TOTAL QUALITY MANAGEMENT IN THE SERVICE SECTOR: A CASE STUDY IN A WATER SUPPLY COMPANY

Warton da Silva Souza1  
Mizael de Sousa Silva2  
Carla Daniele dos Santos3

ABSTRACT

Objective: Analyze the benefits of adopting total quality in a water supply company, aiming to improve service quality and customer satisfaction.

Theoretical Framework: A literature review was conducted as a basis for understanding the key concepts of TQM, the dimensions of service quality, and the essential elements for the successful implementation of TQM in the context of the analyzed company.

Method: The research is classified as a case study with an applied qualitative approach. To achieve the proposed objectives, techniques such as documentary research, literature review, semi-structured interviews, and direct observation were used.

Results: The analysis of the results demonstrated that the water supply company faces significant challenges regarding service quality. From the TQM approach, opportunities for improvement were identified in different areas of the organization, both in the reliability of the services' outcomes, including the water treatment process and maintenance of the distribution network, and in customer service.

Research Implications: The research suggests that the water supply company should adopt TQM as a strategy to improve service quality, promote customer satisfaction, address internal challenges, and seek constant improvement.

Originality/Value: The study explores the application of TQM in a public service context, providing practical guidance and insights to improve service quality in a water supply company, with implications that may extend to similar organizations seeking to enhance their services and processes.

Keywords: Total Quality Management, Customer Satisfaction, Service Quality, Basic Sanitation.

GESTÃO DA QUALIDADE TOTAL NO SETOR DE SERVIÇOS: ESTUDO DE CASO EM UMA EMPRESA DE ABASTECIMENTO DE ÁGUA

RESUMO

Objetivo: Analisar os benefícios da adoção da qualidade total em uma empresa de abastecimento de água, visando melhorar a qualidade do serviço e a satisfação dos clientes.

Referencial Teórico: Foi realizada uma revisão da literatura como base para a compreensão dos conceitos-chave do TQM, das dimensões da qualidade do serviço e dos elementos essenciais para o sucesso da implementação do TQM no contexto da empresa analisada.

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1 Universidade Federal do Norte do Tocantins, Tocantins, Brasil. E-mail: warton.souza@ufnt.edu.br  
Orcid: https://orcid.org/0000-0002-5337-014X

2 Universidade Federal do Norte do Tocantins, Tocantins, Brasil. E-mail: mizael.souza@uft.edu.br  
Orcid: https://orcid.org/0009-0006-1722-7473

3 Universidade Federal do Norte do Tocantins, Tocantins, Brasil. E-mail: carla.santos@uft.edu.br  
Orcid: https://orcid.org/0009-0000-6484-3371
**Método:** A pesquisa classifica-se como estudo de caso com abordagem qualitativa aplicada. Para atingir os objetivos propostos foram utilizadas técnicas como pesquisa documental, revisão de literatura, entrevistas semiestruturadas e observação direta.

**Resultados:** A análise dos resultados demonstrou que a empresa fornecedora de água enfrenta desafios significativos no que diz respeito à qualidade do serviço. A partir da abordagem TQM, foram identificadas oportunidades de melhoria em diferentes áreas da organização, tanto na confiabilidade dos resultados dos serviços, incluindo o processo de tratamento de água e manutenção da rede de distribuição, quanto no atendimento ao cliente.

**Implicações da pesquisa:** A pesquisa sugere que a empresa fornecedora de água deve adotar o TQM como estratégia para melhorar a qualidade do serviço, promover a satisfação do cliente, enfrentar os desafios internos e buscar a melhoria constante.

**Originalidade/Valor:** O estudo explora a aplicação da GQT num contexto de serviço público, fornecendo orientações práticas e conhecimentos para melhorar a qualidade do serviço numa empresa de abastecimento de água, com implicações que podem estender-se a organizações semelhantes que procuram melhorar os seus serviços e processos.

