. & Mattila, A. S. (2008). Perceived controllability and service expectations: Influences on customer reactions following service failure. Journal of Business Research, 61(1), 24–30. https://doi.org/10.1016/J.JBUSRES.2006.05.006

Collier, J. E. & Bienstock, C. C. (2015). A Conceptual Framework for Measuring E-Service Quality. Developments in Marketing Science: Proceedings of the Academy of Marketing Science, 158–162. https://doi.org/10.1007/978-3-319-11848-2_52/COVER

Conduit, J., Karpen, I. O., & Farrel, F. (2016). Student engagement: A multiple layer phenomenon. Making a Difference Through Marketing: A Quest for Diverse Perspectives, 229–245. https://doi.org/10.1007/978-981-10-0464-3_17/COVER

Connell, C., Marciniak, R., Carey, L. I., & McColl, J. (2019). Customer engagement with websites: a transactional retail perspective. European Journal of Marketing, 53(9), 1882–1904. https://doi.org/10.1108/EJM-10-2017-0649/FULL/PDF

Costa, P., Rodrigues, H., Costa, P., & Rodrigues, H. (2023). The ever-changing business of e-commerce-net benefits while designing a new platform for small companies. Review of Managerial Science 2023, 1–39. https://doi.org/10.1007/S11846-023-00681-6

Cusin, J. & Flacandji, M. (2022). How can organizational tolerance toward frontline employees' errors help service recovery? Journal of Personal Selling and Sales Management, 42(2), 91–106. https://doi.org/10.1080/08853134.2021.2005612

Das, S., Mishra, A., & Cyr, D. (2019). Opportunity gone in a flash: Measurement of e-commerce service failure and justice with recovery as a source of e-loyalty. Decision Support Systems, 125. https://doi.org/10.1016/J.DSS.2019.113130

De Matos, C. A. & Leis, R. P. (2013). The antecedents of complaint behaviour for Brazilian and French consumers of services. International Journal of Consumer Studies, 37(3), 327–336. https://doi.org/10.1111/IJCS.12002

DeLone, W. H. & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. Journal of Management Information Systems, 19(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Dessart, L., Veloutsou, C., & Morgan-Thomas, A. (2016). Capturing consumer engagement: duality, dimensionality and measurement. Https://Doi.Org/10.1080/0267257X.2015.1130738, 32(5–6), 399–426.

Dimitrova, N. G., van Hooft, E. A. J., van Dyck, C., & Groenewegen, P. (2017). Behind the wheel: What drives the effects of error handling? Journal of Social Psychology, 157(6), 658–672. https://doi.org/10.1080/00224545.2016.1270891

Ding, X., Verma, R., & Iqbal, Z. (2007). Self-service technology and online financial service choice. International Journal of Service Industry Management, 18(3), 246–268. https://doi.org/10.1108/09564230710751479

Dirgantari, P. D., Hidayat, Y. M., Mahphoth, M. H., & Nugraheni, R. (2020). Level of use and satisfaction of e-commerce customers in covid-19 pandemic period: An information system success model (ISSM) approach. Indonesian Journal of Science and Technology, 5(2), 261–270. https://doi.org/10.17509/ijost.v5i2.24617

Dolan, R., Conduit, J., Frethey-Bentham, C., Fahy, J., & Goodman, S. (2019). Social media engagement behavior: A framework for engaging customers through social media content. European Journal of Marketing, 53(10), 2213–2243. https://doi.org/10.1108/EJM-03-2017-0182/FULL/PDF

Dong, B., Evans, K. R., & Zou, S. (2008). The effects of customer participation in co-created service recovery. Journal of the Academy of Marketing Science, 36(1), 123–137. https://doi.org/10.1007/S11747-007-0059-8/TABLES/2

Douglas, K. (1993). A typology of retail failures and recoveries. Journal of Retailing; Winter, 69, 429.

Dutta, K., Venkatesh, U., & Parsa, H. G. (2007). Service failure and recovery strategies in the restaurant sector: An Indo-US comparative study. International Journal of Contemporary Hospitality Management, 19(5), 351–363. https://doi.org/10.1108/09596110710757526

Eberhardt, W., Brüggen, E., Post, T., & Hoet, C. (2021). Engagement behavior and financial well-being: The effect of message framing in online pension communication. International Journal of Research in Marketing, 38(2), 448–471. https://doi.org/10.1016/J.IJRESMAR.2020.11.002

Fitriati, A., Tubastuvi, N., Pratama, B. C., & Anggoro, S. (2020). Study of Delone-McLean information system success model: The relationship between system quality and information quality. Journal of Theoretical and Applied Information Technology, 98(3), 477–487.

Forbes, L. P., Kelley, S. W., & Hoffman, K. D. (2005). Typologies of e-commerce retail failures and recovery strategies. Journal of Services Marketing, 19(5), 280–292. https://doi.org/10.1108/08876040510609907/FULL/PDF

Fouroudi, P., Kitchen, P. J., Marvi, R., Akarsu, T. N., & Uddin, H. (2020). A bibliometric investigation of service failure literature and a research agenda. European Journal of Marketing, 54(10), 2575–2619. https://doi.org/10.1108/EJM-07-2019-0588/FULL/PDF

Frese, M. & Keith, N. (2015). Action Errors, Error Management, and Learning in Organizations. Https://Doi.Org/10.1146/Annurev-Psych-010814-015205, 66, 661–687. https://doi.org/10.1146/ANNUREV-PSYCH-010814-015205

Garg, A. K. & Choeu, T. (2015). The Adoption of Electronic Commerce by Small and Medium Enterprises in Pretoria East. The Electronic Journal of Information Systems in Developing Countries, 68(1), 1–23. https://doi.org/10.1002/J.1681-4835.2015.TB00493.X

Gelbrich, K., Gäthke, J., & Grégoire, Y. (2016). How a firm's best versus normal customers react to compensation after a service failure. Journal of Business Research, 69(10), 4331–4339. https://doi.org/10.1016/J.JBUSRES.2016.04.010

Ghobadian, A. & Gallear, D. N. (1996). Total quality management in SMEs. Omega, 24(1), 83–106. https://doi.org/10.1016/0305-0483(95)00055-0

Ghobakhloo, M., Arias-Aranda, D., & Benitez-Amado, J. (2011). Adoption of e-commerce applications in SMEs. Industrial Management and Data Systems, 111(8), 1238–1269. https://doi.org/10.1108/02635571111170785/FULL/XML

Glover, S. & Benbasat, I. (2014). A Comprehensive Model of Perceived Risk of E-Commerce Transactions. Http://Dx.Doi.Org/10.2753/JEC1086-4415150202 , 15(2), 47–78. https://doi.org/10.2753/JEC1086-4415150202

Gnewuch, U., Morana, S., Adam, M., & Maedche, A. (2018). Faster is Not Always Better: Understanding the Effect of Dynamic Response Delays in Human-Chatbot Interaction.

Grégoire, Y., Ghadami, F., Laporte, S., Sénécal, S., & Larocque, D. (2018). How can firms stop customer revenge? The effects of direct and indirect revenge on post-complaint responses. Journal of the Academy of Marketing Science, 46(6), 1052–1071. https://doi.org/10.1007/S11747-018-0597-2/FIGURES/5

Grégoire, Y. & Mattila, A. S. (2021). Service Failure and Recovery at the Crossroads: Recommendations to Revitalize the Field and its Influence. Journal of Service Research, 24(3), 323–328. https://doi.org/10.1177/1094670520958073

Guchait, P., Abbott, J. L., Lee, C. K., Back, K. J., & Manoharan, A. (2019). The influence of perceived forgiveness climate on service recovery performance: The mediating effect of psychological safety and organizational fairness. Journal of Hospitality and Tourism Management, 40, 94–102. https://doi.org/10.1016/J.JHTM.2019.06.007

Guchait, P., Paşamehmetoğlu, A., & Lanza-Abbott, J. A. (2014). The Importance of Error Management Culture in Organizations: The Impact on Employee Helping Behaviors During Service Failures and Recoveries in Restaurants. Http://Dx.Doi.Org/10.1080/15332845.2014.904175 , 14(1), 45–67. https://doi.org/10.1080/15332845.2014.904175

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. Field Methods, 18(1), 59–82. https://doi.org/10.1177/1525822X05279903

Gummerus, J., Liljander, V., Pura, M., & Riel, A. van. (2004). Customer loyalty to content-based Web sites: the case of an online health-care service. Journal of Services Marketing, 18(3), 175–186. https://www.academia.edu/1039355/Customer_Loyalty_to_Contentbased_Web_Sites_The_Case_of_an_Online_Health_care_Service

Harmeling, C. M., Moffett, J. W., Arnold, M. J., & Carlson, B. D. (2017). Toward a theory of customer engagement marketing. Journal of the Academy of Marketing Science, 45(3), 312–335. https://doi.org/10.1007/S11747-016-0509-2/TABLES/7

Hartman, E. (n.d.). Hartman, E. (2015). A community-driven strategy for service-learning and community engagement: Fair trade learning. (An entry in the Future Directions Project). Michigan Journal of Community Service Learning, (22)1. Retrieved August 17, 2023, from https://www.academia.edu/21275297/Hartman_E_2015_A_community_driven_strategy_for_service_learning_and_community_engagement_Fair_trade_learning_An_entry_in_the_Future_Directions_Project_Michigan_Journal_of_Community_Service_Learning_22_1

Haruna, A., Rokonuzzamanb, M., Prybutokc, G., & Prybutokd, V. R. (2018). Influencing perception of justice to leverage behavioral outcome: A perspective from restaurant service failure setting. Quality Management Journal, 25(3), 112–128. https://doi.org/10.1080/10686967.2018.1474675

Harvey-Jordan, S. & Long, S. (2001). The process and the pitfalls of semi-structured interviews. Community Practitioner, 74(6), 219–221.

He, S. X. & Bond, S. D. (2015). Why Is the Crowd Divided? Attribution for Dispersion in Online Word of Mouth. Journal of Consumer Research, 41(6), 1509–1527. https://doi.org/10.1086/680667

Hollebeek, L. D., Srivastava, R. K., & Chen, T. (2019). S-D logic–informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM. Journal of the Academy of Marketing Science, 47(1), 161–185. https://doi.org/10.1007/S11747-016-0494-5/TABLES/5

Holloway, B. B. & Beatty, S. E. (2016). Service Failure in Online Retailing. Http://Dx.Doi.Org/10.1177/1094670503254288, 6(1), 92–105. https://doi.org/10.1177/1094670503254288

Hussein, L. A., Kiumarsi, S., Baharudin, A. S., & Hilmi, M. F. (2020). Factors Influencing the Intention to Continue using B2B e-Commerce in Manufacturing SMEs. Technology & Applied Science Research, 10(2), 5528–5533. www.etasr.com

Huyler, D. & McGill, C. M. (2019). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, by John Creswell and J. David Creswell. Thousand Oaks, CA: Sage Publication, Inc. New Horizons in Adult Education and Human Resource Development, 31(3), 75–77. https://doi.org/10.1002/NHA3.20258

I (Legislative acts) Regulations Regulation (eu) 2016/679 of the European Parliament and of the Councilof 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance). (n.d.).

Ingaldi, M. & Ulewicz, R. (2019). How to Make E-Commerce More Successful by Use of Kano's Model to Assess Customer Satisfaction in Terms of Sustainable Development. Sustainability, 11(18), 4830. https://doi.org/10.3390/su11184830

Islam, J. U. & Rahman, Z. (2016). The transpiring journey of customer engagement research in marketing. Management Decision, 54(8), 2008–2034. https://doi.org/10.1108/MD-01-2016-0028

Jaakkola, E. & Alexander, M. (2014a). The Role of Customer Engagement Behavior in Value Co-Creation. Http://Dx.Doi.Org/10.1177/1094670514529187, 17(3), 247–261. https://doi.org/10.1177/1094670514529187

Jaakkola, E. & Alexander, M. (2014b). The Role of Customer Engagement Behavior in Value Co-Creation: A Service System Perspective. Journal of Service Research, 17(3), 247–261. https://doi.org/10.1177/1094670514529187

Jacko, J. A., Sears, A., & Borella, M. S. (2010). The effect of network delay and media on user perceptions of web resources. Http://Dx.Doi.Org/10.1080/014492900750052688, 19(6), 427–439. https://doi.org/10.1080/014492900750052688

Jani, D. & Han, H. (2011). Investigating the key factors affecting behavioral intentions: Evidence from a full-service restaurant setting. International Journal of Contemporary Hospitality Management, 23(7), 1000–1018. https://doi.org/10.1108/09596111111167579/FULL/XML

Jo, H. & Park, D. H. (2023). Mechanisms for successful management of enterprise resource planning from user information processing and system quality perspective. Scientific Reports, 13(1), 12678. https://doi.org/10.1038/S41598-023-39787-Y

Keaveney, S. M. (1995). Customer Switching Behavior in Service Industries: An Exploratory Study. Journal of Marketing, 59(2), 71. https://doi.org/10.2307/1252074

Kelley, S. W. & Davis, M. A. (1994). Antecedents to Customer Expectations for Service Recovery. Journal of the Academy of Marketing Science, 22(1), 52–61.

Khamitov, M., Grégoire, Y., & Suri, A. (2019). A systematic review of brand transgression, service failure recovery and product-harm crisis: integration and guiding insights. Journal of the Academy of Marketing Science 2019 48:3, 48(3), 519–542. https://doi.org/10.1007/S11747-019-00679-1

Khamitov, M., Grégoire, Y., & Suri, A. (2020). A systematic review of brand transgression, service failure recovery and product-harm crisis: integration and guiding insights. Journal of the Academy of Marketing Science, 48(3), 519–542. https://doi.org/10.1007/S11747-019-00679-1

Kim, J. H. (2019). Imperative challenge for luxury brands: Generation Y consumers' perceptions of luxury fashion brands' e-commerce sites. International Journal of Retail and Distribution Management, 47(2), 220–244. https://doi.org/10.1108/IJRDM-06-2017-0128/FULL/PDF

Kim, S. & Stoel, L. (2004). Dimensional hierarchy of retail website quality. Information & Management, 41(5), 619–633. https://doi.org/10.1016/J.IM.2003.07.002

King, R. A., Racherla, P., & Bush, V. D. (2014). What We Know and Don't Know About Online Word-of-Mouth: A Review and Synthesis of the Literature. Journal of Interactive Marketing, 28(3), 167–183. https://doi.org/10.1016/J.INTMAR.2014.02.001

Kumar, V. & Pansari, A. (2016). Competitive advantage through engagement. Journal of Marketing Research, 53(4), 497–514. https://doi.org/10.1509/JMR.15.0044/ASSET/IMAGES/LARGE/10.1509_JMR.15.0044-FIG2.JPEG

Kunz, W. H. & Hogreve, J. (2011). Toward a deeper understanding of service marketing: The past, the present, and the future. International Journal of Research in Marketing, 28(3), 231–247. https://doi.org/10.1016/J.IJRESMAR.2011.03.002

Lam, J. C. Y. & Lee, M. K. O. (1999). A Model of Internet Consumer Satisfaction: Focusing on the Web-site design.

Laufer, D. & Wang, Y. (2018). Guilty by association: The risk of crisis contagion. Business Horizons, 61, 173–179. https://doi.org/10.1016/j.bushor.2017.09.005

Lee, H. L. & Whang, S. (2001). Winning the Last Mile of E-Commerce. MIT Sloan Management Review. https://sloanreview.mit.edu/article/winning-the-last-mile-of-ecommerce/

Levy, M. & Powell, P. (1998). SME Flexibility and the Role of Information Systems. Small Business Economics 1998 11:2, 11(2), 183–196. https://doi.org/10.1023/A:1007912714741

Leximancer User Guide. (2021).

Lin, X., McKenna, B., Ho, C. M. F., & Shen, G. Q. P. (2019). Stakeholders' influence strategies on social responsibility implementation in construction projects. Journal of Cleaner Production, 235, 348–358. https://doi.org/10.1016/J.JCLEPRO.2019.06.253

Loiacono, E. T., Watson, R. T., & Goodhue, D. L. (2014). WebQual: An Instrument for Consumer Evaluation of Web Sites. Http://Dx.Doi.Org/10.2753/JEC1086-4415110302 , 11(3) , 51–87. https://doi.org/10.2753/JEC1086-4415110302

Longhurst, R. (2003). Semi-structured Interviews and Focus Groups. In Key Methods in Geography (pp. 117–132).

Maciej Serda, Becker, F. G., Cleary, M., Team, R. M., Holtermann, H., The, D., Agenda, N., Science, P., Sk, S. K., Hinnebusch, R., Hinnebusch A, R., Rabinovich, I., Olmert, Y., Uld, D. Q. G. L. Q., Ri, W. K. H. U., Lq, V., Frxqwu, W. K. H., Zklfk, E., Edvhg, L. V, … فاطمى,)2013. (ح. Synteza i aktywność biologiczna nowych analogów tiosemikarbazonowych chelatorów żelaza. Uniwersytet Śląski, 7(1), 343–354. https://doi.org/10.2/JQUERY.MIN.JS

Marbach, J., Lages, C. R., & Nunan, D. (2016). Who are you and what do you value? Investigating the role of personality traits and customer-perceived value in online customer engagement. Https://Doi.Org/10.1080/0267257X.2015.1128472, 32(5–6), 502–525. https://doi.org/10.1080/0267257X.2015.1128472

Martínez-Navalón, J. G., Gelashvili, V., & Gómez-Ortega, A. (2021). Evaluation of User Satisfaction and Trust of Review Platforms: Analysis of the Impact of Privacy and E-WOM in the Case of TripAdvisor. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.750527

Mathwick, C., Wagner, J., & Unni, R. (2010). Computer-Mediated Customization Tendency (CMCT) and the Adaptive e-Service Experience. Journal of Retailing, 86(1), 11–21. https://doi.org/10.1016/J.JRETAI.2009.11.001

Mattila, A. S. & Patterson, P. G. (2004). The impact of culture on consumers' perceptions of service recovery efforts. Journal of Retailing, 80(3), 196–206. https://doi.org/10.1016/J.JRETAI.2004.08.001

Mccollough, M. A., Berry, L. L., & Yadav, M. S. (2016). An Empirical Investigation of Customer Satisfaction after Service Failure and Recovery. Http://Dx.Doi.Org/10.1177/109467050032002 , 3(2), 121–137. https://doi.org/10.1177/109467050032002

McKinney, V., Yoon, K., & Zahedi, F. (2002). The Measurement of Web-Customer Satisfaction: An Expectation and Disconfirmation Approach. Https://Doi.Org/10.1287/Isre.13.3.296.76 , 13(3), 296–315.

Michel, S., Bowen, D., & Johnston, R. (2009). Why service recovery fails.Tensions among customer, employee, and process perspectives 253. Journal of Service Management, 20(3), 1757–5818. https://doi.org/10.1108/09564230910964381

Mikolon, S., Quaiser, B., & Wieseke, J. (2015). Don't try harder: using customer inoculation to build resistance against service failures. Journal of the Academy of Marketing Science, 43(4), 512–527. https://doi.org/10.1007/S11747-014-0398-1/METRICS

Mitrevski, P. & Hristoski, I. (2011). e-Consumer online behavior: A basis for obtaining e-Commerce performance metrics. Communications in Computer and Information Science, 83 CCIS, 142–151. https://doi.org/10.1007/978-3-642-19325-5_15/COVER

MITTAL, V., HUPPERTZ, J., & KHARE, A. (2008). Customer complaining: The role of tie strength and information control. Journal of Retailing, 84(2), 195–204. https://doi.org/10.1016/J.JRETAI.2008.01.006

Naumann, K., Bowden, J., & Gabbott, M. (2020). Expanding customer engagement: the role of negative engagement, dual valences and contexts. European Journal of Marketing, 54(7), 1469–1499. https://doi.org/10.1108/EJM-07-2017-0464

Naumann, K., Lay-Hwa Bowden, J., & Gabbott, M. (2017). Exploring customer engagement valences in the social services. Asia Pacific Journal of Marketing and Logistics, 29(4), 890–912. https://doi.org/10.1108/APJML-08-2016-0144/FULL/PDF

Ng, S. C., Sweeney, J. C., & Plewa, C. (2020). Customer engagement: A systematic review and future research priorities. Australasian Marketing Journal (AMJ), 28(4), 235–252. https://doi.org/10.1016/J.AUSMJ.2020.05.004

Noor, A., Suryana, M., Novianti, S., & Amalia, S. (2020). Assessing E-business at small and medium-sized travel agencies. Utopia y Praxis Latinoamericana, 25(Extra1), 176–183. https://doi.org/10.5281/zenodo.3774603

Nursimulu, A. & Bossaerts, P. (2014). Excessive Volatility is Also a Feature of Individual Level Forecasts. Http://Dx.Doi.Org/10.1080/15427560.2014.877016 , 15(1), 16–29. https://doi.org/10.1080/15427560.2014.877016

Obeidat, Z. M. I., Xiao, S. H., Iyer, G. R., & Nicholson, M. (2017). Consumer revenge using the internet and social media: An examination of the role of service failure types and cognitive appraisal processes. Psychology and Marketing, 34(4), 496–515. https://doi.org/10.1002/MAR.21002

Orsingher, C., Valentini, S., & de Angelis, M. (2010). A meta-analysis of satisfaction with complaint handling in services. Journal of the Academy of Marketing Science, 38(2), 169–186. https://doi.org/10.1007/S11747-009-0155-Z/TABLES/7

Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer satisfaction and firm performance: insights from over a quarter century of empirical research. Journal of the Academy of Marketing Science, 48(3), 543–564. https://doi.org/10.1007/S11747-019-00657-7/TABLES/6

Palmatier, R. W., Kumar, V., & Harmeling, C. M. (2017). Customer engagement marketing. Customer Engagement Marketing, 1–328. https://doi.org/10.1007/978-3-319-61985-9/COVER

Parkhurst, E. 2013. (2013). Amazon.com goes down. Puget Sound Business Journal. https://www.bizjournals.com/seattle/blog/techflash/2013/08/amazoncom-has-gone-down.html

Pavlou, P. A. & Gefen, D. (2005). Psychological Contract Violation in Online Marketplaces: Antecedents, Consequences, and Moderating Role. Https://Doi.Org/10.1287/Isre.1050.0065 , 16(4), 372–399. https://doi.org/10.1287/ISRE.1050.0065

Pham, L. & Pham, L. N. (2011). Determinants Of E-Commerce Adoption In Vietnamese Small And Medium Sized Enterprises. In International Journal of Entrepreneurship (Vol. 15).

