

CUSTOMER'S SATISFACTION IN THE INDUSTRIAL MARKET: CASE STUDY

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Abstract

The study aims to provide quantitative evaluation of the impact of customer experience and its factors on the customer satisfaction and the repeat purchase rate in the industrial market.

The methodology of the study is based on frequency, correlation and regression analysis. The authors propose to consider customer satisfaction in the industrial market as the function of the customer experience regarding the interaction with the supplier. The proposed regression model allows predicting the level of customer satisfaction based on the changes in the various factors of customer experience evaluation.

The methodology was tested for the ChelPipe Group, a leading producer of metal pipes, which includes enterprises in Russia and the Czech Republic. The study relies on the tubular products market research data and the survey conducted by the authors in 2019-2020. The results show that, out of nine groups of factors identified in the study, the greatest influence on the level of customers' satisfaction is attributed to the product range variety, on-time shipment, prompt resolution of issues.

The proposed model allows assessing the impact of each factor of customer experience in order to develop measures to improve the efficiency of customer relationship marketing management of an industrial enterprise.

Key words: corporate customer satisfaction, industrial market, customer experience, correlation analysis, regression analysis

JEL Code: L60, M31, C12

Introduction and literature review

Evaluation of customer satisfaction is an important task for companies of all sizes and various industries. Satisfaction is one of the keys to retaining existing customers, increasing repeat purchases, and improving financial results of an enterprise. Many studies note that adaptation and customization of products to the customer needs is a significant strategic factor in market competition. According to Drosos, customer satisfaction means that customers' needs are

satisfied, and they believe that the products and services have high quality, and the consumer experience is positive (Drosos et al., 2020). Hunt has formulated the most frequently cited definition of customer satisfaction as an individual's subjective evaluation of the outcomes and experiences associated with purchasing and using a product or service (Hunt, 1977; Letcher & Neves, 2010).

Kotler & Armsrtong (2012) study customer satisfaction from a marketing point of view and focus mostly on the comparative evaluation of customer expectations associated with a particular product and subjective perception of its quality when it is in use. Parasuraman, Zeithaml, & Berry (1985) maintain and develop this approach and define customer satisfaction in the service market as matching of perceived quality of service with the consumer expectations and promises of the service provider. If there is a gap between an actual service and its expected quality, it indicates consumer dissatisfaction. Bindroo et al. (2020) note that a seller in the industrial B2B market provides products and related services inseparably, and consequently evaluates the combined effect of customer satisfaction with both the product and the services associated with the purchasing decision and the after-sales service. Researchers address the scientific problem of evaluating customer satisfaction with a product and service provided by an industrial enterprise as an integrated consumption system as perceived by a client. Therefore, in order to be successful, industrial enterprises have to be proactive in meeting customer needs. This approach is especially attributable to the B2B market, where the needs of corporate clients are often difficult to identify (Brege & Kindström, 2020). Companies use modern marketing tools and a wide range of activities to create a unique value proposition for customers. Brege & Kindström (2020) note that industrial B2B markets usually have a limited number of customers and to a greater extent experience competitive pressure from multinational companies. Establishing and maintaining long-term relationships with customers, as well as cooperation in designing of new products, is far more important in the B2B market compared to the mass market, or B2C. Any marketing strategy focus on finding the answer to the following question: how can the company create consumer value and find the best ways to meet customer needs. Proactive marketing orientation allows producers to discover latent needs of buyers and offer innovation and new value to meet their hidden needs. Key aspects of satisfaction in the B2B market include product quality, purchasing decision-making experience, customer experience in the process of consumption and after-sales service. Considering the importance of establishing long-term customer relationships in the industrial market, we believe that the overall customer satisfaction resulting from interactions with a seller is formed primarily by the customer

experience. Moreover, it is customer experience that makes a particular company different from competitors, as perceived by the customers.

Schmitt (1999) was one of the first researchers to define the concept of customer experience as a combination of impressions that a customer receives resulting from interaction with a company. Most papers dealing with customer experience management and its role in shaping customer satisfaction and maintaining long-term relationships focus on the B2C market (Schmitt, Brakus, & Zarantonello, 2015). At the same time, the majority of enterprises operating in the industrial market acknowledge the importance of the customer experience. A study by Accenture conducted in 2015 showed that 80% of chief executives of industrial companies admit that customer experience is a strategic priority in business (Wollan, Quiring, & Schunck, 2015).

