


# NONCONVENTIONAL MANAGEMENT PROCESSES CORRELATED WITH TOTAL QUALITY MANAGEMENT IN A ROAD FREIGHT TRANSPORT ORGANIZATION

Alexandra-Florina Iamandii<sup>1</sup> and Aurel Mihail Titu<sup>2,3</sup>

<sup>1</sup> National University of Science and Technology POLITEHNICA Bucharest, 313 Splaiul Independenței, București, Romania,  ORCID No. 0009-0001-7754-2356, iamandiiflorina@gmail.com

<sup>2</sup> Lucian Blaga University of Sibiu, 10 Victoriei Street, Sibiu, Romania, Corresponding author,  0000-0002-0054-6535, mihail.titu@ulbsibiu.ro

<sup>3</sup> The Academy of Romanian Scientists, 3 Ilfov Street, Bucharest, Romania

**ABSTRACT:** It is a well established fact that the road freight transport market is a highly competitive one, with little to no differentiation in terms of service specifications. Therefore, to maintain their market share, organisations must focus on strategies that can enhance their performance while also lowering their costs, in order to assure retention of existing customers and to attract new clients. Various studies highlight the fact that total quality management presents itself a proper method to attain these objectives. However, it is traditionally used for manufacturing and production. This paper takes an unconventional approach and applies the principles of total quality management in a road freight transport organisation. In its contents, the paper presents the adaptation and implementation of such a strategy, while highlighting possible advantages and disadvantages of this management strategy. What is more, this paper will take into account the unconventional particularities of road freight transport and ensure they are properly integrated in the model.

**KEYWORDS:** competitive advantage, road freight transport, total quality, total quality management, total quality transportation.

DOI [10.56082/annalsarscieco.2025.2.39](https://doi.org/10.56082/annalsarscieco.2025.2.39)

## 1. INTRODUCTION

Road freight transport is one of the main elements of the global economy, as it facilitates the movement of goods over the world, making use of the available infrastructure. This type of transport is characterized by its obvious elements, such as road, driver and vehicle, as well as its particularities. Among these, the relationship between partners can be considered one of the most interesting ones. In this field, clients and suppliers are sometimes represented by the same organisation, making it clear that a partner can also be a competitor.

The intense rivalry in this sector is also fuelled by globalisation [1]. Analysing only the European area, with a greater focus on the European Union, and considering the Schengen Area, it can be easily observed that competition in the western part has increased considerably due to easier access to the markets, lower transport prices from Eastern European carriers and the free movement of goods. What is more, since all countries in the European Union must adhere to common laws as decided by the European Commission, it is easier for road freight transport operators to enter new markets, as the legal environment does not present itself as a tough challenge.

Taking into account that competition in this field is fierce, as well as the fact that switching costs of suppliers is almost non-existent [2], organisations must adhere to unconventional strategies in order to maintain their position. In this scenario, Total Quality Management (TQM) represents an interesting strategy to pursue. Even if the strategy is not a new one, it has remained in the centre of the attention for organisation and for academicians, as it has a unique perspective with a clear focus on efficiency [3]. However, this strategy is multi-faceted, as it involves not only finding efficient methods to attain organisational objectives, but also improving processes, complete involvement from all employees, and a specific leadership approach.

The purpose of this study is to provide a clear framework of how the principles of TQM can be applied within an organisation operating in the field of road freight transport. This approach should allow organisation to prepare for a further implementation of a TQM strategy. Therefore, the first section will focus on showcasing how quality is defined in this field, while presenting relevant information on associated concepts. The aim of the paper, however, is to present a theoretical model that can be easily put into practice.

## 2. LITERATURE REVIEW

The following section of this paper aims to provide the proper context of understanding the field of road freight transport and how TQM can be applied within this industry. To reach its purpose, subjects as quality within the studied field are defined and determined, according to existing literature. Concepts such as total quality, TQM and their application in road freight transport are also to be discussed.

### 2.1 Quality within the field of road freight transport

Ever since ancient times, many academicians from various fields have tried and failed to find a definition for quality that could encompass all of its complexity. Even if there is no one-size-fits-all definition of quality, all variants emphasise organisational efforts aimed at meeting and exceeding the customer's needs [4]. This view, however, encompasses only the sense in which quality is defined in regard to the user [5]. Analysing scientific literature, five primary methods to defining quality are identified:

- compliance to standards,
- suitability for purpose,
- effectiveness in attaining organisational objectives,
- fulfilment of consumer expectations,
- the conventional concept of quality [6].

