

# METHODOLOGY FOR RATING QUALITY STANDARDS IN REGIONAL PASSENGER RAIL TRANSPORT

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**Abstract.** *Quality has a fundamental influence to the services in passenger transport. The main objective of transport is to satisfy customers' (passengers') requirements on the qualitative, flexible, fast and safe carriage of people and goods. Organisers of transport (public authority), providers of transport services and their customers have a different view on the perception of quality. This fact is influenced by unsystematic assessment to the quality measurement as well as by ignorance of the interaction of the transportation the peoples with the transport system. A basic element of transport service is the movement of the rolling stock with the passenger or goods from the start to end destination. In this point of the technological process of transport, the main bearer of the quality of transport services are the vehicles and the transport infrastructure. From the perspective of the vehicle, its operation-technical and utility properties are very important. From the perspective of transport infrastructure, the operating ratios and conditions are important. Due to the content of the quality concept it is not possible to focus only on the interaction of carriage and transport infrastructure. The paper is focussed on the quality evaluation of performance in regional passenger rail transport in relation to other modes of public transport. Hereby it is necessary to know the perception of quality services as well its value for the client (passenger). Consequently it is needed to set a permanent process of quality evaluation of the provided transport services. The paper is based on the premise that the customer interests present the public ordering body (authority) of the public transportation services.*

**Keywords:** QUALITY, RAILWAY TRANSPORT, PASSENGER TRANSPORTATION

## 1. Introduction

The task of quality standards for services in the regional rail passenger transport are intended to establish a uniform level of provided services, while drawing inspiration from EN 13816. The quality standards have to be set according to the strategic needs of passengers, so that they can be set as a basis of a contract with a customer to a minimum uniform level of quality of service provided. Measuring and evaluating the quality of services in regional passenger rail transport also need to be compared in relation to other modes of public transport. It is necessary to know the perception the quality and value of provided services for the client (passenger) and set the functioning with a permanent process of evaluation provided services. Important is the view on the quality provided services in passenger transport by the subject under the transport market. The role of public authorities is regulation given the impact of the transport process on the society and environment. The main aim of clients public services is established on a mutually intertwined and customer quality and sufficiently simple comprehensive public transport system while minimizing financial claims. The intention of the public passenger transport is to build a competitive system to motorized individual transport. On the support of these aims it is necessary to establish new methodology on the definition of quality requirements in the regional rail passenger transport. This methodology currently does not exist.

## 2. The proposal of methodology for rating quality standards

The basic principle of policy quality of services in regional passenger transport is to satisfy the customer's requirements, therefore, focus on compliance with the established quality standards. The role of the order body of the transport services is to ensure optimal transport accessibility of regions with the effective use of resources and to implement the principles of transport policy. The task of the coordinator undertake to fulfil the requirements of standard EN ISO 9001: 2009 and STN EN 13816. Based on the above coordinator shall establish and maintain a quality management system. Next is necessary to apply the principles of improvement of all processes affecting the quality of services provided in public passenger transport. The effective providing of

quality services requires introducing control processes for the any activity, which affects the fulfilment of customer requirements.

The task of the provider of the service is to ensure all activities associated with the provision of transport services in the appropriate quality to meet all established standards of service quality. The carrier (railway undertaking) must ensure the safe, convenient, fast and affordable transport for passenger (customer) at a maximum fulfilment of their requirements. Railway undertaking (carrier) must provide the services for passengers in accordance with approved quality standards at European level in order to retain existing customers potentially increase the demand for transport services. The carrier must also ensure the high quality standard of its staff and technical resources. The most valuable asset of the company is the professional qualifications and skill of staff. For this reason it is necessary to monitoring constantly the increasing proficiency as well career development of employees and in relation to the fulfilment of defined quality criteria relating to staff and their approach to customers.

