The impact of e-commerce on the success of microenterprise retail sector of the Pinhal Interior Norte sub-region of Portugal

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ABSTRACT
In the global, competitive and ever-changing market it is important that Micro, Small and Medium Enterprises (MSME), as a significant part of the Portuguese industrial business, become competitive and, thus, it’s important to assess how the level of involvement in electronic commerce (EC), in Business-to-Consumer (B2C) relations, can influence the success of a microenterprise in the retail sector, focusing on the Portuguese sub-region of Pinhal Interior Norte.

Being a region that is far from the big metropolitanises, where the young and more educated stratum distances itself, leaving it little more than the population that is getting older and with a reduced level of education, we considered it interesting to study if the microenterprises of the region are prepared to the new era of technology as a business model for their companies.

We were able to confirm that 62.50% of the analyzed companies saw their financial result increased after the adoption of the EC, which allows us to establish the existence of a relationship between the two facts.

Keywords
E-commerce, SME, technology adoption, retail trade.

INTRODUCTION
According to PORDATA\(^1\) data, the Portuguese Micro, Small and Medium Enterprises (MPME) constitute a very significant part of the industry business of Portuguese economy. It is therefore particularly important that they become competitive in the market, which is global, competitive and constantly changing.

In this sense, we defined as objective to evaluate the respective level of involvement in electronic commerce (EC), in Business-to-Consumer (B2C) relations, and to the extent to which it can influence the success of a retail microenterprise with focus on the Portuguese Pinhal Interior Norte sub-region.

The Pinhal Interior Norte sub-region is a statistical NUTS III\(^2\) sub-region, part of the region of the Center (Beiras Region) and divided between the districts of Coimbra and Leiria. A territory with about 2,600km\(^2\) and 132,000 inhabitants, composed of 14 municipalities: Alvaiazere, Ansião, Arganil, Castanheira de Pera, Figueiró dos Vinhos, Góis, Loussã, Miranda do Corvo, Oliveira do Hospital, Pampilhosa da Serra, Pedrogão Grande, Penela, Tábuas e Vila Nova de Poiares, where the only city is Oliveira do Hospital.

For the constitution of the sample, a suitable source was found to be able to obtain a significant set of companies to obtain relevant data.

An analysis was done on the collected sample to ascertain which companies are involved in EC. Subsequently, surveys/interviews were conducted with the managers of these companies, with the purpose of evaluating the motivation(s) for the adoption of EC, as well as the recognition they make in terms of the return on their investment and what they intend to accomplish to maintain or modify their business.

RELATED WORD
The reduction of communication costs along with the spread of Internet access means that people and organizations around the world now have access to the Internet, creating a business channel which simplifies the entry of microenterprises into new markets, facilitates the establishment of relations with customers and suppliers, allows the exploration of new products and services, all without material, geographical and temporal limits, that the business of physical form imposes. And, competition forces companies to increasingly use technology to lower prices and

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\(^1\) http://www.pordata.pt

\(^2\) Nomenclatura das Unidades Territoriais para fins estatisticos
establish business and financial contacts more quickly and efficiently [6].

However, the adequacy and good use of EC in companies is to streamline, optimize resources and maximize profits, being fundamental the involvement of human knowledge in this process because, in order to understand the EC, it is necessary to understand the Information and Communication Technologies (ICT) on which it is built, as well as all the concepts associated with it and necessary for its adoption and development, without which the desired benefits will not be obtained and, although a well-managed EC model, based on technical, organizational and social knowledge, can allow the achievement of large-scale competitive advantages, even in the case of SME from regions with lower development indices [6].

The adoption of EC by SME, especially in developing countries, is still far behind adoption by large enterprises [14], but SME are motivated to invest in EC as a form of business and thus need to invest in a website for this purpose and are doing so more and more [5].

An EC website is a sales channel (sometimes the only interface of a business) between businesses, customers and the World in general. Thus, an innovative, well-designed and managed website can provide the advantage that a business needs to successfully conduct its EC activities, and it is therefore essential for managers to measure and realize the benefits of their investment [5].

When a company decides to adopt the EC, its presence must be appropriate to the needs of the business and should focus on supporting its business objectives [5]. It is important for businesses to consider what visitors most look for and appreciate when visiting an EC website. Having a clear purpose helps visitors to realize what the website offers and make an easy purchase decision [5].

