

Holistic analysis of the social impact of electronic business in Latin America, from 2014 to 2019

Análisis holístico del impacto social de los negocios electrónicos en América Latina, de 2014 a 2019

<http://dx.doi.org/10.32870/Pk.a10n18.459>

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Received: July 15, 2019

Accepted: February 4, 2020

ABSTRACT

E-businesses have a considerable significance in the development of enterprises and their adoption by this sector is growing rapidly. These businesses intervene not only on aspects related to business activities, but also on different spheres of society. Studies about e-businesses are abundant in Latin America, however, in the literature consulted we don't identify researches that address the impact of these businesses as a holistic phenomenon on society during the period analyzed. This article provides a holistic analysis of the social impact of e-business during the period 2014-2019 in Latin America. Google Scholar, Scielo and ScienceDirect databases were used to search for information and the analytical-synthetic, historical-logical and theoretical triangulation were used as scientific methods. The study found that companies and customers, the population, the legal sector, jobs, governments, the monetary and financial sector and the environment are spheres directly influenced by e-business. Companies and clients were identified as the sectors most influenced by e-businesses.

Keywords

Social impact,
e-business, Latin
American societies

RESUMEN

Los negocios electrónicos poseen una marcada significación en el desarrollo de las empresas, y su adopción por parte de este sector crece aceleradamente. Estos negocios intervienen no solo en aspectos relacionados con las actividades empresariales, sino también en diferentes esferas de la sociedad. En América Latina los estudios sobre los e-business son abundantes; sin embargo, en la literatura consultada no se identificaron investigaciones que examinen el impacto de estos negocios como un fenómeno holístico sobre la sociedad durante el período analizado. En este artículo se realiza un análisis holístico del impacto social de los negocios electrónicos durante los años 2014-2019 en América Latina. Se utilizaron las bases de datos Google Scholar, Scielo y ScienceDirect para la búsqueda de información, y se emplearon como métodos científicos el analítico-sintético, el histórico- lógico y la triangulación teórica. También se constató que las empresas y clientes, la población, el sector jurídico, los empleos, los gobiernos, el sector monetario financiero y el medio ambiente son esferas donde influyen directamente los e-business. Las empresas y los clientes se identificaron como los sectores más influenciados por estos negocios.

Palabras clave

Impacto social;
negocios electrónicos;
sociedades
latinoamericanas

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Introduction

One of the most influential factors of the contemporary society is comprised by scientific and technological development (Escalante *et al.*, 2014; Pacheco-Mendez, 2017). According to Escalante *et al.* (2014), technology has a determining influence of a complex character in human development and its effects extend towards a number of aspects, directly or indirectly, related to the standard of living of the population.

Internet evolution, and that of associated digital technologies, has caused significant changes to the different spheres of the society (Castells, 2000). Using Internet, for example, has had a considerable increase; in 2018, the website We Are Social has recorded that 55% of the worldwide population was an Internet user.

Information and communication technologies (ICT) take part in the social, political, labor, cultural and economic spheres of human development (Galindo, 2019). Employment thereof by the world entrepreneurial sector, and the application thereof in commercial relations, significantly changes the traditional negotiating models (Savrul, Incekara & Sener, 2014; Fernández, 2016; Tello & Pineda, 2017; Leal-García, 2018). This caused the emergence of a new type of business called electronic business or e-business (Bravo-Peña, 2018).

Electronic businesses are defined as the application of digital technologies in companies to enable productive and administrative features that facilitate the purchase-sale of goods and services, and the exchange of information through online channels (Rodríguez & Gallardo, 2015); Chaffey, 2015; Tello & Pineda, 2017). The application of digital systems in entrepreneurial management processes allows organizations to interact with customers (customer relationship management, CRM), to manage its resources (enterprise resource planning, ERP), its supply chain (supply chain management, SCM), and to improve the decision-making process (García *et al.*, 2016).

