

CUSTOMER SATISFACTION SURVEY AND A POSSIBILITY OF USING QFD METHOD FOR SATISFACTION IMPROVEMENT - THE ANALYSIS OF THE CASE

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Abstract: In the thesis the information is presented regarding methods of measuring the customer satisfaction. The customer satisfaction questionnaire has been presented for the survey, as well as the results of a questionnaire survey regarding level of satisfaction of recipients of hydraulic components. The possibility of using QFD method in order to improve customer's satisfaction has been analyzed. The analysis has been carried out for the hydraulic coupler to identify key aspects of the product for the customer. There has been made an attempt to formulate examples of solutions that influence customer's satisfaction in a given organization.

Keywords: quality management, customer satisfaction survey, questionnaire survey, QFD method.

1 Introduction

Contemporary market is characterized by sudden changes in customers' behavior and demands, which makes business entities increasingly seeking to acquire new customers and keep current ones. Economic, social and technological factors have a great impact on this fact. The source of those factors are: competition, continuous improvement and development, product and service satisfaction surveys and gaining customers' loyalty. On the other hand, from the customers' view there is a bigger awareness and knowledge about possibility of choosing from a number of offers available on the market [2].

One of the most important factors influencing the long term success of an organization is the satisfaction of its customers. These customers are the source of a positive feedback about organization and they make bigger and more frequent purchases. There is a close dependence between customers' loyalty and their level of satisfaction. Keeping a regular customer is cheaper than acquiring a new one, and the most effective way, especially in the long run, is to make sure that the customers are satisfied. Customer satisfaction survey is a way to measure customer satisfaction and changes in their level of satisfaction. But it is not its only function. The research provides information about customers' expectations and the level of fulfillment of those expectations. The results allow to identify the weaknesses and to implement proper corrective

solutions. Customer satisfaction survey has a significant impact on the outcome and success of the company. The continuous monitoring of customer satisfaction level helps to prevent situations in which previously loyal customers leave the company, and a new group of customers needs to be acquired [6].

The aim to this paper is to present the results of customer satisfaction survey and the possibility of using QFD method to improve their satisfaction on the example of a manufacturer of hydraulic components.

2 Methods of customers satisfaction measurement

Satisfaction surveys are individual and adapted to specific research problem, industry, product type and organization. The choice of method that needs to be applied depends on many factors, such as [8]:

- Specific research problem (what the organization really wants to learn)
- Type of product offered (whether it is a product or service)
- Type of customer (individual, institutional)

It is necessary to analyze advantages and disadvantages of different methods of customer opinion survey from the point of view of the needs of organization. On this basis, there should be chosen a method that suits best organization's capabilities and priorities. Direct methods can be used to evaluate customer satisfaction. Direct methods allow to measure customer's perception in to what extend the company delivers the desired value with the offered product. They allow to acquire information about direct customer response [1]. How the customers perceive the product will affect their further behavior, thus their level of satisfaction.

By applying direct methods, a company has to be ready to respond to customers' suggestions and comments, because as the customers spend their time defining their level of satisfaction in a survey, they also expect company's response. Direct methods include[8]:

- written and oral complaints and customers' suggestions
- critical accidents
- service quality method (servqual)
- surveys
- focused discussion groups and user groups
- direct and phone interviews
- losing of customer analysis

The use of direct methods requires greater involvement of a company than with indirect methods, but it enables better understanding of customers' perception and its market consequences [3].

However, in indirect methods customers' feedback is skipped, by measuring different satisfaction indicators that typically reflect their behavior on the market. By using indirect methods, it is assumed that clients behave in a manner consistent with their level of satisfaction, and the adapted indicator is closely linked to it.

Direct methods include [9]:

- mysterious customer
- customer retention rate
- benchmarking
- analysis of sales trends, market share trends and investments return trends
- first line support reports

To sum up, it must be remembered that the data obtained from direct methods is a better indicator of a market state than indirect tools such as sales trends or market shares. Indirect methods are less effective because they do not reflect the type and intensity of emotions experienced by the customer [7].

3 Application of QFD method

One of the methods used to translate customers' expectation and preferences into technical product characteristics is QFD method - Quality Function Deployment. Currently, this method is considered highly helpful when translating customer requirements into technical functions of the product at the stage of product quality improvement as well as its design [4].

