

IDENTIFICATION OF PROCESS IMPROVEMENT NEEDS IN A SELECTED DISTRIBUTION CENTRE

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Abstract

In order to maintain their position on the market, enterprises are forced to constantly improve every sphere of their activity. The aim of this work was to identify and analyze the needs of improvement, perceived from the perspective of superiors and employees directly involved in the processes of providing services in a selected distribution center. It allows to identify areas affecting distribution processes and to determine on this basis the model of initiating improvement actions. The implementation of the work objective was based on surveys conducted in a purposely selected distribution unit. In order to identify places requiring improvement, a process map was created and the SERVQUAL method was used to assess the quality of services provided. The results of the research allowed to determine the occurrence of possible disturbances of the process in its individual stages and enabled the identification of areas requiring the development of new standards.

Keywords: Improvement, distribution center, SERVQUAL

1. INTRODUCTION

In view of the significant role and growing demand for logistic services in the economy, as well as the increasing competition in the market, the level of quality of processes carried out is gaining an increasing importance. Creating a value in supply chains involves a high quality of rendered services, assuring customers' loyalty and acquiring and maintaining the competitive advantage. So defined goal require the creation of conditions for the efficient flow of goods, which will assure the reliability of deliveries and the shortening of the cycle [1,2].

The increased intensity of the goods stream flow, the progressing work specialization, the need for enhancing the customer service level and the price pressure, are basic market phenomena that provide a basis for establishing logistic centres. The distribution zone, in particular, is the determinant of the effectiveness of supply chains. Using a centralized distribution model that involves sending products from production plants, through logistic facilities, to retail sale outlets served by a specific distribution centre, allows an enhancement of the customer service level and a cost reduction [3,4]. In line with the main objective of the distribution centre, which is the performance of the integration function that enables the synchronized flow of resources and related information, its basic aim is to enhance the the effectiveness of processes and to create a value within the supply chain [5]. A significant role in achieving so formulated goal is played by the measurement and assessment processes being carried out. Information obtained from individuals directly involved in the processes and engaged in creating values for the customer may provide a starting point for undertaking activities to enhance the quality of provided services [6-8].

The purpose of this study was to identify and analyze the need for improvement, as seen from the perspective of supervisors and employees directly involved in service provision processes in a selected distribution centre. The article has made an attempt to isolate factors that, in the view of the workers (supervisors and employees) should be covered by improvement actions. The research was carried out in one of the seven distribution centres belonging to an international corporation that serves 2200 retail sale shops offering house and garden equipment articles to customers.

2. IDENTIFICATION OF PROCESS IMPROVEMENT NEEDS

The need for improvement in various sections of an organization usually differs; the same process may be assessed differently from the outside (the perspective of customers or other stakeholders), and differently from the inside (the assessment by workers being executive or auxiliary links of the process). These two types of entities (external and internal) can indicate the need for improving other areas of a given process or propose a different scope for them. Therefore, the assessment of a specific process/area of functioning of an enterprise needs to be made from two perspectives (employees and supervisors). Only such an approach does allow the implementation of improvements that actually enhance the quality of effectiveness of a given process/area of functioning of an enterprise. To investigate which factors of the examined process determine the effectiveness of processes occurring in the organization (Distribution Centre), a survey was carried out to find the opinions of respondents from individual inquiry groups on the functioning of processes and the need for, and feasibility of their improvement. As respondents, individuals were selected, who were directly involved in the processes taking place in the examined Distribution Centre, because, being aware of the distribution system's problems, they could give a reliable response [cf. 9, 10].

To identify the areas, where there was a need for changes, at the first stage of the study, a simplified map of processes occurring in the examined Distribution Centre was developed based on the workers' survey, with the determined directions of goods and information flows between processes and the identified locations, where errors are most often made (Figure 1).

