

## Challenges and Impacts of the Implementation of Total Quality Management in the Latin American Business Landscape

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### Abstract

### Original Research Article

This article aims to describe and analyze the main impacts of implementing a Total Quality Management System in key Latin American contexts. It also seeks to highlight the challenges that arise when adopting this management model, considering the concepts of continuous improvement, organizational performance, and business innovation in the surrounding environment.

**Keywords:** Quality management, Competitiveness, Latin American context, Business challenges, TQM.

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## INTRODUCTION

In today's highly competitive market, companies face the need to expose the performance of each internal process to obtain a concrete assessment of their market position and to develop strategies that offer a genuine competitive advantage. Implementing tools capable of ensuring the quality of internal processes is essential in such cases (Rivera, 2022).

Many companies have adopted Total Quality Management (TQM) systems and implemented Quality Management Systems. In view of this fact, several authors have been interested in questioning the relationship between both systems and their impact on the company's results, reaching different conclusions.

Studies such as Benzaquen's (2020) suggest that the challenges for the implementation of TQM in Latin American companies include factors related to top management, planning, auditing and evaluation, education and training, process control and improvement, as well as difficulties with employees, structuring of the quality management system, integration, planning, market considerations, limited access to resources, traditional management practices, and macroeconomic conditions.

Total Quality Management is a widely studied concept within the industrial field, enabling organizations to provide solutions that meet the demands of a globalized market. Sousa and Voss (2002) demonstrate from an analytical perspective that TQM has reached a significant level of maturity as a distinct field of study, marking a milestone for future research.

The history of TQM dates back 100 years to the 1920s when initial concepts of quality began to emerge. At that time, the focus was on defining production operations according to specific standards or conditions set by competent organizations. After a decade, the discussion shifted from simple inspection to quality control, highlighting processes, their possible variations, limitations, and necessary adjustments to meet set objectives. Additionally, the concept of a maximum failure level was introduced with the goal of reducing costs (Gavidia, J., 2019).

Subsequently, a comprehensive set of planned activities was developed to ensure the minimum quality a company should offer. The ISO 9000 standards were introduced to define the stages that must be fully met to satisfy customer needs regarding product or service quality, and to implement the concept of continuous improvement.

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In the last decade, many companies have focused on Total Quality Management to improve profits, market share, and competitiveness. Although TQM is a proven approach for success in manufacturing, services and the public sector, several organizations failed in their campaigns due to many reasons, such as lack of managerial commitment, or even ignoring customer needs.

## METHODOLOGY

This research presents a study on specific factors that affect the success of TQM implementation, based exclusively on secondary research. The study highlights that while most companies initiate TQM efforts with the intention of achieving success, they often encounter factors that can cause these efforts to stall or even fail. This review evaluates analyses of hypotheses through reliability testing and examines previous research from other industries to identify correlations with these challenges.

## THEORETICAL FRAMEWORK

Martínez (2011) highlights in his research that TQM is currently considered a management system for processes developed across all areas or departments of a company. It involves and commits the organizational structure and management of the company with the objective of producing goods and services of standardized quality.

As mentioned by Carro and Gonzalez (2013) An important characteristic mentioned about TQM is prevention, that is, looking for a way to mitigate problems before they can occur. With this, it will be possible to address every need that the customer may demand. TQM, apart from focusing on the customer's needs, also specializes in the continuous improvement of processes, which can generate an overcoming of the expectations they may have about the developed product.

TQM is seen as a tool capable of achieving greater customer satisfaction, increasing productivity margins and benefits, enhancing the cohesion and coordination of different processes and departments, optimizing resources, and reducing costs, thereby achieving greater efficiency (Sanchez, 2017).

TQM also suggests the need for a structured model that involves all parts of the company, regardless of their rank, but particularly those closest to the technologies and processes being applied. It emphasizes the importance of involving the person most knowledgeable about the operation in the continuous improvement process (Torres, 2019).

These employed strategies of Quality Management in continuous improvement suggest an impact at a general level, not only involving customers, but also workers, suppliers, owners and shareholders.

Impacts of the use of a quality management system have been found in the literature as an important factor within the productivity of an organization. Ruales, Brun and Castellanos (2019) Point out that there is a great relationship between Quality Management (QM for its acronym in English) with productivity in an organization. In this paper it was addressed through two units of analysis, the first directly involving QM parameters that impact productivity, while the second was based on the search for the main internal determinants of productivity without biasing their search for QM.

Here Ruales *et al.*, (2018) determine that there is a very strong relationship, 89% agreement, between QM parameters and internal determinants of productivity. This suggests that QM is a determinant of organizational productivity and is an issue very much to be considered by companies.

In addition, relationships between TQM management and organizational performance are pointed out. Torres (2019) highlights the relationship capacity between the TQM model from a theoretical positioning proposed with the Competency Based Approach (CBA). This is developed with the purpose of determining the relationship between this quality model and the achievement of customer-oriented competitive advantages, continuous improvement, focus on people and/or global conception of the organization.

