

OPTIMIZATION OF ADMINISTRATIVE PROCESSES THROUGH THE IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS: A CASE STUDY IN THE MANUFACTURING SECTOR

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Summary

A documentary review was carried out on the production and publication of research papers related to the study of the variable Administrative Processes, Quality Management Systems and Manufacturing Sector. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2013-2023, achieving the identification of 27 publications. The information provided by this platform was organized through graphs and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors on the proposed topic is referenced through a qualitative analysis. Among the main findings made through this research, it is found that Russia, with 4 publications, was the country with the highest scientific production registered in the name of authors affiliated with institutions of that nation. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material related to the study of Administrative Processes, Quality Management Systems and the Manufacturing Sector was Computer Science with 13 published documents, and the most used Publication Type during the period indicated above were Conference Articles with 59% of the total scientific production.

Key words: *Administrative Processes, Quality Management Systems and Manufacturing Sector.*

1. INTRODUCTION

The international manufacturing sector has chosen to restructure the way they carry out their operations, since due to the events of Covid-19, this particular market has been forced to modify its production processes. In this instance, the traceability of the processes focuses on improving consumer experiences, since it focuses on production processes focused on quality management in manufacturing companies. During the last decade, it has been possible to demonstrate the fundamental role played by the Quality Management System (QMS) since this system in organizations is responsible for comprehensively satisfying the requirements of customers, legal and regulatory, in which it seeks to offer quality products and services through process controls. ensuring minimum compliance and permanently promoting the search for improvement.

According to the Quality Management System, implementing the Quality Management System fosters greater satisfaction and prioritizes customers, since companies are always in constant search of new solutions in response to the needs of users, in addition to optimizing their resources and maintaining effectiveness in operations. These authors argue that Quality Management Systems activate creativity, adaptability, and the introduction of new products and services. The goal is for organizations to actively participate in other markets and attract new customers. (Prajogo, 2001, págs. 539-558)

However, quality management is not the only challenge faced by companies in the manufacturing sector. Administrative processes are the set of stages "planning, direction, control and organization"



whose objective is to obtain that organizations in the most efficient way are divided into a mechanical and dynamic way. (López, 2009)

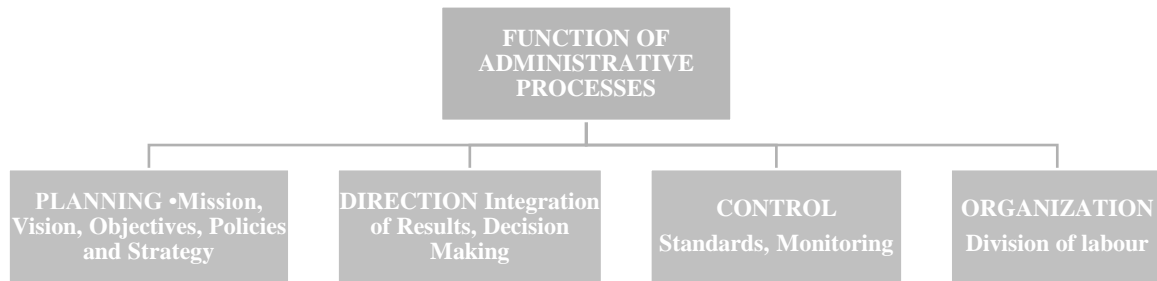


Figure 1: Administrative Processes

Fountain: (Chiavenato, 2018)

It is necessary for the manufacturing industry to correlate administrative processes with the Quality Management System, implementing the ISO 9001:2015 standard, which will allow to indicate those factors that affect the continuous improvement of management processes, generating greater optimization, resulting in accessing new opportunities for market participation, improving quality in customers, recognition in the markets and raising their profits.

The synergy in Quality Management Systems and administrative processes as suggested becomes a way of structuring and organizing activities to direct and ensure the perfect functioning of this industry, this with the aim of profitability, competence and adaptability, both areas recognize the importance of satisfying the needs and expectations of customers. Since these processes complement the functions aligned with the objectives of manufacturing organizations, while ISO 9001-2015 retains a holistic thinking based on risks, since it takes into account the expectations that customers place in companies, values the development of companies, the high participation in Senior Management which allows adding greater value to organizations. For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in the Scopus database related to the variables (Méndez, 2006)Administrative Processes, Quality Management Systems and Manufacturing SectorLike this. Such as the description of the position of certain authors affiliated with institutions, during the period between 2013 and 2023.