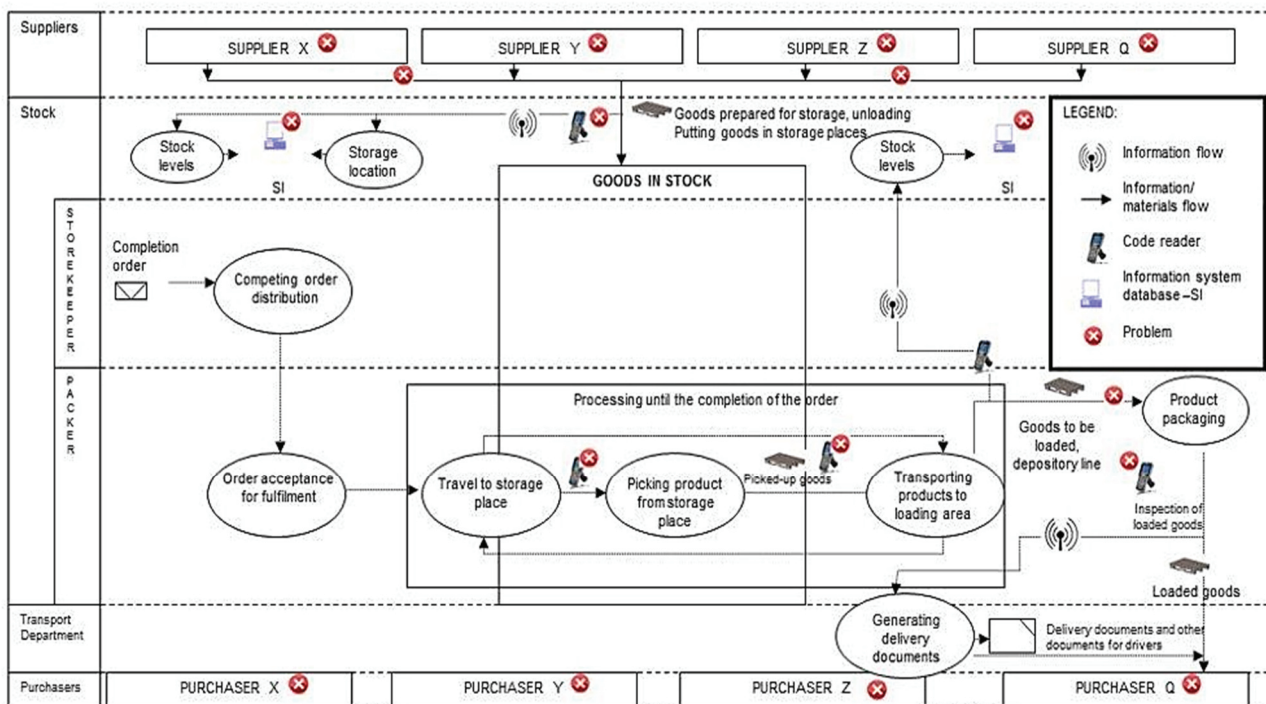


Figure 1 A simplified map of processes in the Distribution Centre under study; Source: [11]

The developed process maps was used for isolating areas which, in the workers' view, require the implementation of improving actions. From the survey carried out, 250 questionnaires were obtained, including 203 from workers of the so-called lower level and 47 from their superiors (the managerial level and above). The survey was based on ranking evaluation. To obtain their opinion on the examined process, the respondents were asked which one of the listed factors was in their view the most important from the point of view of the need for process improvement. As a result, the following distribution process areas requiring improvement were distinguished: delivery timeliness (TK), distribution process efficiency (WP), information



flow between individual process participants (PI), information technology effectiveness (IT), supply chain effectiveness (ED), resources control effectiveness (ES), equipment utilization (UT). The need for implementing improvements in respective areas was determined by using scores from 1 to 7, respectively, from no need for introducing any change (improvement), to a paramount need for introducing an improvement. The results, expressed in percentage terms, are shown in **Table 1**.