Electronic businesses comprise a broad concept that includes activities such as the electronic trade (Rodríguez & Gallardo, 2015; Martínez & Jaén, 2018), digital marketing (Tsekouropoulos *et al.*, 2013) and electronic banking (Markoska, Ivanochko & Gregus, 2017). The actors partaking in the exchange or the negotiation, and the manner in which they are done, define the different models of existing electronic business; among the most popular are: business-business (B2B), business-customer (B2C) and customer-customer (C2C) (Asfoura *et al.*, 2018). Electronic businesses have a significant growth at a global level; according to the record of the Global Web Index site, in 2018, 75% of Internet users performed electronic purchases.

E-businesses represent a driving element of the economic development of nations and comprise an important component in commercial strategies of most of the companies (Bi, Davison & Smyrniotis, 2017). Electronic businesses make millions:

according to Fredrickson (2017), in 2015, the global electronic trade market surpassed 25 billion dollars; Gutierrez (2015) suggests that this represented a growth of 2% of the world GDP, a figure which in 2016 was 2.92%, in accordance with data of the ECommerceWiki site.

In 2015, electronic businesses increased the GDP by 0.5% in Latin America (Gutierrez, 2015), it is a region where this manner of doing business has an important development index, as the companies in these countries feel the growing need to incorporate to the digital market (Echeverría, 2016; Tello & Pineda, 2017; Leal-García, 2018; Sigmond, 2018). According to López & Redchuk (2015), in the Latin American region, electronic businesses have a growth index close to 21%. In addition to this, CEPAL says that currently, about 82% of companies in the Latin-American region do electronic transactions (CEPAL, 2018). As a result, electronic sales in this continent were 40.98 and 50 billion dollars in 2015 and 2016, respectively (Bravo-Peña, 2018).

The foregoing data are evidence of the marked influence of electronic business in trade and economy in Latin America; however, it must be remembered that these also mediate with other sectors of the society. Adoption of e-businesses by companies has an influence on aspects of political and legal nature, ecologic, technological and sociocultural (Leal-García, 2018).

In the relevant literature diverse studies were identified which analyze the development and influence of electronic businesses of Latin American countries (Valencia, 2016; Sanabria-Díaz *et al.*, 2016; Jones, Motta & Alderete, 2016; Leal-García, 2018); the foregoing notwithstanding, studies on the subject in the region are few as compared to other latitudes (Sanchez & Juarez, 2017). In this article, a holistic analysis is performed of the social impact of electronic businesses during the 2014-2019 stage in Latin America, a phenomenon where no researches have been identified in this respect in the relevant bibliography.

Materials and methods

In this research an exploratory study was performed on the implementation of electronic businesses in the Latin American region, which considered different cases of success with the objective of analyzing, from the holistic point of view, the social impact of these businesses during the 2014-2019 period. As a research methodology, an approach of technological surveillance was applied, which is a process of informational-documentary-selective nature which compiles and organizes relevant information on a specific specialization area to contribute to making decisions (Marulanda *et al.*, 2016; Camero-Escobar & Calderón-Calderón, 2018).

In addition, this method provides updated, timely information, germane to the context where it is applied (Camero-Escobar & Calderon-Calderon, 2018). This approach was adopted because of its relationship with technological innovation in organizations, a closely related element with the application of ICT in businesses. The study performed was focused in accordance with the phases proposed by Camero-Escobar & Calderon-Calderon (2018): planning, search and data collection, analysis and processing information.

In the planning phase, there were critical factors established to do research on the impacts caused by electronic businesses and the different sectors of the Latin American society where they come into play. In order to collect information, several combinations of the following search terms were employed: *negocio electrónico, comercio electrónico, marketing digital, banca electrónica, e-business, e-commerce, e-marketing, impacto social, influencia, desarrollo social, sociedad, Latinoamérica, América Latina*.