**Palavras-chave:** Gestão da Qualidade Total, Satisfação do Cliente, Qualidade no Serviço, Saneamento Básico.

**GESTIÓN DE LA CALIDAD TOTAL EN EL SECTOR SERVICIOS: UN ESTUDIO DE CASO EN UNA EMPRESA DE SUMINISTRO DE AGUA**

**RESUMEN**

**Objetivo:** Analizar los beneficios de adoptar la calidad total en una empresa de suministro de agua, buscando mejorar la calidad del servicio y la satisfacción del cliente.

**Marco Teórico:** Se realizó una revisión de la literatura como base para comprender los conceptos claves de TQM, las dimensiones de la calidad del servicio y los elementos esenciales para la implementación exitosa de TQM en el contexto de la empresa analizada.

**Método:** La investigación se clasifica como un estudio de caso con un enfoque cualitativo aplicado. Para lograr los objetivos propuestos se utilizaron técnicas como la investigación documental, revisión de literatura, entrevistas semiestruturadas y observación directa.

**Resultados:** El análisis de los resultados demostró que la empresa proveedora de agua enfrenta importantes desafíos en cuanto a la calidad del servicio. Desde el enfoque TQM se identificaron oportunidades de mejora en diferentes áreas de la organización, tanto en la confiabilidad de los resultados de los servicios, incluido el proceso de tratamiento de agua y mantenimiento de la red de distribución, como en la atención al cliente.

**Implicaciones de la investigación:** La investigación sugiere que la empresa de suministro de agua debería adoptar la GCT como estrategia para mejorar la calidad del servicio, promover la satisfacción del cliente, abordar los desafíos internos y buscar una mejora constante.

**Originalidad/Valor:** El estudio explora la aplicación de TQM en un contexto de servicio público, proporcionando orientación práctica e ideas para mejorar la calidad del servicio en una empresa de suministro de agua, con implicaciones que pueden extenderse a organizaciones similares que buscan mejorar sus servicios y procesos.

**Palabras clave:** Gestión de la Calidad Total, Satisfacción del Cliente, Calidad del Servicio, Saneamiento Básico.

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1 INTRODUCTION

In the current globalized scenario, companies face complex challenges in both internal and external relations, making management a more demanding process. With increased competitiveness, companies need to adapt and learn to innovate, constantly seeking new solutions to problems and setting new goals. Decision-making becomes crucial in this context, as results-based goals allow for a more precise value analysis and reduce the chances of errors (Gilsa, 2012).

Quality management plays an essential role in customer satisfaction and operational efficiency, particularly in the service sector. According to the Brazilian Association of State Sanitation Companies (Aesbe, 2020), companies involved in service provision, such as water supply, face specific challenges, including ensuring a reliable water supply, maintaining water quality, and providing efficient and effective customer service.

While applying quality management in the service context presents challenges due to the intangible and variable nature of services, many organizations in the sector recognize the importance of implementing Total Quality Management (TQM) as an effective strategy to enhance internal processes and improve the customer experience.

Total Quality Management is a management approach aimed at continuously improving the quality of products and services through the participation of all organization employees (Turchi, 1997). In the service sector, total quality is especially fundamental because services are intangible and cannot be evaluated in the same way as physical products. It can be applied to improve customer satisfaction, operational efficiency, and competitiveness.

In the case of a water supply company, TQM can be particularly crucial, as water quality is essential for public health and the well-being of the population. It is a valuable approach for supply companies aiming to continuously improve service quality, identify innovation opportunities, and increase customer loyalty, potentially leading to increased profitability and company reputation. Therefore, the research problematizes the following question: How can an integrated management approach focused on customer satisfaction drive the quality-of-service provision in a specific water supply company?

