

# Integration of logistic services quality in telematics

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## ABSTRACT

Article is present talk away integration quality services telematics. Presentation of result of author research is purpose of article over quality of logistical services at utilization of instrument among chosen operators of logistical functioning services in the area of Poland telematics. That takes be object of consideration author analysis of character and it takes a stand among quality of logistical services essence of rate that but telematics, but particularly, it part, which forms level of competitiveness in conditions of markets of logistical services.

**KEYWORDS:** telematics, quality, services logistics

## 1. Introduction

The quality of logistic services is vital in modern economic processes. An increase in users' requirements set to logistic services, in particular in the field of transport, forwarding, warehousing, or cargo distribution, forces to look for new, more competitive solutions, which would result in better supplies of goods; such possibilities are provided now by the telematics. However, the quality of logistic services cannot be considered only from the point of view of its separate features or properties, which themselves are very positive, because the right effects originates only from their integration. The special and specific nature of such approach to the issue of logistic services quality makes that even at scarcer quality resources available to logistic services operators it is possible – using telematic solutions – to create the effect of synergy. So the synergy of logistic services quality means

obtaining multiple benefits to the users thanks to skilful combination of quality features of services provided using telematics tools. From this point of view the synergy of logistic services quality is an indispensable condition for creation and cooperation of numerous quality features of logistic services, numerous its factors, which as a result may generate a level of quality higher than it would result from their simple perception and summation.

The paper is aimed at presentation of results of author's research on the quality of logistic services using telematic tools among selected operators of logistic services operating within Poland.

The subject of author's consideration consists of the analysis of nature and essence of the relationship existing between the quality of logistic services and telematics, and in particular this it's part, which in the conditions of logistic services market affects the competitiveness level.

## 2. Notion and origin of integration of logistic services quality

The phenomenon of logistic services quality has not been defined in the subject's literature, so it is not a separate term in scientific sense. Despite the fact that the integration as a phenomenon started to occur to a wider extent after World War Two, combined with quality it was not the subject of separate considerations up to now. Usually the integration is understood as a combination of quality features of logistic services, actions, activities, processes, and phenomena in fields of varying types of human activities related to logistics. Specifying this issue we may say that the phenomenon of integration of logistic services quality applies to consolidation of diversified features and properties related to quality. A new service created this way should have a potential exceeding the sum of possibility potentials of the previous services type. So the essence of integration of logistic services quality will always apply to the change in the structure of service provided. This process must result then in a new quality of this process. The integration of logistic services quality may be defined as the process comprising appropriate changes in the logistic services structure, which will result in their new value. Hence from this point of view it is possible to say that the notion of integration of logistic services quality applies in particular to the whole of methods and measures consciously created by a logistic services operator, which aim at integration with the level expected by the customer.

## 3. Premises on integration of logistic services quality

From the economic point of view the main premise on development of contemporary phenomena related to integration of logistic services quality is the prospect to achieve much higher level of logistic processes quality in a global scale. Increasing quality requirements of customers force to increase the quality level of services provided. Such features of logistic services quality as, say, the speed of deliveries, their timeliness, or deliveries flexibility and services accessibility make that it is necessary to link the phenomenon of integration of logistic services quality with the telematics. The notion of integration of logistic services quality defined this way should be based on the following premises:

- adaptability, which refers to size, nature and diversification of customers needs and the market, in which an operator of logistic services is operating,

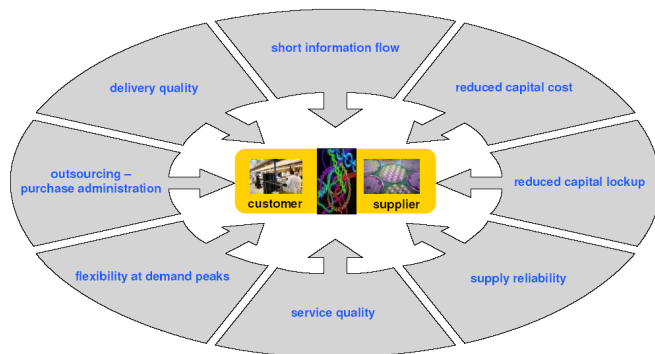


Fig. 1. Allocation of contemporary integration processes with reference to customers and suppliers

