

# Intelligent system in micro and small business sales management: A systematic review

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**Abstract**– *The study aimed to know how the smart store system improves the sales management of micro and small enterprises between 2016 and 2021. It used an adaptation of the Prisma methodology, which poses a system for evaluating the systematic review of scientific literature on its relationship with the objective and the research question. The databases used were ScienceDirect, Scielo, Scopus and Ebsco. A total of 106 scientific articles were found; and after applying the selection criteria, 40 original studies were obtained. It is concluded that intelligent systems were implemented and developed with the aim of improving sales management, through the new shopping experience allowing an important advantage for customers. It is necessary to point out that in the reviewed studies expose the effectiveness of communication, achieving that these businesses each time improve their products; and thus try to satisfy the needs of current and potential consumers. Therefore, in the research reviewed, it has been found that these systems implemented in micro and small businesses allow reducing costs in the management and online sales processes.*

**Keywords**-- Sales; platform; company; customer.

## I. INTRODUCTION

In recent years, it has been observed that customers worldwide are informed about most of the products or services they can buy, and as time goes by, they have become more demanding. Users of different ages have changed the way they shop, they now use applications and have more time to continue with their daily activities without having to go to a physical store. This has motivated many businesses to create eye-catching websites for their customers [1,2,3,4]. Selling products online allows users to have a whole shopping experience unlike traditional shopping. E-commerce for micro and small businesses is achieving a good diffusion, achieving improvements in processes and cost reduction [5,6,7]. The smart store system has generated an expansion in social networks and strategic alliance with other websites, achieving very significant results when carrying out these processes [8,9,10,11,12]. The purchase decision on the part of the customer in this new online modality begins with obtaining the product that is his favorite, therefore micro and small companies aim to try to meet the consumer's requirement and always come back [13,14,15,16,17,18].

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The commercialization of products and services offered through the smart store system generates a great advantage because the prices are very competitive and it is also possible to offer a variety of products so that the customer has options when making the purchase [19,20,21,22,23]. In response to the exposed problem, the search in the ScienceDirect, Scielo, Scopus and Ebsco databases revealed the lack of studies highlighting the use of the smart store system and business processes of micro and small enterprises. The research was conducted in order to answer the question how does the smart store system improve sales management for micro and small businesses? Evaluation period 2016-2021, Therefore, the objective of the study was to find out how the smart store system improves the sales management of micro and small enterprises between 2016 to 2021.

## II. METHODOLOGY

The study used an adaptation of the Prisma methodology, which proposes a systematic review evaluation system based on the evaluation of scientific studies for which there is solid empirical evidence on their relationship with the objective and research question [24]. As for the research question was how does the smart store system improve the sales management of micro and small enterprises? Evaluation period 2016-2021, of scientific articles in digital version, in English and Spanish language. Scientific articles from the years 2016 to 2021 in digital version, in English and Spanish language were included. Sources of information: ScienceDirect, Scielo, Scopus and Ebsco. The final result of this research was 40 scientific articles related to the study variables. To initiate the research search, the title and the field of action of the research topic were considered. The following keywords were taken into account: sales; platform; company; customer. The sample consisted of scientific articles related to the smart store system and sales management of micro and small enterprises. The selected articles were coded according to the following characteristics: article title and journal.

## III. RESULTS

The systematic review used the databases ScienceDirect, Scielo, Scopus and Ebsco. A total of 106 empirical articles were obtained. Applying the exclusion criteria, 6 articles were discarded because of duplicity. Likewise, 55 articles were excluded because they did not focus completely on the topic

and summary of the study. Likewise, 5 articles were excluded because they did not provide information on the smart store system and sales management of micro and small enterprises. Finally, after applying the selection criteria, a flow chart yielded 40 original studies closely related to the research question and objective. The results of the procedure carried out are shown in 6 tables and 9 figures, both qualitatively and quantitatively.