Although TQM was initially applied to the industrial sector, its relevance and applicability also extend to the service sector. In this context, the research aims to analyze the benefits and assess the implementation of TQM in a water supply company, considering the specific challenges faced by the water supply sector, such as ensuring water quality, maintaining processes, infrastructure maintenance, among others. The implementation of this
approach covers improvements in water capture and treatment processes, customer relationship management, and problem resolution. The study's objective is to analyze the benefits of adopting total quality in a water supply company, describe concepts related to TQM as a technical management approach focused on customer satisfaction, evaluate the company's performance concerning the quality approach, and finally, propose strategies for the effectiveness of total quality processes in the studied organization.

The application of this approach has the potential to promote operational excellence, customer satisfaction, and the sustainability of water supply services, aligning directly with Sustainable Development Goal 6 (SDG 6) established by the United Nations, which aims to ensure the availability and sustainable management of water and sanitation for all by 2030. By adopting these quality management practices, the company can improve efficiency in water capture, treatment, and distribution, ensuring the provision of quality drinking water and adequate sanitation access for the served population.

2 TOTAL QUALITY MANAGEMENT

Starting from the 1950s, there was a growing interest in Quality Management, which introduced a new managerial approach based on the development and application of techniques, concepts, and methods suitable for a new reality. The management approach, known as Total Quality Management (TQM), was responsible for a shift in the management analysis perspective, moving from focusing on the evaluation of products or services to the development of a quality system. With this new approach, quality ceased to be an aspect of goods and services and the responsibility of a specific department, becoming a commitment of all individuals in the company, encompassing all aspects of its operation (Longo, 1996).

Different approaches exist to define TQM, and some authors have created specific criteria to identify it. Continuous improvement is often considered a fundamental aspect of total quality, giving TQM a distinctive characteristic. According to Feigenbaum (1986), TQM is an effective approach to integrate maintenance, development, and quality improvements carried out by different groups in an organization through the use of a system that allows for more economical production and service provision that fully satisfies customer needs.

Joseph Juran, a leading quality expert, coined the acronym “TQM” in the 1980s to refer to Total Quality Management and emphasized that it is based on extending the business planning of the company to include quality planning. This approach highlights the importance
of integrating quality into all aspects of the business to achieve consistent and satisfactory results (Juran & Gryna, 1992).

In this context, Vieira Filho (2007, p. 8) emphasizes that “organizations adopting TQM typically overcome constant business crises because the use of creativity and the commitment of the workforce boost ideas to overcome problems.” It is essential for the company to choose the appropriate tools and techniques for its needs and goals, considering its size, industry, and available resources; the use of suitable tools and techniques can make TQM implementation more effective and efficient, contributing to overcoming business challenges.

Vieira Filho (2007, p. 14-20) argues that, to provide a broad perspective on how an organization should be oriented towards total quality, it must follow the “commandments of quality,” including: Total Customer Satisfaction; Development of Human Resources; Participative Management; Constancy of Purpose; Process Management; Dissemination of Information; and Non-Acceptance of Errors. In this sense, these principles are essential for establishing and maintaining a culture of quality in an organization, promoting excellence in all areas of operation.

In summary, TQM is a viable alternative for the managerial restructuring of organizations. It emphasizes the value of the human being within companies, considering their ability to solve difficulties when and where they arise, in addition to the constant pursuit of perfection. This approach needs to be understood as a new way of thinking before action and production, implying a change in managerial mode with a modern view of organizational success. It is a management philosophy that requires changes in behaviors and attitudes.

2.1 SERVICE QUALITY

The service sector has become increasingly significant in both developed and developing countries’ economies. In the specific case of Brazil, according to data from the Brazilian Institute of Geography and Statistics (IBGE, 2022), the service sector represents approximately 70% of the country's Gross Domestic Product (GDP). This growing importance highlights the need to dedicate efforts to the evaluation and measurement of the quality of services provided in this sector.

According to NBR ISO 9000 (ABNT, 2000), “a service is the result of at least one activity necessarily performed at the interface between the supplier and the customer and is generally intangible.” Fitzsimmons & Fitzsimmons (2010, p.26) state that “many definitions of services are found, but all consider intangibility and simultaneous consumption, to varying
degrees, as service characteristics.” As mentioned by Corrêa & Gianesi (2018), service quality can be described as the level at which customers perceptions of the provided service meet or exceed their expectations. In this sense, the evaluation of service quality is based on the comparison between customers' prior expectations and their perceptions during and after the service's completion, as it is judged at the time of provision and based on the achieved results.

