# Review of the concept of Quality of Service and its measurement models.

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**Abstract**

A documentary review was carried out on the production and publication of research papers related to the study of the variable Quality of Service and its Measurement Models. The purpose of the bibliometric analysis proposed in this document, is to know the main characteristics of the volume of publications registered in Scopus database during the period 2015-2020 in Latin American countries, achieving the identification of 159 publications. The information provided by said platform was organized by means of figures categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics were described, the position of different authors regarding the proposed topic was referenced by means of a qualitative analysis. Among the main findings of this research, it is found that Brazil, with 67 publications, is the Latin American country with the highest production. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of Quality of Service and its Measurement Models was Computer Science with 56 published documents, and the Type of Publication that was most used during the above-mentioned period was the Journal Article, which represents 59% of the total scientific production.

**Keywords:** Quality of Service, Quality Measurement Models.

## 1. Introduction

Consumers of goods and/or services are becoming more and more aware of the power they have over a company or a brand, so their demands regarding what they consume are becoming more and more specific. For this reason, companies are designing multiple strategies with the purpose of offering quality to their customers and consumers. In this sense, there is a clear need for the

administration to know first-hand the level of satisfaction of those who consume their services, for this a set of tools called Measurement Models have been designed, which once applied, are able to collect valuable information on the perception of users about the service received, which means that these mechanisms cannot be used in a predictive way, on the contrary, they are responsible for collecting information once the consumer has received the service offered by the company (Duque, 2014). These data are interpreted by specialized personnel and transformed into vital information to support decision making, which triggers a series of strategies to enhance strengths and reinforce aspects identified as weaknesses.

As for the Service, there are different definitions (See Table 1) that help to understand the orientation of the identified bibliography

**Table 1:** Definition of service

| DEFINITION | AUTHOR |
|---|---|
| One type of economic good is what he calls the tertiary sector, all those who work and do not produce goods are supposed to produce services. | (Fisher & Navarro, 1994) |
| Studies performed by others | (Colunga, 1995) |
| An activity or series of activities of a more or less intangible nature that usually, but not necessarily, takes place through interactions between the customer and the service company's employees. | (Grönroos, 2001) |

**Source:** Taken from the paper "Analysis of perceived service quality measurement models applied in the hospital industry" (Duque & Parra, 2015)**.**

Therefore, it is of great importance to know the current status of the literature registered in Scopus database related to the subject proposed in this document, since for any company it is vital to distinguish the different models to measure the quality perceived by its customers, which allows any organization that has as a priority to increase the level of competitiveness of your company to grow. Once the proposed documentary review has been carried out, it will be possible to answer the question: How has been the production and publication of research papers related to the study of the variable Service Quality and its Measurement Models in Latin America during the period 2015-2020?

## 2. General objective

To analyze from a bibliometric and bibliographic perspective, the production of high impact research papers on the variable Service Quality and its Measurement Models in Latin American organizations during the period 2015-2020.

## 3. Methodology

Quantitative analysis of the information provided by Scopus is performed under a bibliometric approach on the scientific production related to Service Quality and its Measurement Models. Also, from a qualitative perspective, examples of some research papers published in the area of study mentioned above are analyzed from a bibliographic approach to describe the position of different authors on the proposed topic.

The search is carried out through the tool provided by Scopus and the parameters referenced in Table 2 are established.

### 3.1 Methodological design

The methodological design proposed for this research is shown below.

| | PHASE | DESCRIPTION | CLASSIFICATION |
|---|---|---|---|
| PHASE 1 | DATA COLLECTION | The data collection is carried out by means of the Search tool in the Scopus web page, by means of which a total of 159 publications are identified. | Published papers whose study variables are related to the Quality of Service and its Measurement Models. Research papers published during the period 2015-2020. Limited to Latin American countries. Without distinction of area of knowledge. Without distinction of type of publication. |
| 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. | Word Co-occurrence. Year of publication Country of origin of the publication. Area of knowledge. Type of publication |
| PHASE 3 | DRAFTING OF CONCLUSIONS AND FINAL | After the analysis carried out in the previous phase, we | |

| | DOCUMENT | proceed to the drafting of the conclusions and the preparation of the final document. | |
|---|---|---|---|
| | | | |