To understand how quality can be applied in the field of road freight transport and facilitate such an approach, it is necessary to understand its components. The main elements of road freight transport are the road, the freight, the vehicle and the driver [7]. However, all the people involved in the transport process, such as planners, logisticians, administrative staff and partners, including both clients and suppliers, must be taken into account. Figure 1 graphically represents the key elements of this industry. It must be understood that these elements continuously engage in order to provide the road freight transport service.



Figure 1. Road freight transport elements

It is clear that quality represents a crucial aspect in any sector, whether private or public [5]. However, in most industries, quality is defined in accordance with either industry standards [8], or international standards such as ISO. The road freight transport industry lacks its own proper standards, and the ones that are used need to be updated [9]. Taking this into consideration, it can be clearly stated that quality is still hard to define in this field. To facilitate understanding the topic, two perspectives will be considered: the customer perspective of quality and the organizational one.

Quality can be linked to the characteristics of this mode of transportation, such as short delivery time, lack of necessity to move goods from one vehicle to another, the ability to access almost any destination and its adaptability to the freight [10]. This perspective aligns with defining quality in terms of customer needs and the extent to which these are satisfied.

On the other hand, quality can be linked to the efficiency of the processes, customer service, the quality of partnerships, the technical state of the vehicles and the state of the goods once they are delivered. These indicators are mostly used in practice.

All in all, quality can harness competitive advantage in the field of road freight transport [11]. However, to ensure prosperity, development strategies should not only be focused on increasing the level of quality, but also on the long-term perspective [1]. Therefore, it is necessary to properly develop an integrated quality management system that not only focuses on quality, but also on the goals of the organisation.

### 2.2 Total Quality, TQM and Total Quality Transportation

The concept of total quality defines the continuous improvement initiative by including all members of the organization in the process, in a fully integrated effort to improve performance at all levels [12]. This concept emphasizes the importance of continuous improvement and the involvement of every individual in the organization. By fostering a culture of collaboration and accountability, the concept of total quality leads to optimizing processes, reducing waste and ultimately delivering superior products or services to consumers. Total quality and existing models of how it can be applied can be viewed as pillars for TQM [13].

Quality encompasses both internal and external aspects, including the ability to efficiently manufacture products using well-designed procedures, as well as delivering items that meet or exceed customer requirements [14]. Thus, the

concept of total quality integrates both aspects and proposes a theoretical framework to support the continuous development of the organization, namely total quality management.

Total Quality Management involves organisation wide efforts to incorporate quality, as it is properly defined for the specific field of application, through carefully planned strategies, which can be closely monitored and constantly evaluated and adapted, in order to provide the utmost level of quality and enhance overall organisational performance [4]. In other words, TQM entails the collaborative effort of all individuals inside an organization and its related business processes to generate cost-effective products and services that fulfill, and ideally beyond, customer needs and expectations [15]. In addition, it has been highlighted that TQM can facilitate a higher level of sustainability [16].

Even if, over time, the concept of TQM has become more and more complex to define, it has its roots in the theories and principles formulated by its “parents”: W. Edwards Deming, Joseph Juran and Kaoru Ishikawa [3]. Therefore, understanding the principles of TQM and how these can be applied within an organisation, based on its activity, is of utmost importance.

Based on how this theory has been developed and formulated, TQM is focused on organisation that produce goods, not services. However, in recent years there have been several attempts to adapt the theory to the services industry [17]. Relevant literature in this field also refers to Total Quality Management in road freight transport as Total Quality Transport/Transportation (TQT) [18,19]. Even if the field of road freight transport is crucial to the global context, there is little research regarding TQM applied in this field.

### 3. METHODOLOGY

For the purpose of this study to be accomplished, a specific approach has been aggregated. First and foremost, the academic literature focusing on the theme of this paper has been carefully analysed in order to understand how total quality is applied within organisations.

Then, a medium-sized company has been chosen as the object of the research. The organisation, which operates within the field of road freight transport, and its practices have been analysed over the course of 6 months.

