REPRESENTATIVE ACTIONS OF TOTAL QUALITY MANAGEMENT IN BRAZILIAN COMPANIES: A SYSTEMATIC REVIEW

AÇÕES REPRESENTATIVAS DO *TOTAL QUALITY MANAGEMENT* EM EMPRESAS NO BRASIL: UMA REVISÃO SISTEMÁTICA

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Abstract
Total Quality Management (TQM) refers to a strategy used by the administrative sector so that all organizational levels understand the representativeness of adding quality to business procedures. Therefore, the present study aims to conduct a systematic literature review of high impact research on development of Total Quality Management in Brazilian companies, to identify the transformation procedures that are inserted in organizations. To that end, the Methodi Ordinatio was applied to the raw portfolio to identify the most relevant, high impact, studies in the area. Scopus and Web of Science databases were used from 2010 to 2019. Mendeley, EndNote and VOSviewer were used for reference management and clustering topics. The results show the main trends in the referred body of literature, organizational transformation procedures are related to the top-down model. It was evaluated that management based on shared responsibilities is used by few Brazilian companies, the relationship with suppliers is in the process of change and Total Quality Management is initially implemented in conjunction with some changes in the company, especially in the structure of organizational levels. Furthermore, this study gives an overview that the classic concept of Taylorism is still present in the structure of companies in Brazil and the process of continuous improvement is under a process of transformation.

Keywords: Total quality management. Brazil. Companies.

Resumo
O Total Quality Management (TQM) refere-se a uma estratégia utilizada pelo setor administrativo para que todos os níveis organizacionais compreendam a representatividade de agregar qualidade aos procedimentos empresariais. Portanto, o presente estudo tem como objetivo realizar uma revisão sistemática da literatura de pesquisas de alto impacto sobre o desenvolvimento do Total Quality Management em empresas brasileiras, para identificar os procedimentos de transformação inseridos nas organizações. Para esse fim, o Methodi Ordinatio foi aplicado ao portfólio bruto, para identificar os estudos mais relevantes e de alto impacto na área. Foram utilizadas as bases de dados Scopus e Web of Science de 2010 a 2019. Mendeley, EndNote e VOSviewer foram usados para gerenciamento de referência e tópicos de cluster. Os resultados mostram as principais tendências no referido corpo de literatura, os procedimentos de transformação organizacional estão relacionados ao modelo top-down. Foi avaliada que a gestão com base em responsabilidades compartilhadas é utilizada por poucas empresas no Brasil, a relação com os fornecedores está em fase de mudanças e o Total Quality Management é implantado inicialmente em conjunto com algumas modificações na empresa, principalmente na estrutura dos níveis organizacionais. Além disso, este estudo oferece uma visão geral que o conceito clássico do taylorismo ainda encontra-se presente na estrutura das empresas no Brasil e o processo de melhoria contínua está em fase de transformação.

Palavras-chave: TQM. Brasil. Empresas.

1 INTRODUCTION

Total Quality Management (TQM) is a theme addressed by organizations and researchers, adopted as a broad management model for total quality. In this article, TQM is considered as a precursor to so-called quality programs in the dissemination of companies (Bouranta, Psomas, Barraza, & Jaca, 2019). The concept of TQM shows a representation of the

hegemony of so-called quality management programs, which comprise not only the quality of the service or product, but also an established logic of knowledge management. (Gerolamo, Poltroniere, Yamada, & Cintra, 2014).

TQM originated more specifically from the 1950s and become more popular in industries since the 1980s. The tool seeks, through managers and other employees, to integrate the company into a continuous improvement process (Samawi, Abu-Tayeh, Yosef, Madanat, & Al-Qatawneh, 2018). TQM is a set of quality tools designed to expand the business and reduce waste from unnecessary activities (Daghfous & Barkhi, 2009).

Therefore, the continuous improvement needs to involve work jointly, from the strategic level of decision-making to the operational level in the implementation of the production line. In a scenario with an increasingly competitive market, this form of management is representative for improving technologies, processes and resources (Gerolamo et al., 2014; Liao & Wu, 2010).

TQM presents an easy application when the organization has an efficient responsiveness profile when it can successfully modify its operations when prompted. If the organization presents a reactive history, that is, without skills to change the operational level, barriers will be found in the qualification of employees (Satish & Srinivasan, 2010). Of course, the logic that underpins this concept of the TQM is discussed, corroborating behaviors and decision-making of those involved, the role in the performance of production restructuring, as well as its connection with the most complex transformations at the level organization of companies (Diógenes, Queiroz, Queiroz, Furukava, Lima, & Souza, 2019).