Piccoli, G. (2001). The customer-service life cycle: A framework for improving customer service through information technology. Cornell Hotel and Restaurant Administration Quarterly, 42(3), 38–45. https://doi.org/10.1016/S0010-8804(01)81023-5

Purchase, S., Da Silva Rosa, R., & Schepis, D. (2016). Identity construction through role and network position. Industrial Marketing Management, 54, 154–163. https://doi.org/10.1016/J.INDMARMAN.2015.07.004

Rohden, S. F. & Matos, C. A. de. (2022). Online service failure: how consumers from emerging countries react and complain. Journal of Consumer Marketing, 39(1), 44–54. https://doi.org/10.1108/JCM-01-2021-4366/FULL/PDF

Saini, S., Nigam, S., & Misra, S. C. (2013). Identifying success factors for implementation of ERP at Indian SMEs: A comparative study with Indian large organizations and the global trend. Journal of Modelling in Management, 8(1), 103–122. https://doi.org/10.1108/17465661311312003/FULL/PDF

Sands, S., Campbell, C., Ferraro, C., & Plangger, K. (2022). Buffering B2B service failure: The role of customer engagement. Industrial Marketing Management, 103, 47–60. https://doi.org/10.1016/J.INDMARMAN.2022.03.007

Sands, S., Campbell, C., Shedd, L., Ferraro, C., & Mavrommatis, A. (2020). How small service failures drive customer defection: Introducing the concept of microfailures. Business Horizons, 63(4), 573–584. https://doi.org/10.1016/j.bushor.2020.03.014

Schoefer, K., Wäppling, A., Heirati, N., & Blut, M. (2019). The moderating effect of cultural value orientations on behavioral responses to dissatisfactory service experiences. Journal of Retailing and Consumer Services, 48, 247–256. https://doi.org/10.1016/J.JRETCONSER.2019.02.009

Semeijn, J., van Riel, A. C. R., van Birgelen, M. J. H., & Streukens, S. (2005). E-services and offline fulfilment: how e-loyalty is created. Managing Service Quality, 15(2), 182–194. https://doi.org/10.1108/09604520510585361

Sengupta, A., Mazumdar, C., & Barik, M. S. (2005). e-Commerce security - A life cycle approach. Sadhana - Academy Proceedings in Engineering Sciences, 30(2–3), 119–140. https://doi.org/10.1007/BF02706241

Sengupta, S., Ray, D., Trendel, O., & Vaerenbergh, Y. Van. (2018). The Effects of Apologies for Service Failures in the Global Online Retail. International Journal of Electronic Commerce, 22(3), 419–445. https://doi.org/10.1080/10864415.2018.1462951

Sim, M., Conduit, J., Plewa, C., & Hentzen, J. K. (2022). Customer engagement with service providers: an empirical investigation of customer engagement dispositions. European Journal of Marketing, 56(7), 1926–1955. https://doi.org/10.1108/EJM-12-2020-0879/FULL/PDF

Singh, J. (1988). Consumer Complaint Intentions and Behavior: Definitional and Taxonomical Issues. Journal of Marketing, 52(1), 93. https://doi.org/10.2307/1251688

Sinha, M. & Sheth, J. (2018). Growing the pie in emerging markets: Marketing strategies for increasing the ratio of non-users to users. Journal of Business Research, 86, 217–224. https://doi.org/10.1016/J.JBUSRES.2017.05.007

Smith, A. E. & Humphreys, M. S. (2006). Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. Behavior Research Methods, 38(2), 262–279. https://doi.org/10.3758/BF03192778/METRICS

Smith, A. K., Bolton, R. N., & Wagner, J. (1999a). A model of customer satisfaction with service encounters involving failure and recovery. Journal of Marketing Research, 36(3), 356–372. https://doi.org/10.2307/3152082

Smith, A. K., Bolton, R. N., & Wagner, J. (1999b). A Model of Customer Satisfaction with Service Encounters Involving Failure and Recovery. Journal of Marketing Research, 36(3), 356–372. https://doi.org/10.1177/002224379903600305/ASSET/IMAGES/LARGE/10.1177_002224379903600305-TABLE2.JPEG

Sotiriadou, P., Brouwers, J., & Le, T. A. (2014). Choosing a qualitative data analysis tool: a comparison of NVivo and Leximancer. Https://Doi.Org/10.1080/11745398.2014.902292 , 17(2), 218–234. https://doi.org/10.1080/11745398.2014.902292

Spreng, R. A., Harrell, G. D., & Mackoy, R. D. (1995). Service recovery: Impact on satisfaction and intentions. Journal of Services Marketing, 9(1), 15–23. https://doi.org/10.1108/08876049510079853

Storbacka, K., Brodie, R. J., Böhmann, T., Maglio, P. P., & Nenonen, S. (2016). Actor engagement as a microfoundation for value co-creation. Journal of Business Research, 69(8), 3008–3017. https://doi.org/10.1016/J.JBUSRES.2016.02.034

Subba Rao, S., Metts, G., & Mora Monge, C. A. (2003). Electronic commerce development in small and medium sized enterprises A stage model and its implications. Business Process Management Journal, 9(1), 11–32. https://doi.org/10.1108/14637150310461378

Surjadjaja, H., Ghosh, S., & Antony, J. (2003). Determining and assessing the determinants of e-service operations. Managing Service Quality: An International Journal, 13(1), 39–53. https://doi.org/10.1108/09604520310456708/FULL/XML

Tan, C. W., Benbasat, I., & Cenfetelli, R. T. (2016). An exploratory study of the formation and impact of electronic service failures. MIS Quarterly: Management Information Systems, 40(1), 1–29. https://doi.org/10.25300/MISQ/2016/40.1.01

Taplin, J., Dredge, D., & Scherrer, P. (2014). Monitoring and evaluating volunteer tourism: a review and analytical framework. Https://Doi.Org/10.1080/09669582.2013.871022 , 22(6), 874–897. https://doi.org/10.1080/09669582.2013.871022

Tran, L. T. T. (2021). Managing the effectiveness of e-commerce platforms in a pandemic. Journal of Retailing and Consumer Services, 58, 102287. https://doi.org/10.1016/j.jretconser.2020.102287

Turban, E., King, D., Lee, J. K., Liang, T.-P., & Turban, D. C. (2015). Electronic Commerce. https://doi.org/10.1007/978-3-319-10091-3

Uitz, T. O. & Jančíková, E. (2022). Analyzing service failures when shopping for supplements online among college students. Management (Croatia), 27(1), 17–30. https://doi.org/10.30924/MJCMI.27.1.2

Van Doorn, J., Lemon, K. N., Mittal, V., Nass, S., Pick, D. N., Pirner, P., & Verhoef, P. C. (2010). Customer Engagement Behavior: Theoretical Foundations and Research Directions. Journal of Service Research, 13(3), 253–266. https://doi.org/10.1177/1094670510375599

Van Raaij, W. F. & Pruyn, A. T. H. (1998). Customer control and evaluation of service validity and reliability. Psychology and Marketing, 15(8), 811–832. https://doi.org/10.1002/(SICI)1520-6793(199812)15:8<811::AID-MAR6>3.0.CO;2-8

van Vaerenbergh, Y., Larivière, B., & Vermeir, I. (2012). The Impact of Process Recovery Communication on Customer Satisfaction, Repurchase Intentions, and Word-of-Mouth Intentions. Http://Dx.Doi.Org/10.1177/1094670512442786 , 15(3), 262–279. https://doi.org/10.1177/1094670512442786

Van Vaerenbergh, Y. & Orsingher, C. (2016). Service recovery: An integrative framework and research agenda. Academy of Management Perspectives, 30(3), 328–346. https://doi.org/10.5465/AMP.2014.0143

Van Vaerenbergh, Y., Varga, D., De Keyser, A., & Orsingher, C. (2019). The Service Recovery Journey: Conceptualization, Integration, and Directions for Future Research. Journal of Service Research, 22(2), 103–119. https://doi.org/10.1177/1094670518819852/FORMAT/EPUB

Vivek, S. D., Beatty, S. E., & Morgan, R. M. (2014). Customer Engagement: Exploring Customer Relationships Beyond Purchase. Http://Dx.Doi.Org/10.2753/MTP1069-6679200201 , 20(2), 122–146. https://doi.org/10.2753/MTP1069-6679200201

Waite, K. & Harrison, T. (2002). Consumer expectations of online information provided by bank websites. Journal of Financial Services Marketing 2002 6:4, 6(4), 309–322. https://doi.org/10.1057/PALGRAVE.FSM.4770061

Weiner, B. (2000). Attributional Thoughts about Consumer Behavior. Journal of Consumer Research, 27(3), 382–387. https://doi.org/10.1086/317592

Wixom, B. H. & Todd, P. A. (2005). A Theoretical Integration of User Satisfaction and Technology Acceptance. Https://Doi.Org/10.1287/Isre.1050.0042 , 16(1), 85–102. https://doi.org/10.1287/ISRE.1050.0042

Wixom, B. H. & Watson, H. J. (2001). An Empirical Investigation of the Factors Affecting Data Warehousing Success. MIS Q., 25(1), 17–41. https://doi.org/10.2307/3250957

Wolcott, H. (1994). Transforming Quality Data. Transforming Quality Data, 1(1), 1–433. https://uk.sagepub.com/en-gb/eur/writing-up-qualitative-research/book233101

Yang, Z., Shi, Y., & Yan, H. (2016). Scale, congestion, efficiency and effectiveness in e-commerce firms. Electronic Commerce Research and Applications. Res. Appl., 20, 171–182. https://doi.org/10.1016/J.ELERAP.2016.07.003

Yu, M., Zhou, R., Cai, Z., Tan, C. W., & Wang, H. (2020). Unravelling the relationship between response time and user experience in mobile applications. Internet Research, 30(5), 1353–1382. https://doi.org/10.1108/INTR-05-2019-0223/FULL/XML

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1993). The nature and determinants of customer expectations of service. Journal of the Academy of Marketing Science 1993 21:1, 21(1), 1–12. https://doi.org/10.1177/0092070393211001

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2017). Service Quality Delivery through Web Sites: A Critical Review of Extant Knowledge. Http://Dx.Doi.Org/10.1177/009207002236911 , 30(4), 362–375. https://doi.org/10.1177/009207002236911

Zhang, C., Ma, S., Li, S., & Singh, A. (2021). Effects of customer engagement behaviors on action loyalty: moderating roles of service failure and customization. International Journal of Contemporary Hospitality Management, 33(1), 286–304. https://doi.org/10.1108/IJCHM-08-2019-0740

Chapter 5 References

Asunka, B. A. (2016). The Significance of Information and Communication Technology for SMEs in Rural Communities. Journal of Small Business and Entrepreneurship Development, 4(2). https://doi.org/10.15640/JSBED.V4N2A4

Chege, S., & Wang, D. (2019). Technology Analysis & Strategic Management Information technology innovation and its impact on job creation by SMEs in developing countries: an analysis of the literature review. Technology Analysis & Strategic Management. https://doi.org/10.1080/09537325.2019.1651263

Chouki, M., Talea, M., Okar, C., & Chroqui, R. (2020). Barriers to Information Technology Adoption Within Small and Medium Enterprises: A Systematic Literature Review. Https://Doi.Org/10.1142/S0219877020500078, 17(1).

Consoli, D. (2012). Literature Analysis on Determinant Factors and the Impact of ICT in SMEs. Procedia - Social and Behavioral Sciences, 62, 93–97. https://doi.org/10.1016/J.SBSPRO.2012.09.016

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. Journal of Management Information Systems, 19(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Duan, Y., Mullins, R., Hamblin, D., Stanek, S., Sroka, H., Machado, V., & Araujo, J. (2002). Addressing ICTs skill challenges in SMEs: Insights from three country investigations. Journal of European Industrial Training, 26(9), 430–441. https://doi.org/10.1108/03090590210451524

Appendices

Appendix A

Appendix A is related to Chapter 2 study results.

Appendix A.1 - Ranked concepts

The ranked concepts is based on the relative frequency, strength and prominence of the analyzed text.
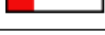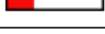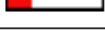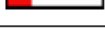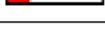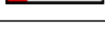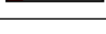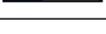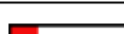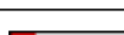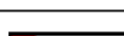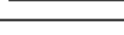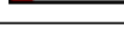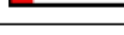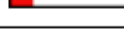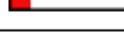
Category: COLUMN_negative-outcomes

Concept	Rel Freq (%)	Strength (%)	Prominence
resources	16	69	1.8
security	10	66	1.8
costs	9	66	1.8
infrastructure	8	58	1.5
service	7	57	1.5
sales	5	52	1.4
market	12	51	1.4
information	13	51	1.4
environment	5	50	1.3
benefits	9	47	1.2
technology	32	45	1.2
management	19	43	1.1
development	8	40	1.1
organizational	7	38	1.0
customer	10	38	1.0
growth	4	38	1.0
chain	7	36	1.0
business	19	34	0.9
performance	5	31	0.8
enterprises	9	24	0.6

Category: COLUMN_positive-outcomes

Concept	Rel Freq (%)	Strength (%)	Prominence
social	11	73	3.5
product	11	57	2.8
customer	27	57	2.7
competitive	15	55	2.6
development	19	54	2.6
process	16	53	2.5
online	13	52	2.5
environment	10	50	2.4
performance	16	50	2.4
data	9	47	2.3
benefits	16	47	2.2
information	21	44	2.1
market	19	44	2.1
growth	9	42	2.0
organizational	13	41	2.0
management	33	41	2.0
business	41	41	2.0
chain	11	33	1.6
resources	13	30	1.4
technology	38	29	1.4

Table 2.1 of appendix – Ranked concepts for categories (source: Leximancer outputs)

Appendix A.2 - Ranked concepts

Concept	Rel Freq (%)	Strength (%)	Prominence
costs & sales	2	80	11.2
security & data	2	100	9.9
resources & infrastructure	4	73	9.9
security & environment	2	80	9.4
costs & infrastructure	2	100	8.8
chain & competitive	3	86	8.6
security & culture	2	67	8.2
market & social	2	100	7.9
environment & benefits	2	200	7.5
costs & market	3	67	7.4
organizational & culture	2	40	7.1
market & benefits	4	67	7.0
development & growth	2	57	6.9
environment & data	1	100	6.7
service & product	1	50	6.4
service & sales	1	< 1	6.4
sales & market	2	67	6.2
security & organizational	2	67	6.1
security & information	3	86	6.0
resources & organizational	3	60	5.7
sales & customer	2	67	5.7
infrastructure & sales	1	100	5.6
costs & product	1	50	5.6
information & environment	2	200	5.4
infrastructure & environment	1	100	5.3
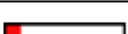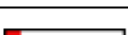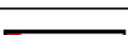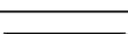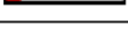
information & growth	2	50	5.2
resources & culture	2	67	5.1
environment & online	1	67	5.1
infrastructure & service	1	100	5.0
resources & customer	4	73	5.0
benefits & social	1	< 1	5.0
infrastructure & market	2	80	4.9
development & social	1	67	4.8
environment & management	3	67	4.8
resources & online	2	100	4.7
environment & competitive	1	67	4.7
information & development	3	60	4.6
infrastructure & culture	1	50	4.6
costs & information	2	67	4.5
costs & customer	2	67	4.5

Table 2.2 of appendix – Ranked concepts for categories: negative outcomes (source: Leximancer outputs)

Appendix A.3 - Ranked concepts

Concept	Rel Freq (%)	Strength (%)	Prominence
social & product	4	80	32.2
social & sales	4	100	32.2
social & online	4	133	24.4
social & data	3	150	24.1
product & sales	3	100	19.0
social & information	5	83	16.2
product & process	4	100	16.1
product & information	6	60	15.4
product & customer	6	120	15.4
social & process	3	100	15.3
competitive & development	6	120	14.5
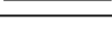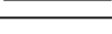
social & growth	2	100		14.5
process & growth	4	133		14.5
online & data	3	75		14.5
environment & performance	4	100		14.3
competitive & data	3	< 1		13.4
product & competitive	3	300		13.4
social & customer	4	80		13.0
product & data	2	100		12.7
online & culture	3	150		12.0
online & information	6	150		11.7
chain & infrastructure	4	133		11.6
process & chain	5	125		11.6
product & service	2	50		11.5
customer & benefits	8	114		11.5
online & costs	3	75		11.5
process & information	7	78		11.4
social & competitive	2	100		11.3
performance & sales	3	300		11.3
product & performance	3	75		11.3
product & market	4	100		11.2
benefits & market	7	58		11.0
environment & growth	2	200		10.9
customer & competitive	6	150		10.8
social & business	7	78		10.8
competitive & infrastructure	3	300		10.6
data & culture	2	200		10.5
environment & chain	3	75		10.4
online & security	3	75		10.2

Table 2.3 of appendix – Ranked concepts for categories: positive outcomes (source: Leximancer outputs)

Appendix A.4 – Ranked Counts

Concept	Count
technology	128
business	99
management	79
enterprises	66
information	47
customer	47
resources	43
market	43
development	35
benefits	34
chain	33
performance	32
organizational	31
process	30
security	27
competitive	27
online	25
infrastructure	24
costs	24
culture	23
growth	21
service	21
environment	20
data	19
product	19
sales	19
social	15

Category	Count
negative-outcomes	182
positive-outcomes	101

Table 2.4 of appendix – Ranked counts (source: Leximancer outputs)

Appendix A.5 – Supporting Text Summary

The supporting text summary helped the Leximancer tool to produce all the results.

Concept	Related Concept	Supporting Text
resources	culture	Hierarchy culture type was significantly and negatively correlated with e-commerce adoption; Clan and Market, were not significantly correlated with e-commerce adoption; the top managers opinion was significantly and negatively correlated with hierarchy culture; only possessing technological resources and infrastructure is not adequate to adopt e-commerce.
	customer	For SMEs constrained by their lack of resources, the service-oriented functions of a web portal outweigh its other functions (such as speed or system capacity) the findings on the relationship between industry benchmark information and perceived organisational performance which shows negative effects across all four performance dimensions (finance, customer, process, and learning) were unexpected. SME users may perceive a high degree of difficulty in using the web portal when portal service providers offer inappropriate training programs.
	infrastructure	the major challenges the furniture companies face in the implementation of IT are: The initial costs for IT infrastructure and solutions that creates particular difficulties due to the large number of small-sized companies that dominate the furniture marketplace; Resistance to innovation, both internal and external to the organisation; Lack of technically skilled human resources; The identification of an addressable end market for the online selling of furniture.; The uncertainty of the payback This stability is hard to maintain since due to market requirements and the increasingly dynamicity of customer needs, business requirements are constantly being adapted, causing systems, models and semantics to change, thus leading to harmonisa- tion breaking and disruption of the interoperability in the enterprise systems networks;
	online	It was evident that SME owners/ managers possessed allocative resources as they could determine how much to give to a particular employee; With respect to institutionalizing E-Commerce, SME owners, indicated their lack of human resources specifically ICT expertise resulted in their lack of confidence to institutionalize E-Commerce; SMEs lacked human resource and this factor incapacitated their position to exercise the power of institutionalizing E-Commerce.; SMEs understand E-Commerce as merely having a web presence, but not necessary being able to do typical E- Commerce transaction such as buying and selling online;
	organizational	resource constraints (lack of qualified human resources, lack of financial resources, and lack of technological resources) external environmental factors (government policies and initiatives, security and privacy, and infrastructural issues) organiza- tional issues (support from top management and organizational culture) resistance to acceptance of new technologies in the firm (perceived useful- ness of new technology and training workforce)

security	culture	A study by Pearson and Grandon (2005) discovered that the lack of security and reliability regarding e-commerce is significant barrier to the adoption of e-commerce; the lack of knowledge regarding the advantages of e-commerce forms an important barrier that needs to be circumvented in the process of adopting e-commerce into business; the existing culture significantly influences employee?s resistance to the adoption of e-commerce; with the adoption of e-commerce, employees are facing several changes from business methods to organizational culture, and this can effect the adoption of current and future technologies within the companie.
	data	The challenges currently faced by the SMEs in the regulatory domain are an important barrier that will need to be overcome in order to both encourage SMEs to take up e-business opportu- nities and establish trust relationships within the ecosystem as well as between its participants in the area of privacy and consumer protection,questions regarding the types of data that SMEs will deposit and exchange within the ecosystem environment and the respective regulatory controls to. apply need to be further examined in the domain of e-signatures and authentication, a number of questions regarding the level of security requirements which are applicable to the transactions carried out by the SMEs are still unanswered cross-border online contracting within the e-business ecosystem vision raises issues regarding possible barriers to recognition of electronically concluded contracts in the selected implementation cases with possibly serious implications for the DBE .
	environment	The perceived external barriers to e-commerce include: the unfavorable economic environment, the high cost of ICT and security concerns; The internal barriers to e-commerce include: poor internal communications infrastructure within SME firms, lack of ICT awareness and knowledge as well as inadequacy of ICT-capable and literate managers and workers, insufficient financial resources and the perceived lack of relevance or value-added of ICTs to their business; Cost is considered a crucial issue.. The initial investment for the adoption of a new technology is proportionately heavier for small than for large firms.
	information	Since SMEs are becoming one of the national economic growth engines it is a great loss for the nation if the SMEs are unable to avoid the potential information security incidents which cause the damage towards small enterprise due to the incompetencies to absorb the losses as easily as larger organizations do; a firm framework development must be provided since none of the security frameworks developed through previous studies focuses specifically on. the electronic business records authenticity;
	organizational	resource constraints (lack of qualified human resources, lack of financial resources, and lack of technological resources) external environmental factors (government policies and initiatives, security and privacy, and infrastructural issues) organiza- tional issues (support from top management and organizational culture) resistance to acceptance of new technologies in the firm (perceived useful- ness of new technology and training workforce)