After understanding how the organisation operates, the principles of TQM have been analysed in accordance with the organisation and its particularities. Furthermore, a framework for

implementing the principles of TQM has been developed.

### 4. RESULTS AND DISCUSSION

The purpose of this paper is to present the principles of total quality and to discuss how they apply within the field of road freight transport. Considering the fact that these principles were formulated in relation to organizations that deliver products, tangible goods, and not services, it is necessary to adapt them to the type of organization studied.

Through implementing total quality management principles, organizations adopt the philosophy of total quality management and, implicitly, increase performance. Thus, the 14 principles of quality management formulated by Deming [20] are taken into consideration and adapted to the object of this study.

#### 4.1 The principles of total quality applied and commented in the unconventional context of a road freight transport organisation

This section aims to adapt the principles of total quality to an organisation that provides road freight transport services. Close observation of the company has made it possible to identify how it operates and possible issues that may have a significant impact on the overall efficiency. In the following subsections, not only are the principles of total quality explained and adapted, but there are also possible recommendations that can be easily implemented that can lead to an increase in overall performance.

##### 4.1.1 *Establishing a firm commitment to improving products and services*

Within a transport organization, it is necessary to implement a strategy that facilitates not only economic growth, but also the efficiency of internal processes and, implicitly, the increase of organizational performance. Thus, process and service improvement need to be a priority for everyone in an organization. Also, establishing a firm commitment ensures the achievement of the proposed objectives, but also continuity in terms of constant improvement.

##### 4.1.2 *Adoption of the philosophical perspective*

This aspect is of particular importance, as it underlines the need to adopt change within the organization, at all of its levels. Within a road freight transport organization, the new philosophy must first be understood by all its members before it can be applied.

Thus, the people in the management of the organization, who are directly responsible for the adoption and implementation of the strategies, must

instill the new philosophical perspective to all the people on the hierarchical scale.

#### *4.1.3 Renunciation of dependence on inspections in order to obtain quality*

Although the importance of periodic inspections and reviews is crucial to ensure the success of an organization, dependency can even cause an organization to fail.

Thus, it is recommended that inspections be used periodically, to be able to identify problems, but not to achieve quality. Also, considering the field studied, inspections, in the true sense of the word, are impossible, as they are intangible services. However, this principle shall not apply to the quality and technical state of the vehicles.

#### *4.1.4 Discontinuing the practice of exclusively awarding purchases based on price and instead adopting a strategy that focuses on minimizing total cost by working with a single supplier*

In the field of road freight transport, especially in terms of intermediation, focusing on a single supplier is not recommended. Also, dependence on a single supplier can have serious consequences if the supplier goes bankrupt.

However, it is important to establish long-term partnerships with key suppliers, and price, while a determining factor in this process, should not be the main reason behind a decision. Thus, collaborative relationships must be based in particular on attributes such as trust, reliability, ease of communication and promptness. By selecting a range of suppliers, the costs arising from their selection process will be reduced in the long term.

#### *4.1.5 Continuous improvement and refinement of all processes related to planning, execution and service*

The application of this principle is particularly important, as it guarantees the constant efficiency of operations. It is recommended to periodically analyse the operations carried out, to identify problems that may not be obvious in everyday practice: Also, in order to be able to implement this principle, it is necessary to act on any problematic aspect identified during the operations, by any person in the organization. Thus, it is observed that the principles of quality management must be applied simultaneously, all together and at the same time, and not progressively, one by one.

#### *4.1.6 Implementation of workplace training programs within an organization*

Human resources are one of the key factors in creating a competitive advantage. Thus, in order to function as efficiently as possible, an organization must have well-trained staff. This can only be achieved by implementing both extensive training

programs and training programs. In the constantly changing global context, it is necessary for all people within an organization to know the existing changes and, implicitly, to be able to make the best possible decisions, but also to predict possible changes in the market.

#### *4.1.7 Implementation and establishment of effective management practices*

Management must go hand in hand with leadership. Given the tendency of new generations to change jobs very easily, but also organizational performance, a strategy that considers both people and operations is needed. Thus, in order to be able to manage the organization optimally, it is necessary to implement sustainable management policies that motivate growth.

#### *4.1.8 Eliminate fear*

In order to be able to successfully implement a quality management system, it is imperative that all people within the organization are in alignment with the proposed values and procedures. Therefore, to facilitate communication and problem solving, it is necessary to eliminate fear, especially that caused by the hierarchical structure.