2. GENERAL OBJECTIVE

To analyze, from a bibliometric and bibliographic perspective, the preparation and publication of research papers in high-impact journals indexed in the Scopus database on the variables Administrative Processes, Quality Management Systems and the Manufacturing Sector during the period 2013-2023.

3. METHODOLOGY

This article is carried out through a research with a mixed orientation that combines the quantitative and qualitative method.

On the one hand, a quantitative analysis of the information selected in Scopus is carried out under a bibliometric approach of the scientific production corresponding to the study of Administrative Processes, Quality Management Systems and the Manufacturing Sector. On the other hand, examples of some research works published in the study area indicated above are analyzed from a qualitative perspective. based on a bibliographic approach that allows us to describe the position of different authors on the proposed topic. It is important to note that the entire search was carried out through Scopus, managing to establish the parameters referenced in *Figure 1*.



3.1. Methodological design

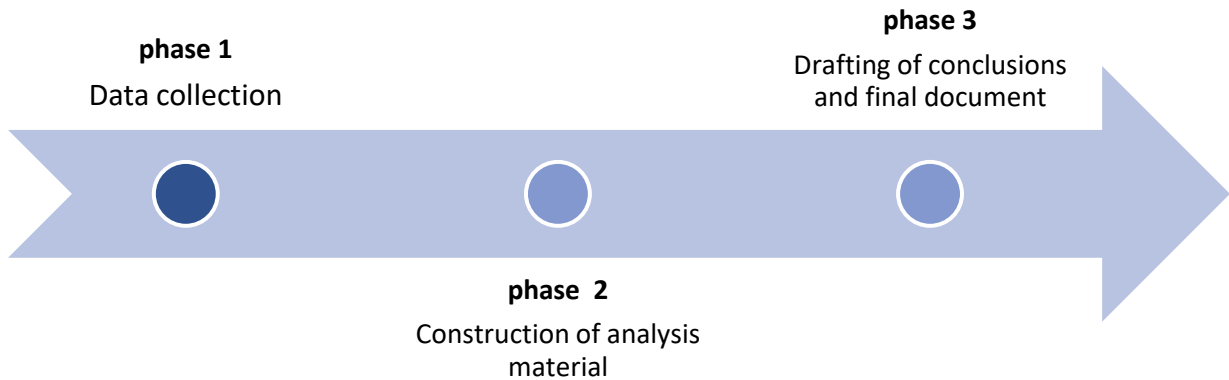


Figure 2. Methodological design

Source: Authors' own creation

3.1.1 Phase 1: Data collection

Data collection was carried out from the Search tool on the Scopus website, where 27 publications were obtained from the following filters:

TITLE-ABS-KEY (administrative AND processes, AND quality AND management AND systems, AND manufacturing) AND PUBYEAR > 2012 AND PUBYEAR < 2024

- Published documents whose study variables are related to the study of the variables Administrative Processes, Quality Management Systems and Manufacturing Sector.
- Limited to the years 2013-2023.
- No distinction of country of origin.
- Without distinction of area of knowledge.
- No distinction of type of publication.

3.1.2 Phase 2: Construction of analytical material

The information collected in Scopus during the previous phase is organized and then classified by graphs, figures and tables as follows:

- Co-occurrence of words.
- Year of publication.
- Country of origin of the publication.
- Area of knowledge.
- Type of publication.

3.1.3 Phase 3: Drafting of conclusions and outcome document

In this phase, the results of the previous results are analysed, resulting in the determination of conclusions and, consequently, the obtaining of the final document.

4. Results

4.1 Co-occurrence of words

Figure 2 shows the co-occurrence of keywords found in the publications identified in the Scopus database.

