

Expansion And Application Of Ict As A Business Competitive Strategy

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Abstract

A documentary review was carried out on the bibliography identified as publications in high impact journals indexed in Scopus database regarding the variables Expansion and Application of Information and Communication Technologies (ICT) as a Competitive Business Strategy, in order to identify and describe the main characteristics presented in the volume of production of publications during the period between 2015 and 2020, when a total of 716 publications were identified. This production level was classified by means of figures that allow a bibliometric analysis and a qualitative analysis of published case studies is established, with the purpose of describing the position of different authors. Among the main findings is that the year in which more publications on the proposed topic were made was 2020, with a total of 166 published papers; Brazil is the Latin American country with the highest number of publications, registering 194 documents, the area of knowledge with the highest number of contributions in research and scientific publications was Social Sciences, with 203 documents related to this area; and 74% of publications were managed as journal papers.

Keywords: ICT, Competitiveness, Business Competitiveness.

1. Introduction

Taking advantage of technological advances is currently an important impulse for companies that are constantly seeking to increase their market share, Information and Communication Technologies (ICT) are composed of multiple useful tools in the promotion of business (Carrión, Muñoz, Romero-Black, & Mora-Sanchez, 2021) and each of them represents infinite possibilities for the organization in the design of strategies aimed at achieving business objectives.

Among the strategies that are designed by management for brand positioning is, for example, to show a good corporate image, and the use of the Sustainability Objectives are a fundamental source within the conception of action routes. A good tool currently used is to show an effort to reduce pollution and environmental impact in the different business activities (Padilla, Mejía, & Quispe, 2019) .

For many years, the performance and effectiveness of a company was measured only by the level of profitability in its exercise, which produced a bad image of companies according to the perception of society, because they were not taken into account, the negative impacts on the environment, which organizations have seen today as an important strategy for competitiveness, trying to change this perception through the use of clean technologies that are friendly to the planet to reduce the negative impacts and the effects caused to the natural conditions of the environment (Canales, 2020) . This improvement in the perception of society, is one of the aspects that are targeted when it comes to business competitiveness. In addition to this, one of the strategies also used is the promotion of services and products by electronic media, leaving behind the environmental impact that had on the environment, the flyering traditionally used by many companies. (Aparicio & Luna, 2019) .

One of the most important aspects within the strategies for business competitiveness is the generation of quality in all processes executed. Understanding quality as the perception by the consumer who evaluates if their investment really meets their needs within the margins required (Rojas-Martínez, Niebles-Nuñez, Pacheco-Ruíz, & Hernández-Palma, 2020). Therefore, it is of great importance to know the main characteristics in the scientific production concerning the expansion and application of ICT as a strategy for business competitiveness in order to establish the bibliographic present of these variables, and serve as a guide in future research aimed at developing new uses for different technological tools within the organization.

2. General Objective

To analyze the production of high impact research papers on the variable New Information and Communication Technologies (ICTs) from a bibliometric and bibliographic perspective, as a Competitive Business Strategy in Latin America during the period 2015-2020.

3. Methodology

Quantitative analysis of the information provided by Scopus under a bibliometric approach on the scientific production concerning the variable New Information and Communication Technologies (ICT) as a Competitive Business Strategy in Latin America during the period 2015-2020 is performed. Also, it is analyzed from a qualitative perspective, with examples of some research papers published in the area of study from a bibliographic approach to describe the position of different authors on the proposed topic.

3.1 Methodological design

Table 1 shows the methodological design proposed for the development of this research.

	PHASE	DESCRIPTION	CLASSIFICATION
PHASE 1	DATA COLLECTION	The data collection is carried out by means of the Search tool in the Scopus web page, where a total of 716 published documents are identified.	Published documents whose study variables are related to New Information and Communication Technologies (ICTs) as a Competitive Business Strategy Research papers published during the period 2015-2020. Without distinction of type of research. Limited to Latin American countries Without distinction of area of knowledge.
PHASE 2	CONSTRUCTION OF ANALYSIS MATERIAL	The information identified in the previous phase is organized. The classification will be done by means of graphs, figures and tables based on data provided by Scopus.	Year of publication Country of origin of the publication. Area of knowledge. Type of publication
PHASE 3	DRAFTING OF THE CONCLUSIONS AND FINAL DOCUMENT	After the analysis carried out in the previous phase, we proceed to the drafting of the conclusions and the elaboration of the final document.	

