

PURCHASING PROCESS ENGINEERING AS A FACTOR SHAPING THE QUALITY OF SERVICE

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Abstract— This article attempts to define the engineering, purchasing process, and release engineering process affect the quality of service. The article discusses the need for purchasing engineering and check your expectations and creates the technologies used to build the level of quality. Proposed selection criteria as factors engineering, and shows the duality in terms of external and internal influence on the perception of the level of quality. Gear ratio engineering processes for purchasing process engineering makes it possible to search for appropriate technical means to shape the quality of services and also makes the possibility to find a quantifiable method of assessing the effectiveness of the criteria used in.

Keywords— process engineering, purchasing process engineering, quality, quality of service

I. INTRODUCTION

LOGISTICS processes in a company based on human activities tend to define logistics as an economic activity directly related to the wide-ranging exchange of goods [1]. The process is called as successive operations involving the production of goods and services in order to meet a specific demand. In the structure of different societies the process of satisfying human needs is always seen as a historical phenomenon dealt with multiple threads in across sectors of the economy. For Polish enterprises during the years '80 and '90, purchasing and a wide range of processes associated with this was seen as a necessary evil. As an element that is only cost absorptivity and strongly inelastic. At the present time the supply is one of the most important divisions included in the structure of the company, part of the strategy, and often the financial and a qualitative factors of competition in the market. It should be noted that the purchasing construed as a process is included in practically every possible division of economic processes. In industrial processes can be found purchasing-top-up aspect, in agriculture – auxiliary aspect, in other processes are located economic and marketing operations [2]. Of particular note are service processes, because just in these aspects provision of these services and the purchase and storage are crucial. Thus, if the economic activity in Poland and in many other

countries is carried out based on the assumption of a market economy, One can move towards finding that the provision, and particularly purchasing process engineering will be of key importance for the perception of the quality of service. Quality in this case should be dealt with bilaterally. As an internal desire to improve, and as the external aspect as to satisfy customer expectations. Process-these conditions determines that one can says just about engineering. Assuming that provision as a strategic factor is a process, but also in terms of process activities related to, from a technological point of view, the efficiency of the service, Such an approach should be determined as purchasing process engineering having a direct impact on the creation of quality of service. The purpose of this article is to present a theoretical purchasing engineering principles used in the development of service quality. In this article was used a method of critical analysis of the literature and participant observation in the described processes.

II. PURCHASING ENGINEERING

The concept of logistics process is referred to by many as a value chain in which the product and service characterized by transformations in the form of a change of time, place, quantity, range, etc.[3]. There is a company in which do not occur logistics processes. One can, of course, accept the theory that in view of the difficulty in managing logistics processes would be best to leave them without giving management direction, either although try to find a possibility to manage them [4]. It's hard after all traced to the randomness of the highly developed countries in the use of logistics increasingly, referring to the scope and area [5]. The infrastructure of logistics processes perfectly illustrates the functionality of the purchasing process. To present the essence of engineering, procurement should first focus on the functional vertical structure. However, in many cases, the management of actions, or directly of specific process obliges the coexistence of a functional structure with the horizontal structure together [6]. This combination is the result of the technical nature of the

undertaken activities at the operational level. Process in terms of functional-horizontal structural is shown in Fig. 1. [7].

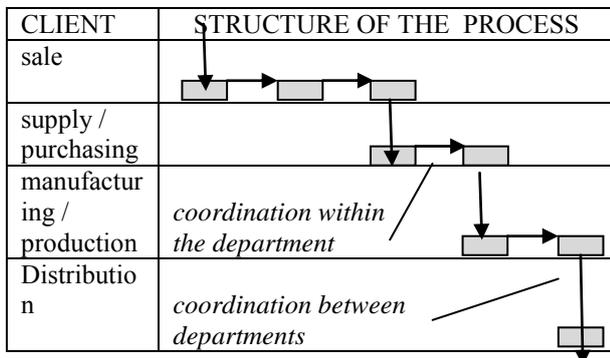


Fig. 1. Logistics process in the functional structure of the process.

To be able to talk about the engineering process, need to refer to the methodology for the design of logistics processes, which is the essence of making engineering process. An important role in that regard plays the supply chain management because of the connection to nature of the over organization target. Therefore, one can speak of engineering for the fulfillment of three basic criteria:[8]

1. Diagnosis requirements and service level of the final customer.
2. The diagnosis, in which points locate stores chain.
3. Development of integrated supply chain management procedures.

