

IMPORTANCE OF UNIFIED TRANSPORT QUALITY ASSESSMENT

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ABSTRACT

In the past, the only decisive quality indicator was that whether a customer had complained that product or service. His causes for complaints were considered only marginally or not at all. The quality examination of the provision of services was considered unrealizable. Under the quality assessment it was generally understood a claim of passing or failing of good's technic specifications. The presented article deals with the necessity of introducing a common quality assessment in the case of provision of transport services in freight transport, since this area largely affects the safety of people and the environment. In the world it has been developed several methods, which are mostly applied in individual countries. Globally, these individual processes for assessing the quality are presenting a significant risk, as are applied in the specific conditions of the country and there is no guarantee that the transporter will be in another country assessed as "good". It is therefore appropriate to develop an unified procedure which ensures that the evaluation of the transporter in any country is a guarantee of trouble-free international freight transport.

Key words

transport, quality, quality assessment, transport quality

INTRODUCTION

The world in latest years has been greatly changed and it will no more seem to be so large. It is not a problem to contact person in opposite hemisphere during few minutes although you have never seen him in your life. But thanks to the common communication language you can receive information that you need during short communication. State boundaries play rather formal role as a state independence sign. A speed by which we can move to any place is still increasing.

Open world today creates not only new opportunities for each entrepreneur, but new appeals at first. The using of new modern management tools and approaches is therefore becoming to be an obligatory part of each enterprise work, in increasing measure even touches also the enterprises of medium and smaller size, transport enterprises including. The production and its planning are markedly customer oriented. The customer's needs satisfaction measure can define also the enterprise position in transportation market, because exactly the customer is that final factor in quality assessment and appreciating.

According to (Christofakis, M., 2014) all historical periods of the evolution of spatial development patterns, transport, and particularly the availability of means and transport networks, the adequacy of infrastructures and the quality of services have played a key role in the spatial distribution of not only economic activities but also overall development.

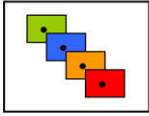
The understanding of quality was appreciably limited. The quality was understood only like a part of final product, like a formal indicator. When the product fulfilled defined standards it was accounted to be qualitative. An attention was kept only for summarising of defects and failures, the humanitarian demands like safety, dependability, noise, toxicity etc. were ignored in the appreciable measure. In present it is not sufficient traditional quality assessment based upon failures analysis and claims but it is needed to seek ways of quality development, to explore influences of quality changed factors and at the same time to breed employees and public to right quality assessment.

The quality is an indicator, which shows to what measure is the company able to fulfil the wishes of its customers and to what extent is the customer ready to return to the same producer or transport service provider. In the global surroundings a quality means the chance to hold against competitors.

An assessment of nonmaterial product – transport service quality is more difficult problem. A resulting product is not possible to measure or look through. However it does not mean that the quality in transport is not possible to assess.

In the past it was the only determining indicator of quality was, if the customer realised the reclamation or not. The reasons his casual reclamation were studied only marginally or absolutely not.

(Luo, J., Chen, Y., 2012) in published research claim, that the traditional choice method of transport mode selection is mainly based on the consignor's experience and subjective judgment. A few quantitative scientific decision-making method is used. The method of least total cost is often used, because the method is very simple and clear. But the method has not considered the other factors of time, volume, reliability, service level. Of course, there are some integrated models that include time shortest factor and so on, such as Analytic Hierarchy Process, Gray Theory. The above methods and models just consider the consignor's benefit maximization, without considered the consignors' behaviour and preference, so the decision-making has a certain one-sidedness.



The developmental evolution itself according to (Christofakis, M., 2014), through the technological change in the production and transport and changes in the structure of economic activity, has significantly altered the correlations between the cost of the different types of the transport work supplied. In particular, significant changes in recent years on the structure and location of economic activities, changes in productive methods because of the demands for the “just in time” shipments of goods, the increasing mobility of staff in the service sector, and the massive increase of car ownership, leisure time, and disposable income have significantly altered the determinant factors of global growth.

THE TASK OF ECONOMIC ANALYSIS OF QUALITY

It is not necessary to stress the importance and tasks of transport. It is one of the most important factors of the national economy and markedly shares to the home product. A huge amount of the road transporters brings up an importance of certain competitive advantage. This business successfulness appoints achieved quality of the provided transport service in the appreciable measure. The quality is an indicator, which shows to what measure is the company able to fulfil the wishes of its customers and to what extent is the customer ready to return to the same transporter. In the surroundings of the European Union the quality means the chance to hold against competitors.

