

INNOVATIVE APPROACHES TO ASSESSING THE LEVEL OF INTERNAL CUSTOMER SATISFACTION

^a Ukrainian State University of Chemical Technology, Dnipro, Ukraine

^b Dnipro Vocational Polytechnic College, Dnipro, Ukraine

In the article the concept of internal customer satisfaction is considered. The assessment of such an indicator is quite new, but very relevant for Ukrainian management. It helps to assess the level of cooperation between departments, to see the problems in communications in the enterprise and to identify ways to motivate staff. It is determined that the level of satisfaction of the internal customer depends on many factors classified on factors of perception, professionalism and communication. A mathematical model for assessing the level of internal customer satisfaction using the apparatus of vector algebra, which allows you to assess more accurately each component, which is formed by multidirectional and multifunctional factors, that requires consideration not only numerically but also directed their impact on the system. Since internal customer satisfaction is a complex system that combines different functional and different quality factors, it cannot be measured by ordinary scalar quantities, which are characterized only by numerical measurement. Each of the selected groups of factors forms a corresponding direction in the satisfaction of internal consumers. Therefore, each of the groups of factors is a vector in terms of its impact on the overall internal customer satisfaction. According to the conceptual apparatus of vector algebra, the selected groups, in addition to the numerical measure, are characterized by the corresponding direction. Three-dimensional presentation of the results of calculations allows to determine the direction of events to improve the quality of a component of the complex indicator. Optimization models that allow calculating the basis for the transition from absolute to relative indicators have been developed. The advantages of using relative indicators in comparison with absolute ones are noted.

Keywords: internal customer, satisfaction, client orientation, perception, professionalism, communications.

DOI: 10.32434/2415-3974-2020-12-2-74-79

Introduction

The main issue today for businesses is consumer or customer satisfaction. It is the consumer interest in a product or service that is the key to competitiveness and confidence in the company's future. However, in the pursuit of consumer impression and the desire to be a «customer-oriented» organization, managers of Ukrainian enterprises pay almost no attention to the satisfaction of the internal customer, namely those who are directly involved in creating the final product or service that should satisfy the customer. An internal customer is an employee who uses the services of the organization, interacts

with its various departments, as well as an employee of the company as a consumer of its spirit, values, brand.

Transforming ancillary functions (such as information technology, finance, human resources, procurement, etc.) into excellent customer service operations is a powerful lever to support and expand a complete, customer-centric transformation. This helps to create a new service culture that deepens customer-centered efforts across all layers of the organization. This contributes to a longer-term impact and full involvement of staff, and the principles of customer orientation are applied to the



experience of employees. At leading customer-focused companies such as Disney, building a great customer experience begins with an engaging and inspired staff who can translate individual experience into customer service satisfaction. This is a very powerful force: a movement that starts from within, with the support of staff.

Analysis and research of publications

For example, Gallup, the American Institute of Public Opinion, promotes 12 Elements of Excellent Management that inspire and build the highest employee performance [1]. Their study Q12™ quantifies the significant gap between companies in the upper and lower quartiles in terms of employee involvement. In it, they found that the organizations in the upper quartile had:

- 22% higher profitability,
- 21% higher productivity,
- 10% higher customer satisfaction,
- 37% less absenteeism and
- Up to 65% less staff turnover.

Answering the question of what requires internal customer orientation in principle, we can look at it from two sides [2]:

1. Demonstration of high standards of work with external clients is possible only if the same high standards work within the company, i.e. the norms of communication which employees use daily when working with clients.

2. On the other hand, any product offered to a customer is the result of the work of many people

who work in the company. Each specialist who participated in the creation of the final product contributes to the level of service of the company. One of the main questions is how to motivate the staff of service departments to solve the problems of sales consultants.

Therefore, if the company has a goal to establish a long-term relationship with the client, the development of internal customer orientation will allow all its employees to move in one direction, and customer satisfaction will be a constituent element of corporate culture. A customer-oriented company can be called only if its employees are focused on both «customer» parties – external and internal [3].