In view of this, several studies analyzed business issues in Brazil and the development of Total Quality Management. Some studies addressed the TQM to evaluate the professional learning process (Tsutsui, Jung, Kerbauy, & Rizzatti, 2018). Others addressed the tools "5S" and "Six Sigma" as factors for achieving competitive advantage (Silva, Mergulhão, Favoretto, & Glauco, 2019; Perez, Junior, & Beltrame, 2017), or as a corporate management model (Hors, Goldbergi, Almeida, Júnior, & Rizzo, 2012). In addition to the corporate environment, the lean production model in healthcare services was also studied (Eiro & Torres-Junior, 2015; Moreira & Cheng, 2010). It was identified that there is a research gap in the reviews that address the context of the TQM development process in companies in Brazil. This research gap is relevant considering that TQM research in Brazil can lead companies to provide high quality products and services, in addition to creating a work environment to attract and retain employees. However, to achieve quality, commitment and internal analysis are required. The end result is a complete organizational system in Brazil, with constant improvements, growth and

development (Diógenes et al., 2019; Hors et al., 2012).

Therefore, the present study aims to conduct a systematic literature review of high impact research on development of Total Quality Management in Brazilian companies from 2010 to 2019, to identify the transformation procedures that are inserted in organizations, answering the following questions: (a) What are the principles of the Total Quality Management tool in the continuous improvement process?; (b) What are the main impacts of the implementation of Total Quality Management in Brazilian companies?

The study is structured as follows. This first section presents the introduction, with the objective and justification of the study. The second section of this article brings the theoretical framework with the theories of Total Quality Management. The third section brings the methods adopted for developing this study. In the sequence, the main results and discussions on the theme are presented. Finally, the final considerations of the study are drawn.

2 2 LITERATURE REVIEW

2.1 The development of management models

Management models are developed systematically for their use in the administrative and productivity management areas (Gerolamo et al., 2014). The models are essential components to support the use of techniques and procedures appropriate to the effective circumstances in which production organizations operate. Therefore, the management model involves: (a) social and intellectual factors of a productive environment; (b) production and reproduction by those involved being imposed by them as an evaluation of the logic of the action; (c) does not understand the concept of an equality ratio of those involved, which means that in the main concept of effectiveness, there is a set of rules considered as a reference model (Moreira & Silva, 2015).

The behavior of those involved in the environment is conceptualized as rationality. This justifies the restructuring of management models over the years and praises the emergence of models or patterns such as TQM (Garel, 2013). Rationality, as it has been placed, justifies certain decision-making, which often influence management and organization behaviors (Bon & Mustafa, 2013).

When analyzing the existence of ideas and parameters in common about TQM in the authors, it can be affirmed that this is a model in which rationality is seen by the logic between productivity and demand, in view of an environment of high competitiveness, based on the

factors of the quality – conceptualized in terms of it as an evaluation of compliance to requirements (Gerolamo et al., 2014; Yamada, Poltroniere, Gambi, & Gerolamo, 2013). Moreover, TQM is a management model, but partially, because represents the factors involving direct operations, not relating the strategic planning or financial administration of organizations (Moreira & Silva, 2015; Korankye, 2013). Item 2.2 shows the evolution from the traditional management model to the new management behavior.

2.2 Evolution of management behavior

The Classical School of Administration perpetuates stability in the environment for mass productivity management purposes. In their rationality, the development of the parties would result in the improvement of the whole (Vijai, Somayaji, Swamy, & Aital, 2017). The cost assessment occurred due to the temporal quantity (man-hour-machine) related to the productivity of a given material. Profitability would demonstrate direct association with the hours spent by employees in each operation (Moriarty, 2011). In a general context, the rationality of the concept of efficiency at the Classical School is represented by the workforce specialized in certain tasks (Korankye, 2013).

However, increased competitiveness and remarkably changes in requirements for business efficiency generate pressure to adapt organizational models with market-appropriate management (Marín-Idárraga & Cuartas-Marín, 2019). The new idea of organization then praises a specific knowledge of trade and business, considering a peculiar analysis regarding the rationality of actions, which would prove a competitiveness advantage for organizations that employed it (Kim & Atuahene-Gima, 2010).

Therefore, the highlight in the market for Japanese companies, there is the concept that there is an innovation in the production model, which demonstrates organizational changes and resource management (Moriarty, 2011). TQM presents coherence with this model, sometimes called "lean manufacturing" or "Japanese" (Vijai et al., 2017). Item 2.3 presents in detail the concept of TQM and its application in the business environment.