Source: arrowce.pl

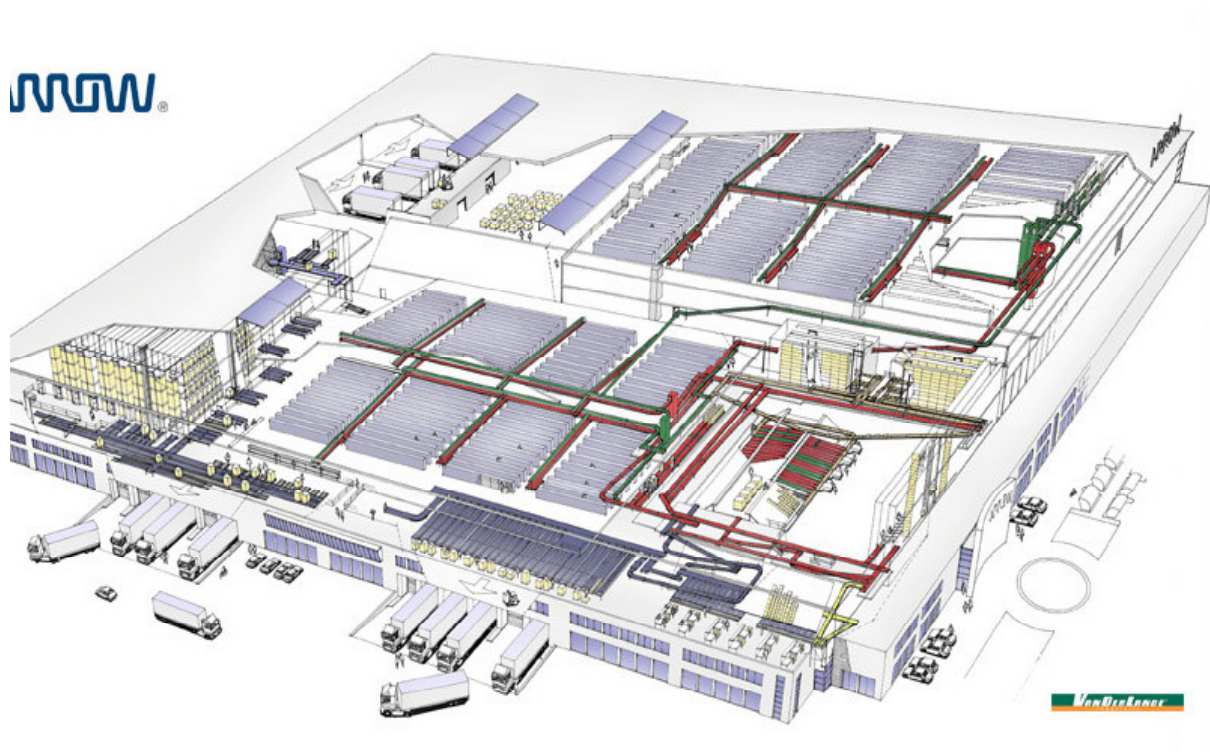
- flexibility, which refers to a harmonious cooperation with customers,
- the optimum of expenditure incurred on implementation of services in specific conditions of logistic services market.

The notion defined this way and the premises on integration of logistic services quality should ensure reaching specific goals related to the level of customers and suppliers quality needs, which focus now mainly on specific telematics technique and technology, comprising mainly customers and suppliers – Fig.1.

