STREAMLINING ROAD FREIGHT TRANSPORT OPERATIONS THROUGH INTEGRATED QUALITY MANAGEMENT SYSTEMS: A PRACTICAL FRAMEWORK

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ABSTRACT: Implementing an integrated quality management system can create sustainable competitive advantage for organizations operating in the field of road freight transport, facilitating higher efficiency and increased differentiation from competitors. However, taking into consideration the fact that quality management and its associated concepts were designed mainly for organizations operating in production industries, it is necessary to adapt current literature and practices to the field of the study. The aim of this study is to analyse how a road freight transport organization operates and propose an efficient framework to be used for the implementation of an integrated quality management system. In doing so, the advantages of this approach shall also be highlighted and debated, as to advocate for the importance of this approach in organizational development.
KEYWORDS: competitive advantage, integrated quality management system, road freight transport, quality certification, service differentiation

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1. INTRODUCTION

The road freight transport industry is essential for the activities of all other sectors. Due to its high level of accessibility, goods can be delivered quickly and efficiently to any location on land. Infrastructure can, however, be an impediment to the speed of transport, especially in the Romanian context. However, the speed of growth of the road freight transport market and its current dimensions showcase both the importance of this economic sector and its attractiveness. Taking into consideration the intensity of the rivalry in this industry and the reduced possibilities in terms of differentiation of services, organizations are forced to identify strategies that can increase the quality and overall efficiency of the service in order to maintain and increase their share of the market.

The field of quality management has emphasized the importance of organizational change and adaptation as a means for organizations to effectively respond to political, economic, and social changes [1]. In the contemporary organizational landscape, the ability of enterprises to navigate and respond effectively to organizational change and adaptation is crucial to maintaining competitiveness. Organizations can effectively manage growing challenges and capitalize on new opportunities by engaging in continuous assessment and adjustment of their processes, structures, and strategies. Adopting a proactive approach allows individuals or organizations to maintain a competitive advantage and achieve sustained success in a dynamic and evolving environment. Organizations anticipate the recognition of the importance of quality management systems (QMS), with the aspiration that their mechanisms (including tools, practices, procedures, and processes) will help them successfully address prevailing issues, especially those related to sustainable development.

This paper aims to provide a framework for implementing an integrated quality management system (IQMS) in road freight transport organizations. Therefore, all the steps that need to be followed shall be thoroughly discussed, so that each action is properly described. This approach is aimed at providing a clear starting point for organizations that intend to implement and use an IQMS as not only a mean for increasing efficiency, but also to foster a sustainable competitive advantage.

2. CONTEXT

The rate of increase in transport prices has shown a notable deceleration compared to the rate of increase in costs [2]. The current circumstances have led to the violation of European Union legislation through the practice of subcontracting of several carriers. Therefore, carriers have strived to gain a competitive

advantage by violating laws, such as overloading and non-compliance with working hours imposed by European transport legislation. The European Union has revised its regulations to establish a market that is characterized by fairness. However, the level of competition remains formidable. In order to maintain a competitive advantage and save costs, transport operators must increase the efficiency of transport services. This is crucial for their continued presence in the market.

To achieve this goal, organizations can also gain considerable advantages from adopting a total quality management (TQM) approach, which aims to increase the effectiveness of organizational activities, thus leading to cost reduction. Although the primary objective of implementing a TQM approach may not be centred on cost reduction, it is important to note that organizations operating in the transportation industry can significantly benefit from cost reduction as a result of good efficiency.

What is more, TQM must be adapted to the organization, to market demand and service complexity [3], so that it can prove as a valuable strategy for organizational development, aligned with its objectives. In existing literature, only few frameworks for implementing TQM in a road freight transport organization have been found [4]. Figure 1 graphically represents the method of implementing TQM within a road freight transport organization proposed in existing literature [4].