2.3 TQM: a model to meet the contemporary needs of companies

In the introduction of a new concept, managers need to be concerned about the organization's universal efficiency and the influence of market instability (Bouranta et al., 2019). Therefore, the indicators of the lack of stability are present in the new models established

by the competition, since quality is synonymous with a variety of scopes (trust, expenses, quality, products/services), in which based on a reductionist concept, would all be at the same level of representativeness – this helps in the generalization of the definition of the TQM, but suppresses the real strategic requirements of companies (Moreira & Silva, 2015).

Competitive advantage, or organizational efficiency, is represented by the embodiment of the product (Munizu, 2013), which generates flexible productivity of working capacity (Bon & Mustafa, 2013). The contemporary market is now visualized within the company, depending on the compliance between strategic and operational level. This scenario is termed by market-in authors, inserting the idea of "internal client", that is, for each client would have the need for an internal process (Marín-Idárraga & Cuartas-Marín, 2019). Furthermore, TQM is visualized as a physical model for management, which would provide its rationality in means that would involve quality compliance and production innovation (Samawi et al., 2018).

In this context, TQM presents itself to a market that needs an organizational restructuring, as the most accepted management model for the operational management of companies seeking innovation, being seen as an alternative system to the classic taylorism, in a universe managed by demand and no longer by supply (Moreira & Silva, 2015; Munizu, 2013). However, the particularities that the TQM presents in certain cases, submit to the interests of all involved, market strategies and consolidated management values (Bouranta et al., 2019).

Among the quality tools, there is the 5S method to reach the desired quality level. The 5S is, therefore, related to a program with five different concepts, derived from Japanese words, which express basic principles of the organization, but which together seek to make a difference in Total Quality Management (Eiro & Torres-Junior, 2015).

The 5S methodology is so named due to the first letter of five Japanese words: Seiri (Sort), Seiton (Set in Order), Seiso (Shine), Seiketsu (Standardize), Shitsuke (Sustain). 5S will not be successful if the discipline is not well practiced and by committed employees. The practice comes from the technical training given to employees, which specifies the activities to be carried out in the company, according to each work area (Perez, Junior, & Beltrame, 2017).

The “Six Sigma” (SS) is also in line with the TQM philosophy of continuous improvement, established in turn in the guideline that substantially reducing the variability of processes implies improving the quality of products and services, increasing consumer satisfaction (Souza, Hékis, Oliveira, Queiroz, & Queiroz, 2013). According to Bento and Tontini (2019), the Six Sigma is an intelligent package to deal with the problem of variability.

According to Souza et al. (2013), SS has the same origin as the management philosophy

of Total Quality Management. For Tsutsui et al. (2018), SS shares the same approaches as TQM, when objectives, approaches, tool, history and critical factors are compared.

The program called "Six Sigma" was created in 1987. The reason for the name "Six Sigma" is the statistical measure related to the capacity of the process and its ability to not produce defective units. From this historical context, it is stated that the conceptual origins of TQM and SS are based on the same theoretical foundation, since one movement immediately precedes the other in time and both have similar functionalities (Silva et al., 2019).

TQM is not an easy solution to the organizational problems of companies in Brazil, but an approach based on continuous improvement and cultural change. Based on TQM, Brazilian companies need to adopt management models with the production of goods and services that are adequate and, desirably, exceed the needs and expectations of consumers (Bento & Tontini, 2019). As well, according to Silva et al. (2019) for companies in Brazil that implement SS, the objective is to improve processes based on understanding the needs of consumers. In the study of Souza et al. (2013), the main reasons that Brazilian companies adopt SS are: the reduction of defect rates, the reduction of operating costs and the increase in value for both consumers and shareholders.

3 METHODOLOGY

To describe the existing knowledge related to the applications of Total Quality Management in companies in Brazil, a systematic literature review was conducted based on the methodology described by Pagani, Kovaleski and Resende (2015), Methodi Ordinatio, which develops a methodological ordering of relevant articles of the given theme, as presented in Figure 1.