For the search and data collection phase, the Google Scholar (GS), Scielo and ScienceDirect search engines were used, as these are free tools that cover a large number of academic articles. Available bibliographic sources which allow comprehensive and free consultation of the last five years were examined. The literature consulted includes articles of magazines, conferences in scientific events, and master and doctorate thesis, both in English and in Spanish, regarding the topic and published by Latin American authors. As a result, a total of 40 bibliographic sources were selected.

To analyze and process the sources obtained, the following scientific methods were employed: the analytic-synthetic, the historical-logic, and theoretical triangulation, which allowed us to reduce the bias in the investigation and to transform the information we obtained into useful knowledge to obtain conclusions on the subject matter.

Development

Development of the technology and its social influence have been the scope of discrepancy in the economic and political spheres, sometimes in favor and in other times against their impacts on the society (Pacheco-Martinez, 2017). It is the responsibility of individuals and social groups to incorporate electronic and digital media, to provide them with a meaning so that they would be in the position to constantly renew their relationship with the environment and with themselves (Pacheco-Mendez, 2017).

Albornoz, Estébanez & Alfaraz (2005) suggest that the notion of social impact ought to be seen as a case and dimensions exploration program, and not only as a concept of specific environments. Libera (2007) defines this term as the application of an action

in a population group inquiring on all types of effects, both the ones searched in accordance with the purpose of the activity and other unplanned ones.

Binimelis-Espinoza (2017) establishes that in order to understand the social impacts of digital technologies it is necessary to analyze the instrumentation and power thereof. Based on the study of Gomez *et al.* (2014), and in accordance with the criterion of Libera (2007), in this research a comprehensive analysis model is used to examine positive and negative social impacts of electronic business in Latin-American societies.

Results and discussion

This section classifies, analyzes and discusses the results obtained from the study of consulted literature. The classification was carried out in accordance with the distribution of investigations per year, country of origin, and social impacts identified in bibliographic sources. These elements comprise the fundamental axis to do a holistic analysis of the social impact of electronic businesses during the 2014-2019 period in Latin America.

Distribution of publications per year and country of origin

Chart 1 shows the results of the literature search done in this article, from 2014 to April 2019. The years 2017 and 2018 stand out as those of lesser and greater number of published works, respectively; investigations published in 2018 represent 43.5% of the total identified works. Scientific magazines were identified as the mostly used publication means (70%), followed by theses (25%).

Chart 1. Publications identified in the 2014-2019 period

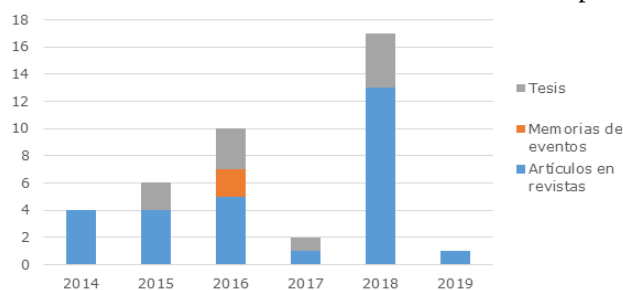
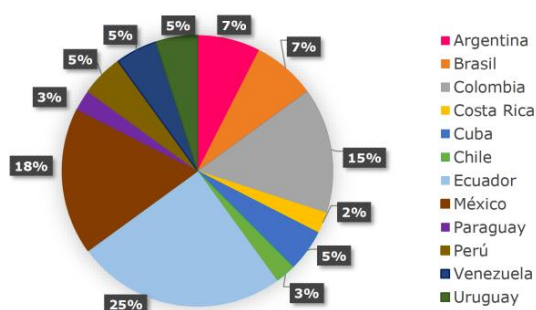


Chart 2 shows the countries of origin of consulted investigations. As can be seen, Ecuador is the country with the largest number of publications during the period analyzed (25%), followed by Mexico (18%) and Colombia (15%). Regarding the distribution of publications per regions of the Latin American continent, South America is the geographical area in control of this aspect, with 74% of investigations.

