



E-Commerce as Mechanism for Enhancing Micro and Small Enterprises: The Case of a Port Conurbated Area in the Southeast of Mexico

**Ignacio Ortiz Betancourt^{1*}, María del Carmen Meza Téllez¹,
Mariel Terrones Castro¹**

¹Universidad Veracruzana (Mexico)

*igortiz@uv.mx

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Abstract

The rapid global rise of e-commerce emerged from the escalating operational demands experienced by modern companies, alongside an administrative necessity to better leverage information technology and seamlessly adapt to digital innovations to optimize the critical relationship between customers and suppliers. Within this digital transformation scenario, business entities ranging from micro-enterprises to large corporations can achieve significant competitive advantages by developing robust e-commerce strategies. However, within the specific macroeconomic context of Mexico, while micro, small, and medium-sized enterprises (MSMEs) represent more than 90% of all registered business units, they consistently exhibit a disproportionately low preference for adopting e-commerce frameworks. Driven by this clear developmental gap, this study aims to investigate and isolate the specific organizational and structural barriers that prevent small Mexican enterprises from transitioning into the e-commerce marketplace. Utilizing a quantitative empirical approach, a structured diagnostic survey was administered among 100 small enterprises to gather primary data regarding their technological constraints. Following a detailed analysis of the responses, it was observed that the most critical barriers hindering digital adoption were the prohibitive initial cost of technological implementation, a severe lack of qualified internal personnel to manage digital operations, and an overarching deficiency in accessible industry information regarding e-commerce logistics. Ultimately, these empirical insights provide a foundational framework for policymakers, industry leaders, and tech developers to design targeted interventions, training programs, and financial

incentives to accelerate digital inclusion for small businesses within emerging economies.

Keywords: e-commerce; micro enterprises; mexican SMEs.

Introduction

Studies by the Organization for Economic Co-operation and Development (OECD, 1999) define e-commerce as the process of buying, selling or exchanging goods, services and information through communication networks. This represents a great variety of possibilities to acquire goods or services offered by suppliers in various parts of the world. With the development of this process, purchases of items and services online may become more attractive because of the ease of doing them, however, it is very important that cyber consumers take certain precautions to avoid being victims of fraudulent business practices.

Similarly, Fonseca (2014) states that electronic commerce deals with commercial transactions in which there is no physical relationship between the parties, but orders, information, payments, etc., are made through a electronic distribution channel (non-physical). Although there are other means of electronic commerce such as mobile e-commerce and interactive digital television that offer similar advantages, people focus on the Internet.

With the passage of time, this commercial modality has gone from being a simple catalog of products or services at the beginning of the nineties, built from an immovable page, with a little maintenance, to become one of the most indispensable means And important to make sales and generate profits.

E-commerce arises from the greater demand experienced by companies and the need of their administration to make better use of information technology and to find a better way to adapt the new technologies, in order to improve the relationship between customer and supplier. It is in this way that electronic commerce started in the business-to-business world more than four decades ago with the presentation of the Electronic Data Interchange (EDI), which was given among commercial firms, with the sending and receipt of orders, exchange of information, distribution and payment, etc. On the other hand, there is also consumer-to-consumer and consumer-to-consumer electronic commerce.

Also, Fallestein & Wood (2000) mention that electronic businesses have passed through four stages: presence in the network: with information content (1995-1996);

Electronic shopping malls: (1996-1997) electronic catalogs; Electronic businesses: many companies were established (1997-1998); And digital economy: (1998 to date): interaction of systems of different organizations.

In the last ten years, e-commerce has registered a strong growth worldwide, both in quantity of users and number of commercial sites and certainly the investment advertising within the network; by its current volume, e-commerce can be considered as a mechanism for massive communication that thanks to its emergence is perceived as another way of understanding the market where the distance and the time are not obstacles and where client becomes an active consumer with a greater supply.

In this sense, the OECD (2012) stated in 2011 that in Mexico less than 5% of the population has bought some kind of product or service on the Internet. By percentage of net Internet buyers we can group Norway, England, the Netherlands, Denmark and Korea among the countries with the highest percentage of Internet users, because more than 50% of their population had bought online. With a percentage of the population between 30 and 20%, Iceland, Ireland, Belgium, Israel and Poland; with less than 20% of the population, are from Slovakia, Spain, Slovenia, Czech Republic and Estonia. Finally, the countries where less than 10% of the population had bought online were Hungary, Portugal, Italy, Greece, Chile, Turkey and Mexico.