TABLE I  
SELECTED ARTICLES FROM THE SCIELO DATABASE

Scientific journal	Title of article	Objective	Result
Annals of the Brazilian Academy of Sciences	Evidence on the use of internet for businesses by MSEs in a Developing Country. The Indonesian case	To examine the recent development of SMEs in the use of the Internet in Indonesia.	The impact of IT on SME performance
Tec Empresarial	Critical success factors in digital commerce for Costa Rican SME exporters	Investigate the current situation of E-commerce in Costa Rican Micro, Small and Medium Enterprises.	Improve the relationship between the customer and the company.
Science and Technology Magazine	Method of implementation of corporate content management system in small and medium-sized companies.	Establish the necessary adaptations for the ECM system implementation model to the reality of an SME.	Support in Marketing areas to improve the prospecting process.

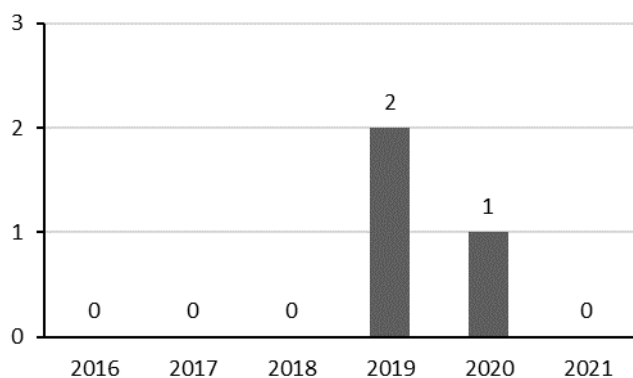


Fig. 3 Scielo database

Figure 3 shows the number of publications per year according to the inclusion criteria of the study. The year 2016, 2017 and 2018 we have 0 articles selected; 2019 shows 2 articles; 2020 1 article was chosen; and 2021 we have 0 articles selected in relation to the Scielo database.

TABLE II  
SELECTED ARTICLES FROM THE SCOPUS DATABASE

Scientific journal	Title of article	Objective	Result
Management Letters Cuadernos de Gestion	Innovator in retail: Influence of ICT and its effects on customer satisfaction.	Analyze the influence of innovation on the perceived benefits derived from the supplier-customer relationship.	Support in Marketing areas to improve the prospecting process.
Computers in Human Behavior	An investigation of the impact of effective factors on the success of e-commerce in small- and medium-sized companies.	Determine the factors that impact the success of e-commerce in small companies and organizations.	Increases customer satisfaction and trust in the company.
Journal of Electronic Commerce Research	Stay Home and Shop Together.	Post background and results of tasks and socioemotional communication between buyers in the context of online collaborative purchasing.	Improve the relationship between the customer and the company.
Applied Economic Perspectives and Policy	E-commerce's fast-tracking diffusion and adaptation in developing countries.	Employ the use of e-commerce as a strategy to accelerate its spread, responding to the challenges of high transaction costs.	Improves the relationship between the customer and the company.
Foundations and Trends in Marketing	A practical approach to sales compensation: What do we know now? What should we know in the future?	Analyze and understand how the use of technology helps in the formulation of buying and selling strategies to better motivate and incentivize an organization's sales force.	Improves the relationship between the customer and the company.
International Journal of Emerging Trends in Engineering Research	Design of web systems for inventory control in the e-commerce sector under the agile methodologies approach.	To understand how the implementation of a web system provides the necessary tools to a company.	Support in the management of purchases and sales of the companies.
International Journal of Business Performance Management	Disruptive technology adoption dynamics by United Arab Emirates small-to-medium enterprises.	Know that the key to disruptive adoption of excavation technology is ownership structure, size, education, industry and gender.	Learning speed of this technology in small companies.