costs	customer	At level 4 the limited contribution to cost reduction could also be due to the increase in the costs of the IT infrastructure required at this level Developing countries, which tend to share a lack of infrastructure readiness, a lack of skilled labor, employee resistance to moving from traditional to automated ways of doing business, and customer concerns (readiness, trust, and satisfaction), face a consequent delay in adopting technology and, in turn. face strong competition from the global markets in terms of market share, sales, and revenues.
	information	For SMEs, corporate ICT implementation incurs high costs from hardware establishment, networking, Web site construction, information system establishment, hiring of additional personnel, and maintenance of ICT;
	infrastructure	the major challenges the furniture companies face in the implementation of IT are: The initial costs for IT infrastructure and solutions that creates particular difficulties due to the large number of small-sized companies that dominate the furniture marketplace; Resistance to innovation, both internal and external to the organisation; Lack of technically skilled human resources; The identification of an addressable end market for the online selling of furniture.; The uncertainty of the payback This stability is hard to maintain since due to market requirements and the increasingly dynamicity of customer needs, business requirements are constantly being adapted, causing systems, models and semantics to change, thus leading to harmonisa- tion breaking and disruption of the interoperability in the enterprise systems networks;
	market	Beside the costs associatedwith duty deferral programs another key reason for SME to enter a domestic market upon landing of imported merchandise is that they may not be confident in the number of crossborder orders they will receive; Small andMediumSized Enterprises (SMEs) engaged in e-commerce will most likely find they are not generating the sales volumes necessary to qualify or justify participation indutydeferral programs. small and medium sized enterprises engaged in cross-border e-commerce do not appear to be able to participate in most of the government programs designed to help ex- porters.
	product	For the cost control of small and medium-sized e-commerce enterprises, there are three constraints: not enough awareness for the control of logistics cost, difficulty in logistics cost accounting, and the trade-off principle; the basic procedures of the cost control of small and medium-sized e-commerce enterprises are: specify goals for cost control; establish a cost tracking and monitoring mechanism; and sort out and adjust cost deviations. (3) Under the trans-ocean trade mode, the cost control of small and medium-sized e-commerce enterprises has the problems of inadequate accounting, and high costs of inventory, commission, product-return, and transportation; they can establish special accounting departments to strengthen product review, screening of partners, and information construction, so as to improve their ability in cost control.
	sales	At level 4 the limited contribution to cost reduction could also be due to the increase in the costs of the IT infrastructure required at this level Developing countries, which tend to share a lack of infrastructure readiness, a

		lack of skilled labor, employee resistance to moving from traditional to automated ways of doing business, and customer concerns (readiness, trust, and satisfaction), face a consequent delay in adopting technology and, in turn. face strong competition from the global markets in terms of market share, sales, and revenues.
infrastructure	culture	Hierarchy culture type was significantly and negatively correlated with e-commerce adoption; Clan and Market, were not significantly correlated with e-commerce adoption; the top managers opinion was significantly and negatively correlated with hierarchy culture; only possessing technological resources and infrastructure is not adequate to adopt e-commerce.
	environment	The perceived external barriers to e-commerce include: the unfavorable economic environment, the high cost of ICT and security concerns; The internal barriers to e-commerce include: poor internal communications infrastructure within SME firms, lack of ICT awareness and knowledge as well as inadequacy of ICT-capable and literate managers and workers, insufficient financial resources and the perceived lack of relevance or value-added of ICTs to their business; Cost is considered a crucial issue.. The initial investment for the adoption of a new technology is proportionately heavier for small than for large firms.
	market	the major challenges the furniture companies face in the implementation of IT are: The initial costs for IT infrastructure and solutions that creates particular difficulties due to the large number of small-sized companies that dominate the furniture marketplace; Resistance to innovation, both internal and external to the organisation; Lack of technically skilled human resources; The identification of an addressable end market for the online selling of furniture.; The uncertainty of the payback This stability is hard to maintain since due to market requirements and the increasingly dynamicity of customer needs, business requirements are constantly being adapted, causing systems, models and semantics to change, thus leading to harmonisa- tion breaking and disruption of the interoperability in the enterprise systems networks;
	sales	At level 4 the limited contribution to cost reduction could also be due to the increase in the costs of the IT infrastructure required at this level Developing countries, which tend to share a lack of infrastructure readiness, a lack of skilled labor, employee resistance to moving from traditional to automated ways of doing business, and customer concerns (readiness, trust, and satisfaction), face a consequent delay in adopting technology and, in turn. face strong competition from the global markets in terms of market share, sales, and revenues.
	service	an all digitized service infrastructure must be accessi- ble anytime, at any device, at any connection and from any place at a reasonable and affordable prize; This requires more than an infrastructure that interconnects to all rele- vant identities, as the some of the SMEs themselves lack sufficient IT competences as well as acquisition on the appropriate IT infrastructure, being cloud based or not. it is the target to lower one of the barriers: lack of IT competence and ignorance regarding the many new possibilities with modern e-Business;

service	product	SME must primarily convey all sales-based activities within a web site (routinization), and then try to use internet advertising. Otherwise, users will have no choice but to find other routes to communicate, order or receive the product or service.
sales	customer	"external resources, namely, quality of external expertise and electronic readiness of customers and suppliers that are complementary to IT have divergent impacts on return on sales, in that the quality of external expertise negatively and strongly affects ROS" "capital investements are not positively associated with firm profit" "IT capital investment that is, budgeting and IT training are not positively associated with firm profit confirmed"
	market	At level 4 the limited contribution to cost reduction could also be due to the increase in the costs of the IT infrastructure required at this level Developing countries, which tend to share a lack of infrastructure readiness, a lack of skilled labor, employee resistance to moving from traditional to automated ways of doing business, and customer concerns (readiness, trust, and satisfaction), face a consequent delay in adopting technology and, in turn. face strong competition from the global markets in terms of market share, sales, and revenues.
market	benefits	Many managers who claimed that they gained benefits from having a website were uncertain whether they had achieved them; if they adopt a complex website, it would cost them a fortune. Gray (2006), too, found that many SMEs doubted whether adopting e-commerce, particularly websites, improved the way they do business; although the survey found that market expansion as the most important benefit that managers gained from having website, the interviews did not substantiate the claim; firm?
	social	the market for social media use by SMEs is in an earlier stage of development than the use of Web 2.0 technology in consumer markets.
information	development	the insufficient financial resources which are necessary for setting up a department, responsible for the maintenance of computer systems and software as well as the impossibility to employ qualified ICT specialists, who are responsible for the timely implementation of effective technological innovations that ensure the confidentiality, integrity and accessibility to corporate information assets and resources; The low share of enterprises that implement. e-commerce makes an impression in the obtained results, which can be interpreted as a serious indicator of the need for innovative solutions for the development of e-business systems in Bulgarian enterprises
	environment	various potential advantages can be created by e-commerce, but surprisingly SMEs? adoption of e-commerce has still been limited perhaps due to the fact that SMEs have different characteristics from large enterprises; distinct characteristics imbedded in SMEs consist of small management teams, strong owner influence, lack of staff in specialized areas such as information technology, multi- functional management, limited control over their business environment, limited market share, low employee turnover, a reluctance to take risks, and avoidance. of sophisticated software or

		applications.
	growth	Since SMEs are becoming one of the national economic growth engines it is a great loss for the nation if the SMEs are unable to avoid the potential information security incidents which cause the damage towards small enterprise due to the incompetencies to absorb the losses as easily as larger organizations do; a firm framework development must be provided since none of the security frameworks developed through previous studies focuses specifically on. the electronic business records authenticity;
environment	competitive	E-leaders reported a significantly more complex environment and more pressure from competition than average, and this may account at least in part for their more proactive B2B EC adoption strategy; Organizations that have been more reactive should consider whether their sluggish approach has benefited or subverted their competitive posture, and how well or ill it prepares them for the inevitability of increasing sophistication in supply chain management; e-laggards had. less trust in their trading partners;
	data	The challenges currently faced by the SMEs in the regulatory domain are an important barrier that will need to be overcome in order to both encourage SMEs to take up e-business opportu- nities and establish trust relationships within the ecosystem as well as between its participants in the area of privacy and consumer protection,questions regarding the types of data that SMEs will deposit and exchange within the ecosystem environment and the respective regulatory controls to. apply need to be further examined in the domain of e-signatures and authentication, a number of questions regarding the level of security requirements which are applicable to the transactions carried out by the SMEs are still unanswered cross-border online contracting within the e-business ecosystem vision raises issues regarding possible barriers to recognition of electronically concluded contracts in the selected implementation cases with possibly serious implications for the DBE .
	management	The perceived external barriers to e-commerce include: the unfavorable economic environment, the high cost of ICT and security concerns; The internal barriers to e-commerce include: poor internal communications infrastructure within SME firms, lack of ICT awareness and knowledge as well as inadequacy of ICT-capable and literate managers and workers, insufficient financial resources and the perceived lack of relevance or value-added of ICTs to their business; Cost is considered a crucial issue.. The initial investment for the adoption of a new technology is proportionately heavier for small than for large firms.
	online	The challenges currently faced by the SMEs in the regulatory domain are an important barrier that will need to be overcome in order to both encourage SMEs to take up e-business opportu- nities and establish trust relationships within the ecosystem as well as between its participants in the area of privacy and consumer protection,questions regarding the types of data that SMEs will deposit and exchange within the ecosystem environment and the respective regulatory controls to. apply need to be further examined in the domain of e-

		signatures and authentication, a number of questions regarding the level of security requirements which are applicable to the transactions carried out by the SMEs are still unanswered cross-border online contracting within the e-business ecosystem vision raises issues regarding possible barriers to recognition of electronically concluded contracts in the selected implementation cases with possibly serious implications for the DBE .
benefits		Firm size is one factor that can affect the adoption decision. This is attributable to the fact that the larger the company, the more likely it is to be aware of the importance of having a web presence and of the many related benefits;
technology		technical restraints are the most important barriers to e-commerce adoption by Egyptian SMEs SMEs in Egypt are not independent when they adopt technology and rely on ?external ICT firms? assistance?
management		one key barrier is resistance from SMEs? top management teams;
development	growth	Since SMEs are becoming one of the national economic growth engines it is a great loss for the nation if the SMEs are unable to avoid the potential information security incidents which cause the damage towards small enterprise due to the incompetencies to absorb the losses as easily as larger organizations do; a firm framework development must be provided since none of the security frameworks developed through previous studies focuses specifically on. the electronic business records authenticity;
	social	the market for social media use by SMEs is in an earlier stage of development than the use of Web 2.0 technology in consumer markets.
organizational	culture	A study by Pearson and Grandon (2005) discovered that the lack of security and reliability regarding e-commerce is significant barrier to the adoption of e-commerce; the lack of knowledge regarding the advantages of e-commerce forms an important barrier that needs to be circumvented in the process of adopting e-commerce into business; the existing culture significantly influences employee?s resistance to the adoption of e-commerce; with the adoption of e-commerce, employees are facing several changes from business methods to organizational culture, and this can effect the adoption of current and future technologies within the companie.
customer		it was easy to appreciate how concerns such as the dictatorial attitude of customers and their failure to communicate effectively or respect standards would tend to make functions that are collaborative in nature of less interest functions that are collaborative in nature are bound to be less relevant if customers show no inclination to be effectively collaborative
growth		It is because SMEs tend to assume that the great BRI would ultimately only benefit large MNCs with macro investments and development and will neglect the growth of SMEs;
chain	competitive	In the modern business world, it is very difficult to achieve a secure competitive advantage, as every advantage is momentarily; The model carries some disadvantages and barriers that are briefly examined in the paper, such as

		the risk of vendor lock-in when implementing cloud computing technologies and applications, technological requirements and limitations, as well as potential high investment if SMEs opt to acquire their own hardware and software necessary. for the e-supply chain implementation;
business		for the technological context (H1), one may argue for diminishing relevance for some of the technological factors in SME's decision to implement e-business; environmental factors are not meaningful enough to drive SMEs to fully use e- business;
performance		organizations will not be benefited from new practice that was originally designed to improve performance unless users are able to use it;
enterprises		Lack of Awareness: Though there are many beneficial schemes and programmes available for the existing and upcoming entrepreneurs, but they are not getting fully benefitted from those schemes and programmes due to lack of awareness. Single Window System to help the needy entrepreneurs as, it is not possible for an upcoming entrepreneur to have sound financial base, hence many micro enterprises dies at their nascent stage.

Table 2.5 of appendix – Supporting Text Summary: Negative Outcomes (source: Leximancer outputs)

Appendix A.6 – Supporting Text Summary

Concept	Related Concept	Supporting Text
social	business	the importance of additional sources of revenue other than just advertising, which is in line with the idea that new revenue models are needed for survival as users become accustomed to free products and ser- vices; SME social media platforms are strategically important to the U.S. and UK economies because of their role in facilitating knowledge exchange, network- ing, and sales between SME and their economic partners; The novel use of online panel data combined with the detailed analysis and evaluation of individual platforms using business model theory made it possible to successfully apply strategic group theory in a new business context;
	competitive	advertising is essential in the retail sector in order to become and remain competitive SMEs have encountered more traffic ? both organic and paid ? when they increased their advertising budget a smaller percentage of people that access the website either directly or through organic search on both social media and search engines end up buying a product socialmedia advertising has the primary purpose of increasing awareness that will eventually lead to sales continuous advertising spending not only affects paid advertising driven sales but also organic sales a significant number of the customers that. came to the websites through paid campaigns over a period of one year continue to make purchases from the same store results show that social media marketing and search engine advertising have a strong positive impact on both paid and organic driven sales
	customer	were inherently dynamic, revealing in detail how entrepreneurs could promote their own managerial capabilities through learning, reflection, and building up social networks; Our study identified two key organizational CBEC capabilities: platform utilization capabilities and business development capabilities. Although there were probably other organizational capabilities that affected the SMEs' dig- ital transformations, the theoretical significance of these two capabilities is clear: Together, they allow SMEs to sense and respond to market and platform changes, to maintain durable relationships with customers, and to optimize and grow their businesses.
	data	Deep learning as AI area encompasses a wide range of neural network architectures designed to complete different tasks, these algorithms are used to extract complex abstractions (by formulat- ing first simpler ones) as data representations through a hierarchical learning process; In companies' speech and language recognition may be important in the area of tasks such as branding, product positioning, corporate reputation management, and social media marketing; AI techniques. are implemented into targeting process to make it more possible that consumers will click on an online advertisement; AI may be implemented to find correlations between price and sells and to monitor price changes, enable dynamic real-time pricing and demand response optimization and ? as a result ?
	growth	, respectively; The marginal effects suggest that small

		firms which belong to the value chain information intensive industry with a social media profile are 8% more likely to appear in the higher response category of revenue growth (i.e. ?increased? response category) than those that do not adopt such E-commerce technology; the probit regression coefficients for all three forms of web-based E-commerce are statistically significant and positive in SMEs that compete in the product information intensive industry suggesting that the launch and maintenance of a company's own web- site, the use of a third-party website, and a social media profile, all have a simultaneous positive effect on sales growth; For an SME competing in a high value chain information.
	information	intensive or product in- formation intensive industry that has a business website, a third-party website, and/or a social media profile, it is more likely to experience an increase in business revenue than those without the respective form of E-commerce; he positive impact of the E-commerce adoption on performance was expected to be conditioned upon information characteristics of the business process and product of information. In addition, we argue that the extent to which the commercial websites and social media profiles influence the performance of small business depends on the level of interactivity and design sophistication; information technology investments contribute positively to firm performance where the value chain information or product information intensity of the industry is deemed as high; No variations were found in the likelihood of different performance.
	online	The use of information and communications technologies and e-commerce more specifically has been indicated as an important factor in building sustainable economic growth; there is a little argument that e-commerce is having a significant transformative impact on economic and social activities and relationships throughout the world; SME's organizational readiness was positively associated with their intent to use Internet/business technologies; e-business has changed the business models in Canada. by reducing costs and increasing the productivity; Web site design and culture were advanced as essential tool to Web site trust, Web site satis- faction, and e-loyalty in online business relationships;
	process	Deep learning as AI area encompasses a wide range of neural network architectures designed to complete different tasks, these algorithms are used to extract complex abstractions (by formulat- ing first simpler ones) as data representations through a hierarchical learning process; In companies' speech and language recognition may be important in the area of tasks such as branding, product positioning, corporate reputation management, and social media marketing; AI techniques. are implemented into targeting process to make it more possible that consumers will click on an online advertisement; AI may be implemented to find correlations between price and sells and to monitor price changes, enable dynamic real-time pricing and demand response optimization and ? as a result ?
	product	s actors are well aware that the use of information technology, especially m- commerce not only extends the business network and facilitates business transactions

		but also triggers the innovation, such as process, product and marketing innovation; It is proven that the network is widespread, increasing sales and market share to the Foreign; one?s belief in information technology is related to expediency and easiness influenced by 3 factors namely institution, social and individual;
	sales	, respectively; The marginal effects suggest that small firms which belong to the value chain information intensive industry with a social media profile are 8% more likely to appear in the higher response category of revenue growth (i.e. ?increased? response category) than those that do not adopt such E-commerce technology; the probit regression coefficients for all three forms of web-based E-commerce are statistically significant and positive in SMEs that compete in the product information intensive industry suggesting that the launch and maintenance of a company's own web- site, the use of a third-party website, and a social media profile, all have a simultaneous positive effect on sales growth; For an SME competing in a high value chain information.
product	competitive	advertising is essential in the retail sector in order to become and remain competitive SMEs have encountered more traffic ? both organic and paid ? when they increased their advertising budget a smaller percentage of people that access the website either directly or through organic search on both social media and search engines end up buying a product socialmedia advertising has the primary purpose of increasing awareness that will eventually lead to sales continuous advertising spending not only affects paid advertising driven sales but also organic sales a significant number of the customers that. came to the websites through paid campaigns over a period of one year continue to make purchases from the same store results show that social media marketing and search engine advertising have a strong positive impact on both paid and organic driven sales
	costs	The decision to use e-commerce to sell directly to cross-border cus- tomers sets off a corporate decision to accepts the costs, liabilities and responsibilities for establishing and delivering on specific service levels and presented to customers on their order pages.; The design of the product determines the Harmonized Tariff System code (HTS) most likely assigned by Customs officials in the country of importation; government policy makers need to rethink the costs and paperwork burdens of the existing cross-border programs;
	customer	advertising is essential in the retail sector in order to become and remain competitive SMEs have encountered more traffic ? both organic and paid ? when they increased their advertising budget a smaller percentage of people that access the website either directly or through organic search on both social media and search engines end up buying a product socialmedia advertising has the primary purpose of increasing awareness that will eventually lead to sales continuous advertising spending not only affects paid advertising driven sales but also organic sales a significant number of the customers that. came to the websites through paid campaigns over a period of one year continue to make purchases from the same store results show that social media marketing and search engine advertising have a strong positive impact

		on both paid and organic driven sales
	data	Deep learning as AI area encompasses a wide range of neural network architectures designed to complete different tasks, these algorithms are used to extract complex abstractions (by formulat- ing first simpler ones) as data representations through a hierarchical learning process; In companies' speech and language recognition may be important in the area of tasks such as branding, product positioning, corporate reputation management, and social media marketing; AI techniques. are implemented into targeting process to make it more possible that consumers will click on an online advertisement; AI may be implemented to find correlations between price and sells and to monitor price changes, enable dynamic real-time pricing and demand response optimization and ? as a result ?
	information	intensive or product in- formation intensive industry that has a business website, a third-party website, and/or a social media profile, it is more likely to experience an increase in business revenue than those without the respective form of E-commerce; he positive impact of the E-commerce adoption on performance was expected to be conditioned upon information characteristics of the business process and product of information. In addition, we argue that the extent to which the commercial websites and social media profiles influence the performance of small business depends on the level of interactivity and design sophistication; information technology investments contribute positively to firm performance where the value chain information or product information intensity of the industry is deemed as high; No variations were found in the likelihood of different performance.
	market	E-clusters, offering better market linkages, businesses practices, and standardized information systems, not only strengthen MEs? bargaining power but also improve their business competitiveness. Assist MEs to enhance product competitiveness through the use of e-clusters.
	performance	the utilizing of E-commerce has a positive effect on revenue growth for both value chain information intensive and product information intensive SMEs.; The results indicate that a small firm that has its own website is 13% and 16% more likely to experience revenue growth during the past 12 months when compared with its counterpart that does not have its own website; The probability that a small organization with a third-party website reports performance growth is 4% and 5% higher than those that do not employ such a form of E-commerce in value chain information intensive industry and product information intensive industry.
	process	customer management services, supply chain facilities, new product development, IS/IT infrastructure, transparency and visibility of information, government encour- agement and senior management involvement suggested by various academics and practitioners are crucial for e-marketing orientation on business performance; It is crucial that SMEs identify CSFs in the e-business implementation process; the B2B- eM-CSFs can serve as an important milestone for the development of an e-marketing framework.. B2B e-marketplace is suitable to SMEs operating in low-technology

		environments.
	sales	s actors are well aware that the use of information technology, especially m- commerce not only extends the business network and facilitates business transactions but also triggers the innovation, such as process, product and marketing innovation; It is proven that the network is widespread, increasing sales and market share to the Foreign; one?s belief in information technology is related to expediency and easiness influenced by 3 factors namely institution, social and individual;
	service	As for the U.S. firms, there was a small increase in cost reduction. adopting B2B e-commerce does achieve some indicators of quality, namely fast delivery (both for U.S. and Egyptian SMEs), an increase in the quality of customer service, and an increase in product and service quality (U.S. SMEs), and an increase in information quality, and quality of relations with business partners (Egyptian SMEs).
customer	benefits	Malaysian SMEs are willing to adopt e-commerce due to its many advantage; integration, close relationships with customers and other business owners, influence market growth to earn external resources, and increase the expertise for growth and development of business; e-commerce increase the level of confidence of business managers in order for them to continue with the adoption process; when managers get a hold of more information, and are more familiar with the benefits. of the adoption e-commerce, their confidence level will inevitably rise; the more information that the management possesses on e-commerce, the higher their level of confidence will be with regards to it; there is no relationship between complexity and e-commerce adoption; the owners and managers of SMEs have an important role in encouraging the growth of innovation because they are familiar with the organizational system and the characteristics of SMEs; Managers.
	competitive	benefits? factors being identified: Essential, Marketing and Competition, and Internal Business Efficiency, each of which distinguishes particular types of perceived advantages that influence decision making by the travel agency owner-managers when considering how e-commerce might contribute to their business; Improved knowl- edge and transactions management, effective partnership building, better accountability, and increased staff satisfaction all enhance the ability of the SME agents. to achieve future strategic success through operational efficiency; Marketing and Competition, which comprises several dimensions of these travel businesses? ability to compete effectively and gain advantage in the market place through meeting customer needs; There is a definite focus on the perceived marketing and competitive advantages of an advanced level e-commerce which is consistent with its usage when SMEs are making decisions about its adoption; Within the context of SME e-commerce adoption in developing countries it is clear that perceived benefits are influential in determining advanced-level usage;
competitive	development	Firm size, firm scope, governmental support, consumer readiness, IT infrastructure and internet skills were found to be the most important e-business adoption drivers; E-business is becoming a powerful tool that helps