The understanding of quality was appreciably limited. The quality was understood only like a part of final product, like a formal indicator. When the product fulfilled defined standards it was accounted to be qualitative. An attention was kept only for summarising of defects and failures, the humanitarian demands like safety, dependability, noise, toxicity etc. were ignored in the appreciable measure.

The figure No. 1 shows the time difference between the default generating and its next removing. Intensity of defaults (or defects) removing is very small at first, but it quickly grows in the later phases.

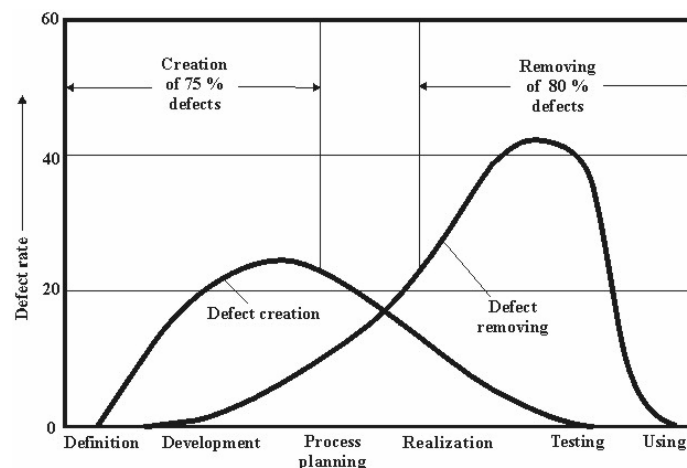


Fig. 1- The time difference between the default generating and its next removing [7].

In present it is not sufficient traditional quality assessment based upon failures analysis and claims but it is needed to seek ways of quality development, to explore influences of quality changed factors and at the same time to breed employees and public to right quality assessment. The economic analysis of quality in the road freight transport is therefore effective and necessary tool of the quality management.

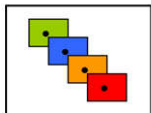
Economic analysis of service quality as one of the company's internal possibilities for assessing the quality of its production has to ensure best effectivity of used sources. It is not advisable to put extensive funds to quality projects, which do not provide increase revenues for the company and at the same time it would be unnecessary to increase costs for quality without the certainty that our revenues far outweigh them.

When planning quality is also important to remember to another aspect, namely that economic evaluation should have the minimum work involved.

The determination of economic advantageous quality is often difficult in sustainable changing business area of transport and logistics (exchange rates, interest, taxes...), because there is a problem in determining whether the ahead planning of the quality of these services is suitable with respect to financial sources and their return.

In general we can claim that for the economic assessment of selected transport or logistics services it is necessary to fulfill the three basic requirements:

- it is necessary to have the information that help you to measure, therefore, to quantify the results of examination activities, for example maintenance services as a component of quality of supply and so on.



- it is necessary to have defined criteria by which the measurement can be carried out and characterized by parameters which are to be expressed,
- it is necessary to have adequate methods by which the results will be qualitatively evaluated. Those can then follow different ways of stimulating how to achieve more and better results. [6]

A view is widespread that the complex and lengthy evaluation of the quality of service are applicable only in the case of large enterprises. The fact is that each transport operator has options for sufficient analysis of its services. As a basic assessment in the area of road freight transport may a classification into classes using qualitative criteria of mathematical statistics be mentioned.

In the beginning we form numeral series containing values of the examined quality attribute. Practically it is the most advisable to focus on one specific quality attribute in every test not to examine the quality of the whole transport service, e.g. shipment damage is our examined quality attribute. We can calculate for our numerical series basic statistical characteristics:

Arithmetic average

$$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n} = \frac{1}{n} \sum_{i=1}^n x_i$$

Standard deviation s

(Because of simplification, we formulate the standard deviation in a quadrat s^2 , which is called variance.)

$$s^2 = \frac{(x_1 - \bar{x})^2 + (x_2 - \bar{x})^2 + \dots + (x_n - \bar{x})^2}{n} = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$$

Obliqueness

$$a = \frac{(x_1 - \bar{x})^3 + (x_2 - \bar{x})^3 + \dots + (x_n - \bar{x})^3}{n} = \frac{1}{ns^3} \sum_{i=1}^n (x_i - \bar{x})^3$$

Variation coefficient

$$v = \frac{s}{\bar{x}}$$

It is possible that chosen numerical series will contain many attributes. In that case, we create the intervals where values are interdependent. Then for calculation, we consider the middle value of interval.