Customer experience in the industrial market is created by various factors belonging to different stages of the entire cycle of interaction between the customer and the supplier: from the moment of the first contact and up to using the product or service, when the customers include it in their technological processes. These factors indicate customer satisfaction with the service in general, interaction with the seller's personnel, the timing of documents processing and contract drafting, order fulfillment efficiency, compliance of the technical specifications of the products with the consumer's technological solutions, due regard for consumer's individual requirements for the product, terms of payment, information support, etc. (Izakova & Kapustina, 2018).

A methodological approach to assessment of customer satisfaction was proposed by Oliver in 1980 based on the assessment of customer expectations and experiences. Within the proposed framework, customer satisfaction is evaluated by studying the difference between the customer expectations and perception of the actual characteristics of the product or service. The most commonly used methods of customer satisfaction assessment are the following ones: "CS" – the integral assessment of customer satisfaction at various points of contact; "TRI*M" (Integrated Measuring, Managing and Monitoring) – the integral assessment of customer satisfaction with service in comparison with competitors; "NPS" (Net Promoter Score) – the customer loyalty index evaluation. These methods are based on quantitative assessment of the satisfaction level and do not allow researchers to identify and analyze the qualitative factors that influence the results.

In order to improve the efficiency of marketing management activities focusing customer relationship in the industrial market, the key factors of customer experience should

be identified: the ones, that are most important for a consumer choosing a supplier and deciding on further cooperation.

The article presents the study of the influence of customer experience on the efficiency of customer relationship marketing management in the industrial market. The study aims to develop a methodology for evaluation of customer satisfaction in the industrial market, as well as quantitative assessment of the influence of various factors of customer experience regarding the interaction with a supplier on the level of satisfaction and the estimation of repeat purchase rate.

1 Methodology of the study

The authors propose a comprehensive approach to assessing customer satisfaction in the industrial market, which is based on evaluation of the impact of the customer experience resulting from the interaction with the supplier.

We propose to consider customer satisfaction in the industrial market (Y) as a function of the factors of customer experience (x_i):

$$Y = F(x_i) \quad (1)$$

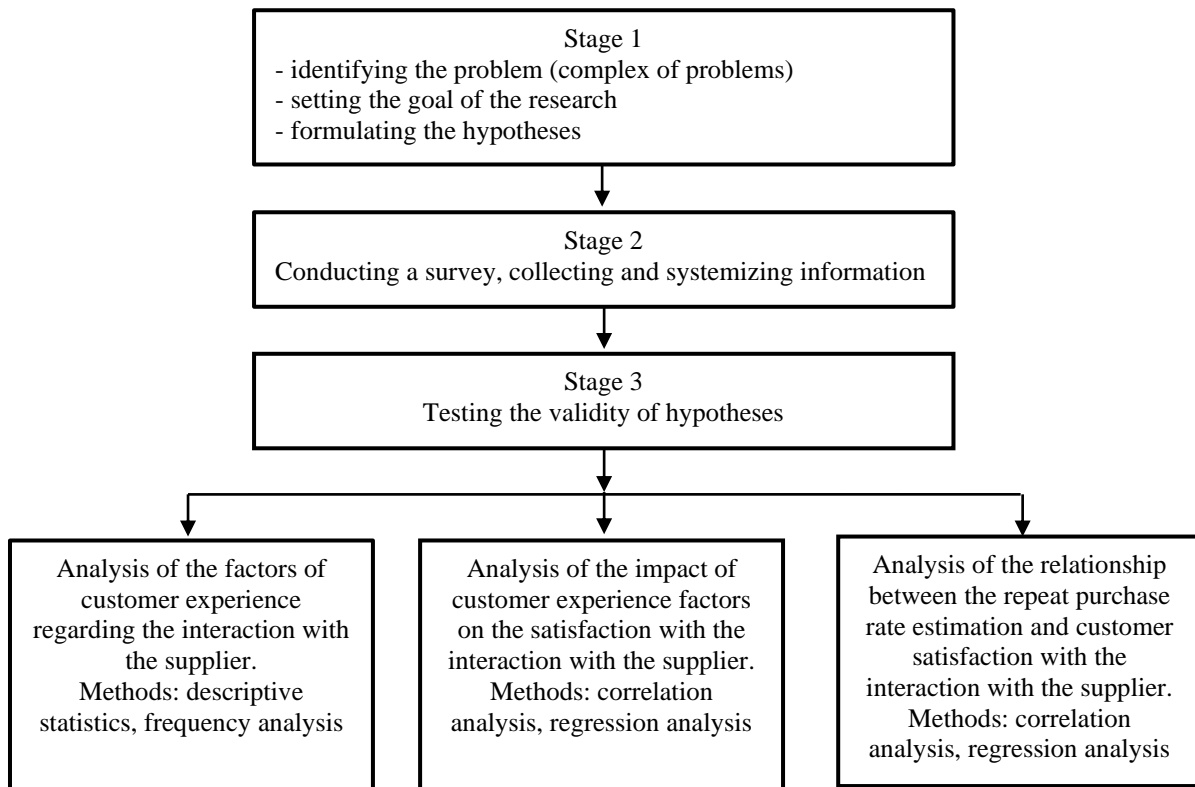
As proposed, the factors that influence the entire cycle of interaction with the supplier include the variety of the product range, product quality, price level, the process of shipment and delivery, after-sales service, experience in using products, solving issues and disputes, expertise of managers, prompt response to inquiries.