Entering in the Mexican context, the director of Small and Medium Enterprises (SMEs) and Electronic Commerce of PayPal Mexico, Peón (2015) announced that e-commerce in Mexico had a value of 164 billion pesos and annually recorded a growth rate of 35%, which benefits SMEs by increasing their transactions. She also highlighted the growth in the number of online buyers in the country, since in 2011 reported 5.8 million and in 2014 totaled 9.6 million.

In addition, she pointed out that by the end of 2015, 10.9 million buyers are estimated, and that this figure might increase by 2016, reaching 12.1 million Mexicans who could purchase items online; also, announced that the best-selling items in 2014, were air tickets, clothing and accessories, followed by electronic, tickets for events, video games, applications, reservations for tourist packages and hotels, as well as books and magazines. Where SMEs showed greater growth in their Internet sales in the services sector, with an expansion rate of 20%; electronics, with 7.0%, and health and beauty with 6.0%.

Peon also indicated that mobile penetration has boomed in e-commerce, because of the "Millennial" generation (aged between 18 and 34) that leads mobility trends, with 88% of buyers via smartphones.

Advantages and disadvantages of electronic commerce

E-commerce today is a reality and can be a very attractive alternative to expand the distribution channels of a company that offers consumer products. In this sense, Palomares (2015) emphasizes a series of advantages for the consumer when opting for this modality, among which they emphasize: access to more information; facilitates research and comparison of prices and products; lowers costs and prices; comfort, avoid travel and schedules; access to more diversity and information; promotes more competitive and cheaper markets; among other.

In addition to this, Arias (2015) points out that companies are also favored by being part of this market, as they can obtain some of the following benefits: their business are available 24 hours a day for 7 days a week; possibly greater discount on the product taking into account the diminishing cost of hiring sales personnel and the lower payment of the salaries; it is not necessary to have a physical store and invest in the decoration, screens, security and sanitation of the establishment; reducing the risk of misinterpretation in the circuit with the customer, and even with the supplier; easier access to new markets and customers, with little economic effort.

However, the competitive advantage of large companies to smaller ones is smaller because an efficient and attractive online shopping portal does not require a large financial investment, the customer chooses what gives him more confidence and greater service; ease of processing of the data transmitted by a costumer relationship management (CRM) system, for example, preferences and form of payment of the clients, as well as allows the anticipation to changes in the tendencies of the market; the permanent contact with all the entities involved in the process, the interaction is faster, which reduces the costs related to communication; knowledge that is contained in the client's profile, habits and regularity of consumption, continuous availability of reports on which aspects are the most visited and which areas are most navigable; manufacturers can directly access the consumer market and therefore reduce intermediaries and increase their profitability; companies can internationalize their brands with much lower costs, without having to open physical stores (Arias, 2015).

However, problems may also appear. The causes of these problems are usually: customers fail to understand the whole buying experience. Even a product that is very well positioned in the market and with great value can fail if manufacturers and distributors do not understand the habits, expectations and motivations of consumers (e-commerce could lessen this potential problem with proactive and well-targeted marketing research). Another problem could arise from not considering the

competitive environment: one enterprise may have the ability to build a good model of electronic bookstore business but not take into account the competition with other portals, or firms could be affected by the inability to provide feedback from the environment which could produce a coordination failure (underestimation of time requirements) (Arias, 2015).

In spite of these facts, the Internet is considered an effective sales channel that gives any size and type of business the opportunity to have a larger sales volume than in previous years. This is a strong reason why it is recommended that SMEs develop and strengthen the offer of electronic commerce. Besides, this means that every entrepreneur should see the Internet as a source of growth and alternative tool for their business. Getting involved in e-commerce is a great opportunity for companies to increase their sales levels in their products and services and represents itself as a great opportunity for small and medium-sized enterprises (SMEs) when they are concerned with all the aspects that are necessary to function correctly.

This is a way for SMEs to strengthen their offer through electronic commerce. The task for each company that wants to sell online is to invest in a good electronic channel that meets the quality requirements such as: site design, payment methods, product availability, security, ease of purchase, delivery options, Warranty and after-sales service.

However, SMEs in Mexico are not using this tool that would allow them to have additional income, in addition to helping to combat the current economic crisis. This is then analyzed in such a way that the problem of study can be identified.