The main goal of QFD method is to shift customers' expectations and needs to the technical specifications of the product. QFD gives the ability to translate market information provided by users and clients of the product or service, into the technical language used by professionals and designers creating the product or service [10]. A very characteristic feature of this method is a matrix, which is also called an analytical-graphic tool „quality home“. Quality home is formed in several stages [11]:

1. Customer requirements identification
2. Identifying the importance of individual requirements of customer
3. Product comparison with the competition
4. Determination of technical parameters of the product
5. Identification of dependency between technical parameters of the product
6. Determination of the relationship between customer's requirements and technical factors of the product
7. Determining the importance of technical parameters
8. Identification of target values of technical parameters
9. Determining the difficulty index

Very characteristic for the quality house is presenting the relationship and connection between technical parameters of the product presented in the columns of the matrix and specific customer requirements shown in subsequent rows of the matrix. It should be noted that the QFD method is used to transfer all market requirements of a particular product to the conditions that must be fulfilled by the company at all stages of a product development. While taking those steps, there should be taken into account as many factors and indicators as possible, which may influence the quality of the production stages of the product, the quality of the product itself or the processes that are part of the product's manufacturing process [4].

4 Description of the studied object

The research was carried out in a large manufacturing company. The company is a manufacturer of hydraulic components (metal fasteners used in hydraulic and refrigeration systems) such as:

- Hoses for hydraulic systems;
- Hoses for refrigeration systems;
- Plastic hoses;
- Hydraulic couplings;
- Quick connectors;
- Flexible hoses;
- Other hydraulic components.

Company is also manufacturing tools such as machines for self-connecting hydraulic hoses with connectors using appropriate pressure, which are sold to related companies (mostly retailers) and unrelated ones. The company is thus a manufacturer and a distributor for following geographical areas: Europe, Middle East, Africa, South and North America.

5 Survey results and use of QFD method for improving customer satisfaction

Based on data acquired from marketing department, it was found out that the company has gained 83 new customers in year 2015, and only 49 in 2016. Based on this data authors want to determine what might have affected such a large reduction of new customers.

In order to determine the level of customer satisfaction there has been developed a survey questionnaire containing questions regarding level of satisfaction from cooperation with the company during implementation of a placed order (Table 1). The Likert scale has been used in a questionnaire, where the customer was able to specify the level of satisfaction of the ordering process. The questionnaire was delivered by e-mail directly to the customer with a request for participation in a survey and providing a feedback. The survey was not anonymous due to the possibility of a faster response to detected irregularities reported by the customer. The responses were averaged.

Table 1. Questionnaire form

Lp.	Question	Grading scale					Average	Average %
		5	4	3	2	1		
1.	Did order was compatible with your requirements ?							
2.	Has the order been delivered in time?							
3.	Did the sales department run smoothly?							
4.	Are you satisfied of the received price offer?							
5.	Will the next order be established Do you cooperate with the company?							

Source: Own study based on data obtained from the company

KEY:

5 - I totally agree

4 - I rather agree

3 - Neutral

2 - I rather disagree

1 - I totally disagree

The results were collected from randomly selected 100 customers of the company regarding orders from years 2015 and 2016. The summary results of the questionnaire survey are presented in table 2.

Table 2. The summary results of the questionnaire survey regarding years 2015 and 2016

No.	Question	Average		Average %	
		2015	2016	2015	2016
1.	Did order was compatible with your requirements ?	4,7	4,5	94%	90%
2.	Has the order been delivered in time?	4,8	4,7	96%	94%
3.	Did the sales department run smoothly?	4,9	4,6	98%	92%
4.	Are you satisfied of the received price offer?	3,9	3,8	78%	76%
5.	Will the next order be established Do you cooperate with the company?	4,0	3,9	80%	78%

Source: Own study based on data obtained from the company

From the data for year 2015 shown in Table 2 it can be concluded that the smallest amount of customers is satisfied with the price offer obtained during process of order implementation, as this question (number 4) has received average rating 3,9. The next in order was question 5 confirming cooperation with company during the next order which was rated 4,0. The highest rating was obtained by sales consultant cooperation and timely delivery. From table 2, presenting data regarding orders from 2016 it is clear that the question 4, which is satisfactory sale offer obtained at the finalization stage of the order, has received the lowest rating of average 3,8, as well as question 5 which was regarding future cooperation - average rating of 3,9. It can be seen that in comparison with the previous year the lowest evaluated areas of order process in the company are repeated; moreover, both values dropped by 0,1 points. The highest rating has been obtained in question 2 regarding timely delivery, and question 3 regarding cooperation with consultants and sales department, which is the same as in year 2015. However, the decreasing amount of positive evaluations is noticeable.