Torres also notes that TQM can be a source of competitive advantage by improving quality to produce goods and services that customers perceive as superior to those of competitors. This effect is largely indirect, which is why integrating TQM with marketing strategies is essential.

The TQM model provides the foundation for initiating an effective innovation process within an organization and its environment. According to Vijande and González (2008), the TQM model functions as a management system that can stimulate organizational culture, making it more receptive to innovation. Their research identifies a significant causal relationship between TQM and a company's orientation towards innovation. Contrary to fostering risk aversion or stifling innovation, TQM can serve as a starting point for innovation. This finding is crucial because it highlights the limited research on the cultural predisposition to innovate and underscores the potential of TQM as a valuable organizational resource (Menguc and Auh, 2006).

Hurley and Hult (1998) identified two key factors in fostering an innovative culture within businesses: participatory decision-making and the learning and professional development of employees. The TQM model also emphasizes giving employees an active role in the organization's management,

recognizing them as internal customers. Therefore, continuous training and proper adaptation to their roles are essential, as these practices support learning and professional growth.

It is also very important to highlight, following the idea of Titiana (2021), that the generalized use of Information and Communication Technologies (ICT) is one of the main distinctive aspects of current economic activity, constituting a primordial factor to achieve business competitiveness, which to consolidate itself also requires elements such as the training of internal stakeholders for administrative and productive activities, and good technological management. It has been shown that ICTs are, in many cases, facilitating agents for the competitive consolidation of companies, a reason that has placed them on the development roadmap of several Latin American countries.

The implementation of a TQM model is essential for both business and social development. However, there has been a lack of standardization in the terminology used to evaluate different processes comprehensively, which is necessary for developing an effective and integrated quality system. According to Vijande and Gonzalez (2008), despite the growing importance of TQM, there is still no universally accepted definition. This lack of standardization has led to a superficial implementation of TQM systems in less developed regions like Latin America, where it is often not given the priority it deserves, especially compared to more developed countries.

It is also important to emphasize, as Titiana (2021) suggests, that the widespread use of Information and Communication Technologies (ICT) is a key characteristic of current economic activity. ICTs are fundamental for achieving business competitiveness, which also requires effective training of internal stakeholders for both administrative and productive activities, along with strong technological management. In many cases, ICTs act as facilitators for the competitive consolidation of companies, which is why they have become a central focus in the development strategies of several Latin American countries.

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Delgado and Rueda (2019) further discuss the absence of a globally accepted effectiveness

measurement tool in the food manufacturing sector. This highlights the need to investigate the improvement tools currently being applied in this industry as a contribution to advancing knowledge in Quality Management and continuous improvement, which are essential for enhancing effectiveness.

Although there is recognition of the need for quality systems and regulations in Latin America, such as the creation of the Colombian Institute of Technical Standards and Certification (ICONTEC) in Colombia and the Quality Certification Management (CGC) in Peru, the region's economic and social context calls for new measures to adopt suitable TQM practices.

During the COVID-19 pandemic, Peruvian companies with ISO 9001 certification achieved better results in TQM dimensions compared to non-certified companies, except in the education and training dimension.

Alegría Cáceres *et al.*, (2019) emphasize that standardization is a critical aspect of Quality Management, defining it as a set of standards that help companies produce quality products and services. ISO standards provide certification to companies that comply with these standardized criteria. Although ISO certification does not guarantee 100% quality, it does enhance the company's reputation among customers.

According to this research, ISO as a quality certification favors the following benefits: competitive advantage, favoring the best practices of workers and processes; improves business performance, differentiates from competitors that do not use the system and manages possible risks; attracts investment, highlights brand reputation and eliminates barriers to trade, develops greater operational efficiency, increases sales, which translates into a return on investment of assets and greater profitability.

**Table 1: Countries with the highest number of ISO 9001 certifications worldwide**

Ranking Global		
1	China	548,662
2	UK	49,841
3	Germany	48,228
4	Japan	46,400
5	India	38,883
6	Spain	36,565
7	USA	29,241
8	France	21,802
9	Brazil	20,173
10	Italy	18,521

**Source:** Own elaboration compiling data from ISO Survey (2019).

The table highlights a significant disparity between China and the other countries, with China having 11 times more certifications than the second-ranked country. Additionally, Brazil stands out as the

only Latin American country in the top 10 for ISO quality certifications. The context within Latin America is quite diverse, as shown in Table 2, which lists the 10 countries in the region with the most ISO certifications.