Approach to the problem

In spite of the great number of advantages that exist in the implementation of electronic commerce, as well as its rapid growth in the last decades, it is observed that there are still many limitations to be able to take advantage of the potential of this mechanism. Throughout the specialized literature on this subject, a number of factors are mentioned that affect the implementation of electronic commerce, among them, Weltevreden and Boschma (2008) affirm that the size of the company represents a limitation for them to be inserted in these practices, the smallest and medium being the least favored in this sense. On the other hand, Baptista (2000) and Mitchell (1992) emphasize that the seniority of companies is the most representative element for the adoption of electronic commerce, since those with more years in the market are more resistant to transit in this channel.

In the Mexican context, according to the National Institute of Entrepreneurs (INADEM), in *El Economista* (2013), reported that of the 73% of SMEs that have Internet access, only 10% sell online due to limitations on payment methods, reduced number of users and distrust of the systems. Another reason why smalls business are not using e-commerce as a growth strategy is by ignorance and myths about this online service, since you can launch a website with a small investment.

In order to offset the limiting factors mentioned above, greater financial education and promotion among SMEs are required to accept online purchases, therefore, a joint effort between authorities and private initiative is required to promote the use of electronic commerce between Mexican SMEs, recognized the National Institute of the Entrepreneur (INADEM) as well as the OECD.

According to data from the National Institute of Statistics and Geography (INEGI, 2015), in Mexico, in 2014 there were approximately 5.6 million business units, of which 95.4% were micro and small enterprises (MSMEs) that generate almost 20% of the Gross Domestic Product (GDP) and have a relevant role in providing employment in the country. Although the data is of impact, it is more that their sales have been practically achieved in a face-to-face market. And is that only 25% of these SMEs had Internet and only 10% a website.

One of the world's fastest-growing regions of the world is Latin America and the Caribbean, receiving 9.7% of global e-commerce in 2015, according to Internet World Stats (Conexión INTAL, 2015); also, in 2015, there were almost 110 million online consumers in this region.

So why is not the use of e-commerce implemented? According to Pueyrredon (2016), President of the Latin American Institute of Electronic Commerce, there are important barriers as the lack of products strategically designed for this market and an incipient culture to develop attractive mechanisms that improve costumer experience.

Considering that SMEs represent more than half of the total companies in Mexico, this means that there is a great competitiveness and it is the duty of the organizations to be updated continuously so as not to collapse.

Based on the above, it is noticed that SMEs are not making use of this tool and are not only missing an opportunity for growth and introduction to new markets, but simply to remain remote in a broad competitive market. After identifying the problem experienced by SMEs in Mexico, related to the implementation of electronic commerce, the following question arises: What are the limiting factors that affect the adoption of electronic commerce in SMEs located at a port conurbated area in

southeast of Mexico? Once the research question has been raised, the objective of this study is identifying the factors that have limited the adoption of e-commerce in SMEs in the mentioned area.

Based on the reports of the Economic Commission for Latin America and the Caribbean (ECLAC, 2013) and the World Trade Organization (WTO, 2012), the following hypotheses are proposed for this work:

Work hypothesis: the conditions for access to financing, the lack of qualified personnel and the distrust of the companies are the most influential factors in the adoption of electronic commerce in SMEs.

Null hypothesis: the conditions for access to financing, the lack of qualified personnel and the distrust of the companies are not the most influential factors in the adoption of e-commerce in SMEs.

Justification

Great technological advances are transforming social and economic organization by bringing together millions of people around the world. In this new and more competitive environment SMEs should be better prepared and aware of the globalization that is being experienced and enter the electronic environment to obtain competitive advantages.

The supply and demand of goods and services in different markets, the structure of the market and competition in various sectors is affected by electronic commerce. In the short run, it is anticipated that the spread of electronic commerce will continue to reduce transaction costs and production costs, facilitate the incorporation of new companies into the markets and increase competition. All this, in turn, will lower prices, raise quality levels and create new and more diversified products, thus boosting economic growth and welfare.

As mentioned earlier, SMEs generate seven out of every 10 jobs in the Mexico, and generate 50% of GDP. Then it is necessary to identify why SMEs are not joining this growing market. Based on the above, it is shown the relevance of the development of this work.