Table 1 The structure of ratings [%] of the importance of needs for making improvements in a selected distribution

Inquiry group	Rating	Denotation of factors						
		TD	WP	PI	JT	ED	ES	UT
Employees	1	0.0	7.7	0.0	26.9	23.1	0.0	42.3
	2	0.0	11.5	3.8	30.8	34.6	0.0	19.2
	3	7.7	7.7	0.0	30.8	26.9	0.0	26.9
	4	3.8	26.9	15.4	7.7	11.5	23.1	11.5
	5	23.1	15.4	34.6	3.8	0.0	23.1	0.0
	6	34.6	11.5	26.9	0.0	3.8	23.1	0.0
	7	30.8	19.2	19.2	0.0	0.0	30.8	0.0
Superiors	1	0.0	0.0	0.0	18.2	27.3	9.1	45.5
	2	9.1	18.2	9.1	0.0	36.4	9.1	18.2
	3	9.1	27.3	18.2	0.0	0.0	36.4	9.1
	4	18.2	0.0	9.1	27.3	27.3	18.2	0.0
	5	9.1	9.1	45.5	9.1	9.1	18.2	0.0
	6	9.1	18.2	9.1	36.4	0.0	0.0	27.3
	7	45.5	27.3	9.1	9.1	0.0	9.1	0.0

When examining **Table 1**, the most frequent ratings can be indicated, which were chosen for particular factors. These are shaded in the table. Moreover, the percentage results show that important in determining the needs for improvement are, in the opinion of the Distribution Centre's workers, two factors: delivery timeliness (TK), and resources control effectiveness (ES). For they obtained 30.8 % of the respondents' votes for the highest rating "7", each. However, if we consider the total indications for the ratings 6 and 7 (denoting, respectively, a very great and great need for changes), the largest fraction of responses (65 %) falls to the factor delivery timeliness (TK). The next important factor is the information flow between individual process participants (PI), with 34.6 % of votes given to rating 4. At the same time, the delivery timeliness (TK) and information flow (PI) are the factors that obtained the largest number of votes also among supervisors, namely, 45 % for rating 7 and 45 % for rating 5. It should also be added that the respondents were of one mind in their assessment of the equipment utilization (UT) factor. In all inquiry groups, this factor obtained the largest number of ratings "1".

An important element contributing to making decisions on the development of the examined Distribution Centre is a conducted survey of the quality of provided services. In that case, quality is regarded as the difference between the expectation and experience of workers directly involved in the processes carried out within the framework of service provision. The survey used a set 22 of factors included in the SERVQUAL method, which were classified into five respective groups of determinants, namely: material service infrastructure, service reliability, service providers' sensitivity, service assurance, and customer need awareness [12,13]. The developed survey was based on ranking evaluation. The results for five examined areas of the SERVQUAL method, broken down into supervisors and employees, are illustrated in **Figure 2**.