The proposed methodology is based on premise to provide the maximum value for customers. Realisation of transport services is the responsibility of the carrier. Ensuring transport service is public service that must satisfy the transport needs of the population in the region. The requirements of passenger (customer) defines subject, which ordered transport performance. In the proposed methodology is rated the level of provided services in regional passenger transport that are ordered by transport body (state or region). This body is responsible for evaluating customer (passenger) requirements and coordinating transport performances.

Methodology integrates the solution for the evaluation of quality standards in regional passenger rail transport on two levels [1]:

- relationship between order body of transport services and carrier
- relationship between order body of transport services and customer (passenger)
- relationship between order body of transport services and infrastructure manager.

This relationship must be evaluated separately. For drawing up overall evaluation of quality standards in the regional rail passenger transport was designed a flowchart. This flowchart is on Figure 1.

As the first step to create the flowchart was necessary to define the core of the process. The next step was to define the roles of the process.

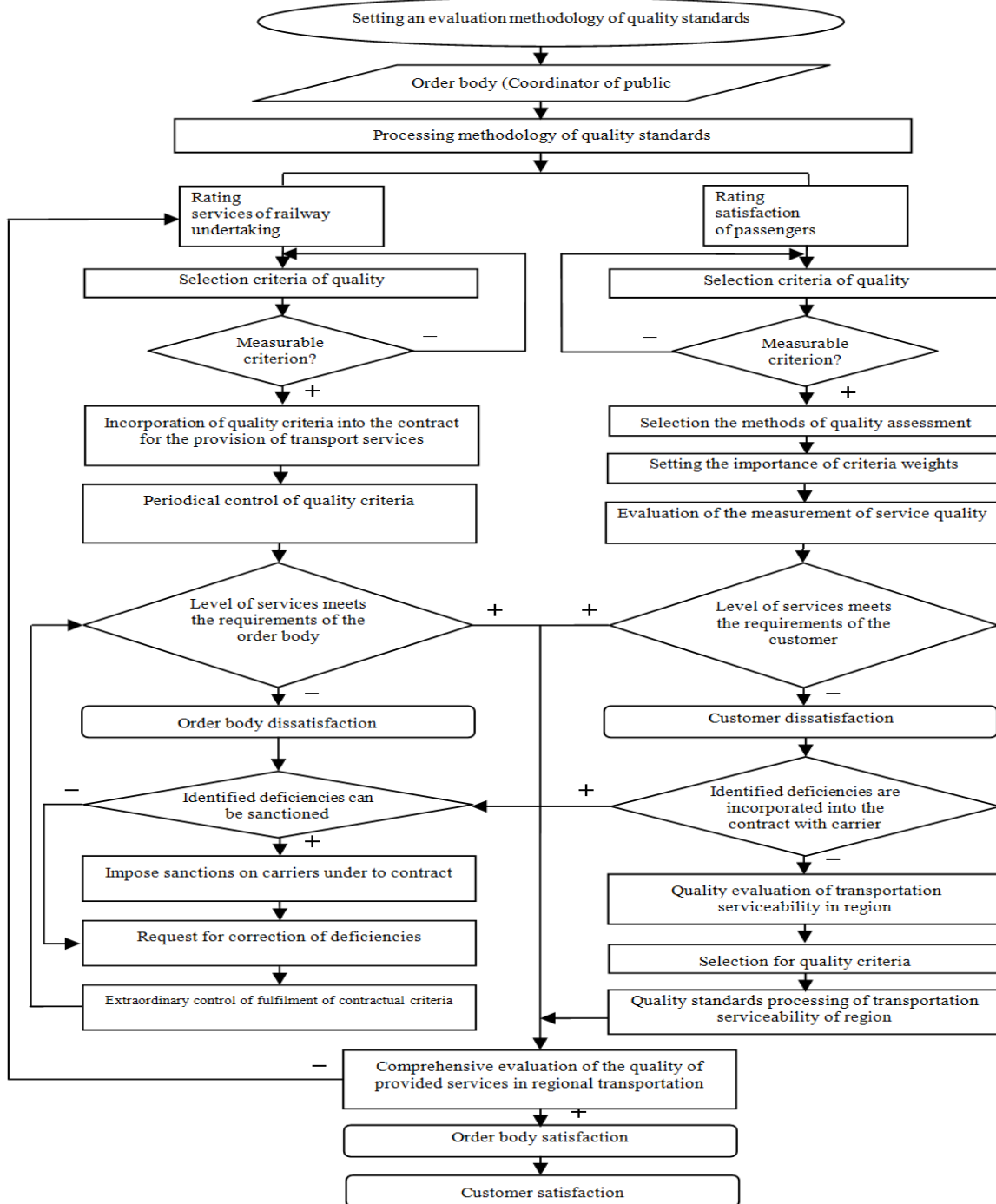
### 3. Evaluation services of rail carriers