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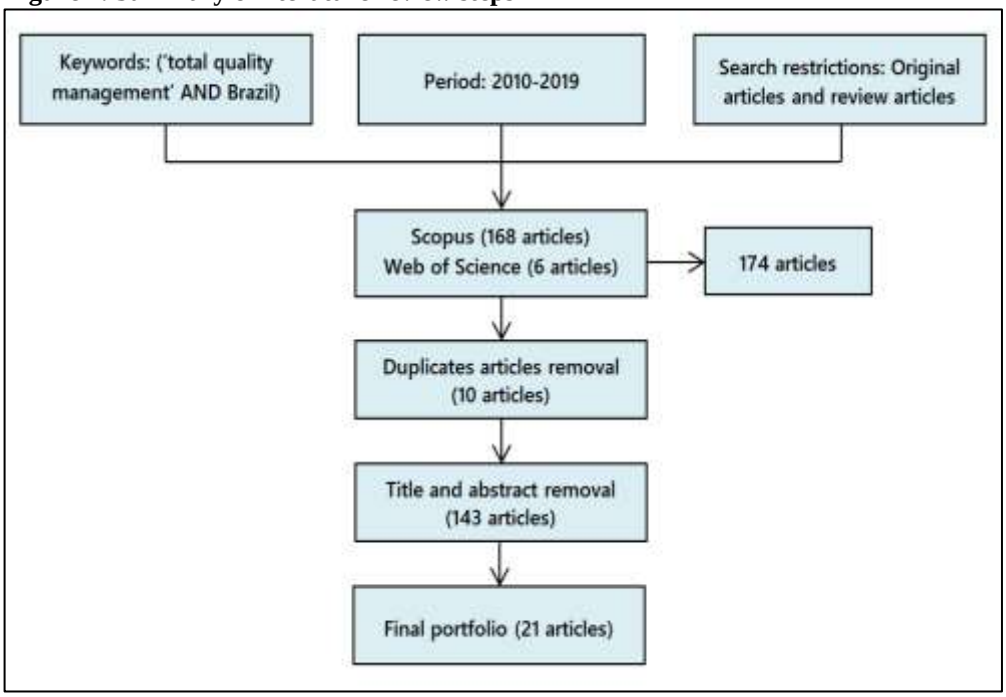
Figure 1. Summary of literature review steps



Source: Own Authorship

The Scopus and Web of Science databases were used for the research. The study period consisted of the literature published between 2010 and 2019. The choice of databases is justified by being the largest bases of bibliographic references and abstracts of the scientific literature of peer review. This provides a multidisciplinary scientific analysis with the integration of innovation, technology and applied research (Archambault, Campbell, Gingras, & Larivière, 2009; Falagas et al., 2008). According to Norris and Oppenheim (2007), Scopus and Web of Science feature coverage of high-impact articles and extensive bibliographic coverage in the area of Social Sciences. The time cut out is justified to analyze the behavior of this research field during the years 2010 to 2019, with the objective of filling the gap in this type of study.

The set of keywords used in the search was defined using Boolean operators and truncation symbols, as follows: "('total quality management' AND Brazil)". After searching the databases, 174 articles were found. Thereafter, to select articles of relevance for the study, filtering procedures were adopted. The following criteria were used: (a) Exclusion of duplicates using Mendeley (version 1.17.13) and EndNote X6; (b) Restriction for inclusion of articles and review, eliminating books, book chapters and conferences; and (c) articles not related to the proposed theme were deleted – the titles and abstracts were read, followed by reading the full article. Table 1 shows the criteria used to eliminate the articles:

Table 1. Criteria for the elimination of articles

Criterion	Description of the criteria	Quantity of articles
Duplicates	The repeated articles in the databases were deleted.	10
Study object	Articles that have not researched Total Quality Management.	68
Applicability	Articles that have not researched Total Quality Management in Brazil.	44
Study area	Articles that are not related to management and business.	31
Total		**153**

Source: Own Authorship

After the elimination criteria, 21 articles were selected for the final portfolio. The InOrdinatio equation was used to classify articles in order of relevance, which considers the metric of the year of publication, analysis of the number of citations in the article and the respective impact factor of the journal (JCR 2018 -Journal Citations Reports), these data were obtained in December 2019.

In the InOrdinatio coefficient the year of publication considers a score (α) that is classified from 1 to 10 according to the author's choice, and the closer to 10 means that the author considers the relevance of the updated articles in relation to the year of publication. The authors' choice was score 10, since a time limit was defined considering the last ten years. The following formula was used:

$$[(IF / 1000) + \alpha * [10 - (Ape - Apu)] + (\sum Ci)]$$

Where: IF: periodic impact factor; α: Coefficient assigned by the researcher, usually 10; APe: research year; APu: Year of publication of the article; e Ci: Article citation number in other studies. The results are presented in Table 2. VOSviewer software (version 1.6.12) was used to develop a visual map that shows co-occurrence by title and abstract.

4 RESULTS AND DISCUSSION

Regarding Total Quality Management in companies in Brazil, the 21 high impact articles are brought to analysis in the results section. These studies were classified in order of relevance by the InOrdinatio equation, according to Table 2.

