SYNTHETIC ANALYSIS OF LOGISTIC CUSTOMER SERVICE LEVEL IN THE LIGHT OF COMPANIES RESEARCH IN OPOLE PROVINCE

Tadeusz Pokusa[1],
Adam Muszyński[2]

Summary

This paper is an attempt to describe the practical state of the outlooks upon selected aspects of logistics as a result of a wide range of research conducted by the author in dozens of companies in the area of Opole Province, Poland. This research encompasses, among other things, issues of isolation and the hierarchy of premises that stimulate and limit the development of logistics, criteria and indexes of logistic customer service evaluation, the organization of logistic function or also the level and structure of logistic costs.

Keywords: customer logistics, Opole province companies, customer demand, service evaluation

Introduction

Logistics is a process of the management of the whole supply chain; on one hand this chain is understood as a physical logistic stream that comprises the flow of resources and materials, production in progress, finished goods, spare parts and waste material. On the other hand, however, these are information streams which together with physical streams make up a network of logistic decisions. These decisions are connected with the above mentioned

[1] Associate Prof. PhD, Higher School of Management and Administration in Opole, Poland.

[2] Associate Prof. PhD; Director, Center of Education and Consulting "MADA", Poland.

flow from the initial source throughout all of the intermediate phases up to the point where it is delivered to the final customer[3].

The basic assignment of contemporary logistics is the submission of its activities to customer service demand, which means that ever greater research participation and economic applications will be addressed to the creation and delivery of the proper kind and level of services for a purchaser. Hence delivery service and rendering of logistic services to consumers and suppliers as a multidimensional logistic effect should take a key position in the development of a market subject[4]. That is probably why we come across a statement in literature on the subject that logistics is a process of the management of the whole supply chain 'from customer (!) to resources'. In these terms all of the value and advantages gained by the customer as a result of strategic logistic activities, which can be expressed by the formula 7P (proper customer, proper product, proper quantity, proper time, proper place, proper state, proper cost of logistic activities), constitute a certain extension and increased knowledge of a marketing conception of customer demand fulfillment which is specific strategy of customer service. Logistic perfection and quality play a salient role in this process, enriching product value with a set of qualities which constitute a defined advantage for the customer[5].

The growing importance of the mentioned quality and logistic perfection cause on one hand, the necessity of defining the complex premises which stimulate and limit the processes of organization and logistic development itself and on the other hand the working out of such control technics which enable objective evaluation of function realization connected with these processes. The aim is not only to make possible for companies self-inspection of the formation of the above mentioned phenomena but they constitute an important instrument of trading-partner selection as well. An attempt to classify the criteria and indexes that evaluate the level and quality of logistic

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[3] See more: LUMMUS R, KRUMWIEDE D., VOKURKA R., *The relationship of logistics to supply management: developing a common industry definition*. In: Industrial Management & Data Systems. vol.Hll , No.8, 2001; T. POKUSA, (ed.), *Zarządzanie, Logistyka, Finanse – Problemy innowacyjności i instrumenty analizy*, WSZiA Opole 2012 ss. 287; T. POKUSA, Логистико-маркетинговые процессы обслуживания клиент*а* в управлении цеп*очкои* п*оста*в*о*к, Tucco, Москва, 2005.

[4] See more: P. BLAIK, R. MATWIEJCZUK, T. POKUSA, *Integracja marketingu i logistyki – wybrane problemy,* redakcja naukowa całości, Politechnika Opolska, Opole 2005.

[5] See more: T. POKUSA, (ed.), *Zarządzanie, Logistyka, Finanse – Problemy innowacyjności i instrumenty analizy*, WSZiA Opole 2012 ss. 287; T. POKUSA, Логистико-маркетинговые процессы обслуживания клиент*а* в управлении цеп*очкои* п*оста*в*о*к, Tucco, Москва, 2005.

service of an organization has been presented by the author in materials from a conference organized in Poznań, Poland; hence this problem is not going to be further discussed here[6].

Taking into consideration the fact that the present literature on logistic theory is richer than a few years ago as regards articles, conference papers or concise works, the author of this work concentrates on wide research of knowledge transformation level and scientific output experience in the area of logistics on practical grounds (Reśko, Wołowiec, Żukowski, 2010). It is hoped that executives of Polish organizations while searching for sources of increased efficiency will base themselves on tried and true patterns of contemporary logistics directed, as mentioned above, towards consumer needs the recognition of which becomes a main assignment[7]. And it is hoped they will take up work in this direction. Activities should be initiated with the analysis and diagnosis of a given organization's condition and treated as a basis for projected changes in the logistic system. It is a difficult problem but one that is possible to solve with the participation of logistic experts from the outside and proper staff preparation within the organizations. The above assumptions have become the basis of conducted research the selected elements of which, in the form of results, are presented in a further part of this paper. It is important to emphasize that they met with interest and acceptance on the side of organizations as evidenced by hundreds of completed and returned surveys and requests for information about results.