Evaluation of service rail undertaking is based on quality standards setting and subsequent evaluation of its fulfilment.

*Selection criteria of quality* – search for measurable quality criteria, which will be part of the contractual obligation of the

carrier in providing the ordered transport services. Especially are oriented on transport processes.

Incorporation quality criteria in the contract for the provision of transport services – implementation the defined quality standard that is measurable in the contract. Defining the standard must be accurate and must contain defined penalties. This activity includes the overall concept of the contractual relationship between the order body and carrier. It comes to the entire agreement and all its terms.



Source: authors

Figure 1 The methodology of rating quality standards in the regional passenger rail transport

Periodical control of fulfillment the quality criteria, which are incorporated into contract - submitter checks at regular intervals compliance with agreed quality standard. Usually physical check shall be made in the form of "hidden buying" staff of submitter. The carrier has to tolerate control, which is also enshrined in the agreement. The carrier has duties making of traffic statistics, mainly statistic of selling travel tickets, passenger flows, the number of cancelled trains and compliance of timetable.

Level of services meets the requirements of the order body – the order body based to control submitter compares the level of provided services and according to the contract. In case the submitter find out failure to comply with the defined quality standards, can impose the carrier sanctions.

*Submitter dissatisfaction: identified deficiencies can be sanctioned* – order body shall examine, whether it is possible to penalize unfulfilled the quality standards. Deficiencies can be found based to control of order body or from the realized quality assessment based on customer survey.

*Impose sanctions on carriers under to contract* – submitter imposes sanctions based on identified deficiencies that can be sanctioned under the contract.

*Request for correction of deficiencies* – when is impossible to penalize identified deficiencies, order body invites carrier for remedial action to restore of quality standards provided services.

Extraordinary control of fulfilment of contractual criteria – order body shall realize a random controls that are oriented on the quality standards provided by railway undertaking.

#### 4. Evaluation of passenger satisfaction

Evaluation of passenger satisfaction (customers) with provided transport services is based on the realization of regular traffic survey, which also includes quality assessment. This process implements the proposed steps according to the proposed methodology for measuring of provided quality services. The proposed methodology for examining the quality of the customer and determines the value of the transport service perceived transport users.

- Selection for criteria of quality – search for measurable criteria of quality, which are part of the quality assessment transport services. Is the most important step that allow to get perception of service quality and to determine customer expectations. It is realized by survey.
- Selection of the method quality assessment – choice of objective assessment methods (Saty's method, benchmarking etc.). On these methods we can obtain concrete and objective results.
- Set the importance weights of criteria – setting the weights for proposed criteria by choosed approach.
- Evaluating the measurement of quality provided services – it is necessary put the accent on the methodically correct procedure when we evaluate measurement of quality provided services.
- Level of service meets the requirements of the order body – there is assessed perceived satisfaction and maximum value of customer satisfaction. There can be used approach of multi-criteria analysis. In case the quality level of provided services meets the customer's perspective, then is processed an comprehensive assessment. In case when customer is not satisfied with quality level of provided services, is need to check the finding dissatisfaction according to the concluded contract. Then carrier must make remedies for improve standards of quality.