Table 2. Final Result of Systematic Review

Ranking	Article	IF	Ci	InOrdinatio	Reference
1	The impact of supply chain relationships and integration on innovative capabilities and manufacturing performance: the perspective of rapidly developing countries	3,199	13	103	Adebanjo, Teh and Ahmed (2018)
2	Maturity of lean practices in Brazilian manufacturing companies	2,181	0	100	Bento and Tontini (2019)
3	Critical success factors of Six Sigma implementations in companies in Brazil	0	0	100	Silva et al. (2019)
4	Integrated Diagnostic Report: A Brazilian Experience to Improve the Diagnostic Process and Foster Professional Learning	3,785	0	90	Tsutsui et al. (2018)
5	A case study of the implementation of an ergonomics improvement committee in a Brazilian hospital - Challenges and benefits	2,61	11	81	Bolis and Sznelwar (2016)
6	Incorporation of information and communication technologies and quality of primary healthcare in Brazil	1,17	1	81	Santos, Sobrinho, Araujo, Procópio, Lopes, Lima, Reis, Abreu, Jorge and Matta-Machad (2017)
7	Is there any link between accreditation programs and the models of organizational excellence?	0,945	11	81	Berssaneti, Saut, Barakat and Calarge (2016)
	Key observations from a survey about Six Sigma implementation in Brazil	0	21	81	Jesus, Antony, Lepikson and Cavalcante (2015)
9	Implantation of the 5S program at a beverage distributor in South Brazil	0	0	80	Perez, Junior and Beltrame (2017)
10	Organizational change in quality management aspects: A quantitative proposal for classification	0	0	80	Aquino, Silva, Melo and Silva (2017)
11	After 20 years, what has remained of TQM?	0	7	77	Bernardino, Teixeira, Jesus, Barbosa, Lordelo and Lepikson (2016)
12	Modeling of tacit knowledge in industry: Simulations on the variables of industrial processes	4,292	15	75	Rosário, Kipper, Frozza and Mariani (2015)
13	Comparative study: TQ and lean production ownership models in health services	0,979	5	65	Eiro and Torres-Junior (2015)
14	An analytic hierarchy process analysis for small and medium-sized enterprises: Prioritizing the practices of total quality management in Brazil	0	4	64	Salgado, Silva, Silva and Mello (2015)
15	Operational practices and financial performance: An empirical analysis of Brazilian manufacturing companies	0	39	59	Duarte, Brito, Di Serio and Martins (2011)
16	Outcomes from an exploratory study of quality methods utilisation in Brazilian companies	0	4	54	Jacques, Reyes, Lim and Kumar (2014)
17	Implementation of a Six Sigma project in a 3M division of Brazil	0	7	47	Souza et al. (2013)
18	Study on ISO 9001 certification in Brazil: Mapping the motivations, benefits, and difficulties	0	6	46	Maekawa, Carvalho and Oliveira (2013)
19	The quality movement in Brazil	2,181	0	40	Kubo and Farina (2013)
20	Application of the enterprise management tools Lean Six Sigma and PMBOK in developing a program of research management.	0	10	40	Hors et al. (2012)
21	Proposal of managerial standards for new product portfolio management in Brazilian pharmaceutical companies	0,512	7	17	Moreira and Cheng (2010)

Source: Own Authorship

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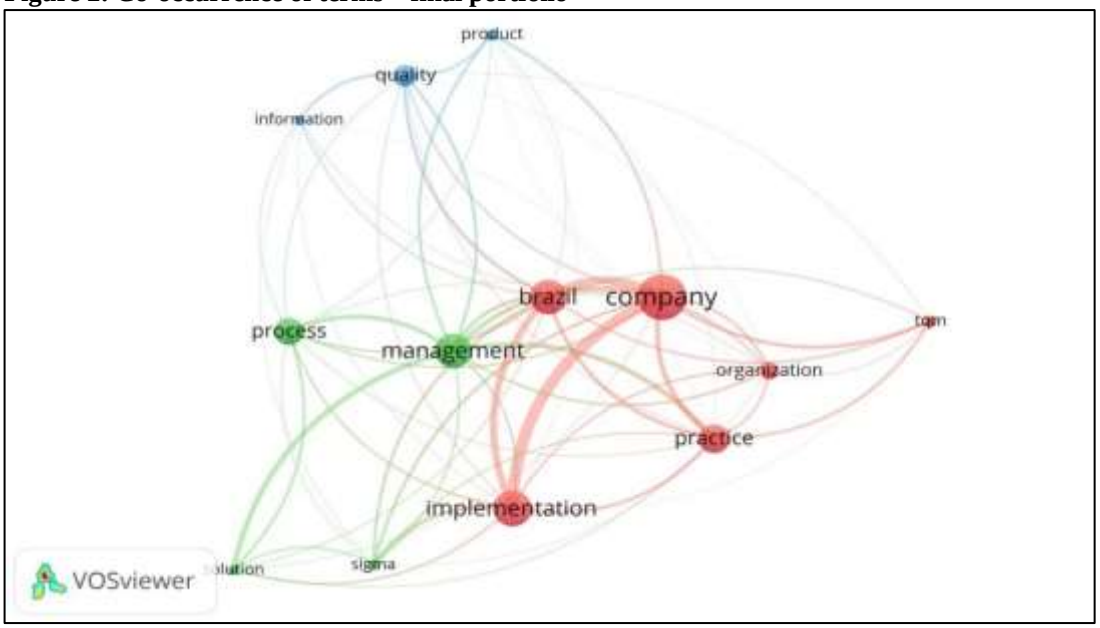
Figure 2 shows a visual map of co-occurrence by title and summary. The full counting method was performed, obtaining a total of 568 terms; with a minimum number of occurrences of 6, thus 13 terms out of a total of 65 met the criteria.