The choice of the key factors of customer experience is based on the results of a customer survey with the use of frequency analysis, as well due consideration of the multicollinearity effect in regression analysis.

The use of a regression model allows predicting the level of customer satisfaction with the changes in various factors of customer experience, as the probability of repeat purchase depending on the level of customer satisfaction.

The proposed methodology for evaluating customer satisfaction in the industrial market is summarized in Figure 1.

Fig. 1: Methodology for evaluating the customer satisfaction in the industrial market



Source: authors' own elaboration

2 Results of the implementation

The methodology was tested for the Chelyabinsk Pipe Rolling Plant industrial group (“ChTPZ”, or the ChelPipe Group), which includes enterprises and companies of ferrous metallurgy in Russia and the Czech Republic. The group produces 31% of large-diameter pipes in the Russian market. The ChelPipe Group states its goal as meeting the needs business customers in the fuel and energy sector and maintaining long-term relationships with customers and partners. Products are supplied to companies in the fuel and energy sector as well as other industries in 52 countries in the EU, CIS, North America, Middle East and North Africa. The company's clients are mainly large industrial enterprises. The products of the ChelPipe Group are used in many existing pipelines including major ones: “Bukhara – Ural”, “Northern Lights”, “Druzhba”, “Eastern Siberia – Pacific Ocean”, and “Power of Siberia”.

2.1 The first stage of customer satisfaction evaluation

Identifying the complex of problems. The pipe industry is one of the primary specialized branches of the ferrous metallurgy. Russia is currently one of the leading manufacturers of various tubular products. The three leaders in the national steel pipe market secure about 70%

of the demand in the local market: the Pipe Metallurgical Co. (“TMK”), the Chelyabinsk Pipe Rolling Plant (“ChelPipe Group”), and the United Metallurgical Company (“OMK”). These enterprises are among the top ten leaders in the global steel pipe market. The market share of the ChelPipe Group has been decreasing in recent years, as new companies enter the steel pipe market. The trend is most notable in the market of construction-related products. The situation highlights the issue and proves the importance of the need to maintain long-term relationships and increase the level of satisfaction of existing customers.

Setting the goal of the research: identifying key factors of customer experience regarding interaction with the supplier, quantitative assessment of the impact that customer experience and other factors have on customer satisfaction in the industrial market in order to increase the repeat purchase rate.