This is proof that the engineering processes must be based on the control of the supply chain, which is oriented to the end customer.

The purchase area is a difficult process in terms of susceptibility to time control by logistics managing for several reasons:

- there is a high susceptibility to loss of control in the course of time the process
- quantitative problem in the economic size of the contract, which are not taking into account beyond the cost aspects,
- is the effect of 'iceberg' associated with an impractical approach to estimating demand forecasts
- efficiency problems related to the buffer time, which results from inadequate planning.

Given the quantifiable nature of the above mentioned problems, and the fact that these are the problems placed on the timeline, that are subject to the phenomena as lean and agile, can certainly define this approach as an purchasing process engineering. With this approach the engineering makes it possible to characterize the support elements, or simply troubleshooting efficiency. Should be mentioned here about a rational approach to the process. Through the concept of rationality in purchasing understood simply optimal management. The essence of purchasing is to ensure the company's activities by fusing the necessary measures to provide supply of materials

[9]. It is important to keep in mind about the account of all the factors that may have an impact on the rationalization process. Thus in the process of purchasing the necessary seems to be engineering approach. This is influenced by several factors, especially factors that indicate the technical nature of this process. The technical nature of the response reflects what and how to carry out the process of ensuring the efficient and effective projects. The contemporary realization of rationalization in the process of purchasing is nothing but an engineering understood by: [10]

- design a proper concept of strategic and operational purchasing activities in the enterprise,
- rationalization process using lean and agile management philosophy in terms of taken the time and cost actions,
- the use of modern methods to measure the time driven activity based costing,
- algorithms for the process, and the application of graph theory to anastomosis the consecutive facts,
- carrying out measurements and determination of the critical points for the risks in the supply,
- adequate response to the changes and decisions to shorten or extend the response time,
- the use of management techniques based on a critical analysis.

The above features indicate the possibility and the need to simultaneously use leadership skills of engineering activities, which are designed to minimize costs and increase operational capability [11]. The connection diagram of engineering and management tasks in purchase is shown in Fig. 2.

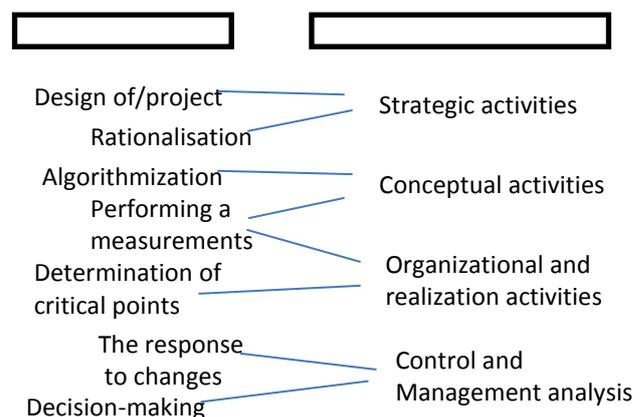


Fig. 2. Linking engineering and purchasing process.

The approach in the form of purchase engineering concepts can determine the level of service quality. Quality of service is a very difficult to define. This is because the determination of the same services as a result of the manufacturing process. For issues related to the production, the expected outcome is the product in the form of material. Usually understood most from the economic point of view in the company as an asset. The service, however, is immaterial, and therefore the quality

of the service will be called product features but is perceived by the customer based solely on subjective criteria for qualitative selection volume. In practice, this means that the degree of perfection (as defined already Plato) is defined by the final customer. Boasting as the world's leading organization for the quality the American Society of Quality defines quality as the subjective term and seen only by the self-perception [12]. Quality issues in the purchasing are seen as an attempt to connect the conflicting interests of the cooperating organizations. If one organization will acquire low-quality production component, will likely to create a service which does not satisfy customers expectations. Thus, the risk of exposure performance of the service to the insufficient quality, is also the mutual risk and unfortunately perceived subjectively by each party. Currently in logistic processes use and needs, especially from suppliers, the implementation of integrated systems of quality assurance. These systems generally should be based on an assessment of ISO9000 standards [13]. This is a global trend. Having a certificate on meeting the requirements of this standard contributes to the perception of quality of service, as those with some degree of guarantee that at least a few of desirable selection criteria.