Figure 2: Co-occurrence of terms – final portfolio



Source: Own Authorship

Therefore, from the existing results it is possible to conclude that terms in red of the largest cluster (company, Brazil, implementation, practice, organization and tqm) mainly focus on studies that investigate Brazilian companies that aim to implement TQM as unproductive practices.

The second largest cluster with terms in green (management, process, solution and sigma), it demonstrates that the Six Sigma tool is the one that appears most in conjunction with the application of Total Quality Management in the management of the organizational process of companies in Brazil.

The analysis of the study was divided into two parts. Table 3 shows the first part of the analysis with the principles of TQM in organizations.

Table 3. Principles of TQM in organizations

Principles of TQM in organizations	Reference
Lean practices considered suitable for company characteristics, continuous flow, uniform workload, teamwork, supplier management and preventive maintenance.	Bento and Tontini (2019)
Improve the process of diagnosis and rational use of people and resources to achieve a systemic approach.	Tsutsui et al. (2018)
Facilitate communication and reduce hierarchy levels.	Santos et al. (2017)
Identify types of innovation and consequently determine how management should be conducted properly within an organization.	Aquino et al. (2017)
Implementation of policies aimed at improving working conditions requires autonomy and support from management and adopting effective measures to improve and legitimize quality management.	Bolis and Sznelwar (2016)
Continuous improvement in management, it was a model that seeks to contribute with innovative solutions in different sectors.	Hors et al. (2012)
Reduction in the number of suppliers, decrease in the exercise of correction, acting preventively.	Kubo and Farina (2013)
Prevention of the occurrence of defects in the process and productivity gain.	Rosário et al. (2015)
Satisfaction of customer expectations, product inspection in the final stages of the production process, zero defects.	Salgado et al. (2015)
Continuous improvement in operational and financial performance, participatory management and customer satisfaction.	Duarte et al. (2011)

Source: Own Authorship

The body of the literature presents a series of studies on the theme total quality management in Brazilian companies. From the bibliographic search, it can be observed that ten authors in Table 3 describe the principles of management with the objective of total quality. According to Tsutsui et al. (2018) and Hors et al. (2012) the function that integrates quality as something that involves people, organizations and resources and seeks to contribute to innovative solutions in different sectors, determines TQM as a tool to conquer the systemic approach.

The objective of the continuous improvement process comprises production innovation (Hors et al., 2012; Aquino et al., 2017), involving the performance of all organizational levels to achieve zero defect, in addition to customer satisfaction and compliance with expectations (Salgado et al., 2015; Duarte et al., 2011).

Due to increased market competitiveness, in the application of TQM companies act preventively to reduce correction procedures, obtaining production gains (Rosário et al., 2015; Kubo & Farina, 2013). Total quality management seeks to reduce hierarchy levels, thus communication is facilitated (Santos et al., 2017), and however, support and autonomy of management are needed to legitimize these processes (Bolis & Sznelwar, 2016). Each author portrays the principles of total quality management in different concepts, but all of them aim to the same systemic approach.

The second part of the analysis is shown in Table 4, which describes ten studies with the results of the application of TQM in Brazilian companies and their methodologies used.