International Journal of Physical Distribution and Logistics Management	Mobile application supported urban-township e-grocery distribution.	Learn how the need to scale the use of new mobile application innovations fuels value-added services that drive new distribution models.	Support in the management of purchases and sales of the companies.
Journal of Information Technology in Construction	Potential positive impacts of digitalization of construction-phase information management for project owners.	Identify the possible positive impacts derived from the digitalization and use of related technologies for project management in order to encourage their use.	Support in the management of small business processes.
Sustainability (Switzerland)	Home-delivery-oriented agri-food supply chain alliance: Framework, management strategies, and cooperation stability control.	Propose to small and medium-sized companies to organize themselves for the development of a collaborative system oriented to a supply chain.	Support in the management of small business processes.
International Journal of Sociotechnology and Knowledge Development	E-commerce in small and medium enterprises in Sri Lanka.	To investigate the level of e-commerce adoption in SMEs.	Time reduction of company processes.
Electronic Journal of Information Systems in Developing Countries	Usability of online business registration improvisation as Congo-Brazzaville re-branding tool.	Know the available resources and e-commerce technologies for decision making.	It allows the reduction of time of the processes in the company.
International Journal of Electronic Marketing and Retailing	The digital economy: New e-business strategies for food Italian system.	Provide a description of the evolution of the digital economy.	E-commerce strategies provide significant changes in B2C models.
International Journal of Information Management	Customers' intention to use technologies when shopping online.	Identify and examine the design and individual characteristics that influence the adoption of virtual systems.	The results largely supported the important role of innovation, performance and price.
International Journal of Innovative Technology and Exploring Engineering	An advanced framework to design a smart store system using IoT, AI, and data analytics that improves business processes for	Improve business processes through IoT.	Improve the business process and business management.

	micro and small businesses		
Transportation Research Part E: Logistics and Transportation Review	Intelligent E-commerce logistics platform using hybrid agent based approach.	To understand the impact of communication mechanisms for the improvement of data integration in a control system.	Time reduction of company processes.
Electronic Commerce Research and Applications	E-commerce supply chains under capital constraints.	Promote the cyber economy, with the cooperation of small and medium-sized e-commerce platforms.	Time reduction of company processes.

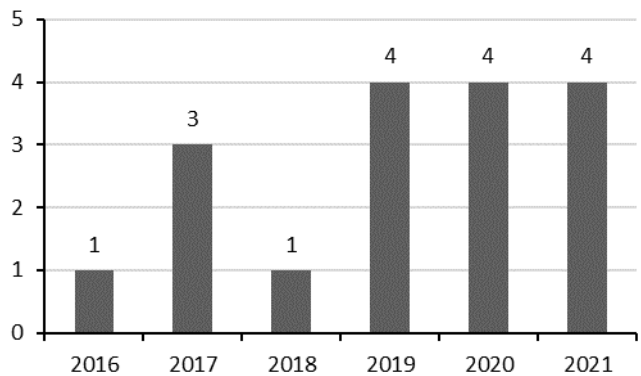


Figure 4 shows the number of publications per year according to the inclusion criteria of the study. The year 2016 we have 1 article selected; 2017 we have 3 articles; 2018 1 article was included; 2019 shows 4 articles; 2020 4 articles were chosen; and 2021 we have 4 articles selected in relation to the Scopus database.

TABLE III  
SELECTED ARTICLES FROM THE SCIENCE DIRECT DATABASE

Scientific journal	Title of article	Objective	Result
Decision Support Systems	A prescriptive analytics framework for efficient E-commerce order delivery.	Propose a decision support framework aimed at improving success rates and reducing costs.	Significant reduction in service time.
Research in Transportation Economics	Evolving strategies of e-commerce and express delivery enterprises with public supervision.	Maintain the benefits of e-commerce corporations.	Support in the management of small business processes.

Procedia Computer Science	The impact of e-commerce on the success of microenterprise retail sector of the Pinhal Interior Norte sub-region of Portugal.	To know if companies with e-commerce implementation, in B2C relationships, have an increasing success rate due to its adoption and maintenance.	Financial growth of SMEs through the use of technology for decision making.
Procedia Computer Science	Expanding an open source e-commerce with a separate ICT system.	Build an ICT platform, which meets all the individual needs of the company and runs in parallel to the main open source e-commerce system.	Ease of data migration.
Procedia Computer Science	Digital Transformation Process and Smes.	To provide insight into the factors affecting the digital transformation process and describes the digital transformation of companies in Turkey.	Better management of customers and their preferences.
Procedia Computer Science	Analyzing Linkage Between Business Process Management (BPM) Capability and Information Technology: A Case Study in Garment Smes.	Contribute to SMEs in the garment industry in order to develop and implement IT.	Support in the management of small business processes.
Procedia - Social and Behavioral Sciences	External Factors Affecting the Adoption of E-procurement in Saudi Arabian's Smes.	Conceptualize the benefits and barriers to e-commerce adoption within SMEs in Saudi Arabia.	Increases customer satisfaction and trust in the company.