Chart 2. Publications in accordance with country of origin



Sanchez & Juarez (2017), in their review study on electronic businesses in the databases of Scopus and Web of Science, determine that publications of scientific issues dominate. Pardigon, Viltres & Madrigal (2018) make a similar analysis on the database of Google Scholar and reach similar conclusions. In an analogous manner to these authors, in this investigation it was identified that in GS, the articles in scientific magazines are the means of publication with better reference on the impacts of electronic businesses in Latin America during the period of the analysis.

Perdigon, Viltres & Madrigal (2018) present their work, during the 2013-2018 period, when research on electronic businesses decreased worldwide as of year 2014. However, in accordance with the criteria of Echeverria (2016), the authors of this document determined that in the Latin-American region, these investigations and their impacts are topics which greatly interest the scientific community. This difference of criteria is basically owed to the geographic scope and field of researches performed by the above-mentioned authors.

Social impact of electronic businesses in Latin America

As mentioned, in the consulted literature no documents were identified on the social impact of electronic businesses in countries of the Latin American continent as a holistic phenomenon during the 2014-2019 period. Therefore, a study of several publications and cases of success in relation with the implementation of e-businesses in the area was performed and the results were analyzed. Likewise, official reports of various worldwide organizations linked to the topic were consulted, which contributed to supplement the discussion of the results obtained.

Table 1 gathers the different aspects approached in the literature, which reflect the impact of electronic businesses on Latin-American societies. These impacts may be classified as positive or negative, and are related with the sphere or sector of the society where they have an impact in accordance with the criteria of the different authors consulted.

Table 1. Social impact of electronic businesses in Latin America

Author(s)	Sector	Impact	
		Positive	Negative
Mata and Quesada (2014)	Business management	• Increase the promotion of its products and services	
	Costumers	• Allows empowerment and active participation in the market	
Narváez and Montalvo (2014)	Business management	• Saving of resources • Increases competitiveness • Offers valuable information and in real time	
	Costumers	• Allows empowerment and active participation in the market	
Ríos (2014)	Business management	• Saving of costs • Growth of the market • Increases the promotion of its products and services	
	Costumers	• Larger access to market information • Reduction of buying times • Reduction of visits to physical stores	Risk of informatic attacks and electronic scams
Kwan and García (2014)	Business management	• Increases competitiveness	
Rodas, Chacón-Luna and Vinueza (2015)	Business management	• Improves return • Growth of the market • Increases competitiveness • Saving of costs • Improves relationships and communication with costumers	
Gonetecki and Machado (2015)	Business management	• Allow providing personalized attention to costumers	
	Costumers	• Allows empowerment and active participation in the market • Allows quick, easy transactions without cash • Intangibility of products during the shopping process	Difficulties for the return of products Security risks in the electronic payment process
	Legal		Demands new laws to protect these businesses
Gutiérrez (2015)	Business management	• Saving of costs • Increase of the market • Improves relationships with costumers • Overcomes geographical barriers	
Carvalho (2015)	Business management	• Increases sales • Increases offers of products and services • Facilitates access to the information of the market	
López and Redchuk (2015)	Legal		Demands the creation of regulations to govern electronic operations