In several large-scale internal customer surveys in 2016 using consumer assessment methods, McKinsey drew some conclusions about where the main areas of employee dissatisfaction with internal services are concentrated [4]. Including:

- availability and clarity of information;
- the total time required to complete the tasks by the support departments;
- the effort required to go through the processes arranged by the support departments.

These studies also helped to gather data on employee needs categories and sources of satisfaction and to develop a hierarchy of what employees want from customer-oriented organizations (Fig. 1). The more customer-focused a company is, the more likely it is that key employee satisfaction factors will evolve

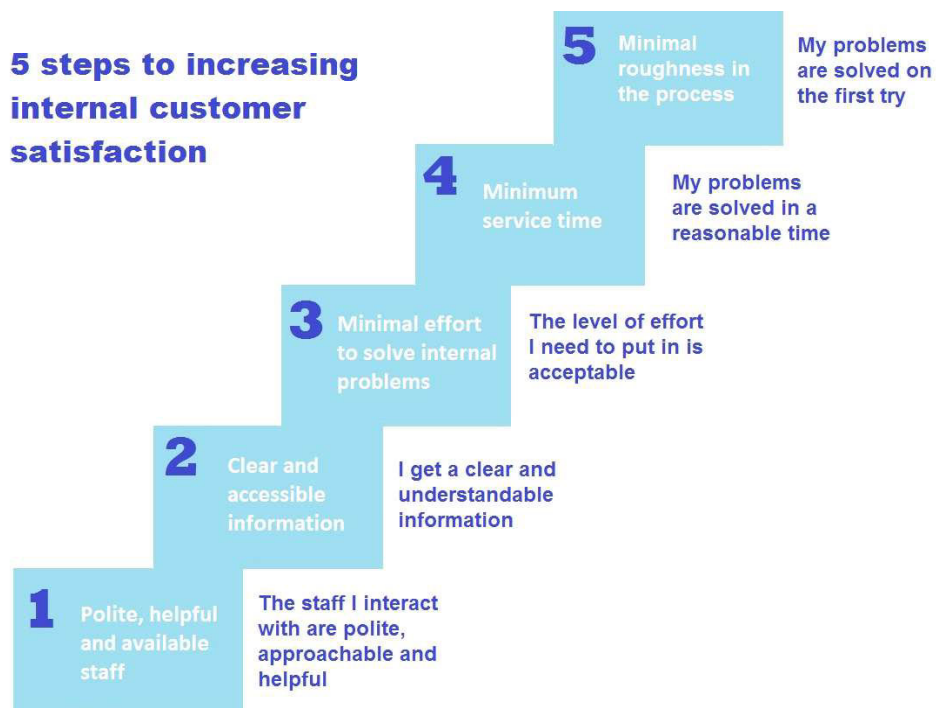


Fig. 1. Hierarchy of factors of internal customer satisfaction

Source: McKinsey Consumer Experience Survey 2016

from basic staff courtesy to the availability and timely delivery of information and, finally, to a pleasant and smooth problem-solving experience on first encounter.

In addition to the traditional key success factors, experience with changes focused on customer focus has revealed specific factors [5]:

- managing of cultural transition at reorientation of auxiliary departments on the client;
- creating strong links between support units and business to ensure the coordination of interests and close cooperation;
- providing support units with direct access to internal and external feedback from customers related to their actions.

The assessment of such an indicator as internal customer satisfaction is quite new, but very relevant for Ukrainian management. It helps to assess the level of cooperation between departments, to see the problems in communications in the enterprise and to identify ways to motivate staff. But despite the many attempts to study and assess employee satisfaction with employee interaction, the optimal approach to quantifying the level of internal customer satisfaction has not yet been proposed.

The purpose of the article

The purpose of this article is to build a mathematical model of internal customer satisfaction of the enterprise to assess the level and effectiveness of employee interaction. To achieve this goal it is necessary to solve the following tasks:

- to analyze the structure of those factors that shape the opinion of the employee regarding the activities of other departments of the enterprise;
- to develop a mathematical apparatus that allows you to quantify each of the factors, as well as their cumulative impact, which we call internal customer satisfaction;
- to offer an appropriate interpretation of the results.