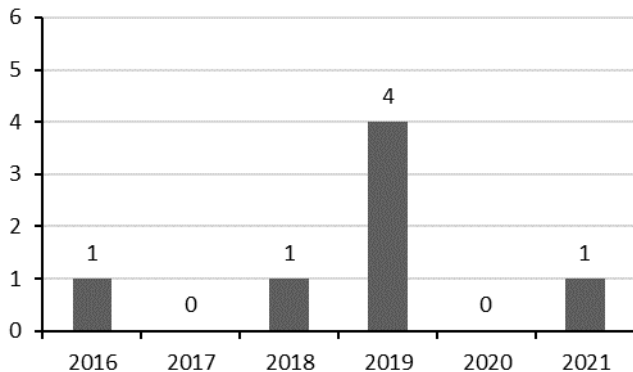


Fig. 5 ScienceDirect database

Figure 5 shows the number of publications per year according to the inclusion criteria of the study. The year 2016 we have 1 article selected; 2017 we have 0 articles; 2018 1 article was included; 2019 4 articles were chosen; 2020 shows 0 articles; and 2021 we have 1 article selected in relation to the ScienceDirect database.

TABLE IV  
STATISTICS OF SELECTED ELEMENTS

Years	Quantity	Percentage
2016	3	8%
2017	4	10%
2018	6	15%
2019	14	35%
2020	7	18%
2021	6	15%
Total	40	100%

Table 4 shows the statistics of the articles selected after applying the inclusion and exclusion criteria. Finally, 40 studies closely related to the research question and objective were selected.

TABLE V  
NÚMERO DE ARTÍCULOS EN IDIOMA ESPAÑOL E INGLÉS

Items	Español	Inglés
ScienceDirect	0	7
Scielo	1	2
Scopus	1	16
Ebsco	6	7

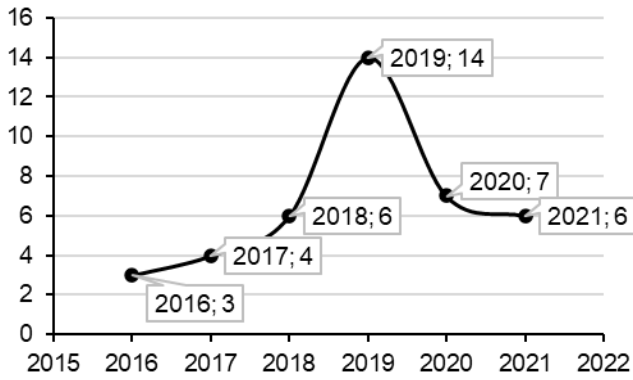


Fig. 6 Empirical articles selected for the study

Figure 6 shows a total of 40 empirical articles selected for the study entitled "Intelligent system in sales management of micro and small enterprises: A systematic review from 2016 - 2021". It is important to mention that the largest number of studies chosen are published in English language, and a smaller number in Spanish. In 2016, 3 articles were included; in 2017 we have 4 articles; in 2018 6 articles were chosen; in 2019 14 articles were included; in 2020 7 articles were chosen; and in 2021 we have 6 articles selected. As for the databases consulted, ScienceDirect, Scielo, Scopus and Ebsco were used.