- Identified deficiencies are incorporated in the contract with the carrier – after finding that the customer are dissatisfied with the criteria of quality standards the procedure continues as in the case of previous step. It is searching possibility how this deficiencies to penalise.
- Quality evaluation of transportation serviceability in region – task of this activity is quality evaluation of rail transport and its impact to transportation serviceability assessment of region. It is an activity of order body who responds to the transport needs of the population. The transport needs of the population come up from order body's surveys also from customer transport surveys.
- Selection criterion of quality – task of this activity is set quality criteria of rail transportation serviceability in selected region. Selection comes out from previous activities and from basis assessment results. Then are choosed a relevant quality standards, which are measurable.
- Quality standards processing of transportation serviceability of region – task of this activity is a concretization a detailed elaboration of quality standards processing in regional transport.

#### 5. Comprehensive evaluation of the quality of provided services in regional transportation

Methodology of evaluation quality standards in regional rail passenger transport assesses from point of view of order body and at some time evaluates request for carrier and includes the evaluating the measurement of quality provided services. The generalized methodology is based on successive steps. Task of this methodology is searching measurable quality criteria.

Quality standards allow monitoring, evaluating and comparing single criteria of provided services. The evaluating the measurement of quality provided services brings to measures and help to continuously improve the quality services. Quality standards of regional rail passenger transport shall be binding for all railway undertakings that provide rail passenger services. Infrastructure manager must participate on fulfil the same standards. Update of quality standards should be implemented as a rule once a year, after consultation with all stakeholders.

Method of evaluating must respect requirements of multi-criteria background, for example if customers (passenger) demand from carrier fulfilment of a number of quality characteristics at once.

By providing the transport service is necessary to define service specifications, evaluation process and then regularly measure and control the process of providing services.

Part of the methods evaluation of quality must also be creating a rating scale. A rating scale gives the possibility to compare measured values and then reconsider quality of provided services. [3]

Task of comprehensive evaluation is the harmonized assessment quality of services as from the customer's perspective as well as from the perspective submitter. Customer satisfaction is achieved if the level of quality of service provided meets the requirements of the customer and also corresponds to the required level of perceived quality from the customer's perspective. These facts could mean satisfied the submitter and cycle of evaluating should be end in that period.

In the event that the quality of provided services does not satisfy the requirements of the customer, it is necessary to take corrective measures to improve quality standards. It is necessary to repeat the evaluation process of quality services on the part of the carrier (railway undertaking).

The task of order body (coordinator of transport performances) as a key player in the assessment of quality standards, measuring the quality of services and control contract standards is to represent the interest of customers by providing the public transport services.

## 6. Conclusion

At present the offer of provided services in regional rail passenger transport oriented only on their ordering and financing. It represents the quantitative view. Quality of provided services is not monitoring and evaluating systematically. This fact causes inadequate quality level of provided services. The aim is creating of transport system with high quality of provided services. High quality of provided services not only fulfils the expectation of present customer, but could get new customer.

Quality standards of regional rail passenger transport are indented for one level of quality. These standards are based on European's norms – concrete STN EN 13 816 and respects strategic requirements customers. Their direct applicability is possible in the submitter's contract. Application of quality standards to praxes does mean makes a new subject – coordinator. Coordinator will be to work on the ordering performance in the public services. Than is necessary accept the new contract between the submitter, coordinator and provider of transport services (carrier).

Proposed methodology of quality assessment can be used for comparing integrated transport systems by the quality level. The methodology can be used also as a evaluating of provided services in the relationships submitter and supplier (railway undertakings, infrastructure manager). The methodology does not exactly define the role and mission submitter from coordinator of an integrated transport system – It perceives their same level.

The proposal of methodology full accept the transport policy of EU specifically the White paper 2011 - Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system, also quality norms and transportation operational programme in horizon 2020. These facts creating a space to meet the objective of promoting the development of public railway passenger transport by increasing its quality level.

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