Presenting main material

To conduct such an assessment, you must first determine the factors that will be assessed by the internal customer as indicators of satisfaction with the interaction with other departments of the enterprise. There are a large number of factors that can be taken into account, but the authors consider the classification developed in [6] to be the most complete and comprehensive:

1. Perception: providing correct, relevant and clear answers to questions or inquiries; Willingness to take responsibility for the information provided; Support and provision (within the competence) during the task.
2. Professionalism: efficiency and timeliness of solving tasks; Performing duties; Help in finding solutions.

3. Communication: Respect for cooperation; Willingness and readiness to help; Timely informing about innovations and changes (within the competence); Availability for meetings, telephone calls and e-mails.

Since internal customer satisfaction is a complex system that combines different functional and quality factors, it cannot be measured by ordinary scalar quantities, which are characterized only by numerical measurement. Each of the selected groups of factors forms a corresponding direction in the internal customer satisfaction. Therefore, each of the groups of factors is a vector in terms of its impact on the overall satisfaction of the internal customer. According to the conceptual apparatus of vector algebra, the selected groups, in addition to the numerical measure, are characterized by the corresponding orientation.

Based on the proposed classification, taking into account comments on its nature, the internal customer satisfaction for the selected factors (Z_{ic}) can be represented as the following vector:

$$\overline{Z}_{ic} = (Z_q; Z_p; Z_c), \quad (1)$$

where Z_q – internal customer satisfaction with the quality of perception of his requests; Z_p – internal customer satisfaction with the level of professionalism with which help is provided or inquiries are fulfilled; Z_c – internal customer satisfaction with communication with the evaluated department.

Thus, the complex of internal customer satisfaction of the organization can be represented as a three-dimensional rectangular Cartesian system, where the coordinates of the X axis is the value of internal customer satisfaction with the quality of perception of his requests, on the Y axis - the level of professionalism with which assistance is provided, on the Z axis - communication with the evaluated department (Fig. 2).

Therefore, according to the categories of vector algebra, the value of satisfaction of the internal client of the organization (Z_{ic}) corresponds to the resulting vector drawn from the beginning of the selected coordinate system, which is the vector sum of vectors that are part of it. We assume that Z_q , Z_p and Z_c are vectors which have the following coordinates, respectively: $Z_q (Z_{qx}; 0; 0)$; $Z_p (0; Z_{py}; 0)$; $Z_c (0; 0; Z_{cz})$. This assumption allows us to accept the length of the vector equal to its corresponding coordinate, calculated by the matching formula. In vector form, the resulting vector has the following form (2):

$$\overline{Z}_{ic} = (\overline{Z}_q + \overline{Z}_p + \overline{Z}_c). \quad (2)$$

Thus, the developed mathematical model for assessing the level of internal client satisfaction of

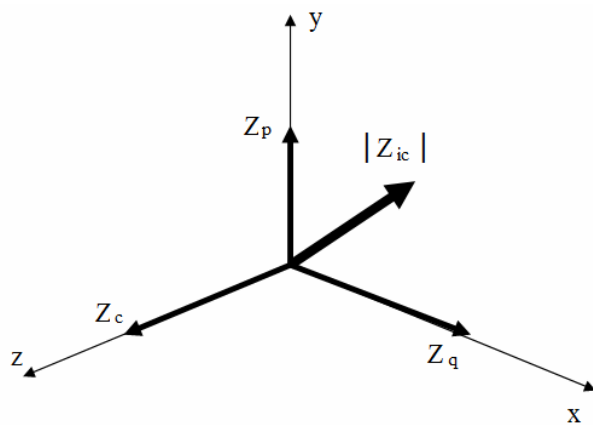


Fig. 2. Complex of internal customer satisfaction of the organization

the organization using the vector algebra allows to assess more accurately each component formed by multidirectional and multifunctional factors, and requires consideration not only numerically but also directed their impact on the system.

To determine the numerical measure of the length of the vector formula is used (3):

$$|\vec{Z}_{ic}| = \sqrt{Z_q^2 + Z_p^2 + Z_c^2}. \quad (3)$$

Since the assessment is more objective and representative if it is based not on the absolute expression of a factor, but taking into account its value for the selected system, the input data should be adjusted according to weights that have an uneven step and calculated according to points, which are exposed by experts to the significance of each of the factors.