Table 1. Methodological design.

Source: Own elaboration (2021)

4. Results

4.1 Co-occurrence of words

Figure 1 below shows the use and frequency of keywords in the research identified in Phase 1 of the methodological design.

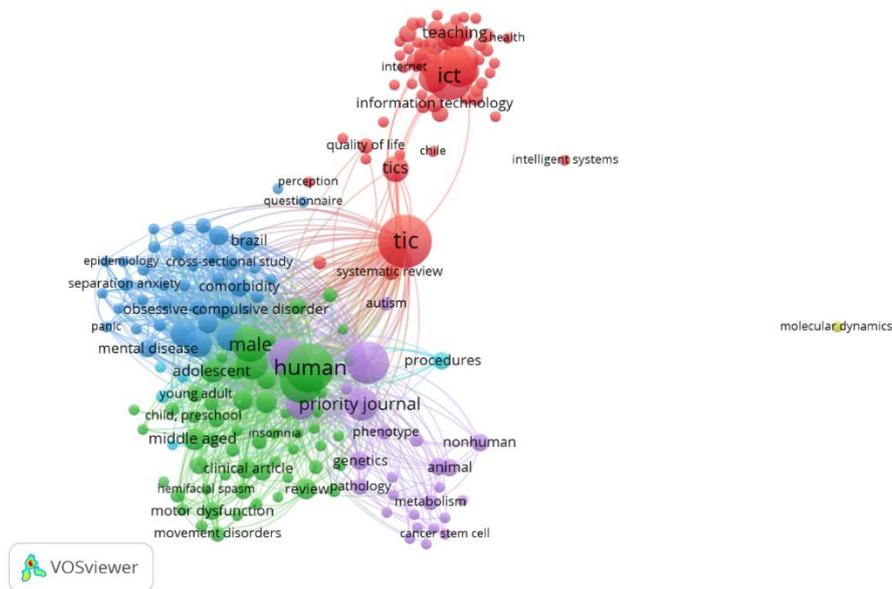


Figure 1. Co-occurrence of words

Source: Own elaboration (2021); based on data provided by Scopus.

Figure 1 shows how the research is related through the co-occurrence of its keywords. ICT is the main variable studied within the documents identified in this research, which is related to words such as Systematic Review, Questionnaires, Perception, Quality of Life, Information Technologies. The above allows inferring that within the studies carried out on the proposed topic, systematic reviews are found very frequently, since the search for literature on the subject is of vital importance when it comes to the generation of new uses in technological advances, as well as the application of feedback processes in search of the quality perceived by consumers, as one of the main variables in the measurement of business competitiveness. The classification offered by Figure 1 allows to know where the researches related to the variables of study proposed in this research are focused, which undoubtedly constitutes a vital input to establish the order in the data collection for the proposal regarding the planning of new theories that frame the Business Competitiveness and its potentiation through the use of the new Information and Communication Technologies.

4.2 Distribution of scientific production by year of publication.

Figure 2 shows the historical evolution of the volume of scientific production on the variable New Information and Communication Technologies (ICT) as a Competitive Business Strategy during the period 2015-2020 in Latin America.