		companies create better backward and forward relationships and develop a competitive advantage. E-business adoption can provide substantial benefits to companies including increased revenues, operational efficiency, customer satisfaction and relationship development; Firm scope has also been found to have a significant effect on e-business adoption; IT infrastructure (hardware) significantly affects e-business adoption; adoption cost is not a significant inhibitor of e-business adoption, something that implies that companies that have implemented e-business strategies did so without considering.
	infrastructure	Firm size, firm scope, governmental support, consumer readiness, IT infrastructure and internet skills were found to be the most important e-business adoption drivers; E-business is becoming a powerful tool that helps companies create better backward and forward relationships and develop a competitive advantage. E-business adoption can provide substantial benefits to companies including increased revenues, operational efficiency, customer satisfaction and relationship development; Firm scope has also been found to have a significant effect on e-business adoption; IT infrastructure (hardware) significantly affects e-business adoption; adoption cost is not a significant inhibitor of e-business adoption, something that implies that companies that have implemented e-business strategies did so without considering.
development		It is essencvial for the human resource departements of any SMEs to fully understand the nature of their individual companies, problems and needs for future human resource development. The SMEs could clearly be certain of the needs of their IT professionals' skill demand, and these results could probably provide a solution to the internal on-job-training programs, increasing IT workforce and outsourcing.
process	chain	customer management services, supply chain facilities, new product development, IS/IT infrastructure, transparency and visibility of information, government encour- agement and senior management involvement suggested by various academics and practitioners are crucial for e-marketing orientation on business performance; It is crucial that SMEs identify CSFs in the e-business implementation process; the B2B- eM-CSFs can serve as an important milestone for the development of an e-marketing framework.. B2B e-marketplace is suitable to SMEs operating in low-technology environments.
	growth	Malaysian SMEs are willing to adopt e-commerce due to its many advantage; integration, close relationships with customers and other business owners, influence market growth to earn external resources, and increase the expertise for growth and development of business; e-commerce increase the level of confidence of business managers in order for them to continue with the adoption process; when managers get a hold of more information, and are more familiar with the benefits. of the adoption e-commerce, their confidence level will inevitably rise; the more information that the management possesses on e-commerce, the higher their level of confidence will be with regards to it; there is no relationship between complexity

		and e-commerce adoption; the owners and managers of SMEs have an important role in encouraging the growth of innovation because they are familiar with the organizational system and the characteristics of SMEs; Managers.
	information	s actors are well aware that the use of information technology, especially m- commerce not only extends the business network and facilitates business transactions but also triggers the innovation, such as process, product and marketing innovation; It is proven that the network is widespread, increasing sales and market share to the Foreign; one?s belief in information technology is related to expediency and easiness influenced by 3 factors namely institution, social and individual;
online	costs	like online ordering enables them to reduce operating costs like store rental and staff numbers, which, in turn, allows them to maintain their market leadership through competitive pricing; hierarchy culture-oriented firms that emphasise efficiency and formal rules and policies are more willing to strive to adopt e-commerce after overcoming the change management issues during the initial transition period.
	culture	The use of information and communications technologies and e-commerce more specifically has been indicated as an important factor in building sustainable economic growth; there is a little argument that e-commerce is having a significant transformative impact on economic and social activities and relationships throughout the world; SME's organizational readiness was positively associated with their intent to use Internet/business technologies; e-business has changed the business models in Canada. by reducing costs and increasing the productivity; Web site design and culture were advanced as essential tool to Web site trust, Web site satis- faction, and e-loyalty in online business relationships;
	data	Deep learning as AI area encompasses a wide range of neural network architectures designed to complete different tasks, these algorithms are used to extract complex abstractions (by formulat- ing first simpler ones) as data representations through a hierarchical learning process; In companies' speech and language recognition may be important in the area of tasks such as branding, product positioning, corporate reputation management, and social media marketing; AI techniques. are implemented into targeting process to make it more possible that consumers will click on an online advertisement; AI may be implemented to find correlations between price and sells and to monitor price changes, enable dynamic real-time pricing and demand response optimization and ? as a result ?
	information	s ability to adequately train employees in the use; As such any education or information programs targeted at SMEs to encourage e-commerce activity should also include advice on cyber-crime and the security measures that should be adopted; As the use of digital online e-business systems grows it will become increasingly important for firms to engage with this technology; It is therefore important that such fears and concerns over e-business adoption are addressed through education, information. and enhanced systems that reduce these risks; SMEs can take advantage of this digital technology

		to enhance their marketing; The Internet offers small firms the ability to reach a range of audiences that were not previously possible and at a cost that is no longer prohibitive;
	security	Ensuring security of payments and privacy of online transactions is key to the widespread acceptance and adoption of e-commerce; The security concern and the reluctance due to the customer unfamiliarity are issues that will fade out, as e-business is becoming more and more integrated in everyday life; ICT integration among SMEs in the service sector in Albania can be improved and enhanced in future by cooperation/collaboration among various parties; SMEs should diversify their. current business activities through use of broadband Internet.
environment	chain	The adoption of open standards reduces both: investment costs and the time used to integrate new processes in a businesses operating environment; Standards enable a greater integration across the supply chain and interoperability as they reduce barriers caused by bespoke systems and enable cost reduction, better communication, improved predict- ability of supply and faster order processing; The benefits that will result from the project for the economy are. multiple.
	growth	Critical success factors for supply chain implementation have significant correlation with performance in terms of customer service and satisfaction, innovation and growth, financial performance and internal business; management commitment has significant correlation with all issues related to performance, while CSFs such as development of effective SCM strategy; when analysed sector wise, different CSFs show different impacts on different performance. criteria in different sectors; SMEs should develop their supply chain strategies effectively after analysing the business environment and their future plans;
	performance	Critical success factors for supply chain implementation have significant correlation with performance in terms of customer service and satisfaction, innovation and growth, financial performance and internal business; management commitment has significant correlation with all issues related to performance, while CSFs such as development of effective SCM strategy; when analysed sector wise, different CSFs show different impacts on different performance. criteria in different sectors; SMEs should develop their supply chain strategies effectively after analysing the business environment and their future plans;
performance	sales	"human resources that are complementary to IT are positively associated with return on sales" "e-commerce sophistication has a positive association with firm performance" "SMEs? IT investments and appropriation of budgets for IT training actually contribute to increased short-term sales."
data	culture	being on average one of the weakest dimensions among the companies in the sample, there seems to be a lack of integration between the different systems and a lack of real-time in the update of data. leadership, culture and organization, technology management, customer experience and the measurement system have significant

		impacts on the digital performance of companies; At the sub- dimension level, commitment and exemplarity, change management, agile systems and innovation, skills acquisition and development, Lean use and continuous improvement, internal communication, digital ecosystem and architecture, integration, connection and mastery of digital. tools, automation, cybersecurity, quality of data, customization capability and operational and strategic use of data all have a significant positive impact on the digital performance of companies; commitment and exemplarity, acquisition and development of skills, digital architecture, automation, quality of data and e-commerce offer the greatest potential to increase the score of digital performance; showing the difference and the relationships between the .
benefits	market	Malaysian SMEs are willing to adopt e-commerce due to its many advantage; integration, close relationships with customers and other business owners, influence market growth to earn external resources, and increase the expertise for growth and development of business; e-commerce increase the level of confidence of business managers in order for them to continue with the adoption process; when managers get a hold of more information, and are more familiar with the benefits. of the adoption e-commerce, their confidence level will inevitably rise; the more information that the management possesses on e-commerce, the higher their level of confidence will be with regards to it; there is no relationship between complexity and e-commerce adoption; the owners and managers of SMEs have an important role in encouraging the growth of innovation because they are familiar with the organizational system and the characteristics of SMEs; Managers.
information		The experimental results demonstrate that the integration of the aforementioned techniques offers two main advantages over other classical CF-based recommendation ap- proaches. First, the semantic attributes for items provide additional information to improve the alleviation of sparsity by allowing the system to make inferences based on an additional source of knowledge.
market		Assist MEs to strengthen their market channel Assist MEs to build a good business reputation through the e-clusters. Assist MEs to develop unique and value-added products.
growth		SMEs need to understand that BRI is a long-term initiative that indeed will take time to build a strong foundation for the countries involved; Volatility of the exchange rate, language barriers and the cultural differences between countries may make it more difficult for the SMEs; SMEs need to understand that BRI is a long-term initiative that indeed will take time to build a strong foundation for the countries involved; BRI will serve as a global platform with vast opportunities. for Malaysia to nurture economic growth and lead Malaysia towards globalisation and to transform into a developed nation;
organizational		organizational readiness, compatibility, external pressure, perceived ease of use and perceived usefulness as the most important factors affecting e-commerce adoption in SMEs; It identified three aspects of a firm?s context that

		influenced adoption and implementation.
management		It was concluded that a study of e-business requirements could usefully both include and exclude management concerns the supply side e-business functions relating to planning and demand management tended to be considered more relevant than the corresponding demand side; the incorporation of concerns tends to improve the results; understanding where the e-business focus of the organisation should be directed
business		Culture does indeed influence the decision-making of every business owner; The role of the business owner is very important for every business because the business owner must adopt a good strategy for any efforts to move towards e-commerce; The role of the owner is the key to the success of every SME and so tact is needed when trying to instil new ideas and operational methods on people who are headstrong and who do not like change due to various reasons as expressed. earlier.
chain	infrastructure	customer management services, supply chain facilities, new product development, IS/IT infrastructure, transparency and visibility of information, government encour- agement and senior management involvement suggested by various academics and practitioners are crucial for e-marketing orientation on business performance; It is crucial that SMEs identify CSFs in the e-business implementation process; the B2B- eM-CSFs can serve as an important milestone for the development of an e-marketing framework.. B2B e-marketplace is suitable to SMEs operating in low-technology environments.
resources		In this case, IT would work as a facilitator for users to work in team; EBTAM is simpler, less expensive to apply and imposes very few restrictions to be used. Thus it is highly appropriate for small and medium-sized organizations (SMOs) EBTAM predicts user acceptance of IT solutions in SMO; Provided that the target population usually has few resources (mainly time, money and personnel), the model is simple, easy to use, and its application involves just a low effort.
technology		high accessibilities, easy maintenance and low investment fee to introduce propagate cutting edge technologies to more manufacturing places

Table 2.6 of appendix – Supporting Text Summary: Negative Outcomes (source: Leximancer outputs)

Appendix B

Appendix B is related to Chapter 3 study results.

Appendix B.1 - Descriptive Statistics

Descriptive Statistics											
	N	Interval	Min.	Máx	Sum	Average		Standard Deviation	Variance	Kurtosis	
	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Standard Error	Statistics	Statitics	Statistics	Standard Error
Information 1	522	4	1	5	1996	3.82	.039	.887	.787	.158	.213
Information 2	522	4	1	5	2177	4.17	.035	.796	.633	1.177	.213
Information 3	522	4	1	5	2141	4.10	.034	.766	.587	.787	.213
Information 4	522	4	1	5	2090	4.00	.034	.779	.607	.372	.213
Information 5	522	4	1	5	2135	4.09	.036	.811	.658	1.021	.213
ServiceQuality 1	522	4	1	5	1885	3.61	.041	.936	.875	-.572	.213
ServiceQuality 2	522	4	1	5	2032	3.89	.044	1.009	1.017	.956	.213
ServiceQuality 3	522	4	1	5	2035	3.90	.039	.893	.798	-.011	.213
ServiceQuality 4	522	4	1	5	2010	3.85	.041	.932	.868	-.048	.213

Servic eQuali ty 5	522	4	1	5	2042	3.91	.035	.798	.637	-.002	.213
Ease of use 1	522	4	1	5	2053	3.93	.038	.857	.734	-.561	.213
Ease of use 2	522	4	1	5	1939	3.71	.045	1.026	1.053	-.770	.213
Ease of use 3	522	4	1	5	1994	3.82	.036	.826	.682	.075	.213
Ease of use 4	522	4	1	5	2008	3.85	.040	.906	.821	.348	.213
Ease of use 5	522	4	1	5	1953	3.74	.040	.919	.845	.163	.213
Game design 1	522	4	1	5	1649	3.16	.049	1.120	1.255	-.806	.213
Game design 2	522	4	1	5	1972	3.78	.042	.970	.941	.505	.213
Game design 3	522	4	1	5	2059	3.94	.040	.914	.836	1.019	.213
Game design 4	522	4	1	5	2005	3.84	.038	.861	.741	1.236	.213
Game design 5	522	4	1	5	1868	3.58	.047	1.074	1.154	.084	.213

Game mechanics 1	522	4	1	5	2070	3.97	.044	1.010	1.020	-.478	.213
Game mechanics 2	522	4	1	5	2147	4.11	.037	.843	.711	-.040	.213
Game mechanics 3	522	4	1	5	2133	4.09	.037	.855	.732	-.354	.213
Game mechanics 4	522	4	1	5	1993	3.82	.045	1.023	1.047	-.358	.213
Game mechanics 5	522	4	1	5	1880	3.60	.035	.809	.655	-.346	.213
Customer satisfaction 1	522	4	1	5	2132	4.08	.031	.707	.500	.722	.213
Customer satisfaction 2	522	4	1	5	1971	3.78	.041	.932	.869	-.358	.213
Customer satisfaction 3	522	4	1	5	2193	4.20	.036	.826	.683	1.280	.213
Customer satisfaction 4	522	4	1	5	2191	4.20	.030	.691	.477	.871	.213
Customer satisfaction 5	522	4	1	5	2079	3.98	.035	.804	.647	1.204	.213

Game dynamics 1	522	4	1	5	2024	3.88	.032	.728	.530	.653	.213
Game dynamics 2	522	4	1	5	1975	3.78	.041	.942	.888	-.025	.213
Game dynamics 3	522	4	1	5	1563	2.99	.052	1.178	1.388	-.707	.213
Game dynamics 4	522	4	1	5	1731	3.32	.049	1.111	1.234	-.465	.213
Game dynamics 5	522	4	1	5	1574	3.02	.051	1.161	1.347	-.653	.213
Intention to use 1	522	4	1	5	2047	3.92	.034	.771	.595	-.063	.213
Intention to use 2	522	4	1	5	2129	4.08	.035	.810	.656	.509	.213
Intention to use 3	522	4	1	5	2003	3.84	.041	.939	.881	-.011	.213
Intention to use 4	522	3	2	5	2202	4.22	.033	.755	.570	-.337	.213
Intention to use 5	522	4	1	5	2170	4.16	.035	.795	.632	.523	.213
EC Net benefits 1	522	4	1	5	2130	4.08	.032	.734	.539	.053	.213

EC Net benefits 2	522	3	2	5	2126	4.07	.032	.729	.532	-.264	.213
EC Net benefits 3	522	4	1	5	2111	4.04	.035	.798	.637	.000	.213
EC Net benefits 4	522	4	1	5	2160	4.14	.037	.836	.699	.131	.213
EC Net benefits 5	522	4	1	5	2165	4.15	.036	.822	.675	.666	.213
N (valid)	522										

Table 3.1 of appendix - Descriptive Statistics (source: SPSS AMOS output)

Appendix B.2 - Skewness and Kurtosis

Variable	min	max	skew	c.r.	kurtosis	c.r.
Ease of use 1	1.000	5.000	-.311	-2.900	-.564	-2.630
Game design 1	1.000	5.000	-.217	-2.026	-.806	-3.759
Game dynamics 2	1.000	5.000	-.619	-5.770	-.036	-.170
Game dynamics 1	1.000	5.000	-.406	-3.783	.635	2.961
Service quality 1	1.000	5.000	-.338	-3.156	-.578	-2.697
Service quality 2	1.000	5.000	-1.054	-9.830	.936	4.364
Game dynamics 5	1.000	5.000	-.185	-1.722	-.658	-3.069
Game dynamics 4	1.000	5.000	-.444	-4.146	-.472	-2.201

Variable	min	max	skew	c.r.	kurtosis	c.r.
Game dynamics 3	1.000	5.000	-.193	-1.804	-.712	-3.321
Customer satisfaction 5	1.000	5.000	-.834	-7.776	1.181	5.509
Customer satisfaction 4	1.000	5.000	-.665	-6.207	.851	3.971
Customer satisfaction 3	1.000	5.000	-1.062	-9.904	1.257	5.861
Customer satisfaction 2	1.000	5.000	-.452	-4.217	-.367	-1.709
Customer satisfaction 1	1.000	5.000	-.577	-5.386	.703	3.280
Game mechanics 1	1.000	5.000	-.591	-5.515	-.485	-2.261
Game mechanics 2	1.000	5.000	-.639	-5.960	-.052	-.240
Game mechanics 3	1.000	5.000	-.589	-5.496	-.362	-1.687
Game mechanics 4	1.000	5.000	-.491	-4.579	-.366	-1.708
Game mechanics 5	1.000	5.000	.300	2.801	-.354	-1.651
Intention to use 5	1.000	5.000	-.747	-6.964	.506	2.361
Intention to use 4	2.000	5.000	-.598	-5.580	-.345	-1.610
Intention to use 3	1.000	5.000	-.688	-6.421	-.023	-.106
Intention to use 2	1.000	5.000	-.751	-7.008	.493	2.298
Intention to use 1	1.000	5.000	-.368	-3.430	-.074	-.344
EC Net benefits 5	1.000	5.000	-.819	-7.636	.649	3.024
EC Net benefits 4	1.000	5.000	-.737	-6.872	.119	.553
EC Net benefits 3	1.000	5.000	-.555	-5.176	-.011	-.053
EC Net benefits 2	2.000	5.000	-.380	-3.543	-.273	-1.273
EC Net benefits 1	1.000	5.000	-.447	-4.171	.041	.189
Game design 2	1.000	5.000	-.795	-7.411	.488	2.277

Variable	min	max	skew	c.r.	kurtosis	c.r.
Game design 3	1.000	5.000	-.916	-8.547	.998	4.656
Game design 4	1.000	5.000	-.811	-7.561	1.212	5.654
Game design 5	1.000	5.000	-.692	-6.456	.072	.336
Ease of use 2	1.000	5.000	-.518	-4.831	-.774	-3.609
Ease of use 3	1.000	5.000	-.373	-3.476	.063	.293
Ease of use 4	1.000	5.000	-.670	-6.250	.333	1.555
Ease of use 5	1.000	5.000	-.640	-5.967	.150	.698
Service quality 3	1.000	5.000	-.544	-5.077	-.023	-.106
Service quality 4	1.000	5.000	-.597	-5.571	-.059	-.275
Service quality 5	1.000	5.000	-.408	-3.802	-.013	-.062
Information 1	1.000	5.000	-.459	-4.277	.145	.677
Information 2	1.000	5.000	-.955	-8.905	1.154	5.383
Information 3	1.000	5.000	-.738	-6.886	.768	3.580
Information 4	1.000	5.000	-.568	-5.297	.357	1.664
Information 5	1.000	5.000	-.900	-8.394	1.000	4.664
Multivariate					515.454	90.537

Table 3.2 of appendix - Skewness and Kurtosis measures (source: SPSS AMOS output)

Appendix B.3 – Questionnaire

In this appendix IS available the questionnaire used in the Chapter 3.

Dimension	Items	Adapted from
Information	IeC1 - E-Commerce provides quick and easy access to finding information IeC2 - E-Commerce provides relevant information IeC3- E-Commerce provides information content that is easy to read IeC4 - E-Commerce has information that is updated regularly IeC5 - E-Commerce has reliable information	(Walker, 2011) (Loiacono, Watson, & Goodhue, 2002)
Service Quality	SQ1 - The on-board e-Commerce website provided the exact service quality I expected or desired SQ2 - When I shop again, the same e-Commerce website would remember my related consumption habits SQ3 - I am confident in buying products from the e-Commerce website SQ4 - I feel secure in buying products from the e-Commerce website SQ5 - I trust that the e-Commerce website can provide appropriate service to me	(Kuo, Hu, Deng, 2009) (Lin, & Sun, 2009)
Ease of use	EU1 - The e-Commerce website is easy to use EU2 - The e-Commerce website is easy to read and has comprehensible content EU3 - The e-Commerce website is clear and it is easy to find the products I need EU4 - I Feel in control when using the e-Commerce website EU5 - The e-Commerce website is interactive	(Chiew, & Salim, 2003)
Game Design	GD1 - While navigating on the e-Commerce website, I felt a sense of adventure GD2 - Awards increase my involvement in the e-Commerce website GD3 - I like to receive and see points by using the e-Commerce website. GD4 - I like to receive immediate feedback as a reward GD5 - Virtual status symbols like a badge showing my accomplishment of levels or goals is important for me	(Wakefield *et al*., 2011) (Sykes et al., 2009)
Game Mechanics	GM1 - Scores: I like to see steady progress in a game GM2 - Levels: I like to work out things step by step GM3 - Competitions and victory medals: When I participate in a game, I focus on results and rewards GM4 - Virtual goals makes me especially proud when I receive a certificate or award for a game performance GM5 - Scoreboards: In a game I often try to be the best	(Bovermann & Bastiaens, 2020)
Customer Satisfaction	CS1 - I am satisfied with the value-added services provided by this company CS2 - I think this company has successfully provided value-added services CS3 - The experience that I have had with this e-Commerce website has been satisfactory CS4 - In general, I am satisfied with the service I have received from the e-Commerce website CS5 - This e-Commerce website has all the functions and capabilities I expect it to have	(Kuo, Wu & Deng 2009) (Belanche, Casaló, & Guinalíu, 2012)
Game Dynamics	Gd1 - In a game I find activities interesting Gd2 - I try to get more badges or trophies as a reward for my game activities Gd3 - Game activities of other participants are threats to my status Gd4 - In a game I express my emotions through virtual goods (e.g., emoticons, avatars, and other digital items) Gd5 - During a game it is difficult to detach myself from the website	(Suh, Wagner, and Liu 2018)
Intention to use	ItU1 - I would be willing to visit this e-Commerce website ItU2 - I feel this e-Commerce website reflects most current trend(s) and provides nice design for the site visit ItU3 - I have the intention to use this e-Commerce website again in the near future ItU4 - The likelihood of using this e-Commerce website again is high ItU5 - If I had to use this e-Commerce website again, I will use it without any doubt	(Belanche, Casaló, & Guinalíu, 2012)
E-Commerce benefits	CnB1 - Help maintaing current customers CnB2 - Improve ability to respond to competitors CnB3 - Permit differenciating our products and services from those of competitors CnB4 - Provide access to new markets CnB5 - Real time marketing offers	(Zhuang and Lederer 2003) (Delone and Mclean, 2004)
Demographics	Age - [18:25] [26:35] [36:45] [46:54] [Over 55] Gender - [Male] [Female] Education: [High school] [Two-year college] [Four-year university] [Master's] [MBA] [Doctorate] [Other] Are you using the Internet ? [YES/NO] How often do you use E-commerce transactions? [Weekly] [Monthly] [Trimestral] [Annually] [Never] How long you have been using the E-commerce? [<1] [2-5] [>5]	(Ali, Samsuri, Brohi, Soomro, Soomro, Shah 2018)

Table 3.3 of appendix – Questionnaire (source: own elaboration)

Appendix C

Appendix C is related to Chapter 4.