Given the fact that the people who carry out the operations can notice emerging problems the fastest, by removing fear and facilitating communication, they can be solved much faster, causing minimal losses. For example, the driver can notice technical faults long before the service personnel, especially during transport operations. If these problems do not involve the immobilization of the truck, but can cause greater damage the later the solution is, by communicating them to the hierarchical superior, quick solutions can be proposed, which minimize losses and increase safety.

#### *4.1.9 Facilitate the removal of obstacles that exist between the various personnel departments*

It is observed that once the size of an organization increases, communication between departments becomes more and more difficult. By organizing events that facilitate the creation and strengthening of interpersonal relationships between people from different departments, these barriers can be lifted. This approach also facilitates better communication, which, in turn, leads to higher efficiency.

#### *4.1.10 Eliminate slogans, exhortations and performance objectives regarding the workforce*

In order to successfully implement a total quality management strategy, it is necessary that all people within the organization adopt the proposed values and work simultaneously to achieve common organizational goals. Urges, slogans, and setting performance goals make this process difficult, as each

person will tend to prioritize independent work over teamwork in order to achieve the desired performance. Likewise, these individualistic statements or goals can turn individuals away from the TQM philosophy.

#### *4.1.11 Elimination of quantitative objectives for employee recruitment and performance objectives for management positions*

Recruiting employees is a particularly important process, but also a very expensive one. Thus, by establishing some quantitative objectives, the emphasis is placed on the number of new employees, and not on their quality. This causes problems, as situations can frequently arise where new people are not a good fit within the organization, leading to a new search.

By eliminating the quantitative objectives for recruiting employees, the hiring process can be facilitated, as the emphasis is placed on the fit of people within the organization and on their attributes. Also, removing performance targets for leadership positions can lead to better relationships within an organization. Thus, people in executive positions can be more attentive to the development of processes within an organization and can more easily identify problems that have arisen or may arise, and, at the same time, can propose better solutions.

#### *4.1.12 The objective is to eliminate factors that prevent individuals from experiencing a sense of pride in their work and to abolish the practice of annual performance reviews or merit-based systems*

Annual performance reviews and merit-based systems can cause communication problems between individuals in an organization, and also loss of focus on common goals. Thus, by eliminating them, people can focus on activities that really add value to the organization and increase its overall performance.

What is more, individual performance is strongly influenced by how people perceive their work. Thus, by encouraging positive emotions, employees can be much more motivated.

#### *4.1.13 Implementation of a solid initiative focused on education and personal development for all individuals*

Education and personal development are paramount to organizational performance. Employees are the most important and valuable resource of an organization.

Within a road freight organization, personal and professional development can be encouraged by organizing sessions with experts in the field. For

example, drivers may benefit from preventive driving training, while the sales team could benefit from training focused on attracting and retaining customers.

#### *4.1.14 Mobilization of all employees within the organization to actively engage in the process of achieving the desired transformation*

Organizational change must take hold of the entire organization to have a real effect. Thus, all people within an organization must be actively involved in adopting a new strategy.

Given the fact that people are often resistant to change and tend to refuse changes in the routine, this step is especially important. In this sense, employees must understand both the purpose and the way of implementation, but also the reasons behind this transformation. This aspect can be achieved in particular by aligning personal and professional values, but also by promoting the benefits arising from the change.