So the essence of integration of logistic services quality results primarily from the nature of the environment, in which an operator of logistic services operates, and is determined by the market arena, which is a kind of integration area of logistic services quality of specific logistic entity with its environment – for which it is a point of reference, development and survival. In conditions of contemporary market economy, where the scope and nature of application of integration of logistic services quality is related on the one hand with intensification of phenomena resulting from economy globalisation processes and on the other hand conditioned by local relationships – an operator of logistic services concentrates its integration activity in three types of planes.

## 4. Planes of integration of logistic services quality

A logistic centre is a special plane of integration of logistic services quality in contemporary logistic processes. Logistic centres may be considered as a kind of system of integration processes of logistic services quality. The structure of integration of logistic services quality in a logistic centre may be considered based on three planes.



**Fig. 2. Logistic centre as a system of integration of logistic services quality**  
 Source arrowce.com

The first plane and its relevant elements of integration of logistic services quality apply to the integration “on the entrances”, where specific processes related to reception of cargo, i.e. providing a means of transport for discharging, unloading, quantity and quality control and transfer to a temporary location and then to appropriate place in the warehouse, use specific telematic tools and concentrate mainly on cargo identification, shaping thereby further stages of logistic processes both in the field of haulage, forwarding, warehousing, consolidation, packaging and further distribution etc.

The second plane and its relevant elements of integration of logistic services quality apply to integration “on the exits” from the logistic centre. In this plane the concentration of integration of logistic services quality applies to taking the product from appropriate place in the warehouse, preparing the product for shipment – products’ completing and packaging, transfer to the temporary location and preparing for distribution, loading onto means of transport. The essence and importance of the “on the exit” phase focuses on processes of delivery and distribution, taking place on the market. It is here, where logistic services operators act as suppliers of specific level of logistic services integrated in terms of quality. The level of offered integration of logistic services quality gets an outlet on the market. From this

point of view, the integration of logistic services quality in a specific way adapts to requirements set by the customers – Fig.2.

The third plane and its relevant elements of integration of logistic services quality apply mainly to the transport and distribution; this is a specific part of integration of logistic services quality to the extent that it applies both to a logistic services operator and his customer. The process of integration of services quality in this phase concentrates on the adaptation of specific integration solutions related to services quality, where logistic services operators act both as integrators and integrating entities. Describing vividly, the integration of logistic services quality is an element of market play, which is carried out to sell own services as well as possible. From this point of view, the goal of integration of logistic services quality will be related to:

- winning customers interested in appropriate level of integration of logistic services quality, who are interested in cooperation and integration development, creating thus specific added value, which they will achieve in the given market;
- acquiring the right to implement a part or the whole of value chain against subcontractors of logistic services – to allocate a part of integration processes outside the supply chain, e.g. forwarding services, within the strategy of outsourcing;

- winning partners from the sector for integration alliances, with whom it is possible to raise the level of logistic services quality, increasing thereby their value in the supply chain, increasing thus the level of competitiveness and thanks to that obtaining advantage over competitors.

In each of aforementioned integration planes a logistic services operator tries to acquire and develop specific instruments of integration of logistic services quality, to be able to achieve the assumed integration objectives in a more or less effective way. Each of logistics integration objectives features specific characteristics.

The integration plane “on the entrances”, which is aimed at application of instruments of logistic services quality integration focusing on maximisation of effectiveness of resources acquired, and hence on obtaining the highest resources’ value/cost ratio. The value of resources in this case is determined by predicted value of effects, which may result from those resources application in specific conditions of logistic services market. So transport instruments “on the entrances” directly generate costs.

The integration plane “on the exits”, which is aimed at application of instruments of logistic services quality

integration focusing on maximisation of the quality of services provided in specific market conditions. The level of integration of logistic services quality is primarily the sum of its practical values offered by a given operator in specific market conditions. Practical values of integration of logistic services quality result first of all, on the one hand, from logistic resources available to specific entity providing logistic services and on the other hand from the level of its adaptation to customers’ quality expectations. From the point of view of the exit plane, the instruments of transport integration are conditioned by:

- resources affecting the integration level of services quality, available to the operator,
- the nature of customers’ expectations of services quality integration.