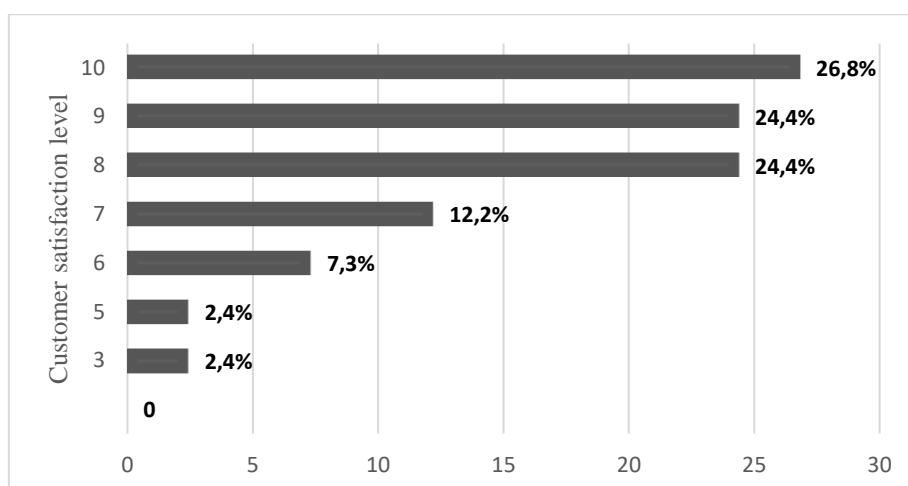
Research hypothesis: the following factors influence customer satisfaction with the interaction with the ChelPipe Group and the probability of repeat purchase: variety of the product range, quality of pipes, price level, timeliness of shipment and delivery, after-sales service, customer’s experience in using the product, managers’ expertise, resolution of issues, and promptness of response.

2.2 The second stage: conducting a survey, collecting and systemizing information

The authors conducted an online survey among the ChelPipe Group customers in 2019-2020. The sample included 52 companies of various industries that have cooperated with the ChelPipe Group for a period from 1 year to 10 years. The industries represented by the customers included in the sample are as follows: producers of metal structures – 5%, petrochemical industry – 7%, producers of industrial heat exchangers – 12%, producers of machinery, equipment and vehicles – 24%, mechanical metal-working – 27%, metal traders – 27%. The respondents were asked to rate the experience of interaction with the company according to the identified factors of customer experience on a seven-point scale (where 1 is the lowest level, and 7 is the highest evaluation). In addition, the overall level of satisfaction with interaction with the company was assessed on the scale from 1 to 10 (Figure 2). Finally, the clients were asked to estimate the probability of repeat purchase of tubular products offered by the company (from 0% to 100%).

The results of the customer satisfaction evaluation showed good results: 75.6% of the total number of valid results are comprised with the ratings of 8, 9 and 10 points representing high level of customer satisfaction with interaction with the ChelPipe Group. The ratings from 3 to 6 representing low level of satisfaction were relatively rare – 12.1% of the total number of valid responses.

Fig. 2: The level of customer satisfaction with the interaction with the ChelPipe Group



Source: authors' own elaboration based on the survey

2.3 Testing the validity of the hypotheses

The frequency analysis of the importance of factors of the customer experience regarding the interaction with the ChelPipe Group showed that most customers selected the following factors: variety of the product range, price level, timeliness of shipment and delivery, and resolution of issues.

The correlation analysis showed a statistically significant correlation between customer satisfaction and the repeat purchase rate estimation, as well as correlation between customer satisfaction and a number of particular factors in the customer experience (Table 1).

Tab. 1: Correlation between factors of customer experience and satisfaction among the customers of the ChelPipe Group – and the probability of repeat purchase

Factors of correlations analysis	Customer satisfaction R-Pearson correlation coefficient	Significance, p
Variety of the product range	0.682	0.000
Quality of pipes	0.087	0.587
Price level	0.622	0.000
Timeliness of shipment and delivery	0.582	0.000
After-sales service	0.212	0.183
Experience of using the product	0.010	0.952
Expertise of managers	0.289	0.047
Resolution of issues	0.601	0.000
Promptness of response	0.432	0.005
Probability of repeat purchase	0.626	0.000

Source: authors' own elaboration

Based on the values of the Pearson correlation coefficient, we conclude that there is a direct relationship between overall customer satisfaction and customer experience in the following factors: product range – 0.682, price – 0.622, resolution of issues and disputes – 0.601, shipment and delivery process – 0.582, as well as the correlation between customer satisfaction and the probability of repeat purchase – 0.626. Other factors demonstrate low values of Pearson's coefficient and lack of reliability of the results (p-value is less than 0.05).