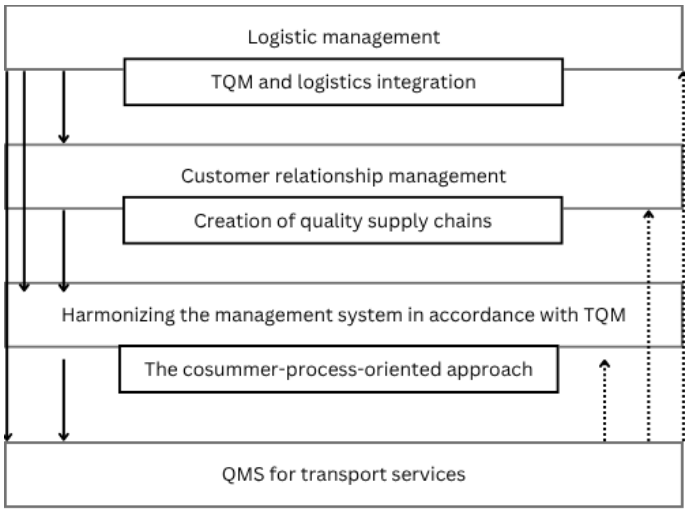

Figure 1. Implementation of Total Quality Management within a road freight transport organization

Source: [4]

This figure presents a systematic technique for implementing quality management at all levels of a road freight organization. By starting with a robust logistics platform, building strong customer relationships, aligning internal systems, and anchoring the strategy in a transportation-specific quality management system, the organization can achieve operational excellence, customer satisfaction, and long-term sustainability. It is also noted that a QMS is a continuous, cyclical approach in which component systems are monitored to facilitate error elimination and continuous improvement.

Upon analysing the existing literature, it has been noted that there is not enough research carried out regarding how road freight transport organizations can implement an IQMS. Therefore, further research on this topic is needed, especially since more and more studies highlight the importance of integrating tools to enhance efficiency, transparency and service quality in the selected industry, as well as data collection and analysis [5][6][7].

The research carried out in order to develop the present methodology has been conducted on a medium-sized road freight transport organization based in Romania. To accomplish the purpose of the study, all of the processes and their subsequent sub-processes and activities were analysed so as to completely understand how the organization operates and how it can integrate quality, creating one IQMS.

3. METHODOLOGY FOR IMPLEMENTING AN IQMS IN A ROAD FREIGHT TRANSPORT ORGANIZATION

In order to successfully implement an IQMS, a strategic approach consisting of several stages is necessary, so as to ensure the smooth integration of all existing systems and, at the same time, their improvement through the introduction of quality as a fundamental element.

What is more, it also requires a firm commitment from people in leadership positions. In this endeavour, the main factors that support the successful implementation of an IQMS within a medium-sized organization are: the commitment of people in management, the effective implementation of total quality management, people from outside the organization who facilitate this process (e.g. trainers specialized in total quality management), good communication within the organization and the implementation of software solutions [8].

Thus, in the transition process to an IQMS, the first steps of the strategy for implementing such a system are the progressive implementation of the principles of quality management, the principles of total quality and the principles of total quality management.

The first step in implementing an IQMS is to define the organization's purpose, mission and vision and establish the strategic objectives to be achieved. Thus, the main purpose of implementing a SMIC is to increase organizational efficiency, performance and profitability. In this sense, the strategic objectives

relate to efficiency, client satisfaction, cost reduction and safety assurance, as shown in Figure 2.

Figure 2. Strategic objectives
Source: Author's own research

The second step in implementing an IQMS is to analyse how the organization operates and identify problematic aspects or those that, although functioning, have low efficiency. Thus, a comparative analysis of all processes and operations carried out by the organization by reporting to quality standards is needed. This step also involves identifying solutions to resolve these non-conformities.

The third step is to formulate a coherent plan, which includes a time schedule for the activity, and its implementation. The roles and responsibilities of each person must also be defined. In addition, it is necessary to plan training sessions, which have the role of ensuring that people within the organization have acquired the necessary set of skills to adapt to the new way of working. This step includes a series of stages, as presented in Figure 3.

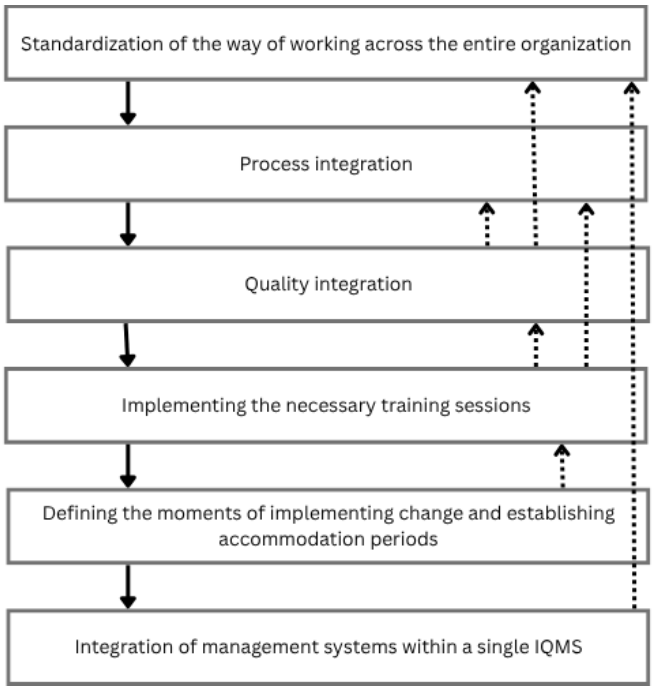

Figure 3. Planning for the implementation of an IQMS
Source: Author's own research