According to Fitzsimmons & Fitzsimmons (2010), service quality is a complex subject due to customer evaluation, which is based on various intangible factors. Customers use five dimensions to assess service quality: reliability, responsiveness, assurance, empathy, and tangibles (Figure 1). Additionally, service quality can be defined through characteristics such as content, process, structure, result, and impact.

**Figure 1**

*Perceived Service Quality*

![Perceived Service Quality Diagram](fitzsimmons_and_fitzsimmons_2010_p139)

According to authors Fitzsimmons & Fitzsimmons (2010), the dimensions of service quality have a principle:

A. **Reliability:** Refers to the ability to provide a service accurately and reliably, meeting customer expectations. This implies delivering the service on time, without alterations or errors. Reliability also extends to internal activities, such as accurate invoicing and record maintenance;

B. **Responsiveness:** Involves the willingness to assist customers and provide a service promptly. Making customers wait, especially without apparent reason, creates a negative perception of quality. In case of service failures, the ability to promptly and professionally recover it can generate a positive view of quality;

C. **Assurance:** Refers to the courtesy and competence of employees, as well as their ability to convey confidence. The assurance dimension encompasses characteristics such as
competence to perform the service, respect and courtesy for the customer, effective communication, and the sense that the employee is genuinely interested in the customer's well-being;

D. **Empathy:** Involves demonstrating interest and offering personalized attention to customers. It encompasses characteristics such as effort to understand customer needs, sensitivity, and accessibility;

E. **Tangible Aspects:** Refers to the appearance of physical facilities, communication materials, staff, and equipment. The condition of the environment is concrete evidence of the care and attention to detail demonstrated by the service provider. This evaluation dimension may also include the behavior of other customers who are using the service. These elements provide an effective mechanism for evaluating quality based on customer perception, as they establish their own quality benchmarks according to their expectations;

a) When the perceived service exceeds the expected service, it indicates that the service quality is considered outstanding;

b) When the perceived service meets the expected service, it indicates that the service quality is considered satisfactory; and

c) When the perceived service falls short of the expected service, it indicates that the service quality is considered unacceptable;

Kotler (2000) proposes various ways to measure the perception of service quality:

F. Complaint and suggestion systems, allowing customers to express their complaints or suggestions through designated boxes or online platforms.

G. Customer satisfaction surveys, involving questionnaires distributed to a sample of consumers; and

H. Mystery shopping, where individuals are hired to experience the service and provide feedback on its quality.

Consequently, understanding the criteria for evaluating services is essential for the company to measure, monitor, and improve services in order to enhance customer satisfaction quality. The application of TQM in this sector must be developed exclusively in the user relationship, as stated by Paladini (2012); quality emerges in this interactive process. Amorim et al. (2015) highlight that a key aspect of implementing quality management in the service sector is to analyze the activity in which the service is embedded, through mapping and connecting the involved activities. This study enables a more detailed analysis of all stages and allows for the early identification of key constraints or obstacles.
Considering that direct interaction is fundamental for service companies to get closer to customer needs, evaluating the quality perceived by users allows organizations to measure their results and implement corrective actions. This is because quality service implies effectively meeting customer needs and expectations (Parasuraman & Zeithaml, 1990).

Thus, quality tools play a crucial role in identifying bottlenecks that hinder the delivery of quality to users. These tools are mechanisms that allow measurement and presentation of results, as well as identifying improvement opportunities, with the purpose of assisting process managers in decision-making. Once the process and problems have been identified, it is necessary to implement corrective actions to achieve the goal of Total Quality Management.