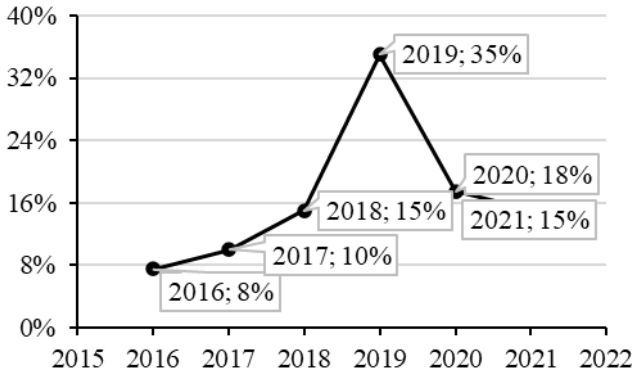


Fig. 7 Percentage of articles selected by year

Figure 7 shows the percentage of studies selected. The databases consulted were ScienceDirect, Scielo, Scopus and Ebsco. In 2016 we visualized 8%; in 2017 we have 10%; in 2018 15% is shown; in 2019 there are 35% of articles; in 2020 we have 18% of studies; and in 2021 it is represented by 15% of selected articles. Finally, the sum of the represented data reaches 100%.

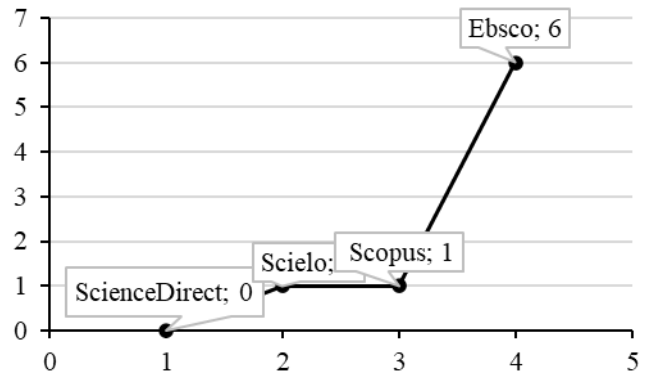


Fig. 8 Articles in Spanish

Figure 8 shows the number of studies selected in Spanish. In the ScienceDirect database we visualized 0 articles; in Scielo we have 1; in Scopus we have 1 and in Ebsco we have 6 articles. Finally, the sum total of the data represented yields 8 studies in Spanish.

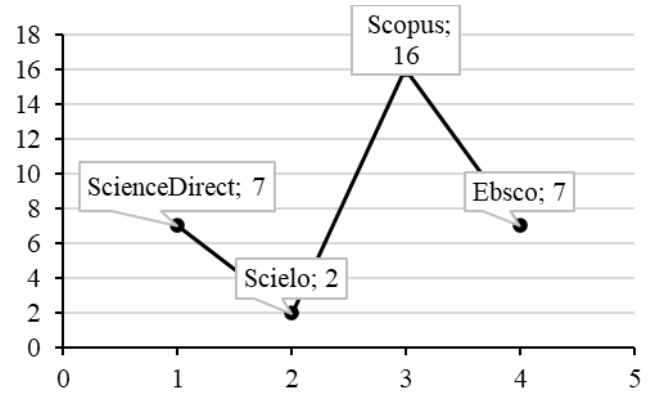


Fig. 9 Articles in English

Figure 9 shows the number of studies selected in English. In the ScienceDirect database we visualized 7 articles; in Scielo we have 2; in Scopus we have 16 and in Ebsco we have 7 articles. Finally, the sum total of the data represented yields 32 studies in English.