Appendix C.1 – EC Service Failures

In this appendix are accessible the questionnaires used in the Chapter 4.

Group 1 (SME's only)

EC service failures

Explored topic	Source in the literature	Original Question	Reframed question	Purpose of the question
E-commerce	(Md Husin & Haron, 2020)	What are the strengths that will assist the industry to accelerate?	What strategies can SMEs adopt to improve customer engagement and mitigate the impact of service failures, thus accelerating their business growth in the e-commerce industry?	The subsequent question touched on the actual phenomenon of market strengths and weaknesses
E-commerce	(Md Husin & Haron, 2020)	What difficulties hinder the development of the industry?	What difficulties hinder customer satisfaction affects the development of EC platforms in SME's? (In face of service failures or recoveries)	The subsequent question touched on the actual phenomenon of development difficulties

E-commerce	(Garg & Choeu, 2015)	Using e-commerce would increase productivity and employee performance	What is the relationship between customer satisfaction, productivity, and employee performance on EC platforms, and how can this relationship be leveraged to improve the overall performance of the platform?	The subsequent question touched on the actual phenomenon of e-commerce productivity and performance
E-commerce	(Md Husin & Haron, 2020)	What activities and procedures are absent, weakly done and need improvement?	How do EC service failures can have a positive impact on customer engagement? Can customer satisfaction reduce the impact of EC service failure? (what type of service failures?)	The subsequent question touched on the actual phenomenon of e-commerce customer engagement impact.
E-commerce	(Md Husin & Haron, 2020)	What transformation and changes in rules, strategy and technology	What potential industry-wide transformations in rules, strategies, and technologies could impact the e-	The subsequent question touched on the actual phenomenon of e-commerce

		may affect the industry?	commerce industry, particularly in the context of managing service failures and enhancing customer engagement?	service failures outcomes.

Table 4.1 of appendix – Questionnaire, EC Service Failures (source: own elaboration)
Group 1.1

EC service failures in the context of SMEs

Explored topic	Source in the literature	Original Question	Reframed question	Purpose of the question
E-commerce and Small and medium-size enterprises	(C. W. Tan et al., 2016)	Information provided on an e-commerce website contains errors that misinform consumers in making transactional decisions	What steps can SMEs take to address the negative impact of service failures, such as inaccurate information on their e-commerce websites, and enhance customer engagement to improve overall business performance?	The subsequent question touched on the actual phenomenon of SMEs information failure and customer engagement.
E-commerce and Small and	(C. W. Tan et al., 2016)	Information provided on an e-commerce	How can SMEs ensure that the information	The subsequent question touched on the actual

medium-size enterprises		website cannot be utilized by consumers in making transactional decisions	provided on their e-commerce websites is usable by consumers in making informed transactional decisions, and what impact do such failures have on customer engagement and business performance?	phenomenon of SMEs information failure and customer engagement.
E-commerce and Small and medium-size enterprises	(C. W. Tan et al., 2016)	Responses to online customer enquiries are not forthcoming	Does your SME receive feedback from customers? If yes, how do you enhance customer satisfaction after receiving their opinions? What steps can SMEs take to ensure that they respond promptly and effectively to online customer enquiries, and how can service failures in this area impact customer	The subsequent question touched on the actual phenomenon of SMEs information failure and customer satisfaction.

			engagement and overall business performance in the e-commerce industry?	
E-commerce and Small and medium-size enterprises	(Alshehri & O'Keefe, 2019)	Is the system accurate?	How can SMEs ensure the accuracy of their e-commerce systems, and what impact do system inaccuracies have on customer engagement and business performance in SMEs?	The subsequent question touched on the actual phenomenon of SMEs information failure and customer satisfaction
E-commerce and Small and medium-size enterprises	(Alshehri & O'Keefe, 2019)	Does the system provide up-to-date information?	How can SMEs ensure that the information provided by their e-commerce systems is up-to-date, and what impact do outdated or incorrect information have on customer engagement and business performance in	The subsequent question touched on the actual phenomenon of SMEs information failure and customer engagement

		the e-commerce industry?	

Table 4.2 of appendix – Questionnaire, EC Service Failures in the context of SMEs (source: own elaboration)

Group 2 (SME's and Customers)

Customer engagement of EC websites after service failures

Service failure	(C. W. Tan et al., 2016)	What had you managed to accomplish on the website prior to the occurrence of the online service failure?	What your customers had managed to accomplish on the website prior to the occurrence of the online service failure? Where have they stopped the buying process? what strategies do they employ to mitigate the negative effects of such failures and maintain customer satisfaction?	The subsequent question touched on the actual phenomenon of interest by requesting respondents to elaborate on the e-commerce service failure experienced
Service failure	(C. W. Tan et al., 2016)	Details of the online service failure experienced [Please be specific on the website	Do you recall the last service failure? If so, what website features needed improvement? why you believe	The subsequent question touched on the actual phenomenon of interest by requesting respondents to

		feature(s) involved and why you perceive these feature(s) to have failed] ?	these features failed, and how the failure impacted customer engagement with the website and overall satisfaction?	elaborate on the e-commerce service failure experienced
Customer engagement	(De Matos & Leis, 2013)	After this experience with this company, what are the chances that you will ... Choose this company the next time you need? Keep using the services of this company? Use the services of this company more often in the future?	What is your company planning to implement in the future to keep customers engaged to your platform after a service failure?	The subsequent question touched on the actual phenomenon of customer engagement being an important mechanism by which to understand how service relationships are developed, maintained and enhanced.
Customer engagement	(Sands et al., 2022)	I spend a lot of time using the brand, compared to other brands in the same category	In comparison to other companies in the same category, do you feel that your customers spend more time using this website, and if so, why?	The subsequent question touched on the actual phenomenon of a long-held and inac- curate assumption that emotions have

			How does your experience with the recent online service failure impact customer's perception of the brand's overall quality and also likelihood of continued engagement with company's website and services?	little effect in business relationships and environments.
Customer engagement	(Sands et al., 2022)	Whenever I'm doing something in this category, I usually use the brand	What features does your company offer to customers that can be unique compared to other platforms after a service failure?	The subsequent question touched on the actual phenomenon of the strategic importance of strong and enduring business relationships.

Table 4.3 of appendix – Questionnaire, Customer engagement of EC websites after service failures (source: own elaboration)

Customer satisfaction with EC website after service failures

Service failure	(C. W. Tan et al., 2016)	Please describe in detail the negative consequences you have suffered as a	Please provide a detailed description of the negative impact on customer satisfaction that your company has	The subsequent question touched on the actual phenomenon of interest by requesting

		result of the online service failure you have experienced ?	experienced as a result of the recent online service failure. How has this impacted customer satisfaction, and what steps have been taken to address and mitigate these consequences?	respondents to elaborate on the e-commerce service failure experienced
Customer satisfaction	(Tam et al., 2020)	I did the right thing when I decided to use this e-commerce platform	What specific measures does your company take to ensure customer satisfaction throughout the entire buying experience, especially in the event of a service failure?	The subsequent question touched on the actual phenomenon of customer satisfaction being measured in terms of use of an e-commerce system and should cover the entire customer experience cycle from information retrieval through to purchase, payment, receipt and service
Customer satisfaction	(Tam et al., 2020)	I am very pleased with making purchases from	Based on your experience with our EC platform, what specific features or	The subsequent question touched on the actual phenomenon of

		this e-commerce platform	aspects would you suggest to improve in order to increase customer satisfaction and avoid service failures?	customer satisfaction being measured in terms of use of an e-commerce system and should cover the entire customer experience cycle from information retrieval through to purchase, payment, receipt and service
Customer satisfaction	(Tam et al., 2020)	I would recommend this e-commerce platform to a friend.	How often does your company receive recommendations and positive reviews on external platforms (such as Google) following an e-commerce service failure?	The subsequent question touched on the actual phenomenon of customer satisfaction being measured in terms of use of an e-commerce system and should cover the entire customer experience cycle from information retrieval through to purchase,

				payment, receipt and service
Customer satisfaction	(Ocloo et al., 2020)	Using management information systems to enhance quality assurance	How does your company's management information system assist in enhancing customer satisfaction after a service failure on the e-commerce platform?	The subsequent question touched on the actual phenomenon of customer satisfaction and management information systems.

Table 4.4 of appendix – Questionnaire, Customer satisfaction with EC website after service failures (source: own elaboration)

Group 3 (SMEs and Customers perspective)

Explored topic	Source in the literature	Original Question	Reframed question	Purpose of the question
Small and medium-size enterprises	(Md Husin & Haron, 2020)	What transformation and changes in rules, strategy and technology may affect the industry?	As a customer who has experienced an e-commerce service failure, what do you think SME's can do to transform and change rules, strategy, and technology to improve customer engagement and	The subsequent question touched on the actual phenomenon of key perceptions and challenges

			prevent future service failures?	
Small and medium-size enterprises	(Md Husin & Haron, 2020)	What are the opportunities facing the industry?	What potential growth areas and opportunities exist for the SMEs in the aftermath of service failure episodes and their impact on customer engagement?	The subsequent question touched on the actual phenomenon of market opportunities
E-commerce	(Md Husin & Haron, 2020)	What difficulties hinder the development of the industry?	What difficulties hinder customer satisfaction affects the development of SME EC platforms?	The subsequent question touched on the actual phenomenon of development difficulties
E-commerce	(Garg & Choeu, 2015)	Using e-commerce would increase productivity and employee performance	How do service failures in e-commerce impact the development of the SMEs, and what are the main difficulties that hinder their growth ? Do you feel that EC platforms	The subsequent question touched on the actual phenomenon of e-commerce productivity and performance

			increase your satisfaction with their services?	
Information failure	(Ghobakhloo et al., 2011)	It is vital for our company to have access to reliable, relevant and accurate information	Can you describe the importance of having access to reliable, relevant, and accurate information in the context of online shopping and how it affects your engagement with e-commerce websites, especially after a service failure episode? Do you feel more engaged to a company when they present you reliable, relevant and accurate information? If yes, how do you identify those firms?	The subsequent question touched on the actual phenomenon of information access
Information failure	(Garg & Choeu, 2015)	There is very little risk involved when doing	How do you perceive the risks	The subsequent

		business over the internet	involved in doing business over the internet, particularly in light of any negative experiences you may have had with e-commerce service failures, especially regarding information failure?	question touched on the actual phenomenon of customers being worried about privacy and security of internet and will not use the internet to make payment
Information failure	(Garg & Choeu, 2015)	There is trust that the internet can protect the confidential data that we enter on the website	How much trust do you have in the security measures implemented by EC websites to protect your confidential data after experiencing a service failure episode? If a company would have a security breach, what measures should it take in order for your satisfaction	The subsequent question touched on the actual phenomenon of trust that the internet can protect the confidential data that we enter on the website

			regarding company not be affected?	
Service failure	(C. W. Tan et al., 2016)	What had you managed to accomplish on the website prior to the occurrence of the online service failure?	Have you ever had an service failure episode? If so, what had you managed to accomplish on the website prior to the occurrence of the online service failure? Was your satisfaction regarding to company services affected? How did the online service failure affect your ability to accomplish tasks on the website, and what changes would you suggest to prevent such failures from happening again?	The subsequent question touched on the actual phenomenon of interest by requesting respondents to elaborate on the e-commerce service failure experienced
Service failure	(C. W. Tan et al., 2016)	Details of the online service failure experienced [Please	Do you recall the last service failure? If so,	The subsequent question

		be specific on the website feature(s) involved and why you perceive these feature(s) to have failed] ?	what website features needed improvement in order to keep you engaged to the company?	touched on the actual phenomenon of interest by requesting respondents to elaborate on the e-commerce service failure experienced
Service failure	(C. W. Tan et al., 2016)	Please describe in detail the negative consequences you have suffered as a result of the online service failure you have experienced ?	Based on your past experience, please describe in detail the negative consequences you suffered as a result of the online service failure experienced. After that episode have you felt less engaged to the company?	The subsequent question touched on the actual phenomenon of interest by requesting respondents to elaborate on the e-commerce service failure experienced
Customer engagement	(Sands et al., 2022)	I spend a lot of time using the brand, compared to other brands in the same category	Based on your experience as a customer, can you describe how customer engagement influences your	The subsequent question touched on the actual phenomenon of a long-held

			decision to continue buying from certain companies? In your opinion, what are the key characteristics that lead to a satisfying customer experience with specific companies?	and inaccurate assumption that emotions have little effect in business relationships and environments.
Customer engagement	(Sands et al., 2022)	Whenever I'm doing something in this category, I usually use the brand	What are the main characteristics that make you feel engaged with specific companies in the context of e-commerce, and how do these characteristics differ from those of other companies?	The subsequent question touched on the actual phenomenon of the strategic importance of strong and enduring business relationships.
Customer satisfaction	(Tam et al., 2020)	I did the right thing when I decided to use this e-commerce platform	Can you describe what your favorite companies offer throughout the entire buying	The subsequent question touched on the actual phenomenon

			experience to ensure your satisfaction?	of customer satisfaction being measured in terms of use of an e-commerce system and should cover the entire customer experience cycle from information retrieval through to purchase, payment, receipt and service
Customer satisfaction	(Tam et al., 2020)	I would recommend this e-commerce platform to a friend.	Do you provide recommendations or leave ratings on rating platforms after experiencing a service failure with an e-commerce company? If yes, what measures do these companies take to ensure	The subsequent question touched on the actual phenomenon of customer satisfaction being measured in terms of use of an e-commerce

			your satisfaction and maintain your loyalty?	system and should cover the entire customer experience cycle from information retrieval through to purchase, payment, receipt and service
Demographics				
Gender	(Connell et al., 2019)	Male, Female		
Age	(Connell et al., 2019)	19-23, 24-28, 29-33, 34-38, 39-43, 44-48, 49-53, >54		
Education	(S. A. Al-Somali et al., 2011)	Less then High School, Senior High Scholl, Diploma, Bachelor's degree, Master's, Doctoral		
Position	(Al-Somali et al., 2011)	President, Managing Director, CEO, Information Services Manager, Manager, Planner Business Operations, Administration/Finance Manager		

Type of business	(S. A. Al-Somali et al., 2011)	Construction and building, Insurance and financial services Computer and electronic products Electrical materials and accessories Food and beverages Motors and autos Medical care Textiles and clothing Transportation (Air and Ground) Maintenance and Cleaning Services Marketing and Advertising Tourism and Hospitality Services Furniture Training and consultancy Publishing and Printing		
Which of the following categories does your business belong to regarding e-commerce status?	(Garg & Choeu, 2015)	We have a Website that allows for advertising, detailed display of company's products & services, on-line enquiry, on-line ordering and on-line transaction processing (e.g. on-line		

		sales and online payment all through the Internet) and using emails as well.		

Table 4.5 of appendix – Questionnaire, Customer satisfaction with EC website after service failures and Demographics (source: own elaboration)

Appendix C.2 – SMEs interview transcripts to Leximancer

Semi-structured interviews were conducted in Portuguese, allowing participants to engage comfortably in the discussion. To ensure the accuracy and reliability of the data, a validation process was implemented. Interviewees were given the opportunity to review the transcripts, enabling them to make adjustments or provide clarifications based on their perspectives. After this validation phase, the transcripts were translated into English, ensuring that the subsequent analysis using Leximancer v5.0 software was conducted on English text.

Before inputting the data into the Leximancer v5.0, all text had to be merged without accentuation, particularly only words were transferred to the software, and any diacritical marks or accents were removed to ensure compatibility with the software's requirements.
In Appendix C.2 and C.3 is accessible all the final text used in the Leximancer software.

Initial and ongoing training of employees to reduce communication gaps between company members full responsibility of the company and apply compensatory measures for the customer after a failure it is important to have transparency of things that can affect customers examples data exposed canceled orders errors that may have there is the level of website operations undue charges the important thing is how to deal with failures the main thing is transparency and trying to have responses and strategies for disaster recovery and business continuity innovations so that the failure occurs in the shortest possible time have a backup of information services so as not to cause problems for customers depending on the length of time the failure takes to analyze mitigation measures not immediately offer services after a failure in order to maintain brand reliability and coherence I have a platform that I use that the development does not depend on me what can be developed is a more direct customer support channel in case of failure periodic control and testing of the website in order to test it use an internal opinion to make changes carried out a test before carrying out website updates the failure will always be caused by a company however we must have previously defined processes to respond to system

failures the existence of a well-structured plan to respond to failures is essential in order to control them only ensuring a good response to failure is that it will be possible to maintain customer engagement regardless of the type of failure affecting the training of employees so that they can go from meeting to the company's periods of continuous training constant improvement of processes having accurate analyzes and mentoring realizing the impact after time periods things that can be observed by users purchase volumes and make detailed observations evaluate complaints and the number of calls received trying to mitigate everything the difficulty is knowing whether the customer is buying from a credible company or not so the focus is on having high levels of security in the company so that we can convey our reliability the biggest difficulty is when depending on outsourcing to personalize the In my application I lose control of the updates I want to make and how I want to do them after a service failure The great difficulty is having an information system focused on each customer's needs due to the wide range of customers I have which sometimes makes it more difficult for us to develop the platform however there must always be constant improvement the existence of customer satisfaction metrics are essential to understand which components or parts of the website require improvement the great difficulty lies in correctly adjusting the website to the review of customers after experiencing a failure in the service dissemination strategies sampling offers through orders for new products salary appreciation according to employee productivity

carry out extracurricular activities with the entire team in order to increase team cohesion a satisfied customer will always be more likely to buy more which will increase productivity service to professionals will increase customer satisfaction however performance will always have a cost benefit because if it takes a long time to develop a system and if it has a lot of development costs the sale will have to be high and specific the investment the company's productivity will always depend on customer satisfaction a more satisfied customer tends to extract more as a general rule the more the customer is satisfied the higher the company's productivity also largely due to the type of business if a platform is well developed the higher the customer satisfaction will be a satisfied customer will always have a greater propensity to buy and we give a bigger discount to those who buy more the more users have the platform the higher the sales a well motivated team and the work according to the company's vision has everything to be productive the greater the company's productivity the greater the customer satisfaction will be because We only get the product to the customer quickly and we also respond in a timely manner to service failures Listen more to the employees who are on the first line of customer support and who listen to your complaints maintain high customer satisfaction levels make offers commercial discounts make the customer feel safe returning to our company

after a failure apply offers tailored to the customer Only through analysis can you provide a good response to a failure Only with a good customer service and post-failure can you achieve greater customer satisfaction depending on the impact of the failure I will try to talk to the customer and resolve the problem verbally by purchasing analyzing cost-benefit will provide more advantageous conditions to the customer I will try to entice the customer in order to compensate them for the failure in my service only if the service failure is well resolved customer engagement will not be affected if we have a satisfied customer we can more easily minimize the impact of service failure training remains mandatory more openness with the company's senior management in order to resolve potential service failures more quickly being able to listen to customer suggestions all strategies will depend on a cost-benefit analysis on a case-by-case basis How can I provide a resilient and failure-free service It is a constant struggle between technical management and financial efficiency to maintain the company's standards and identity to sell a good service selling products all brands sell this way it is important to have a good service provision I see changing the way in which customer data is protected If there is a data leak my clients' privacy will be affected and I will certainly lose some of the engagement I have with the client Personal data is one of my biggest concerns better protecting clients' personal data so that there are no leaks or abusive marketing of companies with campaigns I believe that if there are more laws dedicated to data protection all companies will benefit because the quality of service to be provided will have all the conditions to increase customers with good service there will be a greater propensity to have customer engagement and thus minimize failures that occur invest in training increase a business culture look for good partners that complement the areas of expertise stay focused on sales and let the IT department responsible for this topic delegate to outsourcing it will be the most efficient way it is only worth having your own services when I have a full scale investing a lot in providing the service investing in customer response in the honesty of the brand and the trust we give to the customer making the customer comfortable with our services asking the customer for feedback on the service they received I assume that everything I do on the website is correct I only do a little monitoring of the information but never anything relevant I have to do a daily check of what has been done to know if all changes are up to date increase data supervision our departments check daily if all improvements to the system are implemented and working correctly we keep a track of all updates so that nothing fails having a dedicated team or having a person dedicated to supervising and maintaining the website on a daily basis can reduce the impact of system failures Supervision teams must have metrics software and that helps to increase its performance at this point the difficulty is increased as the company's headquarters are abroad

and sometimes there is no clear transmission of information not having an effective transmission of information will degrade customer satisfaction communication must be a responsibility of the company that sells but when switching to a good partner it will ensure that they check if there is any failure in the interconnection of systems having a bad service will always negatively influence performance responding in the best way more capable and faster will always be the solution Identifying good partners will always be a good solution to have information as accessible as possible and easily accessible maximum information with the least number of words so as not to lose the customer's attention innovate new information dissemination tools there has to be greater supervision of what happens if the If the error is the company's fault I will accept the error and have an impact on the conditions to be offered to the customer the error is my sole responsibility I will assume the costs of the error if it was simply some information wrongly given to the customer I will accept the error and apologize for what happened if the customer is satisfied with the resolution of the problem customer engagement will either increase or will maintain my company's performance as we don't lose a customer the sales department will support the customer due to the error that occurred which was our fault if the customer is satisfied with the resolution of the problem customer engagement will either increase or stay that way like my company's performance because it doesn't lose a customer just through metrics and by talking to some customers it's possible to know whether the information provided is being useful or not if we have good information and quality on the website I believe we have everything to increase customer engagement and reduce the consequences of service failure we receive positive reviews from customers daily the majority of negative feedback has to do with the wrong pass Information management in the company having better training for employees will ensure that sales are not harmed there will be greater performance and a reduction in service failures Resolving the problem first hand after negative feedback is the priority after solving the problem we try apply a solution in order to compensate the customer and in the future avoid more problems like these after negative feedback we analyze it and try to adjust our strategy after positive feedback we try to improve the service anyway to try to exceed customer expectations we analyze feedback through of metrics after analyzing the metrics we evaluate whether the cost-benefit of any change is worth it and we proceed to change it with this we hope to increase customer satisfaction by meeting the needs and desires of our customers thus increasing the company's performance feedbacks positive ones I analyze them and try to make improvements where it is most viable for me I analyze whether any of the comments will bring any changes that can be taken on by my company the more satisfied the customers are the higher the performance of my business Yes we receive feedback we analyze