The integration of logistic services quality results from the possibilities available in this field to specific logistic services operator, who may use them to build specific customer relationships by adapting their practical values to the maximisation of provided services practical value. From this point of view, it is possible to refer to a structure of specific features of logistic services quality, which level affects the integration processes. From the point of view of telematics, referring to a logistic centre, the following

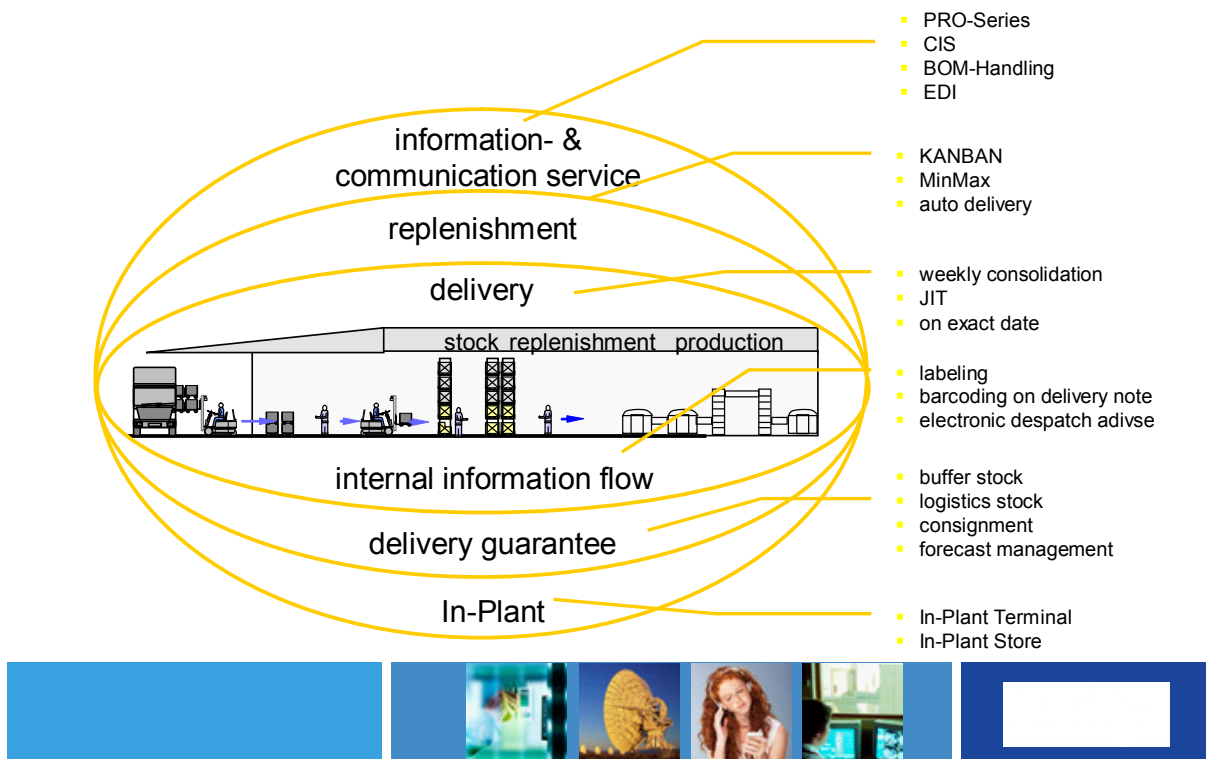


Fig. 3. Structure of the process of integration of logistic services quality in a logistic centre  
Source: arrowce.com



types of features affecting the level of integration of logistic services quality may be distinguished :

- information & communication service,
  - replenishment,
  - delivery,
  - internal information flow,
  - delivery guarantee,
- in plant terminal, in plant store – Fig.3.