Ferreira (2016)	Business management	- Increases competitiveness - Saving of costs - Growth of the market - Strengthens brand image - Increases sales	
Gutiérrez-Leefmans and Nava-Rogel (2016)	Business management	Improves and optimizes its performance	
Echeverría (2016)	Business management	- Increase of sales and profits - Growth of the market - Allows earning the loyalty of costumers	
Sepúlveda <i>et al.</i> (2016)	Business management	Increases competitiveness	
Valencia (2016)	Business management	- Growth of the market - Reduction of costs of operation - Increase of sales and profit - Requires little physical inventory - Transcends geographical borders	
	Jobs	Operates with less staff	
	Customers	Results in quickness in the acquisition of products	Complicates the returning of products
Andrade (2016)	Business management	- Strengthens brand image - Increases competitiveness - Growth of the market	
	Environment	Saving of paper posters and promotions	
Sanabria-Díaz <i>et al.</i> (2016)	Business management	- Growth of the market - Increase of sales	
	Customers	Increases customer satisfaction	
Fernández (2016)	Business management	- Increases competitiveness - Improves communication with costumers - Improves relationships between supplier and customer - Saving of costs - Transcends borders of time, space and geography	
Viltres, Rodríguez and Ganado (2016)	Business management	- Growth of the market - Contributes to the promotion of products and services	
Jones, Motta and Alderete (2016)	Business management	- Improves the performance of the organization - Creates value for customers	
Guzmán and Abreo (2017)	Business management	- Saving of costs - Improves communication with costumers - Increases the market - Increases business relations	
	Customers	Allows empowerment and active participation in the market	
Tello and Pineda (2017)	Business management	- Improves business related and administrative processes - Increases profits and commercial success	Requires investment in technology

		- Improves customer-company communication - Growth of the market	
	Governments	Contributes to the increase of government control over the movement of monetary funds inside and outside the country	
	Customers	- Saves transportation costs - Comfortability, easiness for buying and better access to market information	Risk of informatic attacks and electronic scams
	Population	Provides a larger range of opportunities of improvement of quality of life for the population	
Leal-García (2018)	Business management	- Reduction of costs - Growth of the market - Increases competitiveness - Improves its technological development - Improves quality of services	
	Customers	- Facilitates the acquisition of products and goods - Provides a comfortable buying process - Saving of costs	Risk of fraud and theft of information
	Jobs	- Source of employment for professionals of ICT - Minimizes intermediation	
Espinoza y Flores (2018)	Business management	- Saving of costs and advertising - Growth of the market - Increase of sales - Promotes technological innovation - Raises competitiveness - Improves communication with customer	
	Customers	- Allows empowerment and active participation in the market - Raises customer satisfaction	
	Jobs		Reduces jobs at points of sale
Rivera, Hablich and Berni (2018)	Business management	- Saving of costs - Speeds up financial transactions - Provides tax benefits	
	Customers	- Saving of time - Commodity	Risk of informatic attacks and electronic scams Source of mistrust
	Population	- Reduces financial exclusion - Increases access to banking systems	
	Monetary-Financial	- Avoids problems of compatibility with other currencies - Reduces expenses of replacement of worn bills and coins	
Sigmond (2018)	Business management	Growth of the market	
	Customers	Larger access to the market	
	Legal		Demands new laws to protect these businesses

Reza <i>et al.</i> (2018)	Business management	• Saving of costs of operation • Optimal handling of inventories	
	Customers	• Quick and cheap access to the market	
	Population	• Contributes to the financial inclusion of the most vulnerable population	
	Monetary-Financial	• Avoids retail sales • More security than cash • Reduces expenses of replacement of worn bills and coins	Source of financing of terror, fraud and money laundering
Lombana-González (2018)	Business management	• Allows getting information of sales, integrating, processing and organizing the business • Enables the building of collaborative networks between suppliers • Increase of sales	
Raso (2018)	Jobs	• Source of new complementary jobs related to digital technologies	Causes the destruction or confinement of unions Blurs the traditional concept of subordination Causes the destruction of traditional jobs
	Population	• Facilitates access to services and the social inclusion of the excluded poor sectors	
Rodríguez (2018)	Business management	• Growth of the market • Saving of time in business • Saving of costs • Allows establishing personalized relationships with customers • Levels trading between big and small companies	
	Legal		Modifies legal and contractual relationships between customers and businesses
Avendaño (2018)	Costumers		Risk of informatic attacks
	Legal		Demands new regulations and legal frameworks to guarantee the safety of customers
Vargas (2019)	Business management	• Saving of costs • Strengthens brand image • Growth of the market	