Choosing arranged into the categories we could plot through frequency diagram, which is compound of rectangles with the basic equivalent cross size of category and height equivalent multitude in that category. The sideboards are equal to down and top limits of category. The frequency diagram is possible to substitute by multitude polygon. [6]

In the area of theoretical curves, we most often use The Laplace – Gauss curve of normal distribution, which is set through the equation:

$$f(x) = \frac{1}{s\sqrt{2\pi}} e^{-\frac{(x-\bar{x})^2}{2s^2}}$$

If we consider the area, which limited by the curve and the x-axis, to be 100 per cent of examined attributes, we will be able to define the possibility of the appearance of values in arbitrary chosen interval

The figure No. 2 shows the example of normal distribution with the possibility of 95 per cent. This possibility sets the responsibility of the appearance of 95 per cent values in the chosen interval.

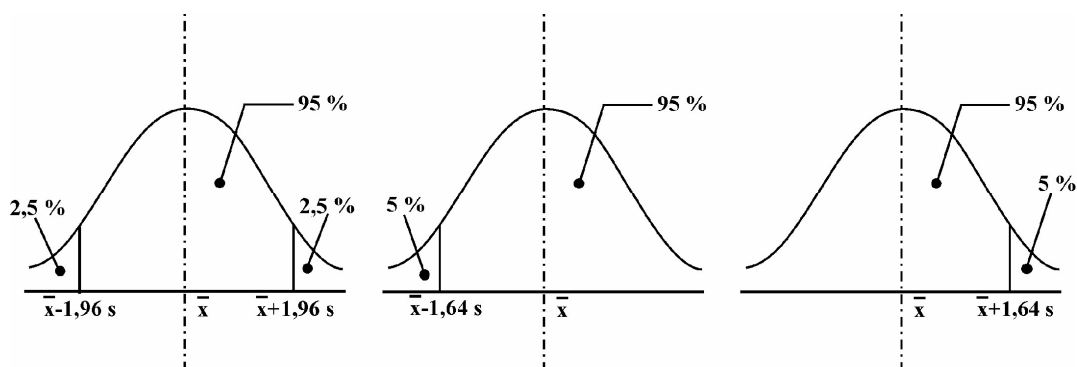
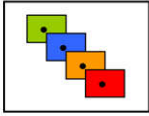


Fig. 2 - The symbolization of a percentage appearance of values and extreme values in the example of 95 percentage possibility – single and bilateral separated interval. [6]



By the application this statistic model in the area of road freight transport it is possible to define e. g. the most possible appearance of the shipment damage according to different time periods.

TRANSPORT SERVICE QUALITY ASSESSMENT IN DIFFERENT COUNTRIES

The present development of industry and services that is enhanced by the integration into the European structures, places a great emphasis on maximum satisfaction of customer requirements. A great pressure for quality management is created, which is aimed on harmonization of all activities with a target of optimal product quality. Continuous quality improvement is the current trend in the field of road freight transport and its supporting activities.

When analyzing the current situation of quality assessment of transport operators we were primarily focused on the survey of the situation in the Slovak Republic, then to foreign countries that have been divided into countries of the European Union and non-EU countries. Only description of the situation in certain selected countries was selected for the purposes of this paper.

As a result of a survey we can claim that the situation in different countries is not much different.

Slovakia

A lot of transport companies currently work in Slovakia that have received quality certificates ISO 9001. The certificate is thus seen as written proof of the company's ability not only to provide services with a high level of quality, but also the ability to provide a control system.

It can be said about the situation in the Slovak Republic that many quality standards are known, many of which are also in Slovakia certified by various domestic and foreign certification authority. These standards are not mandatory only recommended to achieve a certain level of quality of services in the road freight transport. Several companies are operating mainly in the road freight transport and are aware of the need for improving and evaluating the quality of the services they provide. Mostly used for this purpose the questionnaires and forms.

Belgium

Belgium has not established an assessment system for carriers operating in the field of road freight transport. But it is every year there realized an transport evaluation process as a research project involving four universities working groups.