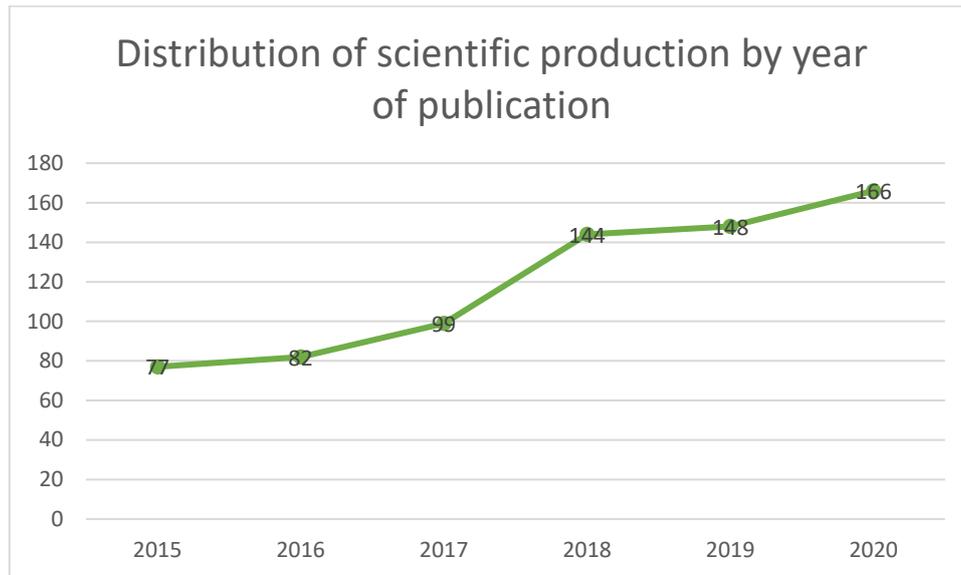


Figure 2. Distribution of scientific production by year of publication.

Source: Own elaboration (2021); based on data provided by Scopus.

The year 2020 saw the highest number of publications, 166 documents, including the article entitled "*Absorptive capacity: Strategic integration between technological learning, resilience and business competitiveness*" (Sanchez & Acosta, 2020) whose objective is to propose a framework that integrates the business resilience variable in the absorptive capacity model. The above, by means of a documentary review that demonstrates that absorption techniques are efficient when implementing new technologies within the different areas of the organization, since it facilitates learning, guaranteeing a more efficient implementation process, reducing the margins of error. During the same year, the conference article "*Innovation, product design and use of ICTs in Argentine SMEs: An analysis from a managerial perspective*" was registered (Rey, Soraire, & Camargo, 2020) which presented a case study on industrial SMEs in the province of Tucumán, Argentina, which were not known for having high levels of innovation in their processes. However, the study proposed to analyze the dynamics of innovation design and innovation in products to measure competitiveness and its levels achieved once ICT tools were implemented that would lead the organization to a greater scope. It was proven then that the use of these ICT tools obeyed to a managerial profile led by people with close relationship to studies in innovation and automated processes in the use of new technologies for Information and Communication within the organization.

The year 2019 is the second in terms of total records of scientific production in Scopus, 148 research papers were published at that time. Followed by the year 2018 when a total of 144 papers were recorded within which is the article entitled "*Patterns in International ICT Entrepreneurship: The Case of Mexico*" (Larios, 2018) whose objective was to understand the antecedents of internationalization of small and medium-sized enterprises (SMEs) for a small set of Mexican ICT entrepreneurial firms, connected with subsector positions in a smile-shaped curve. Within the results obtained, it is understood that the internationalization of these SME is given thanks to the implementation of new technologies that advances in the same subject offer for the improvement of the experience when it comes to the management of information and communications. This undoubtedly sets an interesting

background for those ventures that try to make part of an increasingly competitive market by delivering added value to its customers and users.

4.3 Distribution of scientific production by country of origin.

Figure 3 shows how the publication record is distributed according to the country of origin of the institutions through which the publication was made.

In Latin America, Brazil is the country with the highest number of publications registered during the period 2015-2020 regarding the use of new ICT as a tool to increase Business Competitiveness. In total, authors affiliated with institutions in that country, recorded 194 scientific publications, among which is the article entitled "*Multicriteria Analysis of Business Competitiveness under triple perspective: Financial, Corporate Governance and Sustainability*" (De Carvalho, Chim-Miki, Da Silva, & De Araujo, 2019). which analyzed the case of 19 companies and their performance, from a Financial, Corporate Governance and Sustainability perspective, reaching an important finding that consisted in the validation of a method to support decision making through a ranking of companies that took into account financial and non-financial factors, thus allowing to pay attention to other equally important variables within organizational management. Innovation is a vital aspect in the design of strategies to increase competitiveness, because the efficiency in processes such as data processing to exercise control and monitoring through feedback or reengineering, are a very useful tool for supporting decision-making in almost all companies.