**Table 2.** Methodological design.
**Source:** Own elaboration (2021)

## 4. Results

### 4.1 Co-occurrence of words

Figure 1 shows the co-occurrence of keywords within the publications identified in the Scopus database.
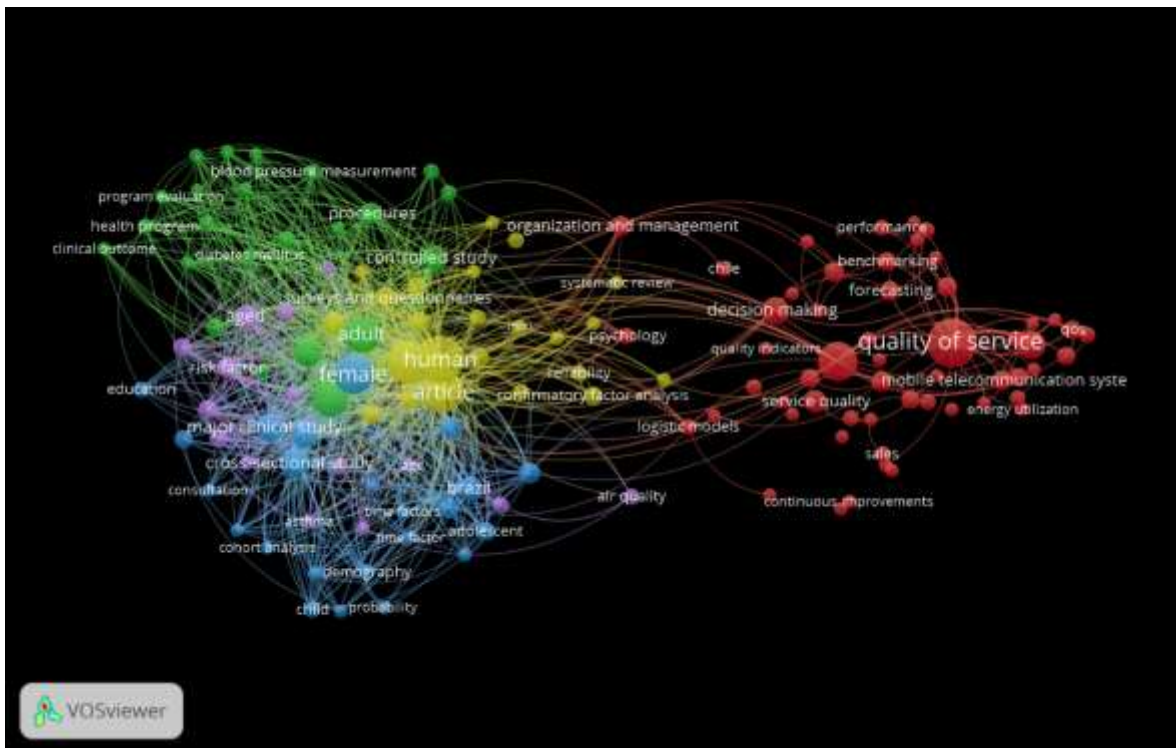


**Figure 1.** Co-occurrence of words
**Source:** Own elaboration (2021); based on data provided by Scopus.

Service Quality is the most frequently used keyword in the research identified under the search parameters established in Phase 1 of the Methodological Design, and is closely related to words such as Foresight, Work Table, Marketing, Quality Indicators, which allows inferring that all policies implemented for the improvement in the perception of quality by customers, are even conceived as a purpose of marketing strategies in the search for positioning through competitiveness as a fundamental factor to achieve recognition among the target market and the competition. This is one of the main objectives of the organization. Organization and Management are related to key words such as Decision Making, Logistic Models, Controlled Studies, Procedures,

confirming then the position of different authors who affirm that all information collected from the measurement of the performance of the different functional areas of the company, constitute the main input to support the decision making derived from a thorough study of the current situation of the company.