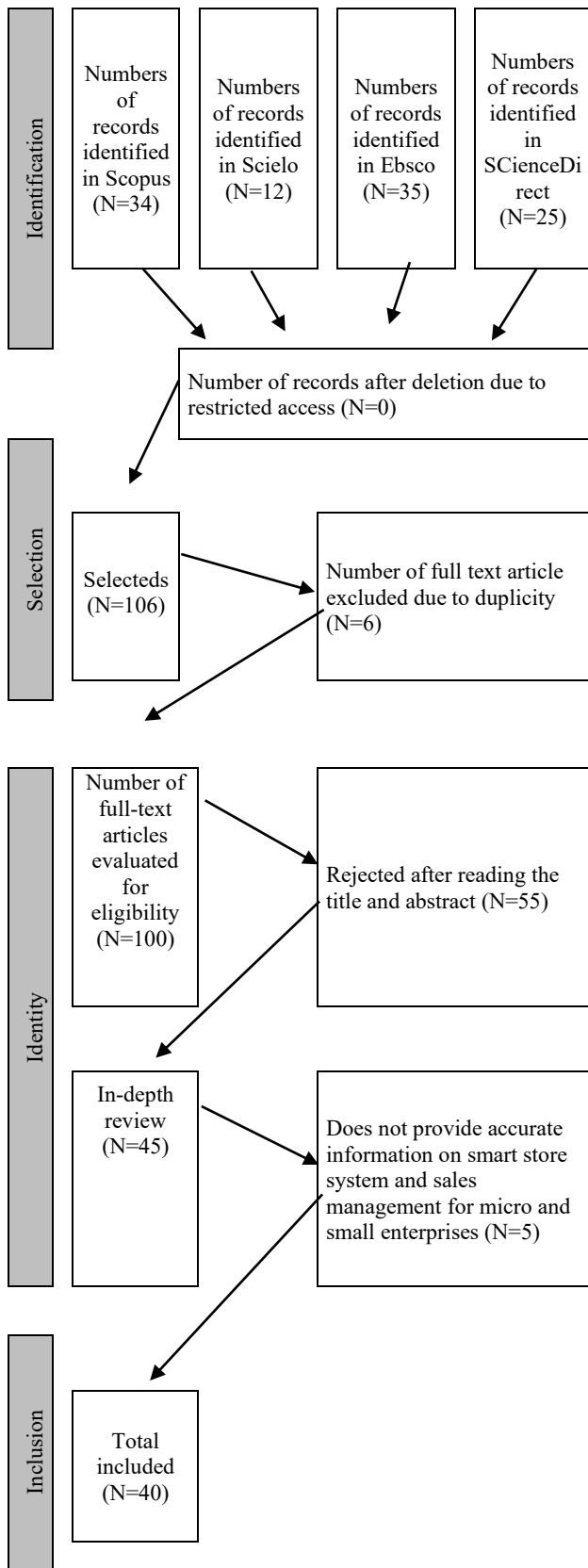


Fig. 1 Flowchart for document search and selection

TABLE VI  
SELECTED ARTICLES FROM THE EBSCO DATABASE

Scientific journal	Title of article	Objective	Result
Industrial Engineering	Information and communication technologies in the business management of small and medium-sized commercial companies	Improve business management.	Increases customer satisfaction and trust in the company.
Journal of Technology Management & Innovation	Impact of IT on small and medium-sized enterprises, is its effect moderated by the IT intensity of the industry?	Study the impact of IT on smaller companies.	Support in the management of purchases and sales of the company.
Mobile Information Systems	An Empirical Study on Response to Online Customer Reviews and E-Commerce Sales: From the Mobile Information System Perspective.	Use basic theoretical tools from social network theory to reveal the nature of the relationship between online response and performance and performance.	Generation of reports and statistics on sales over a range of time.
Informacion Comercial Espanola Economic Review	Does e-commerce facilitate or complicate smes' internationalisation?	Contribute to the debate on the role of information and communication technologies in promoting the internationalization of companies, especially SMEs.	E-commerce is easier to implement in medium-sized companies.
Systemic Practice & Action Research	IT Diffusion, Implementation and Assimilation in Micro-Businesses - an Exploratory Study Based on a Process Approach.	Understand how a system is assimilated by the organization.	Marketing support, to make the company known.
International Journal of Professional Business	The influence of the cost management system on SME business indicators	Determine the level of use of the QMS by SMEs located in an emerging economy.	Increase in the company's total sales.
IT Professional	Digital Twins: Properties, Software Frameworks, and Application Scenarios.	It proposes an analysis of some business benefits.	Better management of customers and their preferences.
Tehnicki Vjesnik - Technical Gazette	Analysis of Mobile Commerce in the SMEs of the European Union.	Examine the situation of e-commerce and m-commerce in SMEs.	Financial growth of SMEs through the use of technology for decision making.
Latin American Utopia and Praxis	Information technology and organizational performance of SMEs in northeastern Mexico	Determine the impact of IT implementation on SME performance.	Generation of reports and statistics on sales over a range of time.