3 METHODOLOGICAL PROCEDURES

A chosen research strategy was a case study conducted in a water supply company, aiming to provide an in-depth view of the company's performance concerning TQM practices. The case study approach allows the investigation of maintaining complete and meaningful characteristics in real-life situations, organizational and administrative processes, transformations in urban areas, international relations, and the development of specific sectors (Yin, 2015).

The instruments used for data collection were semi-structured interviews and direct observation. Two interviews were conducted, one with the company manager and another with an administrative assistant, both directly involved in the company's customer service process. All interviews were recorded and later transcribed. All participants signed the informed consent form, agreeing to participate in the research and ensuring the confidentiality of the data.

Additionally, a literature review was conducted, allowing the examination of existing literature on the subject and the identification of recommended practices. Private documents considered important for understanding the phenomena were also used, with a time frame between January and May 2023, including reports, requests, guidelines, regulations, and other accessible documents. Data sources enabled the triangulation process of information regarding practices, challenges, and impacts of this approach. These data were analyzed interpretatively, aiming to identify relevant patterns and trends.
4 RESULTS AND DISCUSSION

The research was conducted in a water supply company located in the city of Araguaína, state of Tocantins. This company is a medium-sized Limited Liability Company, composed of 8 employees, including 1 administrative/financial manager, 1 administrative assistant, 1 financial assistant, 1 quality assurance technician, 3 plumbers, and 1 general services staff. It serves a total of 2,529 customers, of which 564 are inactive (with water cut off).

The company has been operating in the city for over 40 years, serving as a sanitation service provider, with its main service being the capture, treatment, and distribution of water for human consumption. The company's water capture source is based on artesian wells, with two reservoirs responsible for supplying specific sectors of the city.

The company provides two types of services: in-person and virtual. In-person service, conducted at the company's office, has 2 attendants available for various requests such as cutting and reconnection, new connection requests, ownership transfer, meter maintenance, water bill payment (as the company does not have an agreement with banks for automatic payments via barcode), among other services. Virtual service via WhatsApp offers the same services, with the manager being responsible for the interaction. However, due to additional responsibilities, the manager faces challenges in effectively managing these activities, resulting in delays in service and customer dissatisfaction.

It is noteworthy that requests made in person at the company's office are immediately addressed, often before the maximum deadline stipulated by local regulations. To assess customer satisfaction, data collection involved document analysis of service execution requests, cut orders, and participant observation. The company does not have formal evaluation instruments, reports, or direct customer service feedback.

A survey of water reconnection requests during January to May 2023 was conducted, as shown in Table 1, providing valuable information about the quality of service, especially regarding reliability, as well as aspects related to responsibility, safety, empathy, and tangible aspects of the service.
Table 1

Water reconnection requests through service execution requests and cut orders

<table>
<thead>
<tr>
<th>Month</th>
<th>Executed</th>
<th>Not Met Within Deadline</th>
<th>Percentage</th>
<th>Reliability Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>115</td>
<td>7</td>
<td>6.1%</td>
<td>93.9%</td>
</tr>
<tr>
<td>February</td>
<td>70</td>
<td>0</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>March</td>
<td>111</td>
<td>5</td>
<td>4.5%</td>
<td>95.5%</td>
</tr>
<tr>
<td>April</td>
<td>128</td>
<td>1</td>
<td>0.8%</td>
<td>99.2%</td>
</tr>
<tr>
<td>May</td>
<td>114</td>
<td>6</td>
<td>5.3%</td>
<td>94.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>538</strong></td>
<td><strong>19</strong></td>
<td><strong>3.5%</strong></td>
<td><strong>96.5%</strong></td>
</tr>
</tbody>
</table>

Source: research data

In total for the analyzed months, a total of 538 water reconnection requests were processed, with only 19 of them being fulfilled outside the deadline. This number does not represent a significantly high proportion of non-compliance, considering the corresponding percentage of 3.53%. However, when considering that water supply is an essential service for life, and customers have minimal tolerance for delays in reconnection, it can be inferred that these delays resulted in customer dissatisfaction during this period. Although the quantity of delays is relatively low, for the studied segment, the expected level of reliability for customers is exceptionally high. An average reliability index of 96.5%, when the expectation is close to 100%, indicates a need for investigation into the reasons for these delays and the adoption of measures to avoid future recurrences.