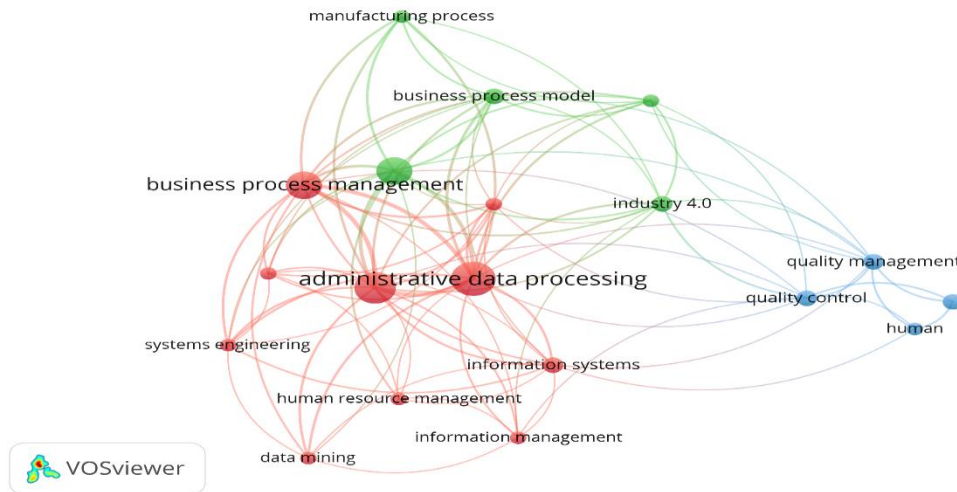


Figure 3. Co-occurrence of words

Source: Authors' own elaboration (2024); based on data exported from Scopus.

Administrative Data Processing was the most frequently used keyword within the studies identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article. Business Process Management is among the most frequently used variables, associated with variables such as Information Processes, System Engineering, Industry 4.0, Strategic Planning, Information System, Big Data. Therefore, it is striking that companies in the manufacturing sector worldwide have chosen to implement new changes in the way they operate, since, in a constantly changing market, where international trade has become more affordable. According to him, organizational development driven by administrative management and quality management systems establish a series of tactics and strategies in which it seeks to improve the organizational culture of this industry, strengthening internal processes, improving efficiency and effectiveness in operations. Therefore, the incorporation of the ISO 9001:2015 standard seeks greater integration in the management of these companies, allowing adaptability in the changing and complex markets in which manufacturing organizations operate. (Mello., 2014)

4.2 Distribution of scientific production by year of publication

Figure 3 shows how scientific production is distributed according to the year of publication.

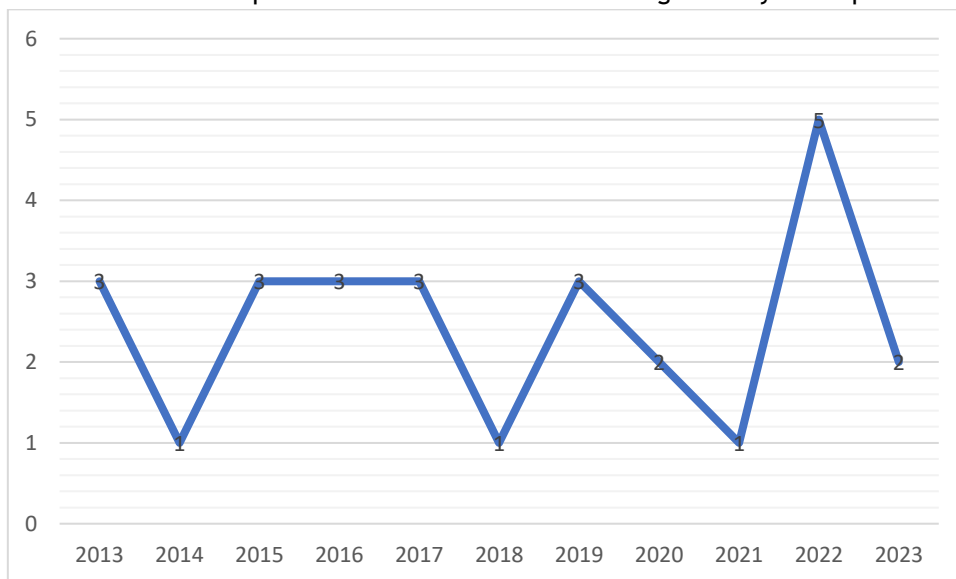


Figure 4. Distribution of scientific production by year of publication.