Methodology

The development of this study is based on a descriptive analysis which seeks to describe characteristics of a relevant groups and to calculate the percentage of units in a specific population showing certain behavior. Also, this is a cross-sectional work, since the collection of information from a given population sample happens just once.

Given the characteristics of this work, a survey was designed as research instrument, considering the one presented in 2014 by the National Institute of Statistics (INE) of Spain, titled “Encuesta sobre el uso de TIC y comercio electrónico en las empresas 2014”.

The study area selected for this study is the zone integrated by the cities of Veracruz and Boca del Río which constitute a port conurbated area in the southeast of Mexico. Due to the large number of SMES in the selected area, it was decided just to consider the ones related to the food industry; specifically, restaurants formally registered. The selection of these enterprises lies on the huge increase of business in this sector during last years, as pointed by Toledo (2014).

According to the Mexican Business Information System (SIEM), in 2015, in the State of Veracruz there were 39,722 companies in the commerce sector with less than 10 workers. Under this criterion, these can be classified as SMEs. Of these, 3,896 and 14,634 are located in the municipalities of Boca del Río and Veracruz, respectively. Together, they represent 18,530 productive units. However, official statistics do not give an accurate figure on how many of these are operating in the food subsector; This is a limitation to accurately identify the number that identifies our target population.

Based on the above, the technique of non-probabilistic sampling by quota was used, for convenience as it is easier to examine SMEs in terms of geographic proximity and access to information that is in the subsector food. In this way, a sample quota of 100 units was taken, divided equally between both municipalities; That is, 50 surveys were applied in each.

Results

In this section, the analysis of the results of the 100 surveys applied in the municipalities of Veracruz and Boca del Río with their respective interpretation is presented.

According to the individuals surveyed, 28% of small and medium-sized companies have been operating for 3 to 4 years, which represented the highest percentage in the sample. Similarly, 26% reported having between 1 and 2. When analyzing the municipalities separately, 36% of the organizations surveyed in Boca del Río are of recent creation, having carried less than 1 year of operation.

Based on the responses of the respondents, who are in charge of SMEs located in Veracruz and Boca del Río, it can be observed that 91% of their businesses are not under the franchise model, this is a great disadvantage considering that a franchise

could provide a rapid growth and reduction of risks and this would facilitate the implementation of electronic commerce as a tool. It can also be seen that the municipality of Boca del Rio has the largest number of SMEs in franchise with 14%. Also, 60% of the organizations do not have other branches under their control, which can benefit from having more time and dedication to the branch with which they count, looking for new ways to grow their business, including electronic commerce.

Considering the means of communication used by the SMEs, it was reported that 63% do not have a fixed telephone line. Nowadays, a fixed line may not be seen as necessary, and for a small or medium-sized company it can be an extra cost, however, it can help in complementing the use of social networks and ordering and providing information through the.

After analyzing the overall results of Veracruz and Boca del Rio, it can be seen that only 23% of respondents do not have electronic equipment as support in their business, the other 77% that is the majority. With them, this is a great advantage for the company as it can employ e-commerce through these support tools.

Similarly, most companies that do not have computer equipment reported that its high cost is the main obstacle, since many of them hardly have sufficient resources to maintain their operations, so they have trouble thinking about buying equipment that generates an extra income, this also has relation with the financing to which the owners or the companies themselves have access. The reality is that today, large companies are those with greater financing opportunities and lower interest rates, creating an obstacle for SMEs and preventing the collection of resources. Subsequently 38% of companies do not believe necessary the implementation of computer equipment, but the reality today is that there is a great competition between companies to survive and if companies can not adapt and innovate can fall. Only 14% of companies do not have electronic equipment because they do not know how to use them.

When it comes to Internet connection, it was noted that 76% of the small and medium-sized companies surveyed, which is the majority, have Internet at their premises and only 24% do not, nowadays it seems indispensable to have an Internet connection for creating a competitive advantage and increase income; also, it was noticed that 24% of organizations do not have an Internet connection and these should make an investment in a good Internet connection, which in the long run will generate many benefits. Aught, the great advances in technology are observed since before the majority of the users had Internet connection through cables and nowadays the majority of the SMEs (92%) have Wi-Fi connection.