Accounting and Administration	Electronic commerce contribution to the SME performance in manufacturing firms: A structural equation model.	Analyze the impact of e-commerce on the performance of SMEs.	The impact of IT on SME performance.
Lattice	Towards social commerce? The value of social networks in MSMEs Córdoba, Argentina.	To analyze the relationship between the level of e-commerce adoption and the valuation of social networks in companies.	E-commerce is easier to implement in medium-sized companies.
Clio América	Evaluation of the impact of e-commerce on the sales of SMEs in Colombia: an econometric analysis.	To know the causal effect that online commerce has on total sales, por las compañías, as well as its impact on sales.	Support in the management of purchases and sales of the company.
Management Studies	Strategic management of information and communication technologies and adoption of e-commerce in MSMEs in Córdoba, Argentina.	Analyze the causal factors of the level of e-commerce adoption.	IT adoption is necessary for e-commerce implementation.

sales management of micro and small enterprises, through a systematic review between 2016 to 2021. As a result, it could be found that customers experience confidence when making purchases due to the fact that in an ascending way the implementation of new smart store systems has been developing in the environment of micro and small enterprises [25,26,27,28,29]. This group of companies by receiving better revenues allows them to invest in the implementation of these new systems reducing many costs in the management and processes of online sales. Intelligent store systems offer a wide range of advantages for micro and small businesses. It allows to have in real time an absolute control of all the products getting to know the needs of the customers [30,31,32,33]. Consumers have access to virtual stores 24 hours a day, 365 days a year. They can use the system through any electronic device with an Internet connection. Smart store systems were created with the goal of improving the shopping experience for consumers. The managers of these companies must be prepared to take on new challenges, as investing in technology means facing new competitors in the market [34,35,36]. As for complaints and suggestions, they arrive in real time, and this communication plays a fundamental role in customer loyalty, enabling the improvement of products and services that meet consumers' needs. The new shopping experience generates an important advantage for customers and entrepreneurs of these businesses. The use of the smart store system facilitates sales management for micro and small businesses, achieving profitability [37,38,39].

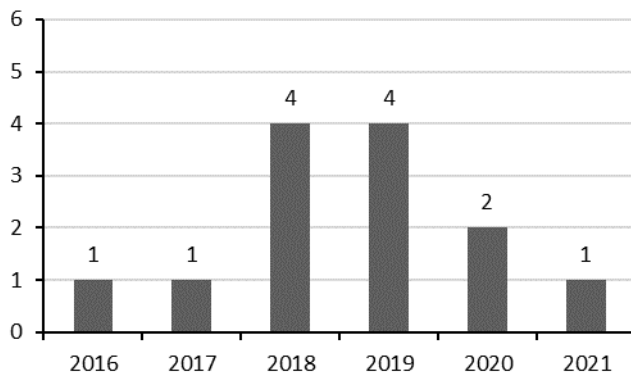


Fig. 2 Ebsco database

Figure 2 shows the number of publications per year according to the inclusion criteria of the study. The year 2016 we have 1 article selected; 2017 we have 1 article; 2018 included 4 articles; 2019 shows 4 articles; 2020 2 articles were chosen; and 2021 we have 1 article selected in relation to the Ebsco database.

#### IV. DISCUSSION

The present study allowed reaching 40 original articles that are closely related to the research question and objective; allowing to know how the smart store system improves the

#### V. CONCLUSIONS

In this systematic review of the scientific literature, it is concluded that intelligent systems were implemented and developed with the aim of improving sales management, through the new shopping experience allowing an important advantage for customers. It is necessary to point out that in the reviewed studies the effectiveness of communication is exposed, this is due to the fact that the complaints and suggestions of customers arrive easily and especially in real time, this communication plays a vital role in customer loyalty, making these businesses improve more and more their products; and thus try to satisfy the needs of current and potential consumers. Consequently, in the research reviewed, it has been found that these systems implemented in micro and small businesses allow to reduce costs in the management and online sales processes. Intelligent store systems offer a series of advantages: customers can connect at any time, 365 days a year, and from any electronic device with an Internet connection. Finally, it is important to note that there are limitations in the study conducted, it only covered five years from 2016 to 2021, it worked with four databases such as ScienceDirect, Scielo, Scopus and Ebsco. For future studies, the possibility of working on a meta-analysis of the research presented in this study could be evaluated.

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