Source: Authors' own elaboration (2024); based on data exported from Scopus

Among the main characteristics evidenced through the distribution of scientific production by year of publication, an increase in the number of publications registered in Scopus during the years 2022 is noticeable, reaching a total of 5 documents published in journals indexed on this platform. This can be explained by articles such as the one entitled "An Assessment of Documentation Requirements for ISO 9001 Compliance in Scrum Projects." This article investigates the documentation practices used to align "lightweight" Scrum methods with ISO 9001 at a leading healthcare software company. The authors investigated how "lightweight" Scrum approaches fit with organizational documentation practices for ISO 9001 compliance at a leading healthcare software development company. Three rounds of research were conducted with software professionals who had different Scrum roles to understand their challenges in maintaining process documentation with Scrum methods. ISO standards stipulate certain mandatory documentation as evidence that certain predefined processes are followed in the creation of quality goods and services. However, this can lead to "heavy" document-based approaches that interfere with "light" Scrum methods. The findings from the case studies reveal the stresses software professionals face when maintaining ISO 9001 documentation. That is, while some level of documentation is considered useful, software professionals find other documentation tasks excessive and cumbersome. In addition, many operational documents were retrospectively drafted for administrative compliance, resulting in short, incomplete, and ambiguous descriptions. Practical implications: The study provides a lot of value to practitioners when it comes to adapting their documentation to ongoing operational processes. In addition, the critique of current implementations of ISO 9001 in agile environments has implications for future documentation practice. (Mathrani, 2022)

4.3 Distribution of scientific output by country of origin

Figure 4 shows how scientific production is distributed according to the country of origin of the institutions to which the authors are affiliated.

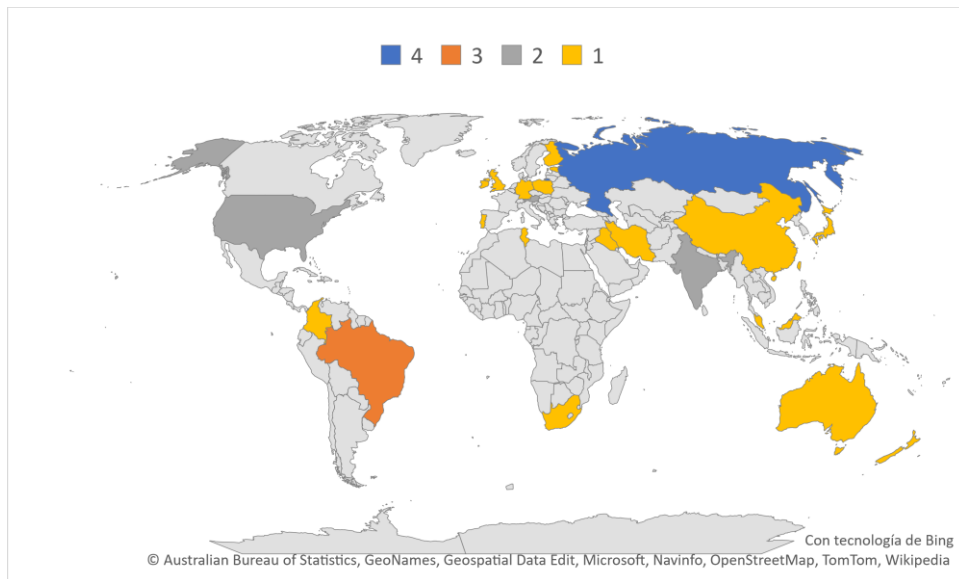


Figure 5. Distribution of scientific production by country of origin.

Source: Authors' own elaboration (2024); based on data provided by Scopus.

Within the distribution of scientific production by country of origin, the registrations from institutions were taken into account, establishing Russia as the country of this community, with the highest number of publications indexed in Scopus during the period 2013-2023, with a total of 4 publications in total. In second place, Brazil with 3 scientific papers, and Australia occupying the third place presenting to the scientific community, with a total of 2 papers among which is the article titled "Optimization of Taguchi's Online Quality Feedback Control System" This article discusses three



problems of Taguchi's online quality feedback control system. In addition, countermeasures to improve the system are proposed. First, the quality loss of out-of-control products is reestimated by approximating the probability density of their quality characteristic value to a linear distribution. Second, the loss of quality of products that are under control is reestimated by approximating the probability density of their characteristic value of quality to a normal distribution. Thirdly, the calculation of the cost of the adjustment takes into account the decrease in profits resulting from the process stoppage, which is excluded in Taguchi's online quality feedback control system. The cost of management and loss of quality constitute the total cost of quality. In the enhanced online quality feedback control system, the optimal measurement interval and optimal administrative limit are calculated by minimizing the total cost of quality using an iterative method. An example of the adjustment of administrative boundaries and measurement interval for the manufacture of auto parts is presented to illustrate the effectiveness of the improved online system. (Zhang, 2017)

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows the distribution of the elaboration of scientific publications based on the area of knowledge through which the different research methodologies are implemented.