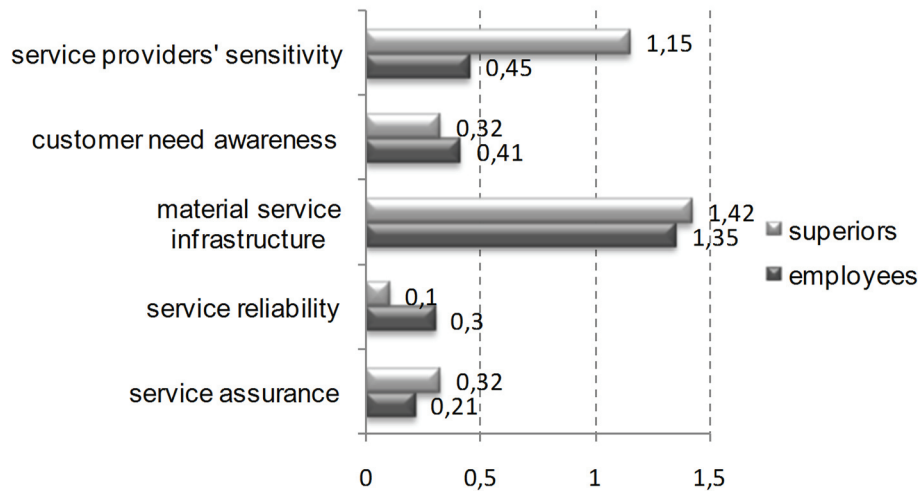


Figure 2 Arithmetic mean results for five surveyed areas of the SERVQUAL method

The obtained survey results enabled the identification of those areas and factors which, in the worker's view, require improvement. In addition to the general assessment of the quality level of provided services, they also identified the service areas that are the most important to the worker. They showed also some shortcomings in the service provision process, which need to be addressed by the organization under study. The highest level of satisfaction was obtained in the material infrastructure area (furnishing with modern equipment). This shows that the examined Distribution Centre knows and understands both their needs and the market requirements. Constant technological changes towards the optimization of processes require investments in the appropriate base and modern technologies, which are being implemented by the Distribution Centre. In view of the diversity of stored goods, ranging from very small to large-sized ones, the Distribution Centre implemented equipment to assist in the order completion process. For example, by introducing special pneumatic suction cups it was possible to take an appropriate number of packages from the store and to place them on a pallet on an internal transport means, practically without any effort from the warehouse worker. Installed warehouse operation-aiding devices contributed to enhancing both the productivity and quality of the personnel's work, and, to some extent, to preventing possible delays due to goods completion. This area was highly assessed by both the employees and their superiors at, respectively, 1.35 and 1.42. The lowest satisfaction, also in both inquiry groups, was obtained in two areas, i.e. speed and reliability. In these areas, the least significant factor, whose improvement will considerably contribute to the efficient organization of the distribution system, is, in the respondents' opinion, the delivery timeliness. In this case, increasing the number of logistic operators, both in the distribution centres and in the organization's sales network outlets, would considerably contribute to an improvement in the efficiency and timeliness of deliveries. An important distribution process area which, according to the inquired workers, requires improvement, is the flow of information between process participants. With that large number of orders being carried out, the proper flow of information between supply chain links should be assured. The respondents pointed out to the unawareness of the importance of the flow of information on the time and place of unloading among the logistic operators, which generates problems with delivering goods to the appropriate place at the appropriate time. Due to the delay in transport, the completed orders are waiting to be loaded onto external transport means on specially designated depository lines. Clogged depository lines generate problems in the utilization of storage area and the tardiness of deliveries. Therefore, by placing great emphasis on these factors it will be possible to prevent delays in planning, supervising and carrying out orders, which, as a result, will improve the reliability of provided services. By contrast, as far as the empathy area is concerned, the situation is different; here, the arithmetic means of service satisfaction among the employees is around 0.45, while among the supervisors it is at 1.45. This means that it would be good to take some measures to increase the employee satisfaction. A similar

situation is for the expertise area. It is therefore advisable that the organization, suggested by the above results, should work on improvement actions in the area of organizational culture, in a broad sense. To sum up, it should only be emphasized that the general level of service satisfaction is satisfactory, as evidenced by the absence of negative results for the calculated averages. Actions towards the improvement in worker satisfaction will help even more reinforce the position of the organization under study [14,15].

3. CONCLUSION

The main role in the identification of improvement needs is played by a detailed identification of the course of processes that create a value for the customer. The analysis of the processes and the assessment of the factors that determine them to the greatest extent provide the basis for the identification of areas which are the most important from the point of view of undertaken improvement actions. The identification of the factors requiring improvement in individual areas provides the basis for undertaking corrective actions. Among the seven factors considered in the study, the most important for the examined organization from the point of view of improvement needs have turned out to be the delivery timeliness and the resources control effectiveness. The next important factor is the flow of information between individual process participants. It should also be emphasized that improvement needs in this area have obtained a similar ranking, both for the workers and for their superiors. In the surveyed groups of workers, the improvement need in the technical equipment area has been ranked the lowest, due to the high level of equipment used in the examined organization and technical solutions implemented systematically to streamline the conducted processes.

The analysis made by the SERVQUAL method, on the other hand, constitutes a complement to the results of the survey of improvement needs for individual areas. For it contains the results of the evaluation of the workers and their superiors, being the difference between the expectation and the experience of workers involved in carrying out processes in the areas of speed, reliability, material infrastructure, expertise and empathy. The obtained results largely correlate with the results obtained from the assessment of improvement needs.

It should be underlined, at the same time, that the attempt made in the study to identify the improvement needs, has been carried out based on external sources of improvement. Therefore, it does not show the process improvement areas and capabilities in a complete manner. An important aspect is extending the study to obtain information from external improvement sources that contain the opinions and assessments of customers, whom the services are provided.

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