Review of literature

It has been recognised that eco-efficiency improvements at production and product design level can be significantly reduced or totally negated by rebound effect from increased consumption levels[8]. In line with this problem factor 10 to 20 material and energy efficiency improvements have been suggested[9]. The improvements, however, if not carefully done, may still

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[6] CHANDRA CH., KUMAR S., *Supply chain management In theory and practice: a passing fad or a fundamental change*. In: Industrial Management & Data Systems, vo1.100, No.3, 2000.

[7] T. POKUSA, B. KACZMAREK, Łańcuch dostaw i jego modelowanie, – w: T. Pokusa (ed.), Przejawy wielowymiarowości współczesnego zarządzania, WSZiA, Opole 2011 s.187-207.

[8] See more: LUMMUS R., KRUMWIEDE D., VOKURKA R., *The relationship of logistics to supply management: developing a common industry definition*. In: Industrial Management & Data Systems. vol.Hll , No.8, 2001.

[9] See: J. STOCK, *Marketing myopia revisited: lessons for logistics,* International Journal of Physical Distribution & Logistics Management, vol. 32, 2002; STOCK J. R., BOYER

lead to rebound effects through changes in resource prices[10]. The product service system (PSS) concept has been suggested as a way to contribute to this system level improvement[11]. Here the environmental impacts of products and associated services could be addressed already at the product and service design stage[12]. Special focus should be given to the use phase by providing alternative system solutions to owning products. Private consumers, contrary to businesses, prefer product ownership to service substitutes. Even if accepted, the environmental impacts of "servicised products" offers depend to a large extent on consumer behaviour. To address this problem, either behavioural or service system design changes are needed. Changing human behaviour and existing lifestyles contributes to the vision of sustainable development, but at the same time, it is an extremely difficult and time-consuming process[13]. High quality goods and service are favored in the marketplace and high service quality performance does produce measurable benefits in profits, cost savings, and market share. Research also indicated that service quality has been increasingly recognized as a critical factor in the success of any business[14]. The topic of measuring service quality has been studied extensively in the past fifteen years[15]. In 1988, Parasuraman, Zeithaml and Berry develpoed a multiple-attribute scale called SERVQUAL for measuring service quality. The SERVQUAL scale operationalises and

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S. L., *Developing a consensus definition of supply chain management: a qualitative study, International Journal of Physical Distribution & Logistics Management,* Vol. 39 No.8, 2009.

[10] STOCK J. R., BOYER S. L., *Developing….,* op.cit.

[11] As a potential solution to the factor 10/20 vision, system level improvements have to be made, contrary to redesigning individual products or processes (Weterings and Opschoor 1992; Vergragt and Jansen 1993; von Weizsäcker, Lovins et al. 1997; Ryan 1998; Manzini 1999; Brezet, Bijma et al. 2001; Ehrenfeld and Brezet 2001).

[12] See more: WILLIAMS Z., LUEG J.E., TAYLOR R. D., COOK R.C, *Why all the changes?* International Journal of Physical Distribution & Logistics Management Vol. 39, No. 7, 2009.

[13] See more: REŚKO D. WOŁOWIEC T. ŻUKOWSKI P.: *Zasadnicze problemy z podstaw zarządzania organizacją*. Nowy Sącz: Wyższa Szkoła Biznesu – National-Louis University 2010 and CZYRKA K., Human capital management in the Euroregion Pro Europa Viadrina, w:*Przedsiębiorczość na pograniczu -wybrane problemy,* ed. M. Byczkowska, *Studia i Prace Instytutu Ekonomicznego nr 5,* Wyd. PWSZ Gorzów Wlkp., Gorzów Wlkp., 2012, s. 55-65.

[14] See more: RUTKOWSKI K., *Producent i detalista w zintegrowanym łańcuchu dostaw,* w: *Przedsiębiorstwo partnerskie* red. M. Romanowska, M. Trocki, Difin , Warszawa 2002; J. STOCK, *Marketing myopia revisited: lessons for logistics,* International Journal of Physical Distribution & Logistics Management, vol. 32, 2002.