Companies, realizing the significance of user registration numbers on social networking sites, begin to direct their business efforts to seize the opportunities inherent in this massive adoption, but the existing academic literature does not demonstrate sufficient knowledge about how companies should adopt and utilize these technologies [13].

SME typically offer significant contributions to the national economy, particularly in developing countries and the existing literature on EC studies is largely concentrated in developed countries [9]. In addition, most of the current literature typically has a broader focus on adopting EC technology in general across all industry sectors, there are therefore few existing studies on the adoption of EC technologies and industry readiness in a specific industrial sector [9] and with an important role in the national economy, as is the case of the retail sector in Portugal, according to PORDATA data.

[2] also considers the theme of the EC little explored and considers factors determining its adoption of the age of the company, the capacity for innovation and marketing of managers and their experience with the use of Information Technology. [13] also add that support for superior management aimed at implementing business initiatives related to social networking sites, ensuring alignment between the strategic plan of social networking sites of the company and the global business plan, the concept of using social networking sites to gain competitive advantage against competitors, and the competitive pressures of companies using social networking sites, are the determining factors with the greatest impact on the adoption of social networking sites at company level. The [9] study highlights the need for greater collaboration between industry and government partners to encourage SME to adopt EC technologies, increasing their understanding of the benefits derived from these technologies. It is also important to sensitize business partners to put pressure on SME for EC adoption and the benefits (as perceived by influential trading partners) that such adoption can bring to supply chains. In addition, industry partners and government need to help SME build and maintain their internal organization of resources, structures and governance to fit well with EC technologies. National policies and strategies must be established or reactivated to influence the behavior and attitudes of SME towards the adoption of various EC technologies.

We will try to demonstrate through our analysis if the main factors that influence the non-adoption of EC by microenterprises are that managers are not prepared to change their business strategy or do not understand the return of their investment in EC. We will also try to demonstrate if the great problems to be solved in this area for microenterprises are related to the understanding of the benefits and the readiness of financial, technological and human resources.

It will, however, be difficult to extract from the results obtained what is effectively resulting from the EC, when the companies, in parallel, carry out their business in physical stores. For simplicity, we considered that the business would remain constant over time, in terms of return, if only the physical market channel were maintained.

**EC in B2C relations**

The literature shows several definitions of EC given by different authors.

E-commerce is a term that generally represents the use of applications for commerce that are executed with the assistance of computers and, usually, the Internet [12].

In [10], EC refers to the use of the Internet and the Web to carry out business, whether it be between companies or consumers.

[6] adds that transactions involve the exchange of value (eg money) across the organizational or individual frontier in the exchange of products and / or services. The exchange of
value is important to understand the limits of the EC: without an exchange of value, there is no trade.

And ACEPI\(^3\) further adds that by including in the definition the condition for the purchase to be EC, the fact that there is an undertaking to pay for a product or service in its supplier system via the Internet or other electronic networks.

Thus, we will refer in this paper to the EC whenever dealing with commercial transactions in a B2C relationship, made using electronic devices with Internet access, and do not fall under those that are carried out simply using electronic mail or the companies that only have a presence on the Internet.

In a B2C relationship, a company transacts products, services and / or content [12] directly with the consumer using the Internet and the Web, where web sites that commercialize small quantities [15].

**FORMULATION OF RESEARCH HYPOTHESES**

The literature shows several determinants that can influence the adoption and maintenance of the EC for the success of the company, but not all of them gather consensus such as customer safety, trust and privacy issues.

Martins [13] states that, despite popular belief to the contrary, it cannot be concluded that security and privacy (and their inherent variables) are influential in the EC adoption process. Scandiuzzi [15] states that the failures of payment card operators generate customer mistrust and are therefore a critical factor for the success of the EC.

In this study, we will adopt six determinants that in the review of the literature have gathered consensus as influencers of the adoption of EC.

i. The age of the company and its capacity for innovation and marketing;
ii. The age of the managers, their level of education and their experience with the use of IT;
iii. Organizational readiness and of the commercial partners;
iv. Infrastructure and human resources costs;
v. Perceived return on investment by managers;
v. Knowledge and awareness of customers.