The research performed allowed us to identify that in Latin America, electronic businesses have a significant influence on sectors such as companies and customers, the population, the legal sector, the financial monetary sector, jobs, governments and the environment. Authors such as Kwan & García (2014), Gutiérrez (2015), Ferreira (2016), Gutiérrez-Leefmans & Nava-Rogel (2016), Echeverría (2016) and Guzmán & Abreo (2017) emphasize on the entrepreneurial sector as the most influenced one by e-business and consider that these businesses are the source of positive impacts within this sector. On the other hand, Valencia (2016) suggests that electronic businesses comprise a significant element of technological change in companies and nations of Latin America.

Gonetecki & Machado (2015), López & Redchuk (2015), Sigmond (2018), Avendaño (2018) & Rodríguez (2018) analyze the impact of electronic business in the legal sector and emphasize on the need to create new laws to govern electronic business relations in the Latin-American region. Rodríguez (2018) suggests that e-business change legal and contractual relations between customers and businesses; this phenomenon has encouraged the creation of at least one legal and self-regulation instrument to legislate these businesses in countries such as Argentina, Paraguay, Uruguay, Venezuela, Honduras, Ecuador, Costa Rica, Cuba, Mexico, Colombia, Brazil, Bolivia, Nicaragua & Panama (López & Redchuk, 2015). However, Gonetecki & Machado (2015), Avendaño (2018) and Sigmond (2018) believe that laws and legal frameworks to guarantee transparency of electronic businesses in the Latin American region are still not enough. This situation causes Latin America to be lagging in this aspect, as compared to North America and Europe (Lopez & Redchuk, 2015).

From the customer's perspective, electronic businesses provide a series of benefits, like the facility of access to information and products, saving time and money, and empowerment and active participation in the market (Espinoza & Flores 2018); Leal-Garcia, 2018; Rivera, Hablich & Berni, 2018). Notwithstanding, intangibility of electronic products and the difficulties to make returns of these goods have a negative impact on the buying attitudes of customers and leads them to distrust (Gonetecki & Machado, 2015; Valencia, 2016).

E-businesses change some of the conventional ways of work, they create new job options and undermine the usefulness of manual labor. Routine tasks, such as those of workers in the manufacturing production, the retail sector and administrative assistants are replaced by digital negotiations and automation (European Parliament, 2015). Electronic businesses cause phenomena such as disintermediation (removal of intermediaries) and re-intermediation (creation of others linked to digital technologies) (Turban *et al.*, 2018).

Electronic businesses cause division and labor specialization and reduce the need of workforce in stores and points of sale (Valencia, 2016; Espinoza & Flores, 2018). According to Raso (2018), these businesses dilute the traditional concept of

subordination and contribute to confinement and destruction of unions, which places workers at a disadvantage *vis-à-vis* the administration. Although e-businesses eliminate traditional jobs, they foster the creation of supplementary jobs and extend opportunities for professionals of digital technologies (Raso, 2018; Leal-Garcia, 2018).

According to information of the International Labor Office (ILO), for each point of increase of the GDP in Latin America, 100,000 jobs are created (ILO, 2014), which means that electronic businesses contribute to considerably raise the job market in the region. Cybersecurity also is a significant element in the development of e-businesses, which has a marked relevance in society (Ríos, 2014; Gonetecki & Machado, 2015; Tello & Pineda, 2017). The United Nations Organization forecasted that in 2019, the number of vacant job positions related with computer security worldwide would be 1.5 million (UNCTAD, 2017).