Based on the service quality dimensions presented by Fitzsimmons & Fitzsimmons (2010) and direct observation, it is evident that the perceived quality by customers regarding the water reconnection service of the company is high in terms of reliability, as the majority of requests are fulfilled within the deadline, demonstrating the company's ability to provide the service accurately and confidently in most cases. However, delays in 19 specific requests reveal a lack of responsibility in meeting established deadlines. This lack of responsibility generates dissatisfaction among customers, as they expect the service to be provided promptly and efficiently.

In terms of safety, the delays generated a perception of incompetence on the part of the company, as customers expect employees to be able to perform reconnections competently and within the deadline. Furthermore, the failure to meet deadlines indicates a lack of empathy on the part of the company in understanding the needs and expectations of customers. Customers expect the company to show interest in promptly resolving their water supply-related issues.

Regarding tangible aspects, customers can assess the quality of water reconnection based on the efficiency of the process, such as the speed of problem resolution and effective communication with customers, carried out through in-person service at the company's office.
The analysis of the research results involved comparing the TQM and service quality literature review with the key points discussed during interviews with the company manager (Interviewee A), the administrative assistant (Interviewee B), and direct observation. The collected information provided insights to evaluate whether the company was effectively implementing this approach in practice.

Regarding the conducted interview, when asked about the importance of service quality for customer satisfaction and loyalty, Interviewee A responded: “Today, service quality is very important because the market is becoming increasingly competitive. The return is more guaranteed when you build customer loyalty, that is, when you focus on retaining the customer instead of acquiring a new one.” According to Interviewee B:

Service quality is intrinsically linked to customer satisfaction, and this satisfaction is a crucial factor for building trust and loyalty. The interaction between the company and the customer plays a fundamental role because it is during this moment that the perception of service quality is established. High-quality service, where the customer feels valued and their needs are understood, creates a positive connection and fosters trust. [...] 

It is evident that, especially in the service sector, quality plays a more significant role. As discussed by Paladini (2012), direct interaction with the customer is the essence of the business, and it is during this interactive process that quality emerges. In the current context, customers are becoming increasingly demanding, seeking not only a service that meets their needs but also a satisfactory and memorable experience. Thus, quality becomes a crucial factor for differentiating companies and creating a competitive advantage. When customers receive high-quality services, they perceive that they are getting a satisfactory return on their investment. This perception of value reinforces customer satisfaction, increases their trust in the company, and strengthens their loyalty.

Secondly, interviewee A was asked if there are guidelines/norms from the company regarding customer service, and he responded:

Yes, the guidelines always aim to provide customer service with a human touch, giving primary attention to the customer and seeking to meet their expectations in the shortest time possible. There is a regulation that governs this process, and we always strive to stay within legal limits. The specific law states that, in the case of water reconnection, after payment identification, the company has up to 7 hours to carry out the reconnection.
In this context, it is important to emphasize that these guidelines and regulations aim to ensure that the company efficiently meets the needs and expectations of customers, always seeking their satisfaction. It is worth noting that, in the case of water reconnection, this service is essential for life, and customers have extremely low tolerance for the time required to restore it. Although the regulation may specify a maximum deadline of 7 hours, this would be the absolute limit, but it would not be considered acceptable for this activity.

Regarding the factors that require greater attention and improvement in this customer service process, respondent A answered:

The greatest difficulty we currently face is related to receipts due to a disagreement between the autonomous agency and the bank. This prevents us from offering an online payment option through bank slips or invoices with automatic debit. This is an aspect that requires greater attention. Regarding the maintenance of the service infrastructure, we have been able to meet expectations, considering that we are a small city with few service providers. We are practically tied to this single company that performs the operations, which makes us dependent on this sole option.