Zhou [16], quoted by [2] states that older companies have more routine processes that impede learning ability in younger environments.

**H1** - The age of the company contributes positively to its capacity for innovation and marketing and consequently to the adoption of the EC.

With a higher level of education and qualification of people, these will tend to reach high technical levels and have a culture adequate to face the challenges and the demands placed on them, using technology as a platform against the greater complexity and pace of change of their organizational environments [12].

Website adoption was influenced by the intensity of product information and CEO innovation [1].

**H2** - The age of the manager, his level of education and his experience with the use of IT contribute positively to the adoption of the EC.

The company's readiness to adopt EC involves sufficient levels of availability, expertise and sophistication in terms of IT and human resources, and sufficient financial resources for the necessary investments associated with the process of technology adoption [7], quoted by [13], where the readiness of trading partners also plays an important role in the success of adoption [13].

**H3** - Organizational readiness and business partners contribute positively to the adoption of the EC.

**H4** - Infrastructure costs and human resources contribute positively to the adoption of the EC.

An innovative, well-designed and managed website can provide the advantage a company needs to successfully conduct its EC activities, so it is essential for managers to measure and realize the benefits of their investment. [5], but the existing academic literature does not demonstrate sufficient knowledge about how companies should adopt and use technologies as an attractive element for companies, which will justify the fact that only a very small number of them make the most of the potential that these technologies have to offer [13].

**H5** - The perception of the return of the investment by the managers contributes positively to the adoption of the EC.

It is important for businesses to consider what visitors most look for and appreciate when visiting an EC website. Having a clear purpose helps visitors to realize what the website offers and make an easy purchase decision [5].

In the new economic era, which is the information age, companies, including SME, are forced to adopt EC, and companies that do not adopt it will be left behind about adopters [14]. Through their website they present the company, advertise their products and services and spread the contacts [11].

**H6** - Customer awareness and awareness contribute positively to the success of the EC.

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3 http://www.acepi.pt/
Table 1. Hypotheses of research formulated.

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<th>Hypothesis</th>
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<td>H1 - The age of the company contributes positively to its capacity</td>
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<td>H2 - The age of the manager, his level of education and his experience</td>
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<td>with the use of IT contribute positively to the adoption of the EC.</td>
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<td>H3 - Organizational readiness and business partners contribute positively</td>
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<td>H4 - Infrastructure costs and human resources contribute positively to the</td>
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SAMPLE DATA COLLECTION

The extraction of the sample was carried out using the SABI database, a database of financial analysis of Iberian companies, including more than five hundred thousand Portuguese companies, with a history of annual accounts up to twelve years and where it is possible to collect various types of data such as the sector of activity and turnover, where the criteria were selected for the collection, filtered by the last five years of registration.

Exploratory research was then carried out through a visit to the websites of the sample companies to ascertain which of the microenterprises in the sample are involved in the EC and to analyze characteristics of the website such as navigability, included services, among others.

Interviews were then conducted with the managers of the sample companies with involvement in EC, to understand their level of understanding of the return on their investment and what practices they adopt and adopt to maintain and improve the business.

The interview was prepared based on the research hypotheses formulated, to verify the veracity of the interviews.

The interview offers a more qualitative approach, to examine the situation from a more open perspective. It allows for a more flexible approach and could capture unexpected results during the analysis that might otherwise escape [12].

RESULTS AND DISCUSSION

Through a survey of the SABI database, a sample of 907 microenterprises with headquarters in the Pinhal Interior Norte sub-region was collected, 672 of them in the district of Coimbra and the remaining 235 in the district of Leiria.
representing a percentage of 74.09% and 25.91%, respectively.

However, from the sample collected, not all companies have a website, and from the initial 907 the sample is reduced to 46 (5.07%) - 35 of the 672 (5.21%) in the district of Coimbra and 11 out of 235 4.68%) in the district of Leiria.

And the sample declines a little more when, through an exploratory investigation of the companies' websites, that of these 46 companies, only 9 (19.57%) have an EC website, and the remaining 37 (80.43%) just have an internet presence without EC store.