The absolute value of the calculated indicator has a fairly wide dispersion. In addition, the use of absolute indicators significantly narrows the scope of their application, makes possible to compare the values of the same order and is significantly tied to the number of factors that are part of such an indicator.

The move to relative values lets to overcome these shortcomings, i.e. the next step should be to find some basic indicator to which the calculated will be attributed.

The most appropriate as a baseline is the choice of the maximum value of the level of internal customer satisfaction, taking into account the current conditions. An intermediate step in calculating the maximum value is to find the optimal value of internal customer satisfaction. According to the terminology of economic analysis, «optimal» means the best in the current environment. The concept of «best» corresponds to maximizing the value of internal customer satisfaction.

To calculate the maximum level of the relevant

indicator to all factors that are part of it, it is necessary to assign a score that characterizes the absolute expression of each of them. That is, we assume that within the chosen system, the organization's internal customers are very satisfied with the interaction with other departments.

The calculated relative indicators vary from 0 to 1, clearly showing the position of the enterprise in relation to the components of the satisfaction indicator: the closer the relative indicator to 1, the better the situation with the satisfaction of the internal customer.

Three-dimensional presentation of the results of calculations can show and determine the direction of measures to improve the quality of a component of the complex indicator.

As previously noted, the extent to which the employee is satisfied with the interaction with other departments depends on the quality of his professional duties, his commitment to the goals of the organization, the desire to implement them, i.e. the desire of staff to work «well» and work with colleagues depends on the company's place in the market and the possibility of its victory in competition. The degree of how «well» workers want to work in such a production is based on linguistic categories, which without the appropriate mathematical apparatus do not allow a clear enough picture of the situation at the enterprise. The concepts of mathematics, which are more rigorous and revealing, in relation to this situation mean the translation of the linguistic variable «good» into numerical form and the calculation of the limits within which the level of internal customer satisfaction is a deterrent, does not fully affect motivation and overall performance or on the contrary contributes to its increase.

Conclusions

The concept of internal customer orientation, of course, is associated with employee motivation, the psychological climate in the company, the atmosphere in the workplace and the level of staff satisfaction in general. But if the company's executives do not meet the needs of staff at the appropriate level, then meeting the needs of external customers is not possible.

The study showed that, despite the many attempts to study and assess employee satisfaction with employee interaction, the optimal approach to quantifying the level of internal customer satisfaction has not yet been proposed.

It is established that the level of satisfaction of the internal client depends on many factors, classified into factors of perception, professionalism and communication.

A mathematical model for estimating the level of internal customer satisfaction using a vector algebra apparatus has been developed. It helps to estimate

more accurately each component formed by multidirectional and multifunctional factors, which requires taking into account not only numerical but also their directional impact on the system.

Optimization models have been developed that allow calculating the basis for the transition from absolute to relative indicators. The advantages of using relative indicators in comparison with absolute ones are noted.

REFERENCES

1. Gallup's Q12 survey (2011). (n.d.). *q12.gallup.com*. Retrieved from: <https://q12.gallup.com/> [in English].
2. Internal client [Vnutrennij klient] (2011). (n.d.). *hr-ru.com*. Retrieved from: <http://hr-ru.com/2011/08/vnutrennij-klient/> [in Russian].
3. Dziuba, S., & Riabtseva, O. (2017). Relationship marketing as an effective way of competitiveness ensuring of educational institutions [Marketynh vidnosyn yak efektyvnyi zasib zabezpechennia konkurentospromozhnosti zakladiv osvity]. *Ekonomichnyi visnyk DVNZ «Ukrainskyi derzhavnyi khimiko-tehnologichnyi universytet» – Economic Herald of SHEI “Ukrainian State University of Chemical Technology”*, 2(6), 128-132 [in Ukrainian].
4. McKinsey Customer Experience Survey (2016). (n.d.). *www.mckinsey.com*. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/industries> [in English].
5. When customer experience begins with your own office [Kogda customer experience nachinaetsja s sobstvennogo ofisa]. *www.talent-management.com.ua*. Retrieved from: <https://www.talent-management.com.ua/4656-kogda-customer-experience-nachinaetsya-s-sobstvennogo-ofisa/> [in Russian].
6. Rud, S. Internal customer service quality assessment [Ocenka kachestva obsluzhivanija vnutrennih klientov]. (n.d.). *Personnel manager*. Retrieved from: <https://hrliga.com/index.php?module=profession&op=view&id=1577> [in Russian].