One of the main contributions that the analysis of the co-occurrence of words makes to the use of measurement models for decision making in order to improve the quality of service, is precisely to know the current status and orientation of the studies published so far, providing readers with an x-ray of the main topics that are addressed in the research of the variable mentioned above. Similarly, the density of each set of keywords identified, depending on the influence that certain terms have on the researchers, which in some cases are oriented by current market trends, as well as the evolving needs of the consumer. Likewise, different scenarios emerge for the design of positioning strategies and strategic competitiveness.

### 4.2 Distribution of scientific production by year of publication.

Figure 2 shows how the scientific production is distributed according to the year of publication, taking into account the period from 2015 to 2020.
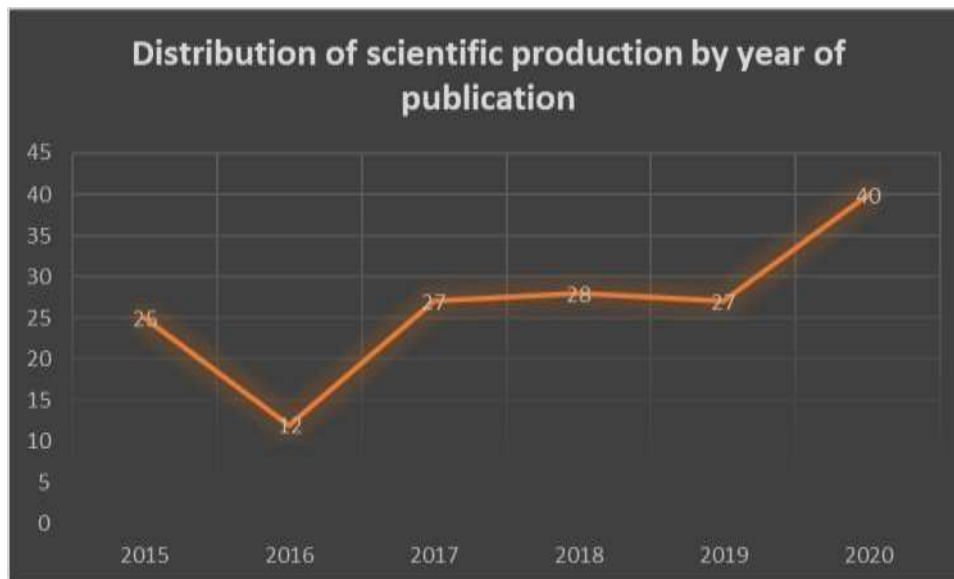


**Figure 2.** Distribution of scientific production by year of publication.
**Source:** Own elaboration (2021); based on data provided by Scopus.

The figure above shows the historical evolution of the volume of publications related to the study of Quality of Service and its Measurement Models within the period between 2015 and 2020, the latter being the year in which the highest scientific production was recorded in Scopus, reaching a total of 40 documents among which is the article entitled "*Quality of Service in Networks with Self-Similar Traffic*" (Hirchoren & Buraczewski, 2020) whose objective is to compare the quality of service (QoS) of Priority Queueing (PQ), Custom Queueing (CQ), Weighted Fair Queueing (WFQ), Class-

Based Weighted Fair Queueing (CBWFQ) and Low-Latency Queuing ( LLQ) queuing disciplines, with self-similar and long-range dependent traffic, through experimental measurements with routers in a computer simulation environment using GNS3 and Wireshark. This study measures the quality of information transmission through different signals and measurement models, although it seems to be a topic far from the one proposed in this paper; it is really very useful as it refers to companies that offer services through digital media, for example, educational institutions that present their students. In this way, it is possible to evaluate how efficient they are being by means of the teaching-learning process through virtual media, which constitutes an important component in the measurement of the perception of quality in this service.