Which, in the total of the 907 of the initial sample, means a percentage less than 5% of companies that only own website without use of EC and less than 1% of companies that own website with EC.

With the initial sample reduced to 9 companies, appointments were made to interview the managers of these companies, and one of them refused and therefore the sample became 8 companies (0.88%) - 6 in the district of Coimbra and 3 of the district of Leiria - which means a percentage of 66.67% and 33.33%, respectively.

The companies are headquartered 1 in the municipality of Arganil, 1 in the municipality of Miranda do Corvo, 2 in the municipality of Oliveira do Hospital, 1 in the municipality of Tâbua, 2 in the municipality of Ansião and 1 in the municipality of Figueiró dos Vinhos.

Three interviews were conducted face-to-face and the remaining five were telephonically, given the impossibility of performing face-to-face.

The companies started their activities between 1987 and 2016 and only 3 of them (37.50%) adopted the EC simultaneously.

The managers are 4 males (50.00%) and 4 females (50.00%) between the ages of 37 and 80, and with levels of education varying between the current 1st cycle of basic school and master’s degree. Four of the managers (50.00%) say they have experience using IT, 3 (37.50%) say they do not have any experience and only 1 (12.50%) say they have very little experience.

All managers (100.00%) reported having had to invest in technology, but only 2 (25.00%) said they had invested in human resources when implementing EC.

Two companies (25.00%) subcontract the services of implementation and maintenance, 1 (12.50%) have a collaborator dedicated to those services and in the remaining 5 (62.50%) everything is developed in a homemade way.

Concerning the analysis of customer behavior in the implementation and maintenance of EC, three companies (37.50%) said they did not have this concern and the remaining 5 (62.50%) reported having it.

Five managers (62.50%) say they recognize benefits in the implementation and maintenance of EC, such as greater knowledge of their target audience (100.00%), increase of contacts (100.00%), speed of transaction, (100%), greater geographic coverage (80.00%) and growth of turnover (60.00%), as shown in Figure 1.

The remaining 3 managers (37.50%) of the companies in the sample reported not recognizing benefits, recognizing as the main causes the lack of infrastructure (100.00%), lack of managerial knowledge (100.00%), costs (100.00%) and the lack of qualifications of the employees (33.33%).

Concerning the recognition of disadvantages in the implementation and maintenance of the EC, 5 managers (62.50%) recognized them, the main ones being the lack of readiness of the clients (40.00%) and the sector (20.00%), communications failures (40.00%) and costs (20.00%), as evidenced by Figure 2.
Only 2 of the companies in the sample (25.00%) do not offer payment methods, using only the payment on delivery.

Also 2 of the sample companies (25.00%) are difficult to register and 2 others (25.00%) are of little intuitive navigation.

None (100.00%) of the websites of the 8 companies analyzed enjoy all the resources allowed for this type of service.

According to statistical data released by the European Union Statistics Office (Eurostat) on Internet access and use in the European Union, which are part of the results of a survey conducted in 2016 on the use of ICT in households and by individuals, more than 80% of people aged 16-74 used the Internet in 2016, from different equipment4, having been highlighted in recent years the use of smartphone, according to a study published by ACEPI.

It would be highly desirable for companies to consider their presence on the Internet and in the EC. But, we confirm with this study what already [11] affirmed when saying that use of the Web by portuguese SME is still very limited.

Most of the microenterprises in the analyzed region do not have an Internet presence, and many those with Internet presence have not adopted the EC.

The companies that have EC do not take advantage of all the potential that the technologies offer them.

ACEPI, presented a study, at the opening session of the Portugal Digital Summit5, where it claims that 36% of the portuguese population are already users of the EC and the tendency is to increase, although about half of them choose to buy outside the country, which will be revealing of the long road that they say still have to go through in the preparation of portuguese companies, but promises measures to help companies take the first steps in digital.

Even so, the EC has not yet become popular among portuguese SME [11] and especially among microenterprises in the region, but we consider that having a simple presence on the Internet is already an indicator of change and some managers interviewed have been committed to improving their presence.

Despite the analysis made by ACEPI show that the EC in B2C relations in Portugal has been contributing over the years to the increase in the volume of business of SME, affirms that there is still a lot of microenterprises to develop so that companies change their business strategy with the use of ICT and companies in the Pinhal Interior Norte sub-region analyzed are no exception.