The risks of cyberattacks, the electronic fraud and theft of information have a negative impact on the development of e-businesses and on the attitude of customers (Leal-García, 2018; Rivera, Hablich & Berni, 2018; Avendaño, 2018). Data from Eset Security for Latin America reflect that during 2017, 45% of companies in this region had undergone cyberattacks. In accordance with statistics from Kaspersky Lab, in 2018, 30.01% of Internet users were attacked by at least a malware through the web, whereas 830,135 users were victims of software designed to steal money from bank accounts.

This company had a 60% increase of cyberattacks in Latin America in 2018 as compared to 2017, most of them aimed to bank accounts and electronic money transactions where Venezuela, Bolivia and Brazil were the most affected countries (Kaspersky Lab, 2018). Mendoza-Riofrío (2019) suggests that in Peru the frequency of cyberattacks rose by 740% during 2018, where there were at least 22 thousand incidents. Data from the ADNradio chain in Chile sustain that during 2018, cyberattacks against this nation caused the misappropriation of 10 million dollars from the Bank of Chile and the theft of 2 million dollars from Banco Consorcio (ADNradio, 2018). These elements are evidence of the economic risk represented by e-businesses as an attractive source for cybercrimes and cyber frauds in the region, which leads to distrust in the use of this type of business.

Turban *et al.* (2015) believes that electronic businesses contribute to reduce the digital gap because they allow people in rural zones and in underdeveloped countries to have access to goods and services they need. Rivera, Hablich & Berni (2018) and Reza *et al.* (2018) sustain that e-businesses reduce financial exclusion because they increase access of the different Ecuadorian sectors of the population to banking systems.

Tello & Pineda (2017) determine that these businesses favor the standard of living of the people in Ecuador; at the same time, they analyze the influence of electronic businesses in the governments of the region and identify their positive impact on the control of monetary transactions in and out of these countries. Reza *et al.* (2018) and

Rivera, Hablich & Berni (2018), believe that electronic businesses prevent retail and currency incompatibility, whilst they reduce expenses in the replacement of deteriorated banknotes. Nonetheless, they also explain that there are negative aspects in electronic transactions, as they facilitate fraud, money laundering and finance terrorism in the continent (Reza *et al.*, 2018).

Rios (2014) and Tello & Pineda (2017) sustain that by means of the use of electronic businesses, customers save on transportation costs and reduce any trip to physical stores. According to Masele (2011), the reduction of trips in view of electronic transactions reduce the emission of 209 million tons of CO₂ worldwide. Andrade (2016) studied the influence of digital marketing in promoting tourism in the cities of Colombia and determined that e-businesses have a positive impact on the environment of this nation because they contribute to save paper and posters for promotions and advertising campaigns.

Although Latin America is lagging in the development of electronic businesses as compared to other latitudes, implementation of these businesses in the region is growing at a fast pace. The foregoing results are evidence of the influence of e-businesses on the different sectors of Latin American societies.

Conclusions

In the consulted literature no researches which analyzed social impacts of electronic businesses as a holistic phenomenon on Latin American societies during the 2014-2019 period were identified, in spite that currently, implementation of this type of businesses and their effects on countries in the continent are a topic with greater interest from the academic community in the region.

Electronic businesses cause positive and negative impacts on different sectors of the society. The study performed showed that the companies, the customers, the population, the legal sector, the jobs, the governments, the financial monetary sector and the environment are spheres where e-businesses have a direct intervention; the companies and the customers are the most influenced sectors by these businesses.

It was also made evident that to the Latin American nations, the advantages and benefits offered by electronic businesses are greater when compared to their disadvantages. The benefits include cost savings for customers and companies, greater speed in business transactions, greater access to information, economic development of companies, reduction of financial exclusion and empowerment and active participation of customers in the market. Notwithstanding, the risks of computer attacks as well as

economic losses caused thereby, are elements with a negative impact on the economies of the region and reduce confidence on electronic businesses.

With the idea of extending the analysis on the impact of implementing electronic businesses beyond the economic and financial sector, the proposal is that future researches and studies are focused on how e-businesses take part in phenomena such as social and gender inclusion.

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