it and we try to understand what led to a negative review In the case of positive reviews we try to understand where we can also improve the service in order to surprise the customer by going above and beyond their expectations in order to increase their satisfaction and engagement with the company through greater supervision of intermediate management however a failure should not exist but if it does occur it must be solvable as quickly as possible Have a helpdesk team permanently ready to respond at any time to a failure in the system There is a person responsible for resolving the failures in the systems through the systems architecture we design them in order to be engaged with customers after that we maintain metrics to know if the system remains accurate all the information has to be supervised by those responsible for the sectors and information areas the service will always be accurate If I have good supervision offering accurate information to my clients they will become more engaged with my system I need to offer accurate information to my clients in order to gain their engagement through supervision I will be able to guarantee the accuracy of the information only through architecture of the systems is that I will be able to keep the information accurate the better the accuracy of the information the greater the engagement of my customers will be as they will be more satisfied the systems will have to be constantly monitored by someone responsible for managing the website if the information is inaccurate customers will feel discouraged from purchasing on the website which will negatively contribute to customer engagement take responsibility take the blame and compensate the customer when these situations occur both customer engagement and the company's performance are affected from the moment I start designing the system I must guarantee the accuracy of the data and make choices that allow me to maintain accuracy throughout the life cycle that in daily operation I have backups in case of a catastrophe to guarantee the service in case of failure when I am designing the system right from the beginning through systems that help maintain credible and current information temporary supervision of those responsible for areas to focus on improvement continuity of services there must be continuous communication from my systems if there is no continuous communication I must ensure that there are updates so as not to affect the company's performance and customer engagement continuous improvement and supervision by the systems inaccurate information can result in customer losses and have to compensate customers financially a poor response Service failure will result in a loss of engagement and subsequently business performance the sales department will support the customer due to the failure that occurred which was our fault if the customer is satisfied with the resolution of the problem customer engagement will either increase or maintain the performance of my company as it does not lose a customer Companies will only be able to ensure the transmission of updated information if they constantly monitor

their update systems or if they have a team dedicated solely to this topic Not having up-to-date and correct information regarding the products being transacted makes customers feel discouraged from purchasing reducing their engagement with the company and thus reducing the company's performance or so I must plan the responses to these failures design a system in which I know how it fails and control the failures if I waste time designing the system I will know how it will fail customers remain engaged with the brand if it provides the blaming the error take the blame and correct the error made customers were able to make reservations at the time of payment there was an error that affected the type of payment chosen as a mitigation measure we offer different types of payment customers were able to complete the shopping cart but had difficulties In the payment phase when selecting the desired type of payment we had to accept another type of payment method Customers were able to complete the shopping cart but had difficulties in the payment phase when selecting the desired type of payment we had to accept another type of payment methods when selecting large quantities of merchandise the discounts associated with large orders were not appearing we had the need to change the way quantity discounts were presented and offered because when we did not have enough stock for a certain product we were not managing to reach the maximum level of discount that the customer was expecting to receive changing the information that failed and that was not clear and putting it in a simple and easily understood way for the customer to control the way in which the system fails will lead to me feeling more comfortable with how to solve the problem when choosing the way I solve the problem I know that I will have a greater impact on customer satisfaction not valuing the customer's potential based on their past and offering better conditions because we think that the customer will not change because they are loyal to assume an attitude of uncertainty and always meet the needs of the customer and not the company as they all have expectations from suppliers that sometimes do not match reality customer loyalty in the payment service or payment offers customer engagement was not greatly affected as all customers were able to call the store and reserve the product through alternative means in the product reservation service

the customer was unable to select the booking dates the booking service needed a backup and redundancy as it was not a recurring situation customer engagement was not harmed the packaging of a product was changed and customers did not understand the concept of the new packaging and did not associated the same change with the product next time either a marketing campaign or a communication to the public should be carried out that despite the change in packaging the quality of the product and its characteristics remain the last service failure was in the management communication of stocks with the warehouse this failure occurred due to

poor communication between stock management and the website this failure inevitably affected customer engagement as the customer was unable to receive the quantity of product requested which also resulted in dissatisfaction with the service provided speak to the customer compensates the customer in some way so that the customer remains engaged with the brand continues to provide good service regardless of failures that have occurred continues improvement in the company's architecture maintains continuous improvement of the service improvement or meets the expectation that the The customer has our company to ensure that past failures do not occur again so that they continue to feel engaged with the brand continue to innovate the website in order to surprise the customer with more service offers continue to invest in business marketing in order to publicize all existing product offers provide personalized customer support that solves problems after a service failure speed in presenting solutions to problems presented by customers customers spend more time in my store due to the quality of the products and the strong marketing campaign that is carried out I think it has nothing to do with the failure but rather with the way the product and the service is sold and reaches the customer having a differentiated service provision will be the key for us for the service for the quality of service above average quality of service due to honesty in responding to problems above average quality of service and quality of service privacy offered personalized service having personalized services ends up offering a unique experience to all customers which makes them feel engaged by the service brand as the client has personalized services as is the area of my business it facilitates the existence of a real perception of the quality that is being invested in the client and in the service offered the layout of the website is inviting and the brand invests heavily in marketing g yes I think customers waste more time on my website because I can provide good customer support in after-sales service and problem solving A customer will only remain engaged with a brand when they receive quality products from the same brand and have good support to the customer quality of service visually appealing quality of products quality of service service privacy personalized offer layout marketing image Speed in resolving some problems the translation of a factory product into Portuguese was poorly carried out resulting in the customer complaining in order to satisfy the customer with the brand not being affected we had to make an offer after purchasing a product this type of situation will always have an impact on the customer if no compensatory measures are taken the negative impact had to do with the sales department's response to the customer the department did not fully understand what happened and the solution offered was not ideal the impact on customer satisfaction was negative as the response was not adequate when customers do not trust our services it is difficult to please them having customer expectations that do not This will affect

our sales in the payment service or payment offers Customer engagement was not greatly affected as all customers were able to call the store and reserve the product through alternative means in the product reservation service the customer was unable to select the booking dates the booking service needed a backup and redundancy as it was not a recurring situation customer engagement was not harmed the packaging of a product was changed and customers did not understand the concept of the new packaging and did not associated the same change with the product next time either a marketing campaign or a communication to the public should be carried out that despite the change in packaging the quality of the product and its characteristics remain the last service failure was in the management communication of stocks with the warehouse this failure occurred due to poor communication between stock management and the website this failure inevitably affected customer engagement as the customer was unable to receive the quantity of product requested which also resulted in dissatisfaction with the service provided good marketing sending samples to customers continuing to provide a good service being transparent with the customer and resolving the failure in the best way possible the customer through strategies that do not meet customer satisfaction do not adopt strategies that go against customer satisfaction do not carry out business that does not meet customer expectations ensure that past failures do not occur again so that continue to feel engaged with the brand continue to innovate the website in order to surprise the customer with more service offers continue to invest in business marketing in order to publicize all existing product offers provide personalized customer support that solves the problem after a service failure speed in presenting solutions to problems presented by customers improve factory translations increase customer support teams after purchase improve the type of offers to be sent to customers through analytical data you can see the whether or not it is possible to carry out market research and analyze the way in which customers analyze our product check how customers use our website have good monitoring invest in future relationships with customers have good after-sales service customers who have a high level of trust will buy more products because in the past they have been well served to increase customer satisfaction I would have to listen more to my customers and apply small corrections to the area of my business in order to avoid future service failures provide my customers with a form before reserved the service in order to be able to better meet their satisfaction listen more to customer criticism and focus less on metrics carry out a cost-benefit analysis of the suggestions suggested by customers if it were advantageous they should be implemented in order to meet the customer satisfaction very rarely complaints we receive a few compliments per week analyze the cost-benefit to resolve some flaws try to analyze the cost-benefit to overcome negative flaws and

resolve viable problems overcome criticisms that are entirely our fault and apply mitigation measures we receive some recommendations per week some many suggestions and few complaints some suggestions and few complaints good customer support customer compensation through offers the app service oo the customer analyzes with the sales service what happened in the purchase process and what problem gave rise to the complaint after analyzing the problem the problem is discussed with the customer and what measures were implemented to mitigate it an apology is made to the customer and the best way to compensate the customer is analyzed so as not to affect their satisfaction with the company The company's analysis data is very basic and I only do small analyses however I believe that this type of analysis contribute to the success of the platform I rarely use metrics for this type of analysis when I receive alerts whenever there are positive or negative comments on my website I try to analyze the problem and check whether it has an immediate solution or not it is important to be able to obtain quick responses to problems raised by information services in order to maintain customer satisfaction by analyzing feedback I can understand where to improve obtaining the correct metrics becomes fundamental for evaluating the company's performance and performance it is necessary to keep the information updated so that When a service failure occurs we can provide a brief response We do not have specific data on the stage at which customers abandon the website however we can observe that only 4% to 6% of visitors make a purchase this indicates that there may be a significant abandonment rate throughout the entire transactional process but not we can identify a specific phase in which this occurs more frequently firstly price is an important factor we sell products at low prices which attracts customers looking for good opportunities in addition we always have the best-selling products in stock which means that customers do not need to wait for the ordering process and can receive products quickly another feature valued by our customers is the possibility of obtaining lenses made to measure ie personalized products according to the specific needs of each person in addition we offer a large selection and variety of products which means customers have a wide range of options to choose from and are likely to find exactly what they need in our online store We currently have plans to upgrade to the latest version of our magento system which is the platform on which our website is built this update we will be able to take advantage of the latest features and performance improvements offered by magento there is always room for improvements on the website namely implementing design improvements navigability and usability in order to guarantee a smoother experience more pleasant and intuitive for customers we also recognize that the adaptation of our website to mobile devices is an area that needs to be improved Currently we face some disconfiguration problems which result in images

overlapping product descriptions in certain situations this issue compromises usability and the user experience on mobile devices we aim to improve the responsiveness of the website ensuring that it adapts perfectly to different devices such as smartphones and tablets this includes optimizing images and layout so that elements are displayed correctly on any screen size our customers especially value the speed of shipping products we have in stock our shipments are made within 2 working days providing fast and efficient delivery in the case of products that we do not have available in stock at the time of purchase we inform you on the product description page about the estimated shipping time most of our customers choose to create an account on our website due to the convenience and ease it offers because when creating an account customers can view the history of previous orders this feature is especially useful in our industry because most customers wish to place the same order every month this way there is no need to go through the entire process again customers simply select the previous order and add it to the cart saving time and effort although 99% of our customers are looking for the same product we recognize the importance of provide a good shopping experience and meet customer needs consistently one of the ways in which we aim to retain customers is to ensure that they receive a high quality service and ensure fast and effective delivery we follow some practices to ensure reliability and quality of the products we make available one of the ways we ensure trust is by providing accurate and up-to-date information about our products we obtain this information directly from manufacturers who are experts in the development and production of products we believe that the information provided by manufacturers is the most credible information and true information that we can present to our customers therefore the description of products on our website is based on information provided by manufacturers ensuring that customers have access to accurate details about each item we offer customers the possibility of leaving their feedback on each product page on However over the years we have only had three customer reviews we don't know if these reviews are of much value to other people who visit our website in relation to returns we follow a specific procedure if a customer has a problem with a product and needs to return it to us we send the product back to the manufacturer so they can check and evaluate the product if they confirm that the customer is correct in their complaint we ask the customer to send us the lenses again and then we send a new product back to the customer however it is important to mention This process may take a few weeks to resolve however if the product box has been opened we cannot make returns We are selling medical devices and for hygiene and safety reasons We do not accept returns however if the product is unopened and within the appropriate conditions we are willing to return and exchange our customers can track the status of their orders as soon as we ship the

product we send an email to the customer with the relevant information such as the shipping number and a link to track the order regarding shipping options we work with several logistics partners which allows us to provide customers with different shipping options according to their needs and preferences in relation to failures in the shipping system order tracking it is possible that on rare occasions there may have been delays or problems with updating information in the tracking system however we try to minimize these situations and ensure that order tracking is as accurate as possible the most significant failure we experienced in the service of e-commerce is related to the availability of products by manufacturers especially since the covid-19 period sometimes manufacturers face difficulties in acquiring the raw materials necessary for the production of products this affects around 5% of orders in which manufacturers do not have the specifications desired by the customer in stock in the warehouse these situations can be frustrating for both us and customers as we cannot guarantee accurate delivery times to the customer because the manufacturer is also unable to estimate how long it will take to have the product availability and sending us this directly affects the customer experience and customer satisfaction in these situations we seek to communicate frequently with manufacturers and provide regular updates to customers on the status of their orders and clarify any uncertainty related to product availability one of the measures that What we identified to improve customer satisfaction in our e-commerce service is the creation of clear and distinct categories for our products on our website We currently recognize that we display products in the online store without a clear organization which can make navigation and search difficult specification of products by customers by categorizing products in a more precise and intuitive way such as separating them into categories for "people who cannot see well up close" and "people who cannot see well from a distance" we will facilitate the purchasing experience of our customers This will allow customers to more easily find products relevant to their needs and avoid confusion or frustration when searching for a specific product In addition we are also considering implementing filters and advanced search options so that customers can filter the results according to your preferences such as type of lens brand price and other criteria we do not have information on when customers abandon the process we do not dedicate ourselves to specifically researching at what point they abandon sometimes customers go through the entire ordering process but then do not make payment in these cases we contact the person to understand the situation sometimes occurs through mbway and as this payment method has a specific time frame we have to provide a new reference in other situations people say they are no longer interested in the books we believe that our website is very intuitive which makes navigation easier and When making purchases customers appreciate the ease of finding the

books they are looking for because we have all the books well organized on the website and customers can find them by filtering by styles publishers ages etc also for customers who do not have a specific book that they are looking for we have our suggestions page we also have a youtube channel which has been an effective way of promoting our products and creating a bond with customers and which links to the online store we believe that integration with youtube and social networks have been fundamental in attracting and engaging customers and allowing them to stay up to date with our activities and launches our customers appreciate that their orders arrive within the stipulated deadline we always try to ensure that orders are dispatched efficiently and reach the customers on time we face a challenge in relation to the amount of information we have available as we work with a wide variety of books and are constantly introducing new books it is natural to accumulate a large amount of information however we recognize the importance of presenting simple and easy to understand for our customers what we try to do is use detailed descriptions for each product and highlight only the relevant information we avoid overloading customers with excess unnecessary information ensuring our customers' trust in our products is a priority in the footer of our website we provide important sections such as dispute resolution address identification where we provide the necessary details so that customers can contact us or visit us in person we highlight our contact details in the footer so that they can easily contact us either by email or telephone Although we face some challenges related to stock and order management we seek to maintain a high level of transparency towards our customers to ensure the reliability and quality of products We recently had a case in which a customer expressed that information about product availability is not clear our online store is not directly linked to our billing program so we need to carefully control stock and some sales are made to order In these cases when the customer purchases a product that is made to order we immediately inform you that we are waiting for the book to arrive and we will do our best to keep you updated on the progress as soon as the book arrives we will notify the customer immediately we do not usually send an estimated delivery time to the customer because as we deal with different publishers they each have their own shipping time rather In addition we tell customers that we will be in touch soon with more information about product availability We know that this lack of a defined deadline creates some uncertainty for customers but we prefer to be realistic about this variable delivery time for books We have never had any complaints related to our return methods exchanges and refunds we work to ensure that our customers have a good experience at all stages of the transactional process when a customer wants to return a product make an exchange or request a refund we are ready to act quickly we do not expose reviews and feedback of customers on our websites this is not an

active practice that we have implemented but there is no specific reason for this perhaps it would even be beneficial to have this functionality to show the opinions of our customers there was a lapse in the formatting of our website that occurred some time ago we discovered that customers were not receiving emails sent by our online store for example when we informed customers that the shipment would be sent on the same day or that it would be necessary to wait a few days customers did not receive this information after two days we identified this problem and took action immediate measures to correct it we contacted the team responsible for developing our website and they made the necessary corrections fortunately we did not identify any significant consequences for customers we allow real-time monitoring of the status o of orders in some specific cases when orders exceed 1 kg we send through the express ctt service which allows us to monitor the order in real time and ensure that it arrives on the scheduled day and time when orders are less than 1 kg we send by post registered and sometimes the book arrives at a post office and the information we have is that it is at the post office and will be delivered soon however sometimes the postman because he has many orders cannot deliver and the order is returned to the post office then unfortunately the follow-up message remains the same indicating that the order is at the post office This situation causes some frustration to customers because they want to know where the order is or if they can go somewhere and then we are unable to help you as we do not have access to more accurate information as a bookstore it is essential that we are constantly up to date with new trends and preferences of our customers we closely monitor publications and new editorial releases we are always looking for new books authors and literary trends to ensure that our selection of books is updated and aligned with our customers' expectations we also go to schools to tell our stories and participate in fairs and literary events where we can find out what's new and establish contact with editors and authors we have had some situations related to privacy confidentiality and data security personal details of our customers when we send a registration and for security reasons we keep customer information such as address and telephone number stored for longer than allowed which is generally 3 months We have already faced situations where the book appeared as delivered but the customer did not receive it had received it what happened was that the postman had delivered the book to the wrong address we immediately contacted the post office to clarify the situation it has already happened to us that the post office returned the book to us if the person who received it sent it back and then we send the book back to the right address for the right customer it has also happened to us that the person who had received the book did not want to send it back these situations are the ones that most affect customers fortunately our customers have a very close relationship with our company and the fact that my colleague and I show up

every day and are always available makes customers feel comfortable contacting us directly although these are unpleasant situations for customers we want them to be resolved in the best possible way possible way although we have faced some failures related to privacy confidentiality and security of personal data we try to deal with these situations as best as possible and maintain clear and transparent communication with the client the impact of these failures is minimized by the close relationship they have with us we recognize that there is There is always room and way to improve the e-commerce service in order to improve customer satisfaction One of the main measures we can adopt is to identify and understand where we are failing in order to implement new measures to improve the customer experience In our online store our loyalty strategy is based on several elements we have noticed that many of our customers make frequent purchases with us this means that they trust us and the quality of our products we adopt a different approach compared to other large sales platforms books such as wook fnac or bertrand our youtube channel we have the authorization of the publishers to show the complete details of the books we have available for sale ie we don't just show the cover and the synopsis but we also offer our customers the opportunity to Knowing the story in full this transparent process builds trust and establishes a closer connection between our company and customers customers leave the website more often during the product consultation phase We know this because our entire online store is built on a Shopify basis and this platform has many tools that allow us to understand the customer's journey through the website and at what point they abandoned the website we don't know the reasons why they leave but sometimes we can draw some conclusions and try to make improvements The features that our customers appreciate most are the design of the homepage and the entire website itself as it is a dynamic and interactive website The way we present our products is one of the characteristics that customers appreciate most we try to be as detailed as possible when describing the products we present the ingredients nutritional content and allergens in all of them and since our products are food products and they are all packaged in boxes we would not be completely transparent to customers if we did not show on the website what is inside the box ie the food product itself in great detail because in the end that is what the customer is buying our website has very good speed loading and increasingly this is fundamental for customers usability can always be improved platforms are always in constant evolution it is always possible to make the website more usable in order to improve the entire customer experience the feature that customers appreciate most when throughout the entire transactional process the delivery time for orders is only 1 business day for items with immediate availability in the case where we do not have the items in stock or we have many orders which happens especially during festive times this

deadline does not apply and the customer is informed through a banner located at the top of the website we also have free shipping for orders over 30 euros and around 90% of our customers complete their order so as not to pay additional shipping our company has no overhead of information we always try to maintain a balance on the website between image and information we have 168 products in our online store that are separated into 4 product categories this makes it easier for the customer to more easily reach the product they want we also try not to be heavy in terms of information because we know that the customer will not read either very large or very busy texts customers can trust our products for several reasons in terms of images the images we have of the products on the website are photographs taken internally in the company we always present the content of the boxes in terms of nutritional information all the information we have on the website is validated with the product quality team in terms of information on the website we have a team responsible for keeping all the information on the website correct and updated we do not accept exchanges or returns of the products however if the product is damaged and in poor condition for reasons beyond the control of the customer then we analyze it with our quality team we accept the return and refund the customer but it is not part of our usual policy to accept returns only in very specific cases we do not present customer reviews on the website however customers can use social media for this purpose we have instagram facebook youtube channel and linkedin and then customers can give their feedback we always respond to all comments regardless of whether they are positive or negative we have a platform shopify that tracks the order from the moment the order passes to our partner responsible for the transport service we can track the order using the carrier code the customer receives some information such as the order is about to be delivered or the order has been delivered when the customer thinks he will not be at home at the time it will be delivered he contacts us and we try to speed up the best way to deliver the order and understand where the order is we always have a way to track the order but from the moment when you are not at our facilities we normally do not pay much attention to this the customer himself contacts us if he has any questions we usually highlight our products depending on the festive seasons and what customers are looking for at that moment as we are in the season of popular saints when the customer enters our website and immediately sees the products alluding to popular saints Our online store uses highly advanced encryption software in which all payment information is encrypted from the initial moment of purchase until the moment the order is processed and they are not saved on any public server The failure we had that most affected customers was a general server failure Our website was down for around 24 hours a week before Easter as was developed by Shopify when there is a failure in Shopify all websites within this platform are affected a

very annoying situation both for us because this week is always very busy and there is always a high number of sales and for customers who could not ordering our products we are unable to keep track of customers who tried to order from our online store or even who tried to access our website measures we took to minimize the impact on customers this is how our online store became available we decided to create a newsletter and send by email to all customers with an account registration on our website where we announced that in any order placed in our online store from that day until Easter Sunday there would be an extra treat an additional product of ours variable depending on the value of the order improving the response time to customers will increase our customers' satisfaction we have a responsible person dedicated only to customer support who only works on weekdays from 9am to 6pm many of our orders are placed at night and if customers have any questions and ask us either through the form we have on the website for questions and support or through social media or by email we can only respond on the following business day this is enough for the customer to leave our page and stop buying from our brand because if the customer wants a quick response at that moment we can only respond the following day we only have one option when it comes to shipping costs shipping costs are 5 euros regardless of where the order goes I don't know if it's to avoid paying this amount but We have already had customers who ask us if they can order in the online store and collect it in our physical stores but we do not have that option We have a customer loyalty club in which the customer has to register on our website or request a pre-payment -register with employees in any participating store and is a platform that allows the customer to accumulate points for orders placed in order to gain discounts on our products We give members 1 point for every 10 euros consumed when the customer reaches 10 points they will have a balance of 5 euros to be deducted from your next invoice has just one limitation: the customer can only accumulate points if they buy in our physical stores that is if you place an order in the online store you will not accumulate points in your account We send regular newsletters in order to publicize and promote the products especially when there are festive seasons and we have products alluding to these festivities Generally customers abandon our website more when they add products to the shopping cart and see the shipping price Our customers appreciate the possibility of viewing the composition of products on our website as well as obtaining detailed information about some characteristics such as color fabric measurements and extra information such as type of foam customization options related products among others we recognize the importance of providing complete and accurate information about our products so that customers can make informed decisions we also present in the product description the estimated delivery time so that the customer can get Therefore having this in mind our company values