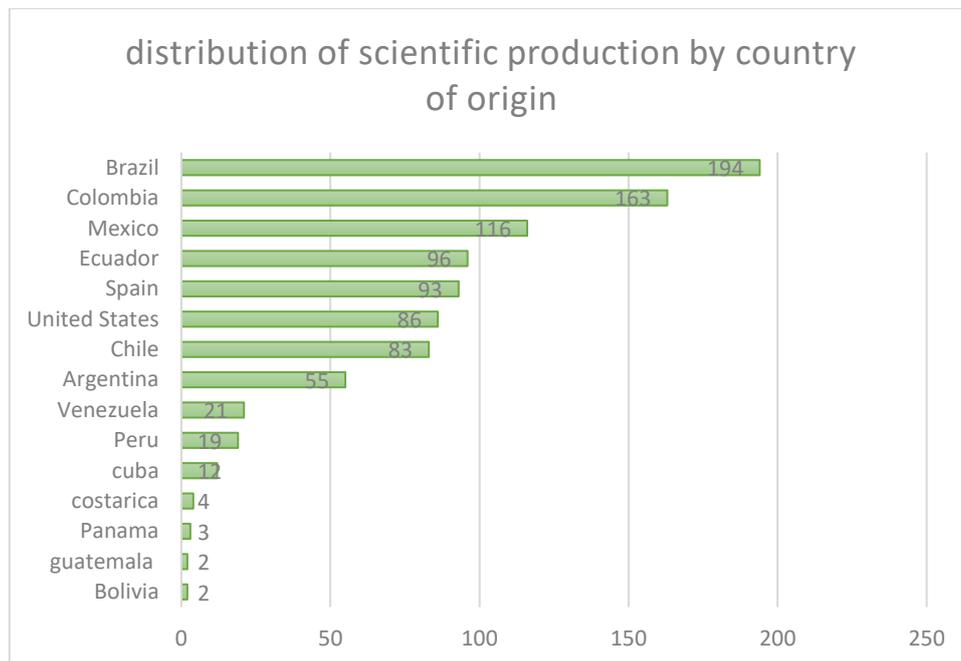


Figure 3. Distribution of scientific production by country of origin.

Source: Own elaboration (2021); based on data provided by Scopus.

At this point, it should be noted that the production of scientific publications, when classified by country of origin, presents a special characteristic and that is the collaboration between authors with different affiliations to both public and private institutions, and these institutions can be from the same country or from different nationalities, so that the production of an article co-authored by different

authors from different countries of origin allows each of the countries to add up as a unit in the general publications. This is best explained in Figure 2 where the flow of collaborative works from different countries is observed.

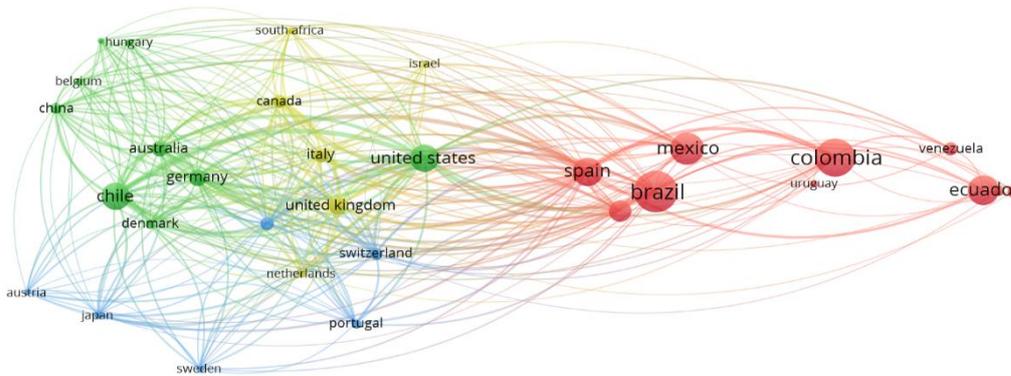


Figure 4. Co-authorship between countries in Latin America.

Source: Own elaboration (2021); based on data provided by Scopus.