In second place is 2018 when a total of 28 publications were recorded within which is the article entitled "*Quality assessment of agile processes: Measuring requirements management using AQF v2*" (Contreras et al., 2019) the Software industry demands higher quality products every day, which undoubtedly constitutes an objective of every organization, at least those concerned about establishing a close relationship with their customers, so the measurement models once again demonstrate how it is possible to be attentive to its perception with respect to the product and/or service received. It could be said then that these models represent the most important aspect in the implementation of strategies aimed at competitiveness.

**4.3 Distribution of scientific production by year of publication.**
Figure 3 shows the scientific production distributed according to the year of publication, taking into account the period from 2015 to 2020.
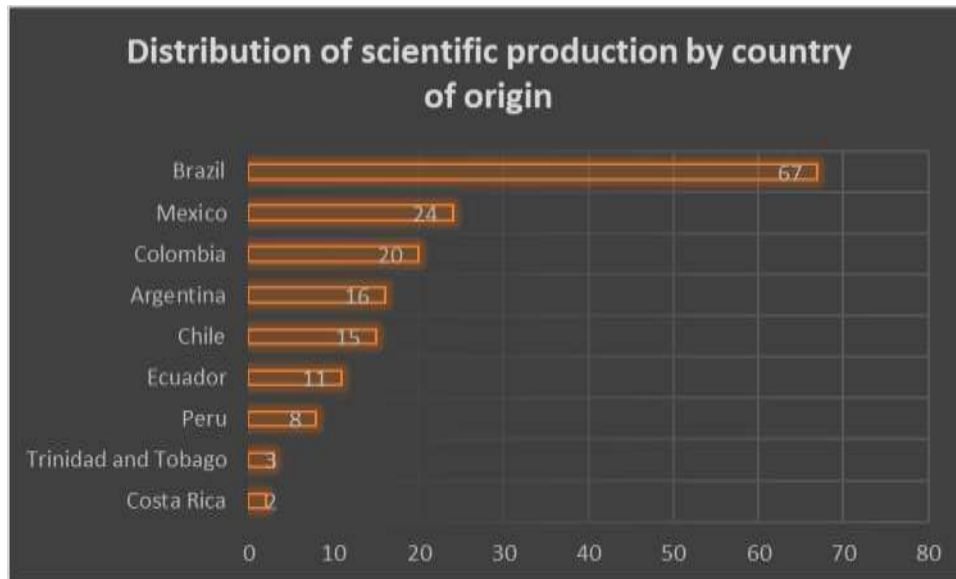


**Figure 3.** Distribution of scientific production by country of origin.
**Source:** Own elaboration (2021); based on data provided by Scopus.

Brazil is the Latin American country with the highest scientific production registered in Scopus during the period 2015-2020 with a total of 67 publications within which is the one entitled "*Method to evaluate the quality of service in the hotel industry in the era of the fourth industrial*

*revolution*" (Bridi et al., 2020) whose purpose is to propose a technological measurement model to quantitatively evaluate the service provided by hotels, by means of a questionnaire applied to customers where a value is assigned to each question and at the end yields numerical data that will later be interpreted by the personnel in charge of such analysis. This study evaluated the latent traits of service quality in 206 Brazilian hotels, which were evaluated. The self-evaluation process is thus supported by the use of technologies that simplify the data collection process for subsequent analysis.