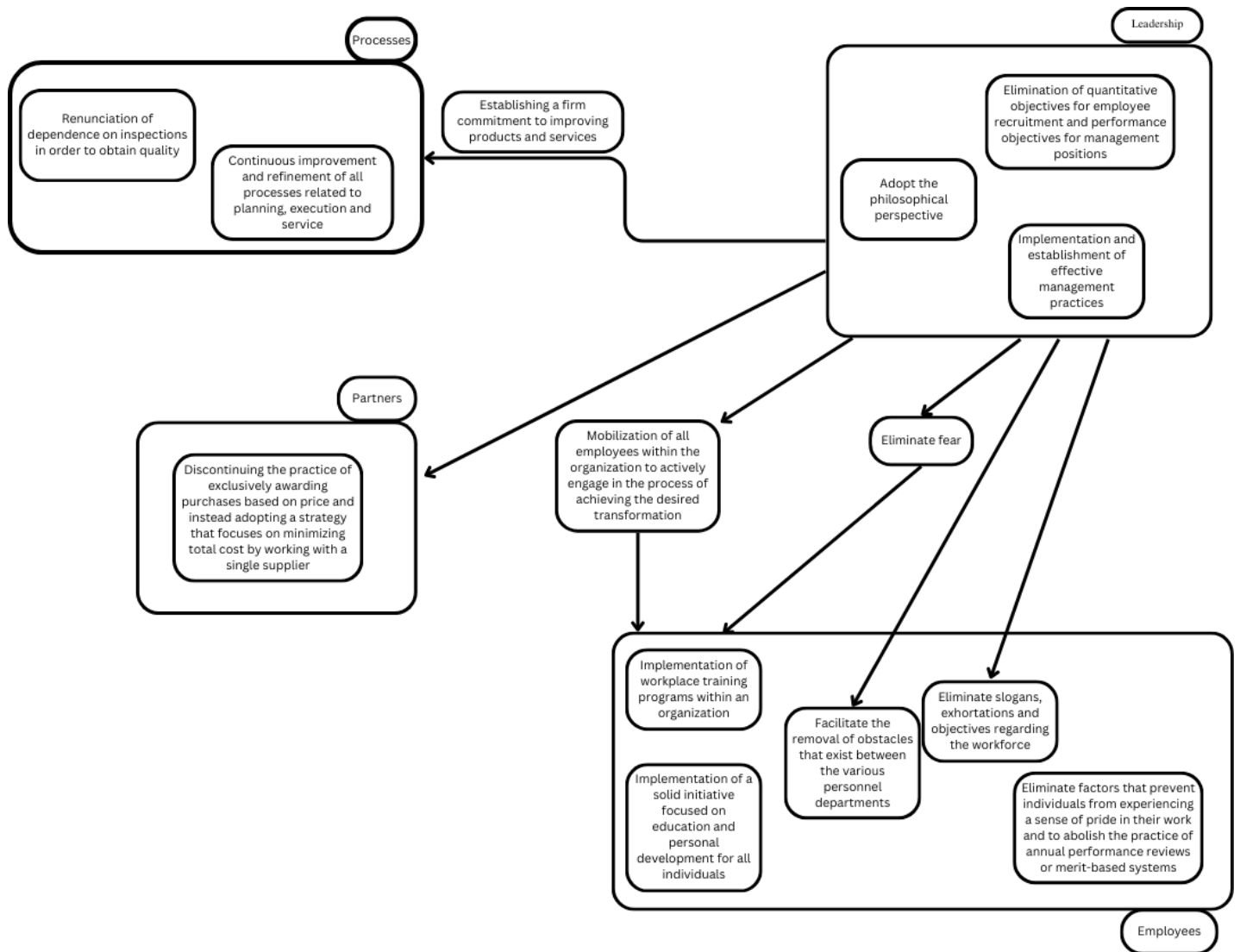
## 4.2 Framework application

The 14 principles of quality management have the role of ensuring quality within an organization and, at the same time, are fundamental for the implementation of a total quality management system. They must be implemented systematically, progressively, as they are interdependent. Figure 2.2 shows a model of their application within a road freight transport organization.

The simultaneous application of all 14 principles of quality management within an organization is particularly important, as only in this way can this strategy be used. A model for the application of these principles to the transport industry has already been proposed almost two decades ago [19]. While its use is recommended, a very important aspect that is not properly marked in this framework is continuity.

To ensure the long-term success and proper implementation of this management strategy, it is especially important that the steps are repeated constantly. In this sense, the application of the principles of total quality within an organization is not necessarily a cyclical process, which must be repeated, but a continuous process, which, once implemented, must be maintained.

The proposed model encompasses all of Deming's 14 Points, focusing also on their area of implementation. Even if the proposed framework does not properly picture a cyclical process, it must be understood that it should be constantly put into practice for it to attain its objective.



**Figure 2.** TQT Framework

## 5. CONCLUSION

Road freight is an essential branch of the economy and is a vast field of activity, with many different branches, each with its own particularities. However, this industry has not been properly studied over time. It was observed that there are critical gaps in the existing literature regarding the road transport of goods, especially in the field of quality and its associated concepts.