This research captures factors such as reliability, safety, information, flexibility, responsiveness, accidents etc. and try to integrate them into a general analysis of the factors affecting the choice of a particular mode of transport. Survey based on a questionnaire involves all Belgian companies with at least 20 employees.

Czech Republic

Some a guideline for determining of the quality of services provided by transport companies may be again only ownership of ISO 9001 certificate. The data about the ownership of the certificate may be obtained by association ČESMAD Bohemia, but by only about those operators who are members of this association.

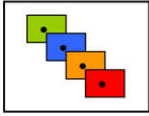
The road freight transport quality assessment thus again primarily relies on the standard ISO 9001. The implementation of quality management system according to ISO 9001 in transport companies introducing substantially the entire management of the provision of transport services with regard to quality. All processes in the company are thus ensured, which may ultimately have an impact on the quality of the service provided. Since this is an internationally recognized standard, and customers of transport firms sometimes need to have a carrier in the Czech Republic this system in place.

Ireland

With coordinating of transport is entrusted the section of traffic (The Department of Transport) of Irish Ministry. Its main task is to create conditions for a balanced transport policy, a safe, cost-effective and reasonable movement of people and goods.

Since 1999 IRHA (Irish Road Haulage Association) annually awards "IRHA Road Transport Award", known as The Hauler of the Year Awards - award of an honorary road transport operator of the year, which is the highest honors awarded in the field of road haulage. Interestingly, the carrier for this award is not nominated by company's employees nor its clients based on their satisfaction, but its competitors that are equally respectable for this award.

In this way, IRHA selects and identifies companies whose services have a higher standard of quality which consists in professionalism, outlined the objectives and the used procedures.



United Kingdom

Area of road haulage is concerned with the association of road haulage (Road Haulage Association - RHA). This association provides a means for all modes of transport in order to achieve certification according to ISO 9001. A total care of the transport sector is entrusted to the government's Department for Transport (Division of Transportation).

There are the independent institutions here that issued certificates for a specific type of transport. An example of such an institution is the English NPTC - national center for agriculture. It provides services to assessing the eligibility of road freight transport operator for the transport of live animals by road freight transport.

Transporter's assessment includes the evaluation criteria consisting of theoretical and practical knowledge and is divided into three obligatory parts and one voluntary part.

There are more similar systems of transporter's evaluation formed in England, each for a specific type of transportation (e.g. for the carriage of dangerous goods, gasoline, diesel and so on.). Methodology for the economic evaluation of the quality of transport services does not exist.

Australia

There is no regulation nor standard for the assessment of transport services in Australia. This means that it is still only for the customer and the provider of transport services, what approach will be taken in selecting the mode of transport and the transporter. Several handbooks or manuals were published, which are targeted at specific kinds of transport and the rules by which they must be complied with.

There is operating a large amount of offices, commissions and institutions in Australia, which are aimed at regulating of transport and various manuals and guides publishing. No institution nor any guide, however, does not address the quality of services and evaluating of transport services.

Japan

Japan's legendary sense of responsibility for quality is reflected in every area of industry. Different guides are published for the evaluation of various products, but the evaluation of the quality of services is available, those materials have not contained.

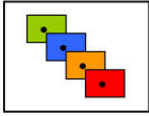
In Japan it is additionally emphasizes the need for determining of the person that is responsible for implementation of the process of the product assessment for archiving and documentation in all levels of management.

Main items for assessment may be environmental requirements and market criteria (e.g. cost, safety and so on.).

There are more similar evaluation systems in Japan, none of them, according to my research, pays interest for transport services evaluation.

Regarding to the fact that transport service is not a physical product, the criteria of its assessment are characterize by little quantification. We can stipulate e.g. these five criteria possibilities:

- The summary of claims and defects in service providing. Traditional assessment of non-quality product based upon the examination of failures amount, their frequency, iteration, importance and important costs from the economical point of view that are joined with non-quality. The number of claims frankly speaks about customer's dissatisfaction, but it does not indicate indeed its size.
- Self-assessment of transport service provider. In recent time it is noticeable trend to apply the system of the self-assessment in organization efficiency estimation. The aim of this work is to find strongness of the company and possibilities of its future improvement. The most used model for self-assessment is the EFQM (European Foundation for Quality Management) excellence model. In the road freight transport, it could be used for supplies accuracy assessment, claims solutions etc. The disadvantage of self-assessment system is that only involves company subjective viewpoints; it misses the customers' dissatisfaction feedback.
- Comparison with competition. It is about transporter competitiveness analysis comparing with other transporters in the area of expanded EU. This assessment not only guarantees the place in the order, but indicates company improvement, too. It is not only subjective point of view, because in this analysis the transporter can to find out the real situation in the transport market.
- The quality audit performed by specialized auditors is already more complicated. Its realization is effective in case of large transporters, because it relates to higher costs. The advantage of professional audit is to fully dismantle transporter's subjectivity.
- The Customers assessment. This is the criteria with the highest predictable ability for every company. It allows transport market segmentation according to its requirements. Public inquiry and questionnaire survey not include indeed comparing with competitiveness or own company assessment.