The implementation of an IQMS cannot be done ad hoc, as it is a complex procedure that requires total involvement. Thus, it is necessary to allocate not only financial resources, but also the necessary time. Therefore, it is crucial to plan ahead, follow the strategy and constantly monitor the effects, so that everything is in accordance with organizational goals and perspectives.

The fourth step is the implementation of the IQMS, in accordance with the plan and with organizational objectives. This step is crucial and must be done with the utmost attention, so that every aspect of the organization embraces change.

The fifth step is monitoring, both during and after implementation. Once the IQMS has been successfully implemented, it is necessary to ensure its sustainability. In addition, through monitoring, aspects that can be improved can be identified, thus respecting the principle of constant improvement. Since the monitorization of quality only through customer complaints is not only outdated, but possesses a high number of limitations, it is important to utilise multi-dimensional monitoring systems that focus on showcasing service reliability and long-term customer loyalty [9].

Therefore, during this stage, key indicators of organizational performance will be chosen. In the case of the organization studied, the following indicators are proposed:

- Customer satisfaction level;
- Level of efficiency of operations:
  - Delivery efficiency (on-time delivery);
  - Fuel consumption;
  - The period of inactivity between deliveries;
  - Number of kilometres travelled empty.
- Adherence to implemented standards, if applicable;
- Safety and security level:
  - Road accident incidence rate;
  - Incidence rate of work accidents, other than road accidents;
  - Compliance with legal provisions regarding driver behaviour in traffic.

What is more, monitoring and documentation of internal processes, as well as effects of implemented strategies, represent a key driver for continuous improvement, which is one of the main pillars of TQM.

The final step in implementing an IQMS is to obtain quality certifications. This step is optional, but it is recommended to ensure successful quality

integration. Also, obtaining quality certifications can be an aspect that facilitates differentiation. Figure 4 graphically illustrates the methodology.

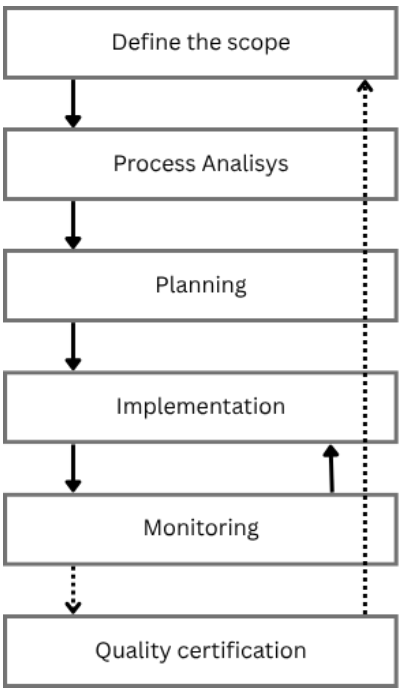

Figure 4. Steps to be followed for the implementation of an IQMS

As shown in the figure, upon the implementation of an IQMS, it is essential to monitor the outcomes and verify if they align with the mission, the vision and the strategic objectives of the organization. Therefore, this process is a continuous one, that cannot be interrupted once the IQMS is implemented.

4. THE ADVANTAGES OF IMPLEMENTING AN IQMS IN A ROAD FREIGHT TRANSPORT ORGANIZATION

By implementing a TQM, organizations can achieve several long-term advantages in terms of profitability, competitiveness and compliance with industry regulations [10][11]. First, service quality increases by improving delivery time, increasing transparency through high information accuracy and, implicitly, increasing customer satisfaction. It is known that TQM implementation has been linked to improved operational efficiency, market performance, product quality and customer happiness and loyalty. Implementing a TQM approach can result in financial benefits, such as increased sales or operating income for businesses [12]. Thus, a holistic approach such as a TQM ensures not only the implementation and maintenance of a strategy focused on total quality management, but also the achievement of a competitive advantage.