## 5. Equilibrium of integration level of logistic services quality

The nature of logistic services customers' expectations, from the point of view of quality integration scope, results primarily from their needs. Because the logistic needs and the level of their satisfaction is the basic determinant of application of specific quality solutions on the logistic services market, aggregated by customers in given market conditions. From this point of view, the aggregation is the sum of practical values of logistic service quality and of measures used to satisfy it. Because with increasing integration level of logistic services quality also the aggregation level increases. The integration level of logistic services quality increases to the extent, to which the aggregation level is capable of comprising all its features. When the integration level of logistic services quality increases too fast as compared with the increase in the aggregation level, at some moment the equilibrium will be upset, which may result in the disintegration – i.e. in decomposition into random components, which cannot satisfy advised needs for logistic services quality. So the integration level of logistic services quality is related to the aggregation level. In other words, each integration level of logistic services quality may be assigned a specific aggregation level. So the essence of the

phenomenon comes down to determination of the equilibrium level between the integration level of logistic services quality and the aggregation level of practical values.

Transport disintegration is an unfavourable effect both for logistic services customers as well as for such services operators. The equilibrium upsetting caused by too fast increase in integration of logistic services quality as compared with the pace of such services' practical values aggregation is conditioned on the one hand by the level of integration increase in logistic services quality and on the other hand by the degree of maintaining the equilibrium of logistic services quality practical values aggregation. Excessive acceleration of logistic services quality integration may result in limitation of the equilibrium level of practical values aggregation of provided logistic services – Fig.4.

From this point of view it is possible to assume, that there is a specific equilibrium level of logistic services' practical values aggregation ( $r_a$ ), at which the growth rate measured by the rate of integration increase in logistic services quality ( $r_x$ ) is the highest – Fig. 4. The integration growth rate of logistic services quality is a measurable notion, while the reaching of aggregation equilibrium is a notion much more difficult to measure. As it results from Fig. 4 the difficulty increases, when considering that the system measure must take into account two magnitudes, namely speed and order. Because the essence of the phenomenon cannot limit itself only to a simple relation of increasing the integration speed of logistic services quality at the cost of equilibrium of aggregation level of such services practical values. Because the fact of being guided by such principle may result in the state, in which the aggregation level of such practical values of a logistic service as e.g. safety or timeliness will be disintegrated even on a small section of the supply chain. So the achievement of a specific integration level of services quality in the logistics should be translated each time into the aggregation level of logistic services practical values, which each time should result in the increase in its users' satisfaction – because it expresses a qualitative increase, what is the essence and content of the management process in the logistics. The determination of the optimum point "A" is an art, because to a large extent it depends on the fact that the increase in the integration level of services quality should be followed by the aggregation level of logistic services practical values.

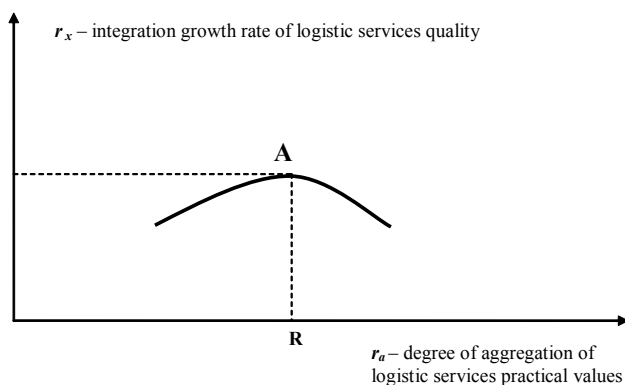


Fig. 4. Equilibrium of integration level of logistic services quality  
Source: own study

## 6. Conclusions

The paper raises the issues related to the integration of logistic services quality in telematics in Poland. The author focuses especially on the discussion of the notion and origin of integration of logistic services quality as well as on integration planes and their equilibrium.

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