[15] T. POKUSA, *Supply chain management in aspect of security –literature review,* w: Management in the new economy. Classic and modernity. Eine Verhandlung und Studien. Europaischer Akademie der Naturwissenschaften. Hannover 2009, s. 279-296.

measures service quality along five distict dimensions that can be viewed as indicators of the construct of perceived service quality. The SERVQUAL instrument has been verified and tested in assessing service quality in restaurant business as well as in the tourism industry[16]. Stevens, Knutsons, & Patton proposed an instrument called DINESERV to assess customers' perceptions of a restaurant's service quality. DINESERV was adapted and refined from SERVQUAL and LODGSERV (a measuring scale for service quality in lodging properties) containing 29 statements on a 7-point response scale. It was used to undertake periodical surveys and to determine changes in perceptions as the results of changes in normative expectations and of service quality delivered[17].

Analysis of research results

Survey research was conducted in June 2013 and encompasssed 74 organizations of Opole Province, Poland employing over 75 workers which gives 93% of all similar firms. Eventually, 67 organizations answered the survey positively i.e. 90% of all economic entities that received the survey such as: Kedzierzyn Nitrogen Works PLC, Blachownia Chemical Plant in Kędzierzyn-Koźle, Głubczyce Brewery PLC, "Górażdże" Cement and Lime Plant PLC, Enterprise for Reconstructions and Modernizations of Power Engineering Equipment 'REMAK' PLC in Opole, Odra Enterprise for Fat Industry PLC in Brzeg, 'FAMAK' Machine and Devices Factory PLC in

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[16] See more: P. BLAIK, R. MATWIEJCZUK, T. POKUSA, *Integracja marketingu i logistyki – wybrane problemy,* redakcja naukowa całości, Politechnika Opolska, Opole 2005; CHANDRA CH., KUMAR S., *Supply chain management In theory and practice: a passing fad or a fundamental change*. In: Industrial Management & Data Systems, vo1.100, No.3, 2000; LUMMUS R, KRUMWIEDE D., VOKURKA R., *The relationship of logistics to supply management: developing a common industry definition*. In: Industrial Management & Data Systems. vol.Hll, No.8, 2001; T. POKUSA, (ed.), *Zarządzanie, Logistyka, Finanse – Problemy innowacyjności i instrumenty analizy*, WSZiA Opole 2012 ss. 287 and T. POKUSA, Логистико-маркетинговые процессы обслуживания клиента в управлении цепочкои поставок, Tucco, Москва, 2005.

[17] T. POKUSA, *Supply chain management in the light of the integration process – theoretical studies*, [w] Contemporary problem of the socio-economic policy in Poland, Editor M. Bucka, Opole University, Opole 2007; T. POKUSA, *Supply chain management in aspect of security –literature review,* w: Management in the new economy. Classic and modernity. Eine Verhandlung und Studien. Europaischer Akademie der Naturwissenschaften. Hannover 2009, s. 279-296; T. POKUSA, B. KACZMAREK, Łańcuch dostaw i jego modelowanie, – w: T. Pokusa (ed.), Przejawy wielowymiarowości współczesnego zarządzania, WSZiA, Opole 2011 s.187-207.

Kluczbork, 'Frotex' Cotton Industry Works PLC in Prudnik, 'Opolwap' Silesian Lime Industry Works in Tarnów Opolski.

Surveyed organizations represent different industries (10) the structure of which is presented in illustration 1. The chemical industry is most numerously represented here i.e. 21% of the surveyed organizations, food-stuffs 17%, machinery 12%, furniture manufacture 9%, metallurgic and leather trade 8% each, motorization 11%, light industry 6%, energy industry 5% and papermaking 3%. Initial survey questions were connected with factors that stimulate and limit the development of logistics in organizations. As a result of research conducted the final hierarchy has been arranged as depicted in table 1.

Table 1. Factors that stimulate and limit the development of logistics

Item	Factors of logistic development in an organization	% answers	Item	Barriers to logistic development in an organization	% answers
1.	The development of competition on the market	85	1.	Low level of logistic knowledge in organizations	77
2.	The necessity of rational inventory management	79	2.	Underestimation of logistics as a management conception	68
3.	The increase of logistic customer service level	70	3.	Lack of awareness about the integrated role of logistics	60
4.	The development of information systems	55	4.	Imperfect information system	52
5.	The restructuring of organizations	53	5.	Lack of readiness in creating a department of logistics	46
6.	The reduction of logistic costs level	50	6.	The lack of recognition of possibilities of logistic costs reduction	44
7.	A considerable number of economic subjects	38	7.	Unsatisfactory financial situation of the organization	38