the convenience and time of our customers in our online store we offer the option for customers to place their orders without the need to register on the website the process of registering an account is sometimes an obstacle to some customers mainly for more senior customers and many of our customers are in a higher age group we have made the purchasing process more accessible to customers perhaps we can make our online store more interactive and user-friendly in order to provide a better experience purchasing more pleasant and intuitive for our customers as well as simplifying the purchasing process by reducing for example the number of clicks needed to purchase a product the performance of our website in general as well as the online store in terms of loading speed is not ideal in addition to Being able to cause frustration to customers can affect their experience and even discourage customers from continuing to browse our website We know the importance of improving this aspect and we aim to give customers a fast and fluid online experience One of the features that customers value most is the price advantage when purchasing from our online store we understand that selling our products online can be challenging as customers do not have the opportunity to experience the physical comfort of the sofas before purchasing however many customers visit our physical store to select and view the desired products then acquire confidence to make an online purchase on our website We seek to present only pertinent and essential information to provide a good shopping experience for the customer We want to have the content as simplified as possible and have clear and direct communication that they easily find the information they are looking for to make informed decisions to guarantee our customers that our products are reliable and of quality we adopt several measures firstly we value direct communication with customers encouraging them to get in touch with us to clarify any Doubts before making a purchase via WhatsApp many of our leads start there regarding updating information we try to keep our online store up to date and accurate we ensure that product descriptions are correct and if there are any changes or updates we communicate clearly to the customer We have reviews available on the Facebook and Google My Business platforms but we have not yet displayed them on our website This is an issue that is being discussed internally and could be implemented in the future sometimes it can be beneficial but on the other hand the customer can go and talk bad for our company for no reason when we receive a negative review we try to get in direct contact with the customer to understand the reasons for their dissatisfaction and we try to resolve the problem in the best way possible our priority is to guarantee the satisfaction of our customers even when situations arise less positive however on Facebook we chose to show only positive reviews although we have few negative reviews we do not share them publicly however if a customer expresses dissatisfaction or places a negative review in one of our publications we

contact the customer directly and try to resolve any problem To guarantee your satisfaction we value direct dialogue with customers to resolve any problem and ensure that they leave satisfied Our customers are satisfied with the payment methods we offer as well as our return policies exchanges and refunds however it is important to highlight that We do not exchange products as all our products are customized according to individual customer preferences Failures in the after-sales service can always occur One of the failures that we can mention is when for example the fabric of the product was not what was requested by the customer when we identify this type of failure we ask the customer to send photos for evaluation then we have a team responsible for delivering and assembling the products to the customer's home if the team can recover solve the problem in the optimal location otherwise the product is sent back to our factory where we resolve the situation although delivery delays and logistical failures may occur frequently however we work to minimize these situations and ensure that customers are informed of any possible delay or logistical problem that may affect your order we always try to overcome the situation and find a satisfactory solution for the customer depending on the severity of the failure we offer appropriate compensation such as offering free shipping or providing an additional product such as a pillow for example We do not offer real-time monitoring of the status of orders due to the production and delivery time of our products which generally takes between 6 to 8 weeks We do not consider it necessary to provide constant monitoring during this period We understand that it is not a momentary situation in which the customer Please check the status of your order daily however we are always available to answer our customers' questions and provide updated information on the status of their order if requested Delivery of orders is carried out by our team ensuring that we have direct control over the process and can offer a personalized service to our customers we strive to be up to date with new trends and preferences of our customers we are constantly monitoring the market and observing what customers are looking for this includes being aware of news and innovations in the furniture and decoration industry as well as feedback and suggestions from our own customers we seek to continually improve our service and product offering we are exploring the possibility of implementing a phased payment method that could offer our customers a more flexible option to purchase our products to date We have not had any significant failures in relation to privacy confidentiality protection and security of our customers' personal data We believe that always meeting delivery deadlines or even seeking to minimize them is one of the measures that most satisfy customers we place a strong focus on quality and comfort of our products we seek to ensure that all our products meet the highest quality standards we maintain regular communication with our customers by sending newsletters with information about

products new additions and special promotions this allows us to maintain a close relationship with our customers and inform them about news and offers relevant to them in addition to sofas we also offer a variety of other products such as armchairs mattresses headboards sommiers among others this allows us to meet the different needs of customers and offer complete solutions for their living spaces and sleep through this diversification we hope that our customers will come back to us to purchase other related items As a rule customers abandon the website when completing payments often the customer places it in the cart to simulate the final value of the order with welcome gifts discounts and respective shipping costs so there are some customers who abandon the process as it ends up compensating more purchase in large supermarkets where the product is already available and have access to the customer support department in a more practical and quick way our customers especially appreciate the usability and ease of use of our website we seek to ensure that navigation and the shopping process purchasing are intuitive allowing customers to easily find the products they want and complete their purchases without complications We value the provision of good content relevant to the customer's decision process This includes detailed information about the products Frequently asked questions about the products customer reviews of 1 5 stars on product quality delivery time would you buy from the store again and would you recommend the product video demonstrations instruction manuals and other useful resources that help customers make an informed decision on our website we have the functionality to compare between similar products this is a feature highly valued by customers as it facilitates decision making by allowing a detailed analysis of the characteristics and specifications of products with this functionality customers can compare accessories filters batteries dimensions brands reviews prices and descriptions which makes it easier for them identify which product best meets your needs this product comparison tool is very useful for customers who are in doubt between two or more products for example as it not only saves time but also adds product descriptions to a single page simultaneously allowing customers to consider the pros and cons of each product before making a decision perhaps create a frequently asked questions area on the website as they are an effective way of anticipating customer queries and providing clear and direct answers in addition to the various payment and delivery methods and ease of navigation and clarity of information are characteristics that our customers value throughout the entire transactional process they appreciate when they can easily find the desired products view detailed information and make an informed choice we do not suffer from information overload on our website we recognize that due to the amount of information about our products it is essential to give customers as much information as possible so they can make informed

decisions however to avoid overwhelming the customer with extensive information and long texts we adopt a simple and easy to understand content presentation approach we use interactive resources such as videos explanatory detailed images and tables to convey information in a visually attractive way and facilitate assimilation we believe that the presentation of interactive content and the simplification of information contribute to a better shopping experience and customer satisfaction ensuring customers can trust our products is essential for us which is why we establish close work with our production team in order to guarantee the viability and accuracy of the information on our website from the simplest to the most complex we seek to maintain strict quality control at all stages of the process this includes compliance with safety standards ensuring that our products meet the highest safety and quality standards required although we rarely have requests for exchanges or returns failures may occur in this area however we are committed to resolving these situations quickly and efficiently in order to satisfy our customers when a customer requests an exchange or return our team analyzes the case and takes the necessary measures to resolve the issue we work to ensure that the return processes exchanges and refunds are as simplified as possible to minimize the impact on customers in addition We have in our online store all policies related to returns exchanges and refunds clearly detailed so that customers can easily understand the information We consider reviews essential to provide relevant information to other customers On our website we have a reviews section available on each page product in this section customers who have already purchased the product can share their opinions about the company and the product itself these reviews allow customers to express their opinion about the quality of the product the delivery time their purchasing experience and whether they would recommend the product Customers have the option to assign a rating from 1 to 5 stars in each of these categories which which helps provide an overview of overall customer satisfaction when we receive negative customer reviews we have an established process for dealing with them we first try to fully understand the feedback and the situation at hand we carefully analyze the comment and assess whether it is related to the product with the service or with other agents involved we then take measures to resolve the situation appropriately depending on the case we can contact the customer directly to better understand their concerns and find a satisfactory solution in some cases we initiate compensation measures such as providing vouchers discount in the online store or offer other additional benefits of course negative comments can impact customers' perception of our company and products however each customer can have an individual reaction to these comments some may be influenced and hesitate to make a purchase whilst others may consider feedback as an isolated experience and rely on other positive reviews although it is not possible

to measure exactly how negative comments affect customers our aim is to minimize any negative impact it has caused them our customers have the ability to track the status of your orders in real time we believe that this functionality is a significant advantage as it allows customers to monitor and understand the progress of their orders without having to contact our customer support service this saves time for the customer and also to our customer support team allowing us to focus on other topics we always try to stay up to date with new trends and customer preferences one of the ways we keep up with trends is through market research we carry out research to understand customer preferences identify changing needs and keeping up with trends in the industry this also helps us identify which products are most popular and what customers are looking for this way we can more easily adjust our product catalog we also participate in industry conferences fairs and events for our area To date we have not had any failures related to privacy confidentiality protection and security of our customers' personal data We have an active blog where we regularly share articles with delicious recipes and tips related to our products In addition we have the option for customers to subscribe to our newsletter where we send information about product launches exclusive promotions inspiring recipes and practical tips we also recently partnered with a digital influencer a chef who aims to improve our communication with customers and reach new people our website which has a large influx of traffic generated by bookstore ticket sales faces more abandonments during the payment phase many of our customers are international and may face difficulties when making payment due to problems with public Wi-Fi networks or unstable data connections this generates an additional demand for intermediary contacts with payment difficulties and searching for alternative solutions to complete the transaction in all honesty it is difficult for us to specifically identify the features of our website that customers appreciate most this is due to the fact that most of the communications we receive are complaints or problems encountered by customers and not compliments or aspects that they appreciate however we consider that access to the website and ease of purchase are features valued by our customers the ticket purchasing process for the bookstore it is quite simple intuitive and straightforward the website was designed so that the first thing customers see is the option to purchase tickets as this is the most common activity carried out by customers on our website the improvements to our website are based in the most common difficulties faced by our customers we believe in a process of continuous improvement we always seek to improve the user experience one of the most common difficulties faced by our foreign users is the language barrier although the website is bilingual we recognize that some nuances may be lost in translation which can create confusion and difficulties in understanding we are committed to improving the clarity and accuracy of

information to ensure that all users regardless of language can navigate and use the website with ease another issue we face is related to the age of our customers many of them have difficulties in accepting that the purchase of tickets is done online especially those who are not familiar with the digital environment we are aware of this difficulty and we intend to improve the usability of our website as well as provide clear guidelines to help older customers make the purchase of tickets in a more accessible way we recognize that payment options are a sensitive point for our customers we are considering introducing ATM references as one of the payment options this option will initially be easier especially for older customers we also recognize the existence of a delay between purchasing the ticket and receiving it which may be caused not by the platform itself but by customers' data connections especially when using public networks that are not very fast we are aware that this situation can create frustration in customers and we are committed to finding solutions to minimize this problem internally we have a dedicated person responsible for ensuring that all information such as store hours product availability and prices are updated regularly and accurately this person is in charge of maintaining efficient communication within of the company ensuring that all relevant changes are communicated in a timely manner this includes updates to store hours stock availability new product launches and promotions we value the trust of our customers and work constantly to maintain that trust by ensuring that all information provided is correct updated and reliable if any inconsistency or error occurs we are ready to correct it and take the necessary measures to ensure the satisfaction of our customers in relation to return methods exchanges and refunds we have already faced some failures in the past we recognize that it is an important aspect for satisfaction of our customers and we are committed to improving this area We are currently working on the development of a new version of the website that will be launched at the end of the year In this update we intend to simplify the return process and introduce some automations in order to make it easier customers carry out these actions one of the biggest sources of customer dissatisfaction has been the response time to contacts related to returns exchanges and refunds we are not always able to guarantee a response as quick as desired which has been a source of frustration currently the website has a chat module to facilitate communication with customers however we are still unable to guarantee a completely immediate response due to high demand and resource limitations on our website we do not display customer reviews or comments customers tend to share their reviews and comments on other platforms where we are present such as instagram linkedin and facebook regarding negative comments we do not delete customer comments s the person responsible for managing our social media responds according to the nature of the comment if a customer expresses an opinion such as 'I didn't like

it' we respect your right to have that opinion as we are a democratic company and we accept that not all customers will like it of your experience however if a client mentions specific problems such as translation issues in a book we provide an appropriate response and seek to resolve the issue internally it is also common for us to receive questions on social media which would normally be better suited to be answered via chat in these cases we respond directly to the customer in a personalized way to resolve their questions when we send the order customers receive an email with a link to track the order our biggest flaw in after-sales service is the response time we currently have manual processes that require intervention staff to deal with return requests and other post-sales issues this results in slower response times than we would like we have a person exclusively dedicated to online customer support but who works from 9am to 6pm and many of our messages are received after this time ie we are unable to guarantee an immediate response we recognize that this is an area that we need to improve and we are aware that automating processes could speed up our after-sales service we are committed to implementing automated solutions that allow for a faster and more efficient response to customer requests when it comes to quality complaints relating to our books we take a proactive resolution approach if a customer reports issues such as blank pages or pagination issues we take responsibility and send a new copy of the book at no additional cost to the customer our priority is to ensure our customers' satisfaction and offer quick and convenient solutions we do not ask the customer to return the defective book as we understand that this may cause additional inconvenience we believe that this approach demonstrates our commitment to providing quality products and resolving any problems that may arise now for example when a customer informs us that they did not receive the voucher for the bookstore because they made a mistake when typing the email we have a dedicated team ready to resolve the problem immediately our backoffice team is responsible for identifying the correct voucher and ensure that the customer receives entry to the bookstore without delays We have faced situations in which several failures in the e-commerce service affect a single customer resulting in a sequence of problems for example a customer who had difficulty making the payment of the voucher and then you don't receive it because you entered your email wrong and then you want to buy a book and you buy it in the wrong language is very negative we try to compensate the customer by offering an additional book or we send extra vouchers to the bookstore our goal is to transform the customer's negative experience into a positive memory showing that we care about their satisfaction and in these cases when customers receive a positive response and an adequate solution to the failures that occurred we often have very positive feedback from them some customers express recognition for the fact that despite the initial problems we were

friendly and took measures to correct the situation our business model is not focused on customer loyalty The majority of people who visit our website are punctual in nature meaning they do not return frequently after their first visit however we have a loyalty tool called "friend card" that we offer to the inhabitants of Porto this card allows them to enter the bookstore without needing to queue although it is a local loyalty initiative the majority of our customers are international and do not directly benefit from this option to provide a more personalized experience to our customers and promote loyalty we offer the option of subscribing to our newsletter Through the newsletter customers can stay up to date with everything that happens in our bookstore from events and book launches to special promotions and discounts What makes our newsletter even more interesting is that we allow customers to choose the specific topics they want to receive in this way They can select the topics that interest them most avoiding receiving content that is not relevant to them This ensures that the information we send is personalized and targeted to the interests of each client Those who visit our website tend to abandon it during the research and product viewing phase around 98% or 99% of people who visit our website never add products to the shopping cart It is important to highlight that the rate benchmark online conversion rate is 2% ie only two out of every 100 people who enter our website actually make a purchase online customers especially appreciate the ease of navigation usability and interaction of our website we seek to create an intuitive experience for customers with a clear organization and well-defined categories so that you can easily find the product you want The descriptions of our products are very detailed and available in three formats: text image and video sometimes the product may not be that easy to understand and this is what we have focused on so that customers can have a complete view of the products and that this is well explained we also have a functionality that allows you to select and save favorite products where customers have the opportunity to create a personalized list of products they wish to purchase in the future this allows them follow the products that arouse their interest making it easier to make a decision when they are ready to make a purchase in terms of performance especially speed is increasingly important taking into account that people access it on different devices the speed on our website is not like that so spectacular also due to a lot of interactive content many images many videos which does not facilitate the performance part of the website itself We recognize that optimizing the website's loading speed is an area that needs improvement What customers value most is the product in itself and the way we present the content more than a specific functionality of the website (for example ours doesn't have out of this world functionalities) or the checkout in a certain way it is the content we have and it is the product we sell that is the most The important thing that converts into a 'yes' is that they have

found the specific product they were looking for we advertise to people we are present on Google and we attract searches that people do many people already know the brand and go directly to our website we attract people to the product and through the content we offer we seek to offer detailed information about each product with clear descriptions quality images and even explanatory videos we want our customers to feel confident and informed about the product they are purchasing the customer also values the delivery time after the Upon receipt of payment we begin the order shipping process within 24 working hours and delivery times can vary between 1 and 3 working days depending on factors such as the delivery address and the carrier used for customers who choose the delivery option on marl we have an estimated delivery time of 1 business day marl is a strategic location that allows us to speed up the delivery process ensuring that products reach customers quickly and efficiently occasionally there have been situations where customers have encountered difficulties when making payment using the methods available however we are always aware of these situations and work to resolve them as quickly as possible Some of the failures may be related to services that are temporarily unavailable from payment providers; in other cases there may be problems with sending alerts of payment by mbway or with the receipt of payment references to deal with these situations we have an automated system that sends a new email with a new payment reference if the previous one is not received by the customer in addition our customer support team is available to manually assist customers by providing personalized assistance and create new payment references if necessary Failures in the payment process can cause inconvenience and frustration to our customers when a customer is unable to complete a purchase due to payment method issues can result in delays in the delivery of the desired product or even in the loss of the opportunity to purchase it such failures can also affect the customer's trust and perception of our company We understand the importance of providing a reliable shopping experience that must include a payment process efficient and hassle-free we consider it extremely relevant for customers to see other customers' opinions on the toys we currently offer we are working to encourage our customers to leave reviews on the toys they have purchased we have implemented a system that sends an email after purchase inviting customers to share their experiences and opinions on our website however we recognize that there is still a lack of evaluation actions for many of our products I remember a specific case in which we had significant problems with a product in our catalogue which generated a lot of customer dissatisfaction we tried to act to resolve the situation in the best possible way in this particular case we chose to discontinue the product and we focused our efforts on improving the quality of our products and the satisfaction of our customers This specific product did not meet the

expectations and quality standards that we established for our products for customers who had already purchased this product and faced problems with manufacturing defects we offer the possibility of refund or repair according to each customer's preference however we understand that the solutions offered may not have been completely satisfactory for all affected customers these failures in return methods exchanges and refunds have resulted in comments Negatives and criticism from customers especially on social networks like Facebook we imagine that all of this had a significant impact on customers many must have felt frustrated upset dissatisfied but knowing that the mistake had been ours we tried to minimize the negative impact on the customer experience Of course we have had failures in after-sales service for example there was a certain time when we were unable to respond adequately to our customers which resulted in complaints about the poor quality of customer service some customers expressed frustration with the lack of response to their e-mails or difficulty contacting us by phone Currently we are focused on responding more quickly and efficiently to customer questions and feedback however we realize that in some situations when we are unable to provide a quick response on social media we choose not to respond We believe that it is better not to respond immediately than to respond after a long period of time when the situation may already be resolved as our business is seasonal we face a high volume of customer service during the Christmas period it is a challenge to deal with this sudden increase in requests and ensure that we have sufficient capacity to meet all of our customers' needs and sometimes it becomes difficult to manage this increased volume of issues in addition we produce around 2 million products per year and although we make every effort to ensure quality of our products it is inevitable that some failures may occur the most common issues are in relation to the instruction manual either because there are printing problems or simply because it is missing when this happens we adopt measures to resolve the situation in the best possible way one of the solutions we have implemented is to send the manual in pdf format by email if necessary in addition we have created a dedicated website where our customers can access the manuals online by receiving the code present on the product packaging customers can easily view the corresponding manual on the website another error What can happen is the lack of a specific part in the toys in these cases we have two options: we can send the missing part directly to the customer or replace the complete toy if necessary In general customers react in different ways to these failures some may get into trouble contact us immediately to report the problem and look for a solution others express their dissatisfaction on social media or other evaluation platforms there are some strategies we adopt to transmit this confidence to our customers with regard to quality we invest in rigorous production and control processes We have an internal team dedicated to the

development and testing of products that ensure that they all go through rigorous processes before being launched on the market In addition all of our products are certified by independent third-party laboratories that validate their safety and compliance with this certification is a seal of quality that guarantees our customers that our products meet the standards established with regard to the security of online transactions we use credible and reliable payment solutions such as sib and paypal we also seek to strengthen the trust of our customers by publishing on the website the articles that the specialized press writes about our company we have the privilege of having the coverage of several renowned publications such as forbes timeout marketeer business newspaper among others the publication of these articles on our website reinforces the credibility of our company in the eyes of customers because they can see that we are recognized and recommended by trusted and respected sources we constantly try to stay up to date with new trends and customer preferences we are aware that our This industry is highly influenced by constantly evolving trends what may be considered popular and relevant today may no longer be tomorrow We use various sources of information to gain insights into our customers' preferences The online world plays a fundamental role in this regard through channels like google and amazon we are able to obtain data about what people are looking for what they like and what they don't like we analyze this information to identify emerging needs and consumer preferences we also carry out macrotrend studies to stay up to date with changes in the market and society and which can affect our sector of activity another source of insights is our business unit which involves birthday parties and summer camps where the main focus is carrying out scientific experiments with children and where we have the opportunity to interact directly with them and understand what they like most or least there are several measures that we believe can significantly improve our customers' satisfaction in the e-commerce service one of which is to improve the performance of our process ensuring a faster and more efficient experience for customers customers this includes reducing product delivery time and improving the accuracy of delivery estimates we could also simplify the purchasing process by making it as intuitive and easy for our customers as possible by reducing for example the number of clicks required by automating some processes It would also allow us to streamline operations reduce errors and ensure a faster response to customers for example we can automate the sending of order confirmations and create pre-defined answers to frequently asked questions We believe that the best way to retain customers is to ensure that the the product they purchase is of quality and meets their expectations when a customer is satisfied with the product they purchased they are more likely to recommend our company to other people such as family friends and colleagues contributing to brand loyalty we also have loyalty programs which allow us to maintain close

contact with our customers through these programs we regularly communicate with customers by sharing relevant content such as scientific experiments that can be carried out at home this constant communication allows us to keep "our brand in the minds" of customers and also inform you about the news and launches we have available in addition we also have a subscription service called "inventors club" that we are developing with the aim of encouraging loyalty among our customers The concept of the 'inventors club' is quite attractive and consists of a themed kit that will be delivered monthly to subscribers' homes each kit will bring new scientific activities and fun experiences specially designed to stimulate creativity and curiosity For new customers we have a special offer of 10% discount when making your first purchase on our website the phase in which customers most abandon our website is during the product consultation phase we do not have direct access to the specific reasons why they abandon purchases one of the features of our website that customers appreciate most is the fact that we have information available on the number of units available for online purchase that is customers can see on the product page how many units are for immediate delivery as well as the number of products available in a physical store and in which specific stores in addition customers also highly value the ease of Finalizing the order is an efficient process and with just a few clicks we have several options available from the delivery method that best suits the customer's needs and preferences to the way the customer wants to make payment and we still present the options clearly and simple and the customer can quickly and easily place an order with just a few clicks An area in which we believe we can improve is the way we present products on our website currently when you enter a product category the different products are arranged side by side sideways and with small colorful images we recognize that this way of presenting products may seem excessive in terms of colors and content for some customers we have also had some feedback from customers that our website is confusing we are evaluating the organization of the content on the website to make it clearer and more intuitive such as improving the navigation menus and adding filters on products so that customers can organize products by relevance price etc We are also considering creating a customer area since currently We do not have this and we believe that this could be beneficial for customers to register and have access to their purchase history as well as having their personal information saved We also consider that implementing a chat on the website or a form would be an important improvement for customers to get in touch with us more immediately and have their doubts answered it would facilitate communication and help resolve problems more quickly and efficiently Based on the feedback we have received from our customers regarding our website we can say that we have faced some challenges when it comes to With respect to information