III. PURCHASING ENGINEERING AND QUALITY OF SERVICE

Fact of the use of the purchasing engineering in the logistics processes has a crucial role in achieving the expected level of services quality in the company. With regard to the elements characterizing the concept of purchasing engineering there is a quantifiable way, which one can see the ratio of the process efficiency in relation to the quality of the proposed services. First of all, the quality will affect the management of technical elements, which are shown in Fig. 2. Through the efficient use of the factors of practical engineering can suggest ways to achieve improved quality of service. Phenomena occurring in supply of purchasing engineering such as lean and agil as well as algorithms for measuring specific reflect the level of service quality equally for both parties. Counting attempt to quantify to what extent the quality of the service has been achieved can use a simple indicator of the efficiency measure as a ratio of the number of customers satisfied for all customers who are users of services.

$$\frac{\text{Quantity recipients of services satisfied}}{\text{Quantity recipients of services}} \times 100\%$$

Fig.3. Indicator of the acceptance of the services

It is a universal indicator, so in order to use it in the impact of engineering factors, these factors should be considered as surroundings conditions for the use of the

indicator. In practice this means that the indicator can be used only for statistical sample receiving the produced services based on the criteria of purchasing engineering. Influence the purchasing engineering on shaping the quality of services should also be considered in terms of internal use in the company, which will apply the criteria of engineering. And in terms of external reception meaning subjective perception of the degree of perfection. In the second case, it may be a group of consumers who are unaware of the degree of use of factors of purchasing engineering.. divided into two aspects in the purchasing process engineering approach is the division between efficiency inside the company and the required volume of the quality in outside. Division of aspects is presented in TABLE I.

INTERNAL ASPECT	EXTERNAL ASPECT
11. Efficiency of designing purchasing processes	E1. Research and demand forecasting
12. Skilful construction and use of algorithms	E2. Synergy effect achieving
13. Proper control of delivery times	E3. Selection of a suitable delivery time
14. The use of lean management	E4. The right effect
15. The use of agile management	E5. Flexibility to customer requirements
16. Continual improvement	E6. The increase in the level of expectations
17. Cost reduction	E7. Taking care of financial resources
18. Risk assessment	E8. The certainty of service
19. Continual measurement methods	E9. Measuring the quality of the expected volume

TABLE I
 DUALITY IMPACT OF PURCHASING ENGINEERING ON THE QUALITY OF SERVICE

IV. CONCLUSION

In today's development in a market economy services are crucial place in the perception of the quality of as meeting customer expectations. Using the criteria of engineering processes is necessary to be able to improve the quality of services on a continuous basis and to be able to get the measure through the feedback. The sensitivity of the purchasing for the duration of supply is becoming larger and this means that the use of modern management techniques, influences and directly shapes the quality of services in the market. Today the importance of the purchasing process requires not only the right aptitude logistics services but also the ability to use modern techniques of lean, agil and engineering. Thus the efficiency in the use of technical capacity and effective use of tools make the quality of services in the

market possible to measure not only based on the criteria of the quality cost but also just by using the measurement environmental beyond the cost factors. Purchases thus may be a tool to create the quality of services through the use of management actions that are driven by engineering techniques. Achieving the perfect quality seems to be impossible because, as Plato rightly stated, perfection is graded. Volume of the opinions about the quality of the service will continue to be immeasurable, because there will be as much as we are willing to deliver. Therefore, the need of internal improvement is a factor that builds awareness of the shaping of quality in a manner consistent with expectations. Awareness of the company that the quality of services, articulated by the customers' expectations, is greater extent than was assumed, not exempt the company from the application of continuous improvement techniques. It should be quite a motivator to adopt newer ways to achieve the best quality in the shortest time and at the lowest possible cost, taking into account available resources, and creating and building more, the new rules of engineering. Purchase and quality are the two areas particularly susceptible to external factors, unfortunately, often contributing to the inability to achieve the desired target.

Ability to use a already known business process engineering and logistics process engineering, is the basis for the use of the criteria proposed in the article. By increasing importance, purchasing is becoming one of the most important factors affecting the quality of services. Both internally aspect, in which the company should aim for continuous improvement in the process of creating services, as well as the external aspect to increase the level of perception and acceptance of the services. By application of the criteria of purchasing process engineering it is possible to not only improve the quality of services, but also there is the possibility of parametric reception test by the final customer.

Measurement of quality which is created by purchasing process engineering is essential for a proper assessment of the effects. Response from the market where the company carries out services, determines the need for continuous development within the company. Raising the level of service quality is therefore considered necessary today in order to determine the need at all incidence and availability of services.

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