The implementation of an IQMS can also have positive effects from a sustainability perspective. A policy focused on increasing organizational efficiency will necessarily include aspects such as reducing fuel consumption, which, implicitly, reduces pollutant emissions and the negative impact on the environment. In addition, unnecessary fuel consumption associated with errors in route planning will decrease considerably, by facilitating the choice of the optimal route based on historical information. Furthermore, training sessions on preventive behaviour and ecological behaviour will have a positive influence.

Within a road freight transport organization, the level of sustainability depends not only on the transport operations themselves, but also on ancillary activities, such as customer relationship management and the attitude and involvement of people in management positions [13]. Thus, if management promotes a firm commitment to reducing the organization's negative environmental impact and encourages people to join this initiative, the level of sustainability of the organization will increase. For example, within a road freight transport organization, many documents are printed out of habit. Management can start to favour the electronic transmission and archiving of documents. This reduces the amount of paper consumed and its equivalent in environmental impact. In addition, in the long run, the associated costs will be reduced.

The implementation of an IQMS facilitates compliance with the legal provisions regulating the field of road freight transport. For example, the IT platform can monitor the expiration date of the periodic technical inspection and send temporary notifications to drivers. Thus, it is no longer necessary for a person to waste time daily to track the expiration date of the periodic technical inspection and individually send messages to drivers, being able to focus on more important tasks. This method can also be applied to documents that have a validity period, and notifications can be sent to the responsible person. In addition, the use of such a platform can facilitate the organization's freight forwarding activity. Freight forwarders within the organization upload the necessary documents from transport providers (such as, but not limited to, transport license, certified copy of the transport license, CMR insurance policy, etc.) and can be notified when the documents are no longer valid. The notification can be sent directly from the system to the supplier, requesting the presentation of new documents to ensure the continuity of the partnership. This facilitates the organization's ability to comply with legal provisions and, at the same time, increases the efficiency of operations.

In addition, an IQMS promotes the creation of a safer working environment. In addition to complying with legal provisions regarding occupational safety and security, an IQMS also includes an analysis of the risks that may occur in the organization's field of activity. Thus, the risks associated with road freight transport can also be reduced through training sessions focused on preventive driving. Also, the implementation of strict measures regarding occupational safety and security will significantly reduce the number of work accidents. In this regard, the implementation of ISO 45001:2018 and ISO 39001:2015 standards can be an effective method of increasing the level of occupational safety and security, and obtaining the respective certifications will increase the level of trust of stakeholders such as: customers, employees, potential customers, suppliers and people interested in joining the organization.

Another advantage of implementing an IQMS is cost efficiency. Although in the short term this initiative is expensive, as it involves allocating a high level of financial resources to ensure the acquisition of the necessary technological resources, such as, but not limited to, integrated TMS IT platforms, the acquisition of trucks with increased efficiency and conducting training sessions with experts in the field. In the long term, however, organizational efficiency will increase, and the costs associated with carrying out daily activities will be reduced.

What is more, implementing an IQMS also has a positive impact on productivity, as employees are more engaged and motivated to perform their jobs to the best of their ability. By providing clear responsibilities and expectations, people feel more empowered and confident in their abilities, which has a positive impact on the overall success of the organization. In addition, the emphasis on training and development ensures that employees have the skills and knowledge needed to excel in their roles, further increasing productivity and efficiency.

5. CONCLUSIONS

Since the road freight transport market is a very competitive one, due to reasons such as the increased number of competitors, low cost of substitution, low level of differentiation and low barriers to entry for new organizations, organizations must take measures to maintain their market share. Thus, the adoption of a total quality management system is a determining factor of competitive advantage. Through this strategy, it increases the credibility of the organization and the level of trust of existing partners and prospects, improves efficiency and enhances performance throughout the organization. It is also found that total quality management practices are an extremely effective tool in achieving and exceeding customer expectations.

In addition, the adoption of a total quality management system can have a positive impact on the organization's ability to adapt to changes from the external environment [1]. Thus, legislative changes, constant in this area, can be adopted more easily, and the process of adapting to change can become less costly.

What is more, the implementation of an IQMS within a road freight transport organization has a positive effect on organizational culture, facilitating communication. Furthermore, the alignment of organizational objectives with individual ones, both in terms of professional and personal plans, increases the overall performance of the organization.

Taken into consideration the fact that the study was conducted on only one organization operating in the field of road freight transport, it poses certain limitations regarding generalisation. Therefore, in order to benchmark the findings, further research on multiple businesses is needed.

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