**Table 2: Countries with the highest number of ISO 9001 certifications in Latin America**

Ranking Latinoamérica		
1	Brazil	20,173
2	Colombia	11,047
3	México	8,982
4	Argentina	7,971
5	Chile	2,877
6	Perú	2,375
7	Ecuador	1,468
8	Uruguay	1,080
9	Paraguay	454
10	Cuba	445

**Source:** Own elaboration compiling data from ISO Survey (2019).

In Latin America, according to the ISO Survey of Management System Standard Certifications 2022, Brazil leads the region with 20,173 ISO certifications, followed by Colombia with 11,047. The other countries fall significantly behind these figures; for example, Paraguay, which ranks ninth, has fewer than 1,000 ISO 9001 certifications. This comparison highlights a stark difference with global powers such as China, Germany, the United States, Japan, India, and even Spain, all of which exceed 18,000 certifications. This disparity offers a starting point to understand the landscape of TQM application in Latin America.

In the region's business environment, there are many challenges when implementing management systems focused on continuous improvement and Total Quality. The region's development is generally unfavorable, with slow sector growth and unattractive profitability.

It is estimated that 41% of Latin American entrepreneurs cite low profitability as the primary reason for business closure, compounded by 13% who report difficulties in securing adequate and stable financing. In Ecuador, SMEs identify banks as their main source of financing, followed by savings and credit cooperatives. However, only 22.5% of these businesses consider bank financing adequate, citing high costs, unsuitable terms, reduced loan amounts, complex documentation, delays in approval, and stringent collateral requirements (García *et al.*, 2015).

This situation suggests widespread dissatisfaction with the financing process among the region's major banks, which hinders companies from pursuing innovative decisions due to fear of losing their invested capital under restrictive conditions.

Furthermore, despite the lack of sufficient statistical data and a universally accepted definition, Ferraro and Stumpo (2010) note that small and medium-sized enterprises (SMEs) constitute a large portion of businesses, with microenterprises predominant in countries such as Colombia and Peru. According to Morfín (2015), SMEs represent 99% of companies in the region, contributing 66% to employment, but they exhibit low productivity and non-competitive cost structures. This contrasts with the realities in Southeast Asia, Europe, and the United States (García *et al.*, 2015).

Latin American SMEs, primarily family-owned, face significant challenges in growth and internationalization due to barriers in accessing innovation, financing, and trained human resources. Dutrénit (2016) describes the national innovation systems in these countries as emerging, with limited capacity in science, technology, and innovation, and weak linkages among these areas. Another critical factor is the competitive business market. Abbas (2020) highlights that strict global environmental regulations and increasing stakeholder concerns about product quality and characteristics are compelling Latin American companies to adopt strategies based primarily on Total Quality Management (TQM) and Knowledge Management (KM). TQM is recognized for its potential to enhance company and individual performance, strengthen competitive advantage, increase profitability, and improve stakeholder satisfaction. TQM's focus on continuous improvement encourages environmentally friendly practices and resource efficiency. Effective TQM implementation also significantly impacts green innovation, which is crucial for sustainability. By focusing on processes, a key component of TQM, companies can introduce eco-friendly products and services, and through effective KM, they can achieve sustainability in supply chain management.

Xie *et al.*, (2020) emphasize that innovation in sustainability-related technologies is increasingly important due to environmental concerns. Companies involved in raw material transformation and high pollution must prioritize environmental protection. Besides the benefits of adapting processes to be environmentally friendly, these companies should also develop policies related to Corporate Social Responsibility.

Sustainable development offers an opportunity for companies to enhance competitiveness using Porter's win-win idea. Companies that lead in eco-innovation strategies can develop and sustain competitive advantages.

## CONCLUSIONS

Throughout this article, the critical role of a Quality Management model in the development of organizations and their environments has been

emphasized. Such models drive innovation and provide tools for optimizing both internal and external processes. By focusing on concepts like organizational culture, innovation, technological development, and human capital, we can assess the impacts of an effective Total Quality Management (TQM) model. These concepts are closely linked to Quality Management and continuous improvement, enabling the development of processes that promote stable and lasting growth.

In Latin America, promoting Quality Management can enhance competitiveness and contribute to sustainable development. However, obstacles such as market challenges, limited resources, and traditional management practices hinder its widespread adoption.

It is possible to apply business management models to increase competitive advantage; initially it is proposed that it can be achieved through technological innovation, but technological innovation is a tool that complements the management model precisely to meet a single objective "total quality", since in SMEs the most important thing is quality management, because the goal is not always to increase the value of the operating chain, as that takes a back seat and it is about focusing on what they corroborate to increase marketing and sales, customer satisfaction, concepts related to competitive advantage. In short, TQM 4.0 in companies can be effectively implemented through top management commitment, customer orientation, training and big data analysis, as well as process management, continuous improvement and product and service design.

In the Latin American context, several factors obstruct the implementation of TQM models, primarily the inadequacy of financial systems. This results in a lack of an innovation-oriented culture, with businesses avoiding "unnecessary" risks that require significant investments without immediate returns.

Future research should explore financing systems in Latin America, considering public financing policies or restructuring of the financial system. Additionally, green process and product innovations positively impact financial performance. Although a green image moderates this relationship, green subsidies do not. Implementing green practices improves SMEs' financial and environmental performance, with organizational culture being a crucial motivator.

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