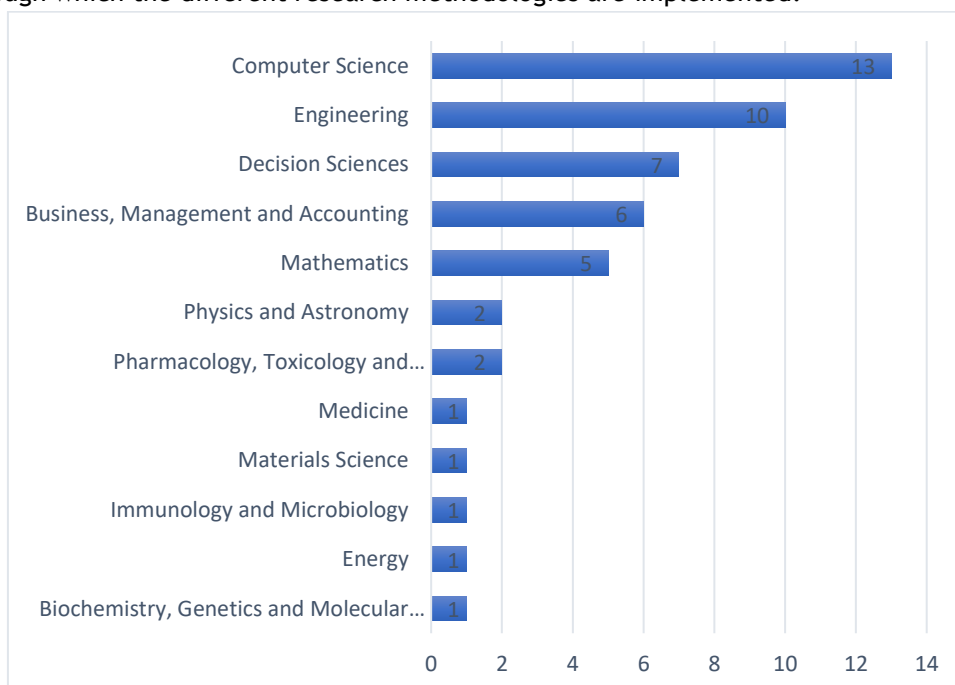


Figure 6. Distribution of scientific production by area of knowledge.

Source: Authors' own elaboration (2024); based on data provided by Scopus

Computer Science was the area of knowledge with the highest number of publications registered in Scopus, with a total of 13 documents that have been based on its methodologies. Administrative, Quality Management Systems and Manufacturing. In second place, Engineering with 10 articles and Decision Science in third place with 7. This can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by Computer Science entitled "Environmental Technical and Administrative Innovations in the Canadian Manufacturing Industry." This article explores whether the adoption of an EMS and/or a QCM, both administrative innovations, lead to the development of cleaner technological innovations. We draw on the literature on stakeholder influence and Daft's (1978) dual-core model of organizational innovation to determine the factors affecting a facility's decision to undertake cleaner technological innovations. Using manufacturing data at the Canadian facility level, we find that an EMS reduces the likelihood that a facility will implement environmental technologies that change the production process (clean



technologies), while TQM increases the likelihood that the facility will implement clean technologies. We also found that administrative pressures (corporate headquarters and shareholders/investors) have no impact on technological innovations, while external stakeholders such as regulators, community groups, and environmental groups, as well as customers and suppliers, increase the likelihood that facilities will use cleaner technologies. (Irene Henriques, 2006)

4.5 Type of publication

In the following graph, you will see the distribution of the bibliographic finding according to the type of publication made by each of the authors found in Scopus.