To achieve success in a business you need to attract customers to him as it is what generates income. It is a very important variable to offer wireless Internet to your customers, as they are often influenced not to go for not offering it, what is observed is that 45% of companies that is almost half, do not offer free wireless Internet, which sounds necessary in the face of globalization. Besides, more than half (56%) of the studies SMEs do have software related to the practices of their business.

Most SMEs with 63% offer their services by electronic means, but this does not necessarily mean that they occupy e-commerce as a tool, but take advantage of social networks that are free to promote their products and even taking orders through them, without the need to invest in a page, which represents a benefit for them when increasing their sales, however, the disadvantage would be not being able to make payments online.

About the factors that limit the adoption of e-commerce, 41% of companies have not opted for electronic commerce due to the cost that this represents for their business,. But it also influences the financing provided by banks to these types of companies, since they offer them few financing opportunities and with very high interest rates compared to the large companies that benefit most. Also, 35% do not think it is necessary to implement this tool and there may be several factors to think this as seeing unnecessary invest in a page when there are free social networks where they can place orders and offer their products or simply the size or age of your company; moreover, 19% of companies do not have the necessary and trained personnel to carry out electronic commerce and only 5% do not use this tool because of mistrust, which is a subject that has been greatly improved thanks to the new privacy and data protection policies offered by websites.

Furthermore, 60% of companies use social networks to spread their business, which is a very good advantage, 26% have a platform that allows them to order their customers, 10% have a website to promote their company and only 4% have a portal for their customers to make payments online. So it is noticed that most SMEs use the internet and social networks as a tool to generate an extra income.

Also, 35% SMEs considered that the high prices to open an online sales page is the main limiting factor, 25% believe that the lack of qualified personnel is also a relevant factor by which they do not adopt e-commerce, 14% believe that it is the lack of information that is the determining factor and 10% that the lack of financing. Several factors prevent the use of electronic commerce as a tool, however, there are ways to combat or counter them, either through training or talks provided by the government

or banks, provide more information about prices, more financial support, better privacy policies, among others.

Either way, 70% of the managers and owners of SMEs are willing to receive training in e-commerce knowledge, in order to be informed and able to use this tool in the future that would allow them to increase their income. An 11% is not ready to receive training because they consider that their business is in the ideal form and is satisfied with it. While the other 19% do not know if they want to receive training for the knowledge of electronic commerce.

About the potential benefits and advantages produced by e-commerce pointed by SMEs, among the most notable are higher revenues with 34%, business profitability increases by 27%, customer knowledge with 18% and attracting new customers with 14%. Unfortunately, 76% of SMEs surveyed in the food sector do not have a mechanism to measure the impact on clients, which can be a great disadvantage since they will not be able to know Improvement or can get to know their customers in depth. Also, most attributed between 26% and 50% of their sales to the use of electronic commerce and the minority believed that it generates between 76% and 100% of their sales. Finally, it is noticed that most individuals look at e-commerce as a great strategic advantage for their business and 22% consider it not.

Conclusions

The objective of the present study was fulfilled since the main factors that limited the adoption of the electronic commerce in the SMEs of the food sector in the conurbated zone Veracruz-Boca del Río were identified through surveys carried out to the different individuals; main factors detected were high prices, lack of qualified personnel and lack of information. The results were compared with existing articles and found matching factors, however, we must take into account that there are significant differences among countries..

In addition, the need for SMEs to implement e-commerce was identified, exposing the perception of SME entrepreneurs in the food sector in the Veracruz-Boca del Río area facing the factors that hinder the adoption of electronic commerce. It is clear that this tool in the food sector in the field of study could help to improve the economy, generate jobs, increase profits in small and medium enterprises, among other great advantages. Similarly, a large number of individuals in charge of SMEs are willing to receive training in e-commerce awareness; This represents an area of opportunity for the development of strategies that contribute to the insertion of these tools in the sector studied.

In addition to having an electronic page for online sales, it is advisable to have a mechanism that measures the impact on customers or if there is an increase considerable in the profits thanks to this tool. With this, a small and medium company can know if it is really worth investing in electronic commerce and if the money that is being invested in the page will be refundable in the short or medium term. Granting this set of tools would be a positive boost for SMEs and the local economy.

Notwithstanding the foregoing, it is necessary to address this issue from a broader perspective, in which other variables are included and focus on a larger sample, in order to obtain more precise results; However, it is considered that this exercise has provided valuable information that serves as a reference point in the study of this topic in the local context and from which support can be given to companies in the sector or others.

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