Received 01.10.2020

Reviewer: Doct. of Econ. Sc., Ass. Prof. Fedulova S.O.

ІННОВАЦІЙНІ ПІДХОДИ ДО ОЦІНЮВАННЯ РІВНЯ ЗАДОВОЛЕНОСТІ ВНУТРІШНЬОГО КЛІЄНТА

Рябцева О.Є., Масюк Н.О.

В статті розглянуто поняття задоволеності внутрішнього клієнта. Оцінювання такого показника є достатньо новою, але дуже актуальною для українського менеджменту. Вона допомагає оцінити рівень співробітництва між відділами, побачити проблеми у комунікаціях на підприємстві та виявити шляхи мотивації персоналу. Встановлено, що рівень задоволеності внутрішнього клієнта залежить від багатьох факторів, класифікованих на фактори сприйняття, професійності та комунікації. Розроблена математична модель оцінювання рівня задоволеності внутрішнього клієнта з використанням апарата векторної алгебри, що дозволяє більш точно оцінити кожний компонент, який формується різноспрямованими та різнофункціональними факторами, що вимагає врахування не лише чисельного, але й спрямованого їх впливу на систему. Оскільки задоволеність внутрішнього клієнта становить собою складну систему, що поєднує у собі різнофункціональні та різноякісні фактори, то вона не може вимірюватися звичайними скалярними величинами, які характеризуються лише числовим виміром. Кожна з виділених груп факторів формує відповідну спрямованість у задоволенні внутрішніх споживачів. Тому кожна з груп факторів є вектором з точки зору її впливу на загальну задоволеність внутрішнього клієнта. Відповідно до поняттяного апарата векторної алгебри, виділені групи окрім числової міри характеризуються відповідною спрямованістю. Тривимірне подання результатів розрахунків дає змогу визначити напрям заходів щодо підвищення якості тієї чи іншої складової комплексного показника. Розроблені оптимізаційні моделі, які дозволяють розрахувати базу для переходу від абсолютних до відносних показників. Відмічені переваги використання відносних показників порівняно з абсолютними.

Ключові слова: внутрішній клієнт, задоволеність, клієнтоорієнтованість, сприйняття, професійність, комунікації.

ИННОВАЦИОННЫЕ ПОДХОДЫ К ОЦЕНКЕ УРОВНЯ УДОВЛЕТВОРЕННОСТИ ВНУТРЕННЕГО КЛИЕНТА

Рябцева О.Е., Масюк Н.А.

В статье рассматривается понятие удовлетворенности внутреннего клиента. Оценка такого показателя является достаточно новой, но очень актуальной для украинского менеджмента. Она помогает оценить уровень сотрудничества между отделами, увидеть проблемы в коммуникациях на предприятии и выявить пути мотивации персонала. Установлено, что уровень удовлетворенности внутреннего клиента зависит от многих факторов, среди которых выделены следующие группы: факторы восприятия, профессионализма и коммуникации. Разработана математическая модель оценки уровня удовлетворенности внутреннего клиента с использованием аппарата векторной алгебры, что позволяет более точно оценить каждый компонент, который формируется разнонаправленными и разнофункциональными факторами, что учитывает не только численное значение, но и направление их влияния на систему. Поскольку удовлетворенность внутреннего клиента представляет собой сложную систему, сочетающую в себе разнофункциональные и разнокачественные факторы, то она не может измеряться обычными скалярными величинами, которые характеризуются только числовым измерением. Каждая из выделенных групп факторов формирует соответствующую направленность в удовлетворении внутренних потребителей. Поэтому каждая из групп факторов является вектором с точки зрения ее влияния на общую удовлетворенность внутреннего клиента. Согласно понятийного аппарата векторной алгебры, выделенные группы кроме числовой меры характеризуются соответствующей направленностью. Трехмерное представление результатов расчетов позволяет определить мероприятия по

повышению качества той или иной составляющей комплексного показателя. Разработаны оптимизационные модели, позволяющие рассчитать базу для перехода от абсолютных к относительным показателям. Отмечены преимущества использования относительных показателей по сравнению с абсолютными.