According to Interviewee B, the aspect that requires more attention is the response time to the customer. “We need to pay more attention, especially to our online service, where we recently underwent some changes that are being analyzed. However, we have noticed that our response time still shows significant slowness.” Through participant observation, it was possible to observe significant dissatisfaction among customers due to the impossibility of making water bill payments through automatic debit, as mentioned by Interviewee A. This situation arises from a disagreement between the regulatory agency and the bank, preventing customers from having this payment option available. As a result, customers are required to visit the company's office in person to make payments at the service counter or contact online customer service.

However, as highlighted by Interviewee B, online customer service lacks agility in responding to receipts, service requests, questions, and complaints. This has a negative impact on the customer experience, increasing frustration and the perception of slow and inadequate service.

Attention and continuous improvement of factors related to customer service are essential for the company's competitive advantage. Response time is one of the factors that requires more attention, as customers value prompt resolution of their demands. A quick and efficient response demonstrates commitment to the customer and increases satisfaction.
Companies should implement strategies and tools to monitor and reduce response time, ensuring agile service across all communication channels used.

Regarding the importance of investing in training and development of the team to improve the quality of services and customer service, Interviewee B emphasizes:

This is a matter of utmost importance that management has not been giving due attention to. A concrete example of this is the fact that I have been working in this sector for over 7 years, using a system for which we had to learn on our own without proper training. Recently, just over 30 days ago, a new system was implemented to replace the previous one, but so far, we have not received any type of training to use it correctly.

It becomes evident the importance of investing in the training and development of the team involved in customer service. This includes everyone from the employees responsible for telephone assistance to the technicians tasked with troubleshooting and maintaining water supply networks. By receiving proper training, these team members have the opportunity to enhance their skills and competencies.

During training, employees can acquire technical knowledge about the water supply system's operation, applicable standards and regulations, and best maintenance practices. Additionally, they can develop interpersonal skills such as clear and efficient communication, empathy, and problem-solving.

When asked about successful strategies or practices identified in other organizations within the sector regarding service quality, respondent B replied:

In another local organization within the same sector, it is observed the practice of informing customers in advance when the technical team will perform maintenance. Unfortunately, we have fallen short in this aspect in our organization. Not all customers have the mandatory reservoir required by law, and not everyone is able to have one. Additionally, our maintenance activities occur without a set schedule, often during lunchtime when most people are at home. This has resulted in significant complaints from customers.

Therefore, the importance of prior communication to customers regarding scheduled maintenance is evident, allowing these customers to prepare for any inconvenience caused by service interruption, as well as attempting to schedule these maintenance activities at times that cause the least possible inconvenience to customers.

Regarding the main challenges or internal obstacles that may be affecting the quality of services and the measures that could be taken to overcome these challenges, respondent A reported the following:
The greatest difficulty faced is communication, as we deal with people from different cultures, families, and ideas. This is the major obstacle: communication. It is essential to ensure that information is conveyed clearly to the entire team during moments of interaction. Additionally, establishing parameters in processes can be a measure to overcome this challenge, allowing everyone to be aware of what is happening.

For respondent B, one of the internal obstacles affecting service quality is the lack of training and commitment from management.

It is regrettable to note that both the technical aspect and the management of the organization leave much to be desired. Specifically, within the office, we face limitations in our own functions due to management that blocks access to essential services for the development of activities. These restrictions have negatively impacted the efficiency and productivity of our team. Sometimes, it is evident that the manager mixes personal issues with company matters, interfering with the workflow.

Thus, it is possible to observe that, for the company's manager, the main challenge faced by the organization is communication. However, the manager does not acknowledge this obstacle as being within their responsibility and does not invest in any training and development that could solve this problem. The lack of qualification in management is evident, as highlighted by respondent B, who also emphasizes the limitations imposed by management, blocking vital accesses for the development of functions in certain sectors.