overload many of our customers have asked us questions about the ordering process delivery times and return policies even though this information is all available on the website however we have the information written in plain text on the terms and conditions page which gives the feeling that some customers don't read what's there all the information we have about the products is that given by our suppliers/manufacturers on the website we don't display customer reviews normally customers make their comments and opinions in the posts we make on Facebook we value your opinions and comments both positive and negative when we receive negative comments we always respond attentively and thank you for the feedback we express regret that the customer's purchasing experience was not as expected and we provide our email address so that they can contact us and tell us the situation in more detail we try to resolve issues appropriately and find satisfactory solutions for the customer We understand that negative comments can affect customers they can generate distrust and doubts about the quality of our products and even make them not want to buy more in our company however as we respond quickly and attentively we demonstrate that we want to resolve situations and above all we want to minimize the impact they have on customers in addition negative comments also help us identify areas for improvement we have already identified some flaws in the after service -sale the way we act in these situations varies depending on the nature of the failure first we seek to understand the problem reported by the customer and then we seek to correct the failure and ensure customer satisfaction the main objective is to resolve the problem efficiently and ensure that the customer be satisfied with the solution offered these failures can cause inconvenience to customers can affect confidence in our company and generate dissatisfaction but we try to act quickly and resolve the situation appropriately in order to minimize the negative impact on the customer experience customers can monitor the status of your orders on carrier websites we believe that loyalty is achieved by providing good service and creating a positive experience for our customers we are always available to meet customers' needs when they contact us and we seek to ensure that all the questions or problems are dealt with quickly and efficiently customers abandon our website more often during the product consultation phase we are unable to know the exact point at which they give up on the purchase but through our shopify platform we are able to understand the customer's journey and draw some conclusions and even when it comes to the part of going to the cart many customers abandon the products in the cart because they realize that as the product is only available to order the delivery time can take up to 4 weeks instead of the usual period of 1 to 5 days if we had the product in stock in my experience there are always things that can be improved within the website and it is essential that we are constantly updating the way we present products perhaps it can be improved when the customer

enters our website and chooses the product x they want the customer needs to immediately select the specifications that do you want if it is product x with capacity y and in state z or if it is product x with capacity a and in state b ie for each product we have a separate page with the different specifications and sometimes this becomes a consultation process of products more complicated for the customer even making comparisons between specifications becomes a process that requires more time and is not so simple the loading speed of our website pages is also not the best I consider that we do not have information overload We have a communication agency that helps us to have the content and all information organized and in very simple language for the client in order to communicate in the most objective and direct way possible with the clients We also have a page with frequently asked questions on our website which contains the most common questions asked by customers and we have organized them by specific topics this way the customer can easily clarify their doubts without having to read all the topics to get to what they want we have customer testimonials on our website made on the trustpilot platform in which customers can rate their experience with us from 1 to 5 stars and make their comments however we do not show reviews below 4 stars when we are editing our website we can filter the comments so that only reviews with 4 and 5 appear stars also regarding product descriptions and features are made based on the technical descriptions shared by our suppliers all our products undergo a rigorous technical inspection by our experts cleaned and tested to ensure they are 100% functional and up to date at all levels There was a case where the customer bought a product from us and we sent the product but with the wrong specification it was our fault the customer received the item and as soon as we found out about the problem we contacted the customer and gave them the opportunity to return the product with a full refund of the value of the product and in addition we offered an additional discount to compensate obviously this affected the customer he became frustrated and expressed his dissatisfaction on social media with a negative review but then we offered him these solutions and as soon as we admitted and we seek to correct our failures we can regain customer trust obviously these incidents have the potential to impact and influence the purchasing decision of other customers dealing with after-sales is a challenge especially in sectors as dynamic as this some of the failures we face mainly due to delays in responses which obviously always cause dissatisfaction and frustration to the customer and once again they will express this feeling on social media however as soon as we realize this failure we reinforce our customer support team to ensure a faster and more efficient response After the order is delivered to the carrier we send the customer the tracking code that allows them to track the status of the order in real time on the carrier's website However we do not have direct access to the updated status of the order after

delivery to the carrier and we cannot track it this process when we are informed by a customer of some failure in tracking we contact the carrier to obtain updated information and we provide this information to the customer delivery times or when there is no clear information about the status of the order of course this negatively affects customer satisfaction We have a communications agency that through market research identifies new trends and customer preferences this involves for example analyzing demographic data purchasing behaviors in addition it maintains very close contact with social networks monitoring customer conversations and interactions this analysis helps to understand preferences customer experiences and adapt our product and communication strategies we also carry out research on online platforms such as e-commerce sites and specialized forums that help us identify the most popular products customer complaints among others all these indications help us to target efforts to ensure that they are aligned with the needs and preferences of customers so far we have never faced a failure in relation to privacy confidentiality protection and security of our customers' personal data however we are aware of the importance of these issues if a failure occurred in this regard we would deal with situation as seriously as possible and we adopted immediate measures to resolve the problem and minimize any negative impact on the customer relatively recently one of our partners' transport vans suffered a robbery and had our products inside for several customers that is several customers were affected as soon as we learned about the assault on the transport van and the loss of products intended for customers we acted very quickly we contacted each affected customer we explained the situation and refunded the total amount that each customer had paid in addition we started a refund process with the transport company responsible since they have insurance that covers this type of situation of course this situation negatively affected customers in addition to not receiving the products they also had to wait for the refund process we understand the frustration and inconvenience it caused them however our priority was always to ensure that they were duly reimbursed and provide them with the necessary support A situation has also happened to us in which a customer made a mistake in the delivery address had placed the wrong batch and we still sent the order based on in the data provided by the customer ie the product was delivered to the wrong address and the customer who received it refused to return the product in this case we had to take responsibility for all the costs involved and sent the product back to the customer one of the measures What we consider fundamental to improving customer satisfaction in e-commerce services is improving the speed of navigation on our website We know that a slow loading website leads to customer frustration and even abandonment of the website in addition to improving the speed of navigation We consider that delivery status is also a key element in improving customer

satisfaction steps to provide even more detailed and valuable communication for the customer we want the customer to know exactly where their product is throughout the delivery process continuous and transparent communication with the customer is very important if the customer is to have a good shopping experience with us he tends to share this experience with other people which brings more customers to us another fundamental aspect to improve customer satisfaction in the e-commerce service is to try to reduce the delivery time we are also considering the possibility of including real photographs so that customers have a clearer idea of the aesthetic condition of the product they are purchasing before finalizing the purchase Unfortunately we do not have specific loyalty tools however we do have an approach that although unintentional aims to maintain a relationship with our customers One of the ways we try to maintain contact with customers is through our 5-year warranty on products something that does not happen in any other Portuguese company in the same sector as ours If within these 5 years the customer's battery is faulty we will provide We provide you with a new battery free of charge although we do not have traditional loyalty tools we believe that offering a long-lasting guarantee and providing support in situations such as battery replacement creates a relationship of trust and satisfies the needs of our customers We also tend to publish frequently on social media social networks such as Facebook and Instagram that aim to maintain a constant presence in the minds of our customers and encourage them to interact with us The majority of our customers tend to abandon the website during the product consultation phase We recognize the importance of understanding the reasons that lead customers to abandon the website during the purchasing process For this reason we implement analytical tools such as Google Analytics which allows us to collect and analyze detailed data about the behavior of users of our website this way we can identify points for improvement and adjust the user experience to make it more attractive and satisfactory Firstly ease of navigation is something we frequently receive as positive feedback we try to maintain a clear and intuitive structure so that customers can easily find the products they want in addition the attractive design of our website is another feature that customers appreciate detailed product descriptions are also highly valued as they provide relevant information to help customers take action informed purchasing decisions lastly we offer easy access to customer service through a contact form and clear contact information we believe some key areas for improvements to the website include the interface and user experience we are constantly looking for ways to make navigation and interaction with the website even more intuitive and pleasant we want to ensure that our customers easily find what they are looking for and have a fluid experience on our website another area that we consider important is the efficiency and precision of our search processes we want facilitate product

search and filtering ensuring that customers quickly find what their needs and preferences are This involves implementing more advanced search features such as customizable filters and better organization of results Based on our experience we have identified some characteristics that our customers appreciate most throughout the transactional process one of them is price transparency we seek to provide clear and detailed information about the prices of our products avoiding unpleasant surprises during the purchasing process customers value the ability to have a clear view of costs before finalize the transaction in addition our customers appreciate simple and varied payment processes we offer several payment options so that customers can choose the payment method that is most convenient and secure for them another feature valued by our customers is the economical shipping options we try to offer different delivery options from fast shipping with additional costs to more economical options for those who are not in a rush to receive the products; finally clear policies are essential our customers appreciate having access to clear and detailed information about return policies exchange warranty and any other information relevant to the post-purchase process this creates trust and transparency helping customers to make informed decisions we believe we have the essential information on our website to inform customers but we are also careful not to overload them with too much detail and information we seek maintain a balanced approach we provide essential information in a clear and concise way to facilitate our customers' experience we provide clear and transparent information about our company products and services on our website we detail what our company does our values and how we operate we avoid doing exaggerated promises or statements that could mislead our customers we also have a clear privacy policy where we explain how we collect store and protect user information we emphasize the security measures we implement to protect our customers' personal data another important point is that we have certifications recognized in the industry such as the lnec (national civil engineering laboratory) certification which we mention on our website these certifications help to convey trust and reliability to our customers as they demonstrate that our products have undergone rigorous testing and meet quality standards recognized in addition we keep the content of our website always up to date this means that the information about our products services and processes is accurate and reflects our latest practices we believe that our customers are satisfied with the payment methods and exchange policies and refunds from our company we make a continuous effort to offer the most popular and convenient payment methods for our customers we currently provide options such as mbway multibanco reference and credit card among others we seek to provide a fluid and secure payment experience ure with regard to exchange and refund policies we follow the guidelines established by decree-law nº 24/2014 of February 14 which protects

consumer rights we ensure that our customers have the right to terminate the contract and make exchanges or request refunds within the deadlines established by law however it is important to highlight that there are some exceptions to the exchange and refund policy for example when it comes to personalized products according to the consumer's specifications such as paints with personalized colors we cannot accept returns or refunds in accordance with with the law this exception is allowed by decree-law and is in line with the applicable legal provisions we do not provide a customer reviews and feedback section on our websites in our company fortunately we have never detected any failure in the after-sales service at the moment we do not have a Real-time order tracking system where customers can check the exact location of their item during transport however we provide our customers with up-to-date information on the status of their order through our online dashboard and through notification emails we update the status of the order to "in processing" when it is being prepared and packed as soon as the order is shipped we update the status to "shipped" indicating that the shipment is in transit finally when the order is successfully delivered we update the status to "complete" these updates allow customers to have a clear idea of where their order is and what stage it is in the delivery process We recognize the importance of staying up to date with our customers' trends and preferences in e-commerce to To achieve this goal we use several strategies: user data analysis: we use analysis tools such as Google Analytics to collect and analyze detailed data about user behavior on our website this includes information about the most visited pages the time spent on each page conversion rates among other relevant data this information helps us better understand how customers interact with our website identify patterns and make informed decisions to improve the user experience; customer feedback: we value the opinion of our customers we encourage them to share their experiences and feedback and to share suggestions we take these comments into account and use the information obtained to adapt our offer and meet customer expectations more effectively; participation in industry fairs and events: we regularly participate in industry fairs and events to stay informed and up to date with new trends and practices in the market; and strategic partnerships: we establish partnerships with other companies and organizations in the sector that allow us to learn from their practices and experiences and incorporate new ideas into our business the protection and security of our customers' personal data is a top priority for our company we comply with we comply with all legal obligations and adopt good practices in relation to privacy and data security we implement a number of measures to ensure adequate protection of our customers' personal data we use a number of security measures to protect our customers' personal data including ssl encryption access controls and data processing in accordance with customer consent we additionally have

policies to deal with issues such as the right to access rectification erasure and data portability as well as the right to object to data processing as with any system it is impossible to guarantee 100% security and we are prepared to deal with any security incident that may arise we faced two distinct situations that had a significant impact on our customers in the e-commerce service the first was a server failure that resulted in a temporary unavailability of our website the second was a technical problem in our checkout process that made it impossible for customers to complete their transactions to minimize negative impacts on our customers we reinforced the monitoring of our systems and processes to quickly identify any problems that may arise the consequences of these failures were varied and impacted our customers in different ways the temporary unavailability of the website resulted in customers being unable to access our website and make purchases during the affected period this may have caused customers frustration and dissatisfaction especially if customers were trying to make an urgent purchase or needed access specific information the technical problem in the checkout process affected the s customers as they were unable to complete their purchases this may have resulted in delayed purchases lost time and confusion for customers who expected a quick and convenient shopping experience these failures may have led to lost sales and customer dissatisfaction Since they may have chosen to look for other companies and abandon the purchase there are several measures that our company can take to improve customer satisfaction throughout the transactional process namely investing in improvements to the interface of our website making it more intuitive easier to use navigate and aesthetically appealing implement personalized marketing strategies such as personalized campaigns to ensure that our customers feel that their individual needs are being met for example by including product recommendations on the website based on customers' previous purchases and establishing tracking of orders in real time where customers can monitor the status of their order which will give them a feeling of security and tranquility allowing them to know exactly when to expect the delivery of their order We seek to retain our customers by ensuring the exceptional quality of our products that our customers receive long-lasting inks with accurate colors and superior performance we also maintain regular communication with our customers providing information on new product launches and special promotions we also seek to offer excellent customer service at all touchpoints we invest training our team so they can provide fast efficient and friendly support to customers we are available to answer questions resolve issues and ensure customers feel valued when interacting with our company.

Appendix C.3 – Customers interview transcripts to Leximancer

have a helpdesk permanently available to provide customer support in at least 1 hour ensure that I am informed of failures and their consequences I want the problem to be resolved for me the better the compensation the more I will return lack of direct contact with those responsible for sales To resolve the problem it can be done over the phone to improve the failure support service through specialized employees I was unable to apply the discount at the end of the purchase Check if the discount coupons were working Failed payment Companies should have more payment methods Stock management the application did not update stocks and there were never the stocks I was requesting there was no customer support in my language having customer support in the language of the countries where it operates

companies should have a faster response service to customer failures resolve problems as quickly as possible increase ease and time and effort for consumers provide services that facilitate access and make it easier to find platforms that overcome user difficulties have a good service after failure by giving a dedicated number or an email to a person responsible for the area increase ease and time and effort for consumers provide services that facilitate access and make it easier to find platforms that eliminate difficulties for users to have a good service after failure by giving a dedicated number or an email to someone responsible for the area companies should have a faster response service to errors that customers suffer resolving problems that occur as quickly as possible increasing the ease of customer support service is undoubtedly one of the reasons not to lose customer engagement the time taken to resolve errors affects development greater competition for other brands that offer the same type of service and which reduces the brand's offer not having a dedicated channel for resolving problems with specialists in the area greater competition from other brands that offer the same type of service and which reduce the brand's offer greater competition from other brands that offer the same type of service and which reduce the brand's offer not having a dedicated channel for resolving problems together of specialists in the field customer complaints or the feedback they send are not clear and lead companies to change functions and features that were fine the biggest impact is on response time as time is money companies must provide a quick response service they must increase my satisfaction when they provide me with a good service competition from other platforms is the main factor yes they increase expeditiously online processes increase satisfaction because when I receive the order I no longer have to do anything else yes they increase expeditiously online processes increase satisfaction because when I receive the order I no longer have to do anything else yes online processes increase quickly they increase

satisfaction because when I receive the order I no longer have to do anything else service failures can prevent the company from developing because it is more concerned with resolving problems and not in expanding your business without a doubt that having an online business increases my satisfaction with the company service failures can prevent the company from developing because you worry more about solving problems and not expanding your business without a doubt having an online business increases my satisfaction with the company with correct and relevant information I know that I will buy the product when I don't have all the information available about the product I rarely complete the purchase I feel more engaged with a company that provides me with all the information about the products they have for sale I don't buy an item with outdated information these types of situations take away my confidence they make me feel more engaged with the brand I waste less time on other things and everything is more efficient I consider it essential for the brand to have an online presence although I don't buy daily on the website however having an online presence I know that I can buy at any time without a doubt I feel more engaged with a brand that has an online presence I don't consider it essential at all but I understand the importance of being online having a presence online I know that I can buy at any time without a doubt I feel more engaged with a brand that has an online presence I don't consider it essential at all but I understand the importance of being online having an online presence I know that I can buy at any time without a doubt I I feel more engaged with a brand that has an online presence I don't buy an article with outdated information these types of situations take away my confidence I worry more about possible fraud or scams that may exist on some sites data and payments are mine main concerns I worry about reliability age of the service provider payment and use of personal data the processing of personal data still seems insecure I worry more about possible fraud or scams that may exist on some sites data and payments are my main concerns I worry about reliability of the service provider payment and use of personal data the processing of personal data still seems unsafe I worry about the reliability of the service provider payment and use of personal data the processing of personal data still seems unsafe nowadays I feel some distrust in the way my data is processed in the event of a security breach for me it was enough for the company to issue a press release or contact me to apologize for what happened not much because every time there is a data leak most companies don't know where the data goes same

In the event of a data leak companies should take care to inform customers about which areas were affected and what measures were implemented to remedy the flaws I have some fear and distrust the company needs to provide more security guarantees to its customers today Nowadays I feel some distrust in the way my data is treated without a security breach for me it

was enough for the company to issue a press release or contact me to apologize for what happened not much because every time there is a data leak the majority of companies do not know where they go in the event of a data leak companies should be careful to inform customers about which areas were affected and what measures were implemented to fill the gaps nowadays I feel some distrust in the way my data is processed in the event of a security breach for me the company only had to issue a press release or contact me to apologize for what happened I have some concerns these days about the security of my data in the event of a breach the company should as soon as possible to speak to me and explain what measures are being implemented yes when I was going to apply a discount coupon and it didn't work I was in the payment phase my satisfaction with the brand was not affected because the next day the problem was resolved yes had any influence on me using it again I was buying an ink cartridge and the company guaranteed that I would return the money if I wasn't satisfied as I wasn't satisfied I asked for the money back and I didn't receive it yes when I was going to apply a discount coupon and the same It didn't work I was in the payment phase my satisfaction with the brand was not affected because the next day the problem was resolved yes it had an influence on me using it again I was buying an ink cartridge and the company guaranteed that it would return the money if I wasn't satisfied As I wasn't satisfied I asked for my money back and I didn't receive it I was booking a hotel room and after making the payment I didn't receive the booking confirmation immediately as promised on the website My satisfaction with the brand was not affected as they had a 24-hour customer support service and after making a phone call to that service I found out that the reservation was made and that they would send me proof of reservation as soon as the error was corrected yes by applying a coupon discount customer support and clarity in explaining the problem they should have assumed the total loss and had a department ready to speak to me and exchange the product customer support and clarity in explaining the problem they should have assumed the total loss and have a department ready to talk to me and exchange the product they should have assumed the total loss and have a department ready to talk to me and exchange the product the website needs to correct its data recording forms it is always necessary to fill in all the data every time that a purchase is made wasting a lot of time with the same process every time I had a failure with the payment method I did not feel less engaged with the brand because I had never had any failure in the past if the answer was positive and if I considered it acceptable the level of engagement either remained unchanged or increased as the company did not solve my problem I never felt engaged by the brand again I never bought again I had a failure in the payment method I didn't feel less engaged by the brand because I had never had any failure in the past as the company didn't solve my problem I never felt

engaged by the brand again But I bought again as the company didn't solve the problem I never felt engaged with the brand again I never bought again I spent too much time filling out the purchase details again I didn't feel engaged with the brand again because this failure turned out to be very common when I was engaged with a brand I am much more predisposed to buy more products despite I notice flaws and if they solve the problem I will continue to buy from the brand yes being engaged influences my future purchases I feel that I don't need to look for alternatives will what I save motivate me to change brands yes being engaged I will continue to buy from the brand not looking for the price but for the quality of the sales and after-sales service being engaged with a brand I am much more willing to buy more products despite there being flaws and if they solve the problem I will continue to buy from the brand and feel engaged by the brand without a doubt influences my decision to buy again having a fast service with useful information is undoubtedly very important being engaged with a brand I am much more willing to buy more products despite there being faults and if they solve the problem I will continue to buy from brand feeling engaged by the brand undoubtedly influences my decision to buy again having a quick service and useful information is undoubtedly very important quality products responsiveness that meets what I need is convenience with the brand and something that makes my life easier and mental effort quality of service having a good quality of service makes me work with the brand again quality of service products quality responsiveness that meets what I need having a good quality of service makes me work with the brand again quality products and good discounts ease of access to information website with speed of processes and accessible information and quick access quality products being able to have a good after-sales service quality products being able to have a good after-sales service ease of accessing information products quality being able to have a good after-sales service yes I leave recommendations it is rare to leave criticisms I don't usually leave suggestions yes I usually leave positive feedbacks when I am satisfied with the service provided I don't usually leave feedbacks I don't usually leave opinions yes because I believe that my feedback will contribute to an improvement continues with the brand and the service it provides contributing overall to my satisfaction yes I would recommend it I believe that my opinion will be taken into account for improvements to the system

Appendix C.4 – Online Consent Form

Before conducting the interviews, an online consent form was read to the participant. Only after the agreement of the participant, the interview was conducted.

Failure is not an option-Service failures and customer engagement in small and medium-size enterprises

Dear participant,

First, I want to say thank you for giving me your time and wisdom. A summary of the study's goals and some instructions for your enrolment is provided below.

Research purpose: Examining the effect of multiple service failures on customer engagement in the context of SMEs

Guidelines:

• I confirm that I am over 18 years old.

• I can withdraw during the interview at any point and do not have to answer all questions.

• The purpose was explained to me.

• I had the opportunity to clarify any doubts or questions.

• I confirm that I am aware and fine with my interview getting recorded and transcript (with an anonymous code)

• I understand that all information is confidential.

• I acknowledge that my real identity will be anonymous, and I will be assigned a number that can be referred to.

I (name).. voluntarily agree to participate in this research study.

If you have any further questions, you can contact me anytime under the following email: Researcher mail: pmoca @iscte-iul.pt