Brazil keeps number 1 as the country with the highest number of publications, and at the same time, the country with the most collaborations between authors of different nationalities, showing closeness with researchers from Mexico and Spain. Colombia, which occupies the second place in scientific production related to the subject proposed in this paper, registers a total of 163 publications and a high percentage of co-authorship with participants from Uruguay, Venezuela and Ecuador. The latter ranks fourth in the ranking of Latin American countries with the highest number of publications with a total of 96 documents, among which is the article entitled "*Influencia de la inversión en tecnologías de la información como factor de competitividad de las empresas Pymes*" (Influence of investment in information technologies as a factor of competitiveness of SMEs) (Troya, 2018) which aims to analyze the level of investment of SMEs in terms of ICT and their impact on the generation of high levels of competitiveness, concluding that, in many cases, the financial investment involved in updating in terms of new technologies, is a decision that many entrepreneurs do not risk taking, since they project the growth of their companies in factors such as customer service and work environment. However, it is recognized that an eventual economic investment in tools provided by ICT, would significantly increase the added value given to their customers, managing to be competitive in the market.

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows the production of scientific publications distributed according to the area of knowledge through which the different research methodologies are executed.

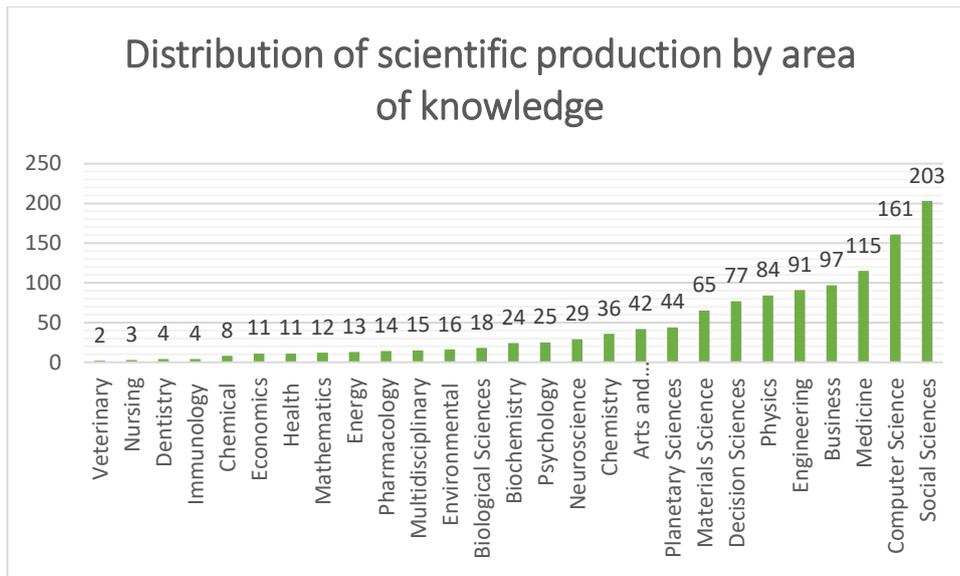


Figure 5. Distribution of scientific production by area of knowledge.

Source: Own elaboration (2021); based on data provided by Scopus.

The area of knowledge with the greatest influence in the research on the use of ICT as a tool to increase Business Competitiveness was Social Sciences, with a total of 203 publications based on theories that frame this area, among which is the article entitled "*Competitiveness and assimilation of information and communication technologies (ICTs) in small producers of protected agriculture in Guanajuato, Mexico*" (Lemus, Santana, del Socorro, Guadalupe, & Ramirez, 2020). which makes an overview on the use of ICT in SMEs that specialize in agriculture. Its main objective was to verify that the assimilation of ICT in small producers of protected agriculture is a strategy that affects the improvement of the competitiveness of their productive units.

In second place is the area of Computer Science with 161 publications, followed by Medicine and Business with 115 and 97 publications respectively. In the latter area, the article entitled "*Use and performance of ICTs in international negotiation*" stands out (Cano & Baena, 2016) whose objective was to determine the level of use of information and communication technologies (ICT) in international negotiation processes and the performance obtained in companies that use ICT. Emphasizing that the use of such tools represents savings for organizations in terms of time and costs for information management, as well as brings benefits in terms of increased contracts, market share, volume of products sold and purchased which translates into profits.