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 public and private institutions, and these institutions may be from the same country or from different nationalities, so that the production of an article with co-authorship of 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 4, which shows the flow of collaborative work from different countries.
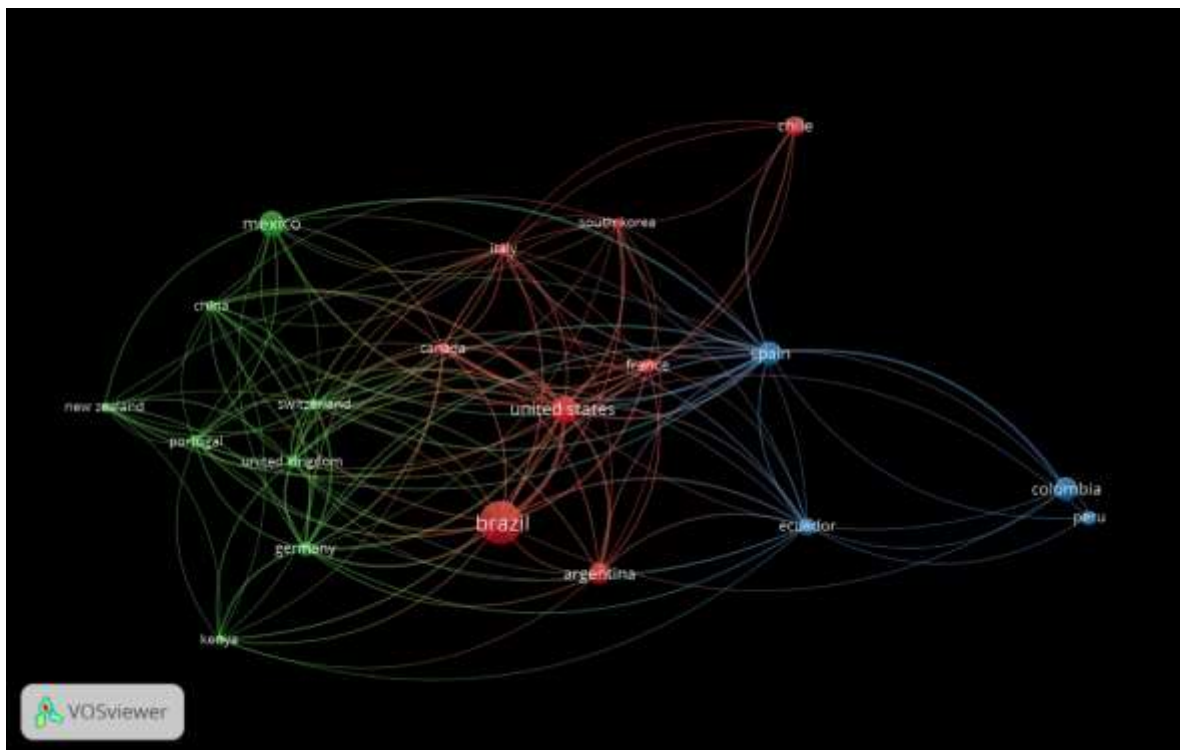


**Figure 4.** Co-citations between countries.
**Source:** Own elaboration (2021); based on data provided by Scopus.

From Figure 4, it can be inferred that Brazil has presented mostly participation among authors of the same nationality with authors affiliated to institutions in the United States, Argentina, Canada, France, South Korea and Italy. Similarly, there is evidence of collaboration between authors from Ecuador, Spain, Peru and Colombia, the latter country ranking third in production with 20 publications among which is the one entitled "*Quality evaluation indicators in prenatal care worldwide: a systematic review*" (Morón-Duarte et al., 2019) which offers the reader a systematic

review of the bibliographic production regarding the different indicators of quality evaluation in the services offered in the prenatal department in different clinics globally. Its objective is to describe the indicators used for the evaluation of the quality of prenatal care (ANC) worldwide within the framework of the World Health Organization (WHO) and on the basis of a systematic review of the literature. One of the main contributions made by this research is the suggestion to standardize measurement parameters worldwide to facilitate quality assessment, since there are different measurement mechanisms used in different regions of the world. Therefore, it is expected that international bodies suggest unified models or standards in order to make a comparison as close to reality as possible and thus determine, through observation and comparison, which processes deserve restructuring and which deserve strengthening through feedback.