We cannot conclude that the age of the company contributes positively to its capacity of innovation and marketing and consequently to the adoption of the EC, nor that the age of the manager as well as his level of education and experience with the use of IT contribute positively to the adoption of the EC, thus not confirming the hypotheses of investigation H1 and H2.

Based on our study, we conclude that the organizational and commercial partners' readiness and the knowledge and awareness of the clients contribute positively to the adoption of the EC, thus confirming the hypothesis of investigation H3 and H6.

We can also conclude that infrastructure and human resources costs or outsourcing of implementation and maintenance services can influence the adoption and maintenance of EC, which confirms the H4 investigation hypothesis.

All managers interviewed who recognize benefits in adopting and maintaining the EC show commitment to continue to improve their presence and concern with the market and their clients, which is not the case with managers who say they do not recognize benefits, which confirms the H5 investigation hypothesis.

Thus, it was not possible to confirm the hypothesis of investigation H1 and H2 and it was possible to confirm the hypotheses of investigation H3, H4, H5 and H6.

Once confirmed the research hypotheses H3, H4, H5 and H6, we can conclude that microenterprises in the retail sector of the Pinhal Interior Norte sub-region with involvement in EC, B2C relations, will have a growing success rate due to their adoption and maintenance if there is readiness of all the involved parties, which implies the understanding of the return of the investment by the managers and the knowledge and awareness of the clients.

4 https://www.anacom.pt, acedido em 10/01/2018

5 http://tek.sapo.pt, acedido em 11/10/2017
CONCLUSIONS
It was proposed as an objective for our study to know if the microenterprises of the retail sector of the Pinhal Interior Norte sub-region, with involvement in EC, in B2C relations, have a growing success rate due to its adoption and maintenance.

To do so, the sample was collected using the SABI database, after which an exploratory investigation was carried out, through a visit to the websites of the sample collected, to find out which sample companies were involved in the EC.

Based on the literature, we defined six determinants that can influence the adoption and maintenance of the EC for the success of the company, which served as the basis for the formulation of six hypotheses of investigation and the elaboration of the questions for the interview to the managers of the sample companies with EC involvement.

We went through the interviews phase to assess whether they recognize the return on their investment and what they want to do to maintain or modify their business and get answers that help evaluate the research hypotheses under consideration.

After the data were collected, the exploratory research was reconciled with the data collected in the interviews so that we could conclude about the proposed objective.

The hypothesis of investigation H3, H4, H5 and H6 were confirmed, but the hypotheses of investigation H1 and H2 were not confirmed.

The use of EC by Portuguese SME is still very limited in the studied region, but 62.50% of the analyzed companies saw their financial result increased after the adoption of the EC, so we believe this is due to its use, which is in line with the conclusions published in the study published by ACEPI, carried out to the most representative companies in terms of electronic business in Portugal and responds positively to our research question.

We also noticed that two of the companies that have been having their financial result increased adopted the EC simultaneously to the incorporation of the company, which may indicate that a business strategy always aligned with the use of technologies will help to obtain more promising results.

Since much of the current literature has a broader focus on adopting EC technology in general in all sectors of industry, so there are few existing studies on the adoption of EC technologies and industry readiness in a specific industrial sector [9] and with an important role in the national economy, as is the case of the retail sector in Portugal, according PORDATA data, we consider to have contributed to the literature on this topic, helping managers in the adoption of EC by microenterprises in less developed regions.

Limitations and future investigations

We consider that the main limitation of this study is the size of the sample, which does not allow to generalize results.

Also, the fact that IT allows a constant change and the study has been carried out in a given time can be a limitation, since at any moment there may be changes that produce different results.

Another limitation is the difficulty in extracting from the results obtained what is effectively resulting from the EC, when the companies, in parallel, carry on their business in physical stores.

It will therefore be important to carry out a new analysis, in the initial sample and the analyzed web sites, in another period of time to understand the evolution of IT use by the companies of the region as a business strategy.

With the exponential growth that has been observed in the use of the Internet and technologies by consumers, here is an issue that we think is interesting for future analysis:

Is the EC the end of traditional trade?

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REFERENCES