For Total Quality Management (TQM) to be effective, it is necessary to have the participation and commitment of all employees, not restricting it to a specific department. The improvement of service quality should encompass all aspects and areas of the organization, seeking collective commitment to achieve the best possible results. Juran & Gryna (1992) argue that it is necessary to integrate quality into all aspects of the business to obtain satisfactory and consistent results.

Finally, respondent B outlines measures that can be implemented to increase awareness and engagement of employees regarding the importance of service quality and how to create a work environment that values excellence and operational efficiency.

Teamwork and collectivity are essential and should be cultivated regularly. It is important to promote training sessions and establish regular meetings, such as monthly gatherings, where the team can express their opinions and suggestions for service improvement. During these moments, it is crucial to address both strengths and weaknesses so that, together, it is possible to identify areas for improvement and seek solutions. The commitment of all team members is paramount in this process. However, it is regrettable to note that management falls short precisely in this aspect. It is
important for management to be committed to actively listening to the team, valuing their contributions, and implementing necessary changes to improve the service.

As discussed by Vieira Filho (2007), the organization must be guided to achieve total quality through the development of human resources, relying on the collaboration and initiative of the entire team. It is crucial to provide space and opportunities for employees to demonstrate their skills and see their efforts recognized, enabling their professional growth. Additionally, adopting participative management, where all information is available to all employees, strengthens decisions and yields results. Everyone should be heard, creating an environment of dialogue and participation. Constancy of purpose is also essential, including the definition of a clear strategic plan, continuous improvement of practices, and the ability to delegate responsibilities appropriately.

In summary, for the water supply company to overcome these challenges and achieve the effectiveness of TQM processes, it is necessary to:

I. Conduct an internal analysis to identify and implement strategies for areas that require improvement;
J. Develop specific corrective actions, setting goals and action plans to address identified quality gaps;
K. Promote a culture of continuous improvement, encouraging collaboration and the sharing of best practices among teams;
L. Commitment and training of management;
M. Invest in team training, fostering the development of technical and interpersonal skills;
N. Establish effective channels of internal communication, ensuring the exchange of information and alignment among different sectors;
O. Implement customer feedback systems and establish continuous monitoring processes;
P. Recognize and value employee performance, encouraging engagement and motivation.

Therefore, key performance indicators can be established to measure the effectiveness of the improvement actions to be implemented, adopting an approach based on multifunctional teams, promoting active employee participation at all levels. Training can also be conducted to empower employees in TQM practices and tools, encouraging a culture of continuous improvement. Emphasizing the need to implement a customer complaints management system to identify the main causes of dissatisfaction and adopt appropriate corrective measures.
5 CONCLUSIONS

The implementation of Total Quality Management in the water supply services sector has proven to be a fundamental and effective strategy for improving service quality and customer satisfaction. The company analyzed in this case study faces challenges related to the nature of the services provided, namely: a) the company lacks specific means to assess customer satisfaction or collect feedback; b) online customer service experiences significant delays in response time; and c) there is a lack of systematization in operations. Based on the analyses, eight strategic improvement actions in planning, communication, personnel development, and evaluation processes were proposed, which could enable the organization to achieve higher performance in terms of service quality.

The study highlights the importance of committed management, employee involvement, and the use of quality management tools to achieve operational excellence. The obtained results can serve as a reference for other companies in the water supply sector aiming to implement this quality approach as a strategy to continuously improve their processes and services.

Throughout the development of this work, several possibilities for further studies were identified through future research. This includes evaluating quality management throughout the water supply chain, investigating water quality at different stages, from extraction to distribution to consumers. It would be interesting to identify critical points that may affect quality and propose actions to enhance quality management at each stage. Additionally, conducting a comparison with other companies in the sector through benchmarking could provide valuable insights into effective strategies that can be implemented by similar businesses. Another relevant research avenue would be an investigation into quality as perceived by consumers through direct data collection with service users, highlighting more subjective criteria related to empathy, safety, and tangible aspects of operations. This assessment would evaluate whether the expected service standards were met, not met, or exceeded by the perceived service.

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