This study has emphasized on the importance of quality in a road freight transport organisation. Furthermore, the concept of TQM has been presented and partially adapted to the field of study. The lack of research showcases the need of future studies in this area.

Furthermore, this study has analysed and adapted the principles of TQM in the selected industry and proposed a framework for their implementation. This model may be of use not only for the studied organisation, but also for similar organisation that wish to pursue a TQM strategy and benefit of its advantages.

While this study can present itself as a starting point for organisations in the road freight transport sector that want to implement a total quality management strategy, it cannot yet be generalised due to the fact that it is focused solely on one enterprise. Further research is needed in order to understand whether or not the approach presented here can be applied in similar organisations.

## 6. REFERENCES

1. Rucińska, D., Kędzior-Laskowska, M. Sustainable transport development and the quality of road freight transport. *Transport Economics and Logistics*, Vol.76, pp. 33–47. (2018).
2. Naletina, D., Strategic Analysis of the Road Freight Transporters in the Republic of Croatia, *39<sup>th</sup> International Scientific Conference on Economic and Social Development*, pp. 474-482, Lisbon, Portugal, (2019).
3. Hackman, J.R., Wageman, R. *Total Quality Management: Empirical, Conceptual, and Practical Issues*. Administrative Science Quarterly, Vol.40, No.2, pp. 309-342. (1995).

4. Kiran, D.R., *Total Quality Management: Key Concepts and Case Studies*, 1<sup>st</sup> edition, Elsevier Ltd., (2016).
5. Harvey, L., Green, D., *Defining Quality, Assessment & Evaluation in Higher Education*, Vol.18, No.1, pp. 9-34, (1993).
6. Ellasy, N., *The concepts of quality, quality assurance and quality enhancement*, Quality Assurance in Education, Vol. 23, No.3, pp. 250-261, (2015).
7. Rotariu, I., *Transporturi, Expediții și Asigurări de Mărfuri și Călători*, 3<sup>rd</sup> edition, Alma Matter, (2004).
8. Leland, H.E., *Quacks, Lemons, and Licensing: A Theory of Minimum Quality Standards*, Journal of Political Economy, Vol.87, No.5, pp. 1328-1346, (2013).
9. Islam, D.MD.Z., Zunder, T.H., *The necessity for a new quality standard for freight transport and logistics in Europe*, European Transport Research Review, Vol. 6, pp. 397-410, (2014).
10. Tazhiyev, R.O., Dirsehan, T., Baimukhanbetova, E.E., Sandykbaeva, U.D., *Road Freight Quality Management in Industry 4.0: International Experience and Perspectives in Kazakhstan*, Economies, Vol.12, No.8, pp.218, (2024).
11. Huldt Navarro, P., Haag, L., *Pursuing sustained competitive advantage through the use of process management*, International Journal of Lean Six Sigma, Vol.15, No.6, pp. 1290-1315, (2024).
12. Kumar, V., Singh, J., Kumar, D., Antil, M., *Total Quality Management*, National Journal of Advanced Research, Vol. 2, No. 3, pp. 5-8, (2016).
13. Conti, T., *Building Total Quality: A guide for management*, Chapman & Hall, London, UK, (1993).
14. Liang, B.C., *Operations*, Elsevier Ebooks, pp. 119-135, (2013).
15. Dale, B., *Total Quality Management*, Operations Management, Vol. 10, (2015).
16. Silvestri, C., Piccarozzi, M., Ruggieri, A., Pacchera, F., *A new holistic definition of TQM towards sustainability*, Total Quality Management & Business Excellence, Vol. 35, No.3-4, pp. 1-38, (2024).
17. Poliakova, A., Tomaszewska, I., Gašparík, J., Salamakhina, E., *Research of the TQM evaluation in a service company*, The Archives of Automotive Engineering – Archiwum Motoryzacji, Vol.93, No.3, pp.27-37, (2021).
18. Bedford, S., *Total Quality Transport*, The TQM Magazine, Vol.2, No.3, (1990).
19. Metri, B., *Total Quality Transportation Through Deming's 14 Points*, Journal of Public Transportation, Vol.9, No.4, pp. 35-46, (2006).
20. Omachonu, V.K., Ross, J.E., *Principles of Total Quality*, 3<sup>rd</sup> edition, CRC Press, (2004).