Table 4. Studies with results of the application of TQM and their methodologies used

TQM application results	Methodology	Reference
Quality tools such as Six Sigma assist managers in concentrating the most effective principles (best practices), as well as better allocation of resources and capabilities of companies.	Questionnaire	Silva et al. (2019)
The results indicate that industries in Brazil are implementing quality tools such as Six Sigma according to international procedures, but the lack of commitment of senior management was observed.	Questionnaire	Jesus et al. (2015)
Entrepreneurs seek on their own the implementation of quality programs and senior management is compromised. However, there are external reasons such as environmental and consumer protection laws that require managers to pursue quality programs, and often they are unaware of how to implement it.	Case study	Perez, Junior and Beltrame (2017)
Quality management assisted in accreditation in the health sector and in the insertion of the best management practices, such as reducing hierarchy levels.	Multiple cases study	Berssaneti et al. (2016)
Tools such as TQM and "5S" have provided representative and consistent legacies for continuous improvement in people and process management to produce better products and services.	Case study	Bernardino et al. (2016)
The appropriation of the TQM model was more widespread in the management area. However, what should in principle be to improve the system, created more demand for records and notes that caused a loss of focus on problems.	Case study	Eiro and Torres-Junior (2015)
The implementation of quality tools such as TQM, helped Brazilian organizations to be globally competitive, however, some organizations are still in the process of transformation.	Questionnaire	Jacques et al. (2014)
With the application of quality management, the company showed a reduction in product cycle time, however, TQM is developed in the productivity plan and does not involve too many sectors.	Case study	Souza et al. (2013)
The study showed that the manufacturing sector in Brazil applies TQM as a form of restructuring in the organization. Other areas such as Micro Enterprises and Small Businesses are not popular approaches to organizational structure.	Case study	Maekawa, Carvalho and Oliveira (2013)
Companies in the process of implementing TQM, but with an unstructured product development system and that the selections of new products were made in a non-systematic way.	Case study	Moreira and Cheng (2010)

Source: Own Authorship

From the bibliographic search, it is perceived organizations that implemented several quality tools, seeking a management that established meaningful communication with suppliers (Silva et al., 2019), and in addition organizations that seek contact with employees to improve informal internal communication and achieve "quality teams", going in confrontation with the traditional behavior of management models (Bernardino et al., 2016). However, it shows that the changes in the internal coordination system were not structured with the same efficiency, since only three studies demonstrated organizations with well-established goals in the various functions, obtaining a high administration committed to the TQM plan (Silva et al., 2019; Bernardino et al., 2016; Berssaneti et al.,2016).

Regarding structural organization, a reduction in hierarchy levels was identified; organizations underwent a restructuring in an attempt at more agile internal communication (Berssaneti et al., 2016). Two studies have shown that management recognizes the performance

of multiple tasks by employees, as something representative for organizations; however, do not apply Job Rotation, a process that establishes a rotation of functions (Jesus et al., 2015; Jacques et al., 2014).

Four studies have shown that the application of TQM is not disseminated in all sectors, and does not present a structured system with regard to product and/or service innovation. TQM was more identified and recognized in the restructuring of the operational plan and mainly in companies with an objective in innovation (Perez, Junior, & Beltrame, 2017; Maekawa, Carvalho, & Oliveira, 2013; Souza et al., 2013; Moreira & Cheng, 2010). Moreover, in none of the studies the companies implemented policies for retaining people. According to Silva et al. (2019), the retention of people is essential for the TQM implementation process.

Complementing the analysis, only two studies that presented companies with the application of TQM at all organizational levels were identified. These companies have a management system that seeks to disseminate uniform information, that is, application of TQM in all departments. Teamwork is stimulated at the managerial and strategic levels, while at the operational level the integration of communication serves to engage workers in the organization's goals, seeking the best solution of problems and increasing the quality of products /services (Silva et al., 2019; Bernardino et al. 2016).

5 CONCLUSION

This article presented a quick systematic review of high impact literature on development of Total Quality Management (TQM) in Brazilian companies, to identify the transformation procedures that are inserted in organizations. The choice of articles to be identified to be fully assessed was supported by the Methodi Ordinatio. From this study’s final portfolio a few conclusions could be drawn.

The research resulted in Figure 3, which presents the main actions representative of the TQM in Brazilian organizations from 2010 to 2019.