## 4.4 Distribution of scientific production by area of knowledge

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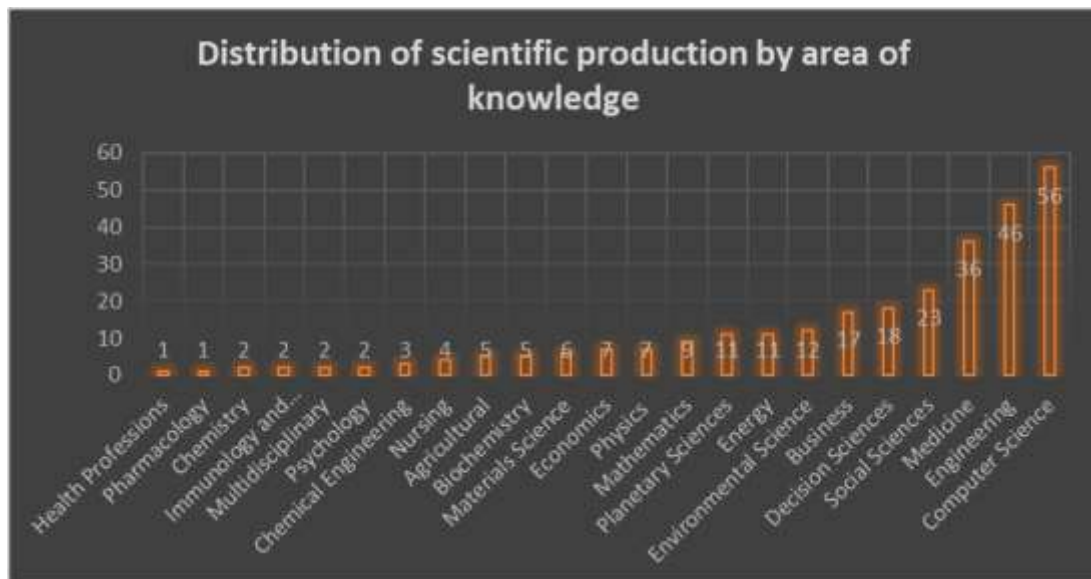


**Figure 5.** Distribution of scientific production by country of origin.
**Source:** Own elaboration (2021); based on data provided by Scopus.

Computer Science is the area of knowledge with the highest number of contributions to the production of bibliographic material related to the study of Quality of Service and its Measurement Models with a total of 56 documents that were managed through topics related to this area. In second place, Engineering presents 46 publications followed by Medicine and Social Sciences with 36 and 23 records respectively. From the latter is the article entitled "Measuring the perceived quality of service and its impact on the performance of golf courses according to the type of facilities and user profile" (Serrano-Gómez et al., 2020) which presents three objectives which are: (1) to analyze the psychometric characteristics of the QGolf scale, (2) to examine the relationship between user-perceived quality, club service dimensions and golf club performance, and (3) to explore whether better performance may vary according to player profile and/or golf course type. These are sought to be fulfilled through a survey applied to 968 users of 13 golf courses in

northwestern Spain. One of the main contributions for this type of service was the suggestion made to the golf course administration to consider the diversity of user levels, which range from amateur to professional, and also to know that the service offered to them depends precisely on their level in the game, in this way the perception of quality will increase because the user will feel a more personalized service.

One of the main contributions from areas such as Economics is the article "Measuring the quality of logistics service quality in e-commerce" (Junior et al., 2020) which aims to assess the perception of customers when shopping electronically through global platforms. The purpose of this tool is to evaluate the level of customer satisfaction with the service offered in terms of logistics for deliveries in terms of packaging, time, product condition, among others.