As a result of building a regression model, a multicollinearity was detected between such factors as pipe quality and experience of using the product ($R = -0.528$), and also between the price level and the promptness of response ($R = -0.526$). Therefore, we exclude these factors from the analysis. Large correlation significance errors were detected for the tested relations between customer satisfaction and the following factors: pipe quality (p-level of $0.319 > 0.05$), expertise of managers (p-level of $0.766 > 0.05$) and experience of using the product (p-level of $0.922 > 0.05$).

Thus, the following regression model has been developed:

$$Y = -1.142 + 0.563 X_1 + 0.483 X_2 + 0.610 X_3, \quad (2)$$

(0.041) (0.020) (0.045) (0.007)

where Y is the overall customer satisfaction with interaction with the company; X_1 – variety of the product range; X_2 – timeliness of shipment and delivery; X_3 – resolution of issues.

The coefficient of determination R^2 value is 0.816, the regression coefficients are statistically significant. With a 1% increase in the level of the product range variety indicator of the customer experience the overall customer satisfaction with interaction with the company increases by 0.563%. A 1% increase in the indicator of the timeliness of shipment and delivery, *ceteris paribus*, results in an increase in customer satisfaction by 0.483%. Finally, a 1% increase in the level of issues resolution assessment, *ceteris paribus*, increases overall customer satisfaction with interaction with the company by 0.610%.

The regression model of the relationship between the probability of the repeat purchase and overall customer satisfaction with the interaction with the supplier is as follows:

$$P = 11.556 + 0.626 Y, \quad (3)$$

(0.041) (0.000)

where P is the probability of making repeat purchase and Y is the overall customer satisfaction with the interaction with the company.

The coefficient of determination R^2 value is 0.726, the regression coefficients are statistically significant. An increase in the level of the overall customer satisfaction with

interaction with the company by 1% results in the in an increase of the repeat purchase probability by 0.626%, *ceteris paribus*.

The results obtained in the study lead to the following practical implications. The ChelPipe Group should analyze customers' preferences regarding the product range. Producing unique products can be one of the important factors of success as well as fulfilling technically complex orders, complying with the stipulated shipment and delivery terms, and being efficient in solving issues that consumers face. Offering additional value to the customer leads to an increase in the level of satisfaction with the interaction with the company, which in turn increases the probability of repeat purchase.

Based on the results of the research, the authors have developed the following recommendations for the ChelPipe Group regarding the ways to improve the efficiency of customer relationships marketing management:

- creating a tool for continuous monitoring of customer satisfaction will allow the company to compare indicators of different periods, between different branches and units of the holding (industrial sales management department, trading company);
- optimizing the loading and unloading processes, attracting more transport companies for cooperation in order to reduce delivery times;
- creating feedback collection and contact forms at the company's website and in the mailout;
- providing advanced training for managers in order to improve the conflict resolution skills and efficiency of solving various difficult issues.

Conclusion

The purpose of developing a methodology for evaluation of customer satisfaction in the industrial market is to identify the main factors of customer experience of interaction with a supplier that have a maximum impact on the level of satisfaction and the repeat purchase rate estimation, as well as to develop marketing solutions to improve the efficiency of customer relationship marketing management.

In the scope of the study, the groups of factors were identified in order to analyze the customer experience of interaction with a supplier and find the ones that have major impact on the customer satisfaction and the probability of repeat purchase. The methodology is based on the correlation analysis, regression analysis and the method of descriptive statistics. The methodology was used to evaluate customer satisfaction in the industrial market. Data analysis was carried out by the authors in 2020. The proposed methodology allows identifying

the most significant factors, as well as to assess the level of customer satisfaction and estimate the repeat purchase rate with different values of the factors.

The results of the ChelPipe Group case study and analysis of its activities showed that the greatest impact on the overall level of customer satisfaction with the interaction with the company is attributed to the factors of the product range variety, the timeliness of shipment and delivery, and resolution of issues. The hypothesis about the high efficiency of relationship marketing in the industrial market was confirmed: an increase in the overall level of customer satisfaction with interaction with a supplier by 1%, ceteris paribus, results in an increase in the probability of the repeat purchase by 0.626%.

The results of the research and the findings of the case study as the approbation prove that planning of marketing activities based on the analysis of customer experience allows industrial enterprises to improve the efficiency of customer relationship management and achieve better results in the context of challenging external environment.

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