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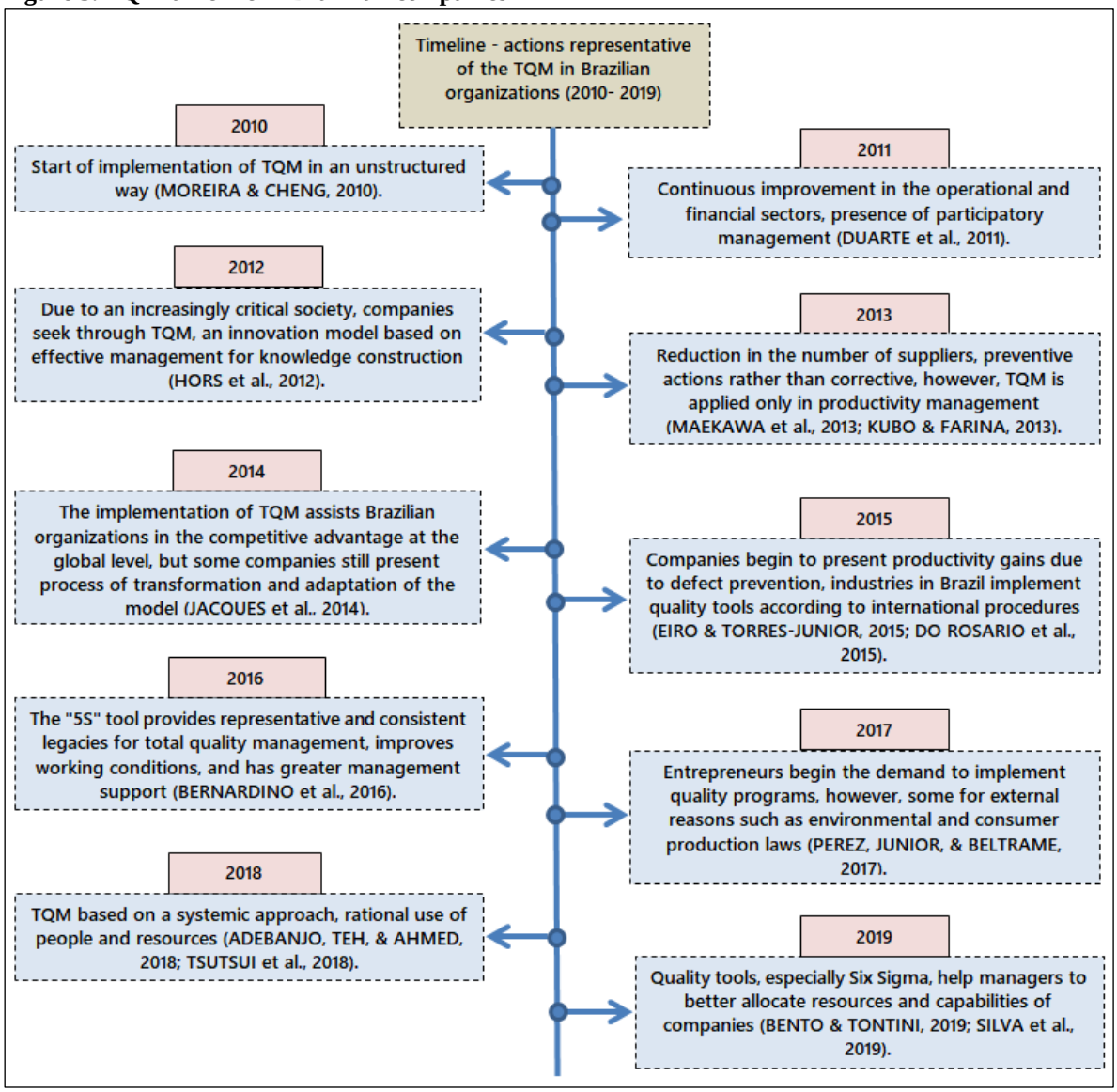
Figure 3. TQM timeline in Brazilian companies



Source: Own Authorship

According to Figure 3, representative actions are perceived in Brazilian organizations in relation to TQM, however, some aspects are still in the process of transformation, such as: implementation of TQM only in some sectors, adoption of the management of quality by imposition of laws established in the country, creation of a management with demand for records and notes which caused loss in the focus of solving problems.

In the analysis carried out, it can be said that the TQM in Brazilian companies is what constitutes representative tools for the promotion of a beginning of organizational restructuring desired by managers. The continuous improvement process is still evolving in Brazilian companies, since of the articles analyzed only two studies presented organizations with all departments engaged in TQM entirely in a continuous improvement process.

TQM can be seen as a paradigm shift, confronting the thinking of the classic model. The

concepts of the approach need to be used by managers as a rationalization of production and reduction of waste, that is, to obtain a competitive advantage. Finally, just as the TQM tool originated in the 1950s and 1960s, companies in Brazil still present a phase of development of this quality tool in their management model, since eight articles show that the TQM is not applied to all departments, with more specific deployment at the operational level. The classic logic of Taylorism still prevails as an organizational foundation.

For future studies, conducting a research with limit time coverage more comprehensive is suggested, in order to identify the historical transformation processes of Brazilian organizations in relation to the implementation of TQM. In addition, analyze how Brazilian companies can evolve to apply TQM systemically.

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