Ключевые слова: внутренний клиент, удовлетворенность, клиентоориентированность, восприятие, профессионализм, коммуникации.

INNOVATIVE APPROACHES TO ASSESSING THE LEVEL OF INTERNAL CUSTOMER SATISFACTION

Riabtseva O.E.^a, Masiuk N.O.^b

^a Ukrainian State University of Chemical Technology, Dnipro, Ukraine

^b Dnipro Vocational Polytechnic College, Dnipro, Ukraine

* email: ryabtseva.olga@gmail.com

Riabtseva O.E. ORCID: <https://orcid.org/0000-0001-9440-1494>

In the article the concept of internal customer satisfaction is considered. The assessment of such an indicator is quite new, but very relevant for Ukrainian management. It helps to assess the level of cooperation between departments, to see the problems in communications in the enterprise and to identify ways to motivate staff. It is determined that the level of satisfaction of the internal customer depends on many factors classified on factors of perception, professionalism and communication. A mathematical model for assessing the level of internal customer satisfaction using the apparatus of vector algebra, which allows you to assess more accurately each component, which is formed by multidirectional and multifunctional factors, that requires consideration not only numerically but also directed their impact on the system. Since internal customer satisfaction is a complex system that combines different functional and different quality factors, it cannot be measured by ordinary scalar quantities, which are characterized only by numerical measurement. Each of the selected groups of factors forms a corresponding direction in the satisfaction of internal consumers. Therefore, each of the groups of factors is a vector in terms of its impact on the overall internal customer satisfaction. According to the conceptual apparatus of vector algebra, the selected groups, in addition to the numerical measure, are characterized by the corresponding direction. Three-dimensional presentation of the results of calculations allows to determine the direction of events to improve the quality of a component of the complex indicator. Optimization models that allow calculating the basis for the transition from absolute to relative indicators have been developed. The advantages of using relative indicators in comparison with absolute ones are noted.

Keywords: internal customer, satisfaction, client orientation, perception, professionalism, communications.

REFERENCES

1. Gallup's Q12 survey (2011). (n.d.). *q12.gallup.com*. Retrieved from: <https://q12.gallup.com/> [in English].
2. Internal client [Vnutrennij klient] (2011). (n.d.). *hr-ru.com*. Retrieved from: <http://hr-ru.com/2011/08/vnutrennij-klient/> [in Russian].
3. Dziuba, S., & Riabtseva, O. (2017). Relationship marketing as an effective way of competitiveness ensuring of educational institutions [Marketynh vidnosyn yak efektyvnyi zasib zabezpechennia konkurentospromozhnosti zakladiv osvity]. *Ekonomichnyi visnyk DVNZ «Ukrainskyi derzhavnyi khimiko-tehnolohichniy universytet» – Economic Herald of SHEI “Ukrainian State University of Chemical Technology”*, 2(6), 128-132 [in Ukrainian].
4. McKinsey Customer Experience Survey (2016). (n.d.). *www.mckinsey.com*. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/industries> [in English].
5. When customer experience begins with your own office [Kogda customer experience nachinaetsja s sobstvennogo ofisa]. *www.talent-management.com.ua*. Retrieved from: <https://www.talent-management.com.ua/4656-kogda-customer-experience-nachinaetsya-s-sobstvennogo-ofisa/> [in Russian].
6. Rud, S. Internal customer service quality assessment [Ocenka kachestva obsluzhivaniya vnutrennih klientov]. (n.d.). *Personnel manager*. Retrieved from: <https://hrliga.com/index.php?module=profession&op=view&id=1577> [in Russian].