8.	The necjessity of improveiment of goods flow	36	8.	A gap in the i transformation of world achievements in logistics to Poland	35
9.	The increase of logistic awareness of managers	35	9.	Focus on cost not market	31
10.	Goods quality improvement	34	10.	Defective hierarchy of goals in organization management	28
11.	New technologies development	32	1.	Low qualifications of people in logistic services	24
12.	Increase in productivity	29	2.	Poor telecommunications	23
13.	Increase in significance of specialists logistic services	20	3.	Poor cooperation systems	21
14.	World competition	14	4.	High inflation level	20
15.	European market globalization	12	5.	Limited funds for training and logistics implementation	19

Source: Own study

As seen from the data in the table the greatest possibilities for logistic stimulation, organizations perceive in the development of competition on the market (85%), the necessity of rational inventory management (79%), the necessity of growth in the level of logistic customer service (70%). It may seem interesting, the fact that market globalization and world competition are not perceived as crucial premises of this stimulation. However firms see fundamental barriers in the low level of logistic knowledge (70%), underestimating logistics as a valuable

conception of management, (6.8%) or lack of awareness about the integrated role of logistics (60%). It may seem consoling, the fact that 'limited funds for training and implementation of logistic solutions' do not constitute an essential barrier in. the analytic process.

In a further part of the survey, keeping in mind the role of logistic customer service, the surveyed individuals (in upper and lower level management) were asked to rank the accepted criteria of this logistic service on a scale of 1 to 5 (1-min, 5- max), and also to define the level in their own organizations from 1 to 10 (1-min -10 max). It is necessary to emphasize that 83% of those surveyed 'fully' accepted the presented set of criteria and indexes, declaring the need to implement them in their own organizations. An overall summary of the mentioned problem is contained in the table no. 2 in the form of research results.

Table 2: Criteria and indexes of logistic customer service exemplified by organizations of Opole Province, Poland

Item	Criteria of logistic customer service	Indexes of logistic customer service	Ranking of criteria	Level of customer service indexes
1.	Delivery punctuality	Degree of probability of keeping the fixed term of delivery	4,31	7,38
2.	Quality of delivery	Delivery size accepted by a customer to the total size of delivery	4,12	7,54
3.	Quickness of delivery	Period between reception and order realization	4,03	8,08
4.	Flawless delivery	Participation and frequency of deliveries which are reclaimed to total of deliveries	3,87	7,77
5.	Flexibility of delivery	Reaction level on changes of customer demands	3,81	5,61
6.	Delivery service	Level of aftersale service	3,72	5,92

7.	Readiness of delivery	Participation of ordered goods which can be consigned immediately	3,63	7,07
8.	Information about delivery	Participation of customer satisfying information about delivery to all information in this range	3,54	6,61
9.	Delivery reliability	Ratio of substantiated returns to total returns	3,36 1	6,53
10.	Eco-friendly delivery	Participation of environment--friendly resources in protective elements of consignment	3,29	6,23
11.	Delivery Rhytmicity	Ratio of the number of days in a surveyed period to the number of deliveries	3,27	6,46
12.	Classical character of | deliveries	Level of new goods offer in a total offer	3,00	5,23
113.	Responsive character of deliveries	Number of delivery elements received "ahead of time" to total number of elements	2,08	3,76

Source: Own study

The conducted research shows mat punctuality, quality and quickness of delivery play the deciding role in logistic customer service whereas the classical and responsive character of delivery are less essential. At the same time, it turns out that firms of the Opole region, from the point of view of customer service, most highly appraised the criteria of quickness and reliability in delivery.

Conclusions

High quality customer service with proper resources usage and profit increase is the main goal in the classical supply chain where operations rarely happen in uncertain and emergency conditions. Moreover, it is characterized

by efficiency, stability, regularity in supplies and demand and diverse range of products. Delivery time depends on rapid flow of information and materials. Deliveries are "pulled" by purchasers motivating and affecting particular links in the supply chain. In this case location and the number of distribution centers are strictly defined and expected financial results refer to the value of shareholders and customer satisfaction[18] [13]. In the humanitarian chain, however, decreasing number of victims and mitigating sufferers pain is the top priority. Basic qualities like efficiency, changeability of suppliers, irregular homogenous demand and coercion under crisis situation define the humanitarian supply chain. Demand response should instantly follow a disaster. The supply chain must trigger a direct response and should develop at once. Deliveries are "pushed" by instable infrastructure to a disaster region as a direct response to demand. Unfamiliar location of distribution centers and undefined scope of disaster is a hindrance to distribution process and results are connected with environment expectation.

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