4.5 Type of publication

Figure 6 shows the different options and preferences that authors have when publishing their research achievements.

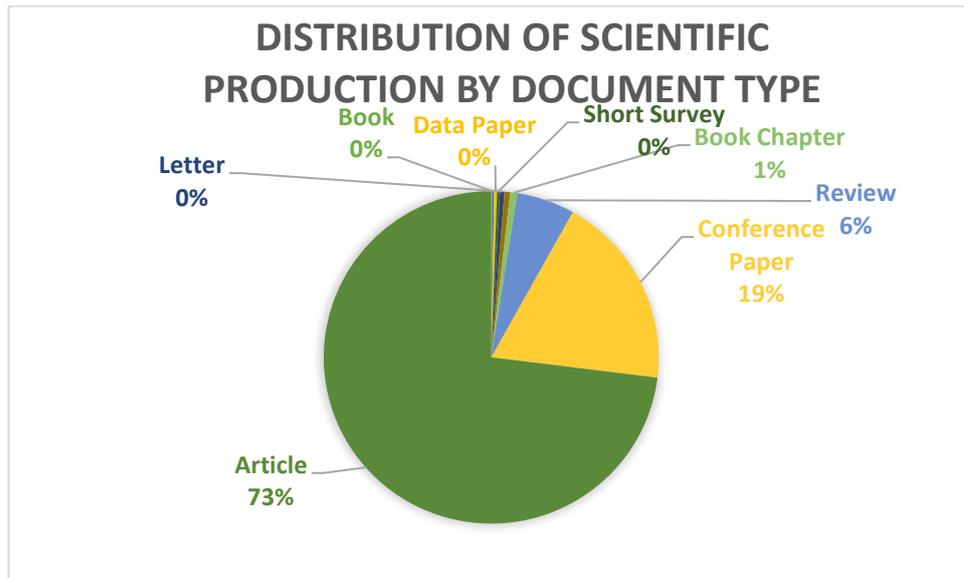


Figure 6. Distribution of scientific production by country of origin.

Source: Own elaboration (2021); based on data provided by Scopus.

Journal articles represent 73% of the total production of publications identified through Phase 1 of the methodological design. Among these is the article entitled "*ICT use and productivity in Mexico: A sub-sector analysis*" (Diaz, Sosa, & Cabello, 2018) . This article analyzes the determinants of the differentiated use of ICT at the subsector level in Mexico, determining the positive impact that the use of ICT has for companies in the search for competitiveness in the market. Productivity is a fundamental factor when it is pursued through customer satisfaction, a considerable increase in the profit margin thanks to an almost immediate attention due to an efficient inventory management for companies marketing products, and availability for those providing services.

Conference Articles occupy the second place with 19%, followed by Reviews with 6%. This means that most of authors in Latin America prefer to carry out their publications through the development and dissemination of high impact journal articles.

Conclusions

From the bibliometric analysis carried out on the use of ICT as a generator of Business Competitiveness, it can be concluded that Brazil is the main exponent in terms of the referenced topic with a total of 194 publications registered in Scopus during the period 2015-2020. From the above. It is inferred that this country has an important theoretical support to base strategies for their companies based on the effective use of new technologies that help in the processing of information and communication, which translates into an important participation in terms of generating new business ideas that direct their social reason through the use of technological tools that, according to the authors cited in this research, have a great positive impact on the generation of competitiveness, one of the most important indicators for any organization not only in Latin America but worldwide.

As the volume of scientific production increases, it can be concluded that this increment in the number of research related to the use of ICT in companies generates more ways to manage information processing and organizational communication. In this sense, by classifying the scientific production

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by year of publication, a significant difference is evident between 2015 when a total of 77 documents were registered in Scopus, while in 2020 there were 166 publications. From this, it can be inferred that technological advances allow new ways to manage companies and increasingly cover more areas within the organization, since the concept of total quality not only takes into account the perception of the customer or consumer but the perception of all stakeholders, a term that has evolved thanks to an expansion in the vision of companies who are guided by leaders with an increasingly globalized perspective. So, the effects of globalization make companies consider using new tools to improve their performance in the market, for this reason this paper concludes to update the different administrative processes in order to generate an important level of competitiveness.

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