## 4.5 Type of publication

Figure 6 shows how the bibliographic production is distributed according to the type of publication chosen by the authors.
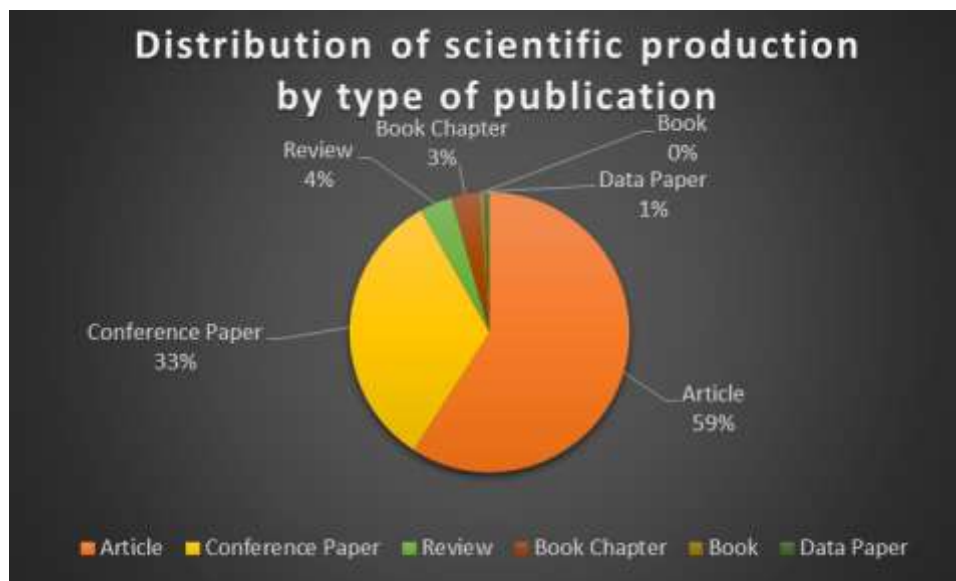


**Figure 6.** Type of publication
**Source:** Own elaboration (2021); based on data provided by Scopus.

Journal articles represent 59% of the total production, i.e., 94 documents of the total identified correspond to this type of publication. Among these is the one entitled "*Consumer-based brand value of products and services: evaluation of a measurement model with competing brands*" (Porto, 2018) whose objective is to identify which brand in a category conveys more or less value to the consumer by asking questions about the composition of the measures of brand value and the brands that make up the category. In this way, it is possible to identify the variables that are more significant in the concept of quality given to the services offered by the different companies by the customers, which represents for the organization an essential input for the creation of marketing strategies with the purpose of increasing competitiveness. Therefore, it can be inferred that one of the main tools used by the management of the companies are the data collected through the

measurement mechanisms which are subjected to analysis and subsequently supports the feedback processes aimed at improving the services offered to customers achieving an identification with them that ends in positioning against the competition.

**Conclusion**

The bibliographic analysis proposed by the present research allows concluding that Brazil is the country with the highest number of publications in Scopus during the period 2015-2020 registering a total of 67 documents, from which it is inferred that this country is one of the main countries in Latin America and the world with the highest number of contributions to the design of Measurement Models for the Quality of Service as far as scientific research is concerned, thus representing a reference for the other countries in the region. On the other hand, Computer Science is the area of knowledge with the largest number of contributions to research on the aforementioned topic, with a total of 56 documents, which allows inferring that with the technological advances that have emerged in recent years, the way of collecting the necessary information to analyze the performance of the different processes in the provision of services in the different economic sectors has become more technical. The importance of the mechanisms designed for the analysis of the necessary information to support decision making is then highlighted, always emphasizing that, by their nature, these decisions are always aimed at improving the processes in the provision of the service with the purpose of achieving the satisfaction of customers and users.

One of the main contributions identified in the research cited in this document, consists in the measurement in quantitative terms through the analysis of the answers to questionnaires applied to users of a given service, since the interpretation given to this can be used for the calculation in the forecast of future analysis or monitoring. This means that the results of a data analysis derived from a measurement model for service quality only yield information on activities already performed, i.e., once the service has been provided, the customer's perception of quality can be evaluated. However, these data can be used as a reference for the future, since, if low levels of satisfaction are obtained, it is expected that in the future these levels will increase. The above represents, to a great extent, an important input for experts and researchers on the subject presented in this article, since it offers the reader the possibility of locating the present bibliographic resources that deal with Service Quality and its Measurement Models.

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