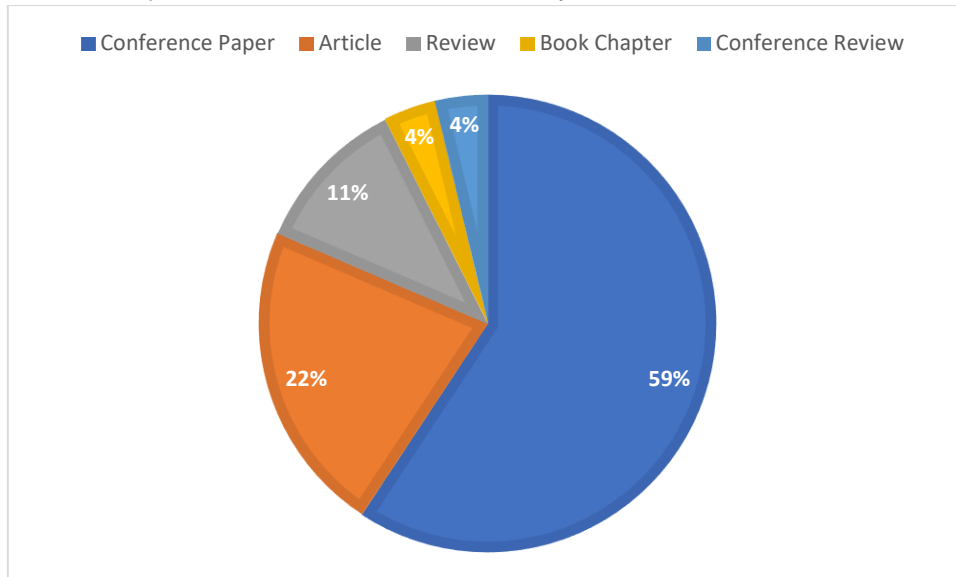


Figure 7. Type of publication.

Source: Authors' own elaboration (2023); based on data provided by Scopus.

The type of publication most frequently used by the researchers referenced in the body of this document was the one entitled Session Paper with 59% of the total production identified for analysis, followed by Journal Article with 22%. Journals are part of this classification, representing 11% of the research papers published during the period 2022-2024, in journals indexed in Scopus. In this last category, the one entitled "Impact of people management practices based on total quality management on Administrative Innovation in Service SMEs" stands out. This article investigates the impact of People Management practices based on Total Quality Management. TQM-PM on Administrative Innovation in Small and Medium Service Enterprises (SMEs) in Malaysia. The data were obtained from managers of 191 SMEs from different service subsectors. The confirmatory factors The analysis technique (AFC) was applied to validate the measurement model. Structural Equation Modeling (SEM) was used to test the hypotheses. The results of the SEM model showed that employee engagement and training have had a positive impact on managerial innovation, while employee empowerment showed no impact. The study helps managers of service SMEs to focus on the TQM-PM as a resource for administrative innovation. (Mustaf, 2014)

5. CONCLUSIONS

Through the bibliometric analysis carried out in this research work, it was possible to establish that Russia was the country with the highest number of records published in the Administrative Processes, Quality Management Systems and Manufacturing Sector variables. With a total of 4 publications in the Scopus database. In the same way, it was possible to establish that the application of theories framed in the area of Computer Science, The results obtained through this bibliometric analysis can be concluded that, manufacturing companies currently face a series of changes and restructuring of their commercial and internal operations, that is why a good administrative process could help to preserve the high standards of these organizations, This management allows goals to be achieved in



a more efficient and effective way, which aims at correct decision-making, thus allowing an excellent organizational development which is linear and in groups, but also seeks to bring the parameters of this industry by optimizing its functions and improving the quality of its services. In addition, a strong quality management system is necessary in the manufacturing industry. Quality management is the last element within the processes of continuous progress which leads to total quality, this quality seeks to address the expectations and needs of customers which are the main aspects on which the efforts of organizations must be focused. It is mainly sought that quality management is aimed at detecting and understanding the changes that are currently occurring, changes that require a correct alignment between the objectives of administrative management and a solid quality management system.

To conclude, competitiveness standards are what distinguish the field of industry today, so having a panorama that allows future changes to be perceived, adopting efficient management methods in order to be at the forefront of new circumstances in the markets, will mean that the manufacturing sector remains active in the competitiveness of the markets. That is why competitiveness, continuous changes and resistance to change are those factors that administrative management must know, master and work on, since it is necessary to pay attention to these changes, manage them in a timely and adequate manner.

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