An idea is expanded that difficult and longwinded service quality assessment are applicable only in case of great companies. In fact, each transporter disposes with possibilities for satisfactory analysis own services. For example, in area of road freight transport it is possible to use the quantification according to the criteria of mathematical statistics.

An actual development of industry and services powered by implementation into European structures accentuates the maximal customer's demands satisfaction. It is created a great pressure on the quality management which task is harmonisation of all generating actions with an aim of optimal product quality. Continual quality increasing is the actual trend also for the road freight transport and its support actions area.

When I had analysed the actual situation in transporters quality assessment I targeted the situation in SR at first and thereafter the situation abroad. I have turned to many countries governments with the question to what measure is the interest aimed in their country on the quality assessment in road freight transport (or the transport anyway).

Some indications of transport quality assessment I have found in case of Czech Republic, Slovak Republic, Belgium and Ireland. Otherwise in other countries it is usual to monitor a quality of produced goods, the provided transport services quality assessment is an unprized thing.

It is important to remind that the road transport quality is not necessarily referred to quality certification according to the international file of standards ISO 9000. There is a lot of well-known quality standards that are outwards not relating to road transport, but the companies let certificate their systems according those standards for increasing competitiveness in road freight transport achievement.

When the world will be still smaller and people will be still closer to each other, transporters and other companies should realize following facts:

- competitiveness of countries is today little important, today more (than in the past) the states approach to the open cooperation,
- in global economy the companies, those productions will be of smaller quality, would be replaced by abler subjects with higher quality,
- consumer is not interested in level of enterprise's cost, customer wants to obtain high quality for an adequate prize,
- the quality assessment is not a luxury, it is necessity,
- a place in scale of most qualitative transport companies is an object of competitive prestige and long-time company growth.

Because of this it is need to define criteria on which bases it is possible to assess the quality of provided services in road freight transport objectively. Thus it is possible to define a measure, with what is the transporter able to win recognition not only in national, even international transportation market.

CONCLUSIONS

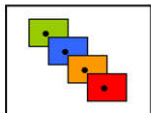
There is no need to emphasize the importance and role of transport. It is one of the most important elements of the national economy and contributes significantly to domestic production. The role of logistics in recent years has increased significantly, and no one doubts its importance. Exactly the logistics in close cooperation with transport ensures a maximum satisfaction of requirements of society.

Many companies, however, creates a need of certain competitive advantage. Such business success is largely determined by the achieved quality of provided service. Quality is an indicator that expresses the extent to which the company is able to fulfill the wishes of customers and the extent to which the customer is willing to return to the same transporter or logistics company and in the EU background creates is a chance to stand before competitors.

In the past, it has been very limited understanding of quality. Quality was understood only as part of the final product, as a formal indicator. The product was considered as good if it had met the standard. Attention was paid for only counting of defects and rejects, social requirements such as punctuality, safety, reliability, noise, toxicity etc. were largely neglected.

It is not necessary to emphasis the economic benefits that the quality of the provided service brings. From many effects we can choose:

- increasing the volume of sales,
- follow-up increasing of profits,
- ensuring customer loyalty, long-term contractual relations,
- new customers, investor confidence,
- build a reputation and image.



The issue of evaluation of services is quite extensive, given the insubstantiality of the product. Information necessary for the processing of the economic analysis are often inaccessible, respectively incomplete, because customer satisfaction is an indicator that is difficult to measure. While customer dissatisfaction is reflected in each case, the degree of customer satisfaction can often only be estimated.

It is therefore necessary to establish the criteria by which is possible to assess objectively the quality of services in transport and logistics. In addition, in EU surroundings, it is desirable a unified methodology for evaluating the quality of provided services to exist, for possibility to give the same requirements for the company to achieve their comparability.

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