Due to those ratings, the company decided to introduce changes in stages of order process, starting from the order acceptance to the delivery of product to the customer. For this purpose, it was decided to use QFD method to identify the most important features of one of the product offered by the company. For the analysis, a hydraulic coupler has been chosen based on the largest decrease in the number of orders in 2016, compared to 2015.

The survey that has been carried out using QFD method allowed to identify the most important aspects of the product from the point of view of the customer. They also made it possible to identify the weakest parts from the point of view of contractors of the company, so that the company would be able to adjust and modify the directions of its product development, here: hydraulic couplings.

Direction of optimization ↑ • 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Fig. 1. Analysis of the hydraulic coupling

Source: Own study based on data obtained from the company

The conducted survey enabled identification of key aspects of the product from the point of view of the customer, as well as the distinction of those qualities which are satisfactory for the customers

and fulfill their requirements. The level of customer satisfaction is a very important factor for every business, therefore any signals of irregularities reported by regular or potential customers concerning products or services should not be ignored. Having this in mind, the survey that has been carried out with the use of a questionnaire, and later, of the QFD method, allowed for the development of sample solutions that would significantly affect the level of customer satisfaction. These include:

- introduction of individual approach to customer orders,
- use of substitute materials for the special orders of the recipient,
- possibility to extend the warranty period for steel components.

The presented solutions are exemplary suggestions that result from „quality home” and they consequently determine the possibility of noticeable increase in a satisfaction from the products of the analyzed company, from both regular and potential customers.

Conclusion

Customer satisfaction should be at the center of an interest of a company. Customer plays an important role in the process of continuous improvement of individual components as well as the whole system. Companies should therefore consider the level of customer satisfaction as a priority.

In the analyzed company it was crucial to identify the characteristics of the product that affect the significant increase or, as in the studied case, decrease in customer satisfaction in two periods in 2015 and 2016. As it was exposed, regular customers had doubts when it came to choosing the studied manufacturer of the hydraulic components from all competitors on the market, which resulted in decreasing number of new business partners.

Among the most important features affecting the level of customer satisfaction in the studied company, the recipients indicated the individual approach to the needs and requirements of the customer, which very often involves the production of products with non-standard shapes, or dimensions, or using special material substitutes. Very crucial is also the warranty period for the products, which in the opinion of contractors should be significantly extended.

By introducing proposed solutions, the company should gain more flexibility in discussions regarding the selection of hydraulic components from the sales offer with potential partners, as well as with the regular customers. This will also allow to adapt to the requirements of the customers in relation to the finished product.



PŘEKRAČUJEME HRANICE
PRZEKRACZAMY GRANICE
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BADANIE SATYSFAKCJI KLIENTA I MOŻLIWOŚĆ ZASTOSOWANIA METODY QFD DO POPRAWY TEGO ZADOWOLENIA - ANALIZA PRZYPADKU

Streszczenie: W pracy przedstawiono informacje dotyczące metod pomiaru zadowolenia klienta. Zaprezentowano formularz do badania ankietowego satysfakcji klientów. Przedstawiono wyniki badania ankietowego dotyczącego poziomu satysfakcji odbiorców elementów hydraulicznych. Poddano analizie możliwość zastosowania metody QFD w celu poprawy zadowolenia klienta. Przeprowadzono analizę dla złączki hydraulicznej w celu identyfikacji kluczowych aspektów wyrobu dla klienta. Podjęto próbę sformułowania przykładowych rozwiązań wpływających na poziom zadowolenia klienta w badanej organizacji.

Słowa kluczowe: zarządzanie jakością, badanie satysfakcji klienta, badanie ankietowe, kwestionariusz ankiety, metoda QFD.