

A NEW APPROACH TO QUALITY MANAGEMENT: CONCEPTUAL MATRIX OF SERVICE ATTRIBUTES

Ingaldi M.*

Abstract: The assessment of the quality of a given service allows for the identification of its strengths and weaknesses and for its possible improvement. The methods used for this purpose are mainly based on the surveys filled in by customers. In these surveys, the attributes that are to define this quality are listed. The selection of such attributes is one of the most difficult parts of the study. The aim of the article was to collect the most important attributes that can be used to assess the service quality and to classify services according to these attributes. For this purpose, a conceptual matrix of service attributes was created with the division of attributes into four groups: attributes conditioning technical satisfaction, attributes conditioning aesthetic and cultural satisfaction, attributes conditioning satisfaction with the level of safety, and attributes conditioning satisfaction from the social / health point of view. Attributes in the common parts between similar pairs of groups and for all groups together were also distinguished. Services were also classified into individual groups of attributes in accordance with the conceptual matrix of service attributes. Thanks to this it is possible to indicate characteristic features and attributes for individual type of services. It is also possible to indicate representatives of individual groups of attributes. This matrix is a helpful tool facilitating the quality management process, that can be used when conducting research on the quality of services, and its task is to help in the selection of attributes for such research.

Key words: quality management, service quality, service companies, customer satisfaction, quality shaping.

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Introduction

The development of the world economy and the growing market demand for the provision of products and services significantly affects the dynamic development in all areas of the economy (regional and global) (Alkire et al., 2020; Baryshnikova et al., 2020; Kim and Wook Kim, 2010). Due to the high demand for products and services, enterprises have to fight for their favorable position on the market. Moreover, the market is shaped by the competitiveness and entrepreneurship of the organization. Both competitiveness and entrepreneurship depend on the method of management - comprehensive enterprise management, but also operational management, strategic management, human resources management, knowledge

* **Manuela Ingaldi**, PhD, Eng., Czestochowa University of Technology, Faculty of Management, Poland.

✉ corresponding author: Manuela.ingaldi@wz.pcz.pl

management, quality management, environment, security, and certainly development in the field of research and development (R&D) (Dayan and Ndubisi, 2020; Grabara et al., 2020; Ingaldi and Ulewicz, 2019; Jaakkola et al., 2017; Jami Pour et al., 2020; Kowalik, 2020; Yasin and Alavi, 2007; Maláková et al., 2020).

In the light of the chaos and the mixture of information, it is difficult to find the optimal management solutions for all types of business activities. This is particularly evident in the case of the service industry. Considering the diversity of services and the lack of clear criteria for their evaluation, managing the quality of services requires a specific solution.

It should be additionally emphasized that the selection of the appropriate attributes for service quality assessment is the most difficult stage of service quality management. The company would like to obtain as much information as possible from the list of attributes, but on the other hand, the more detailed attributes and longer survey the respondents are less willing to participate in it. It should be remembered that most of the methods used in such situation are based on surveys or personal direct (Ingaldi, 2019).

The aim of the article was to identify and group the most important attributes that can be used to assess the quality of services and to classify services according to these attributes. For this purpose, a conceptual matrix of service attributes was created with the division of attributes into four groups. Attributes in the common parts between similar pairs of groups and for all groups together were also distinguished. On the basis of papers included in the Web of Science database presenting the practical use of the basic methods of service quality assessment, services were classified according to distinguished groups of attributes.

Literature review

The world literature largely focuses on the study of methods of managing (production and service) processes, as well as quality assessment in relation to very specific products and services (Bilan et al., 2020; Biranvand and Akbar Khasseh, 2013; Borkowski et al., 2015; Edvardsson, 2005; Ingaldi and Ulewicz, 2018; Izadi et al., 2017; Klimecka-Tatar et al., 2020; Lee, Khong and Ghista, 2006; Thongkruer and Wanarat, 2020; Wolniak, 2018; Bednárová et al., 2020). Entrepreneurs have long concluded that a high standard of service quality is necessary to achieve a high level of customer satisfaction. That is why practitioners often ask the question: “what criteria should be used to improve the quality and production management of my products or my services?”. The answers to these questions should be sought in general models and concepts of service quality management (Klimecka-Tatar and Ingaldi, 2020; Kowalik and Klimecka-Tatar, 2018; Parasuraman, 2010; Rosak-Szyrocka, 2018; Darie et al., 2019).

Services are activities that produce use-values that they are used to satisfy human needs directly or indirectly, but are not reflected in the production of new material goods (Grabara et al., 2019). The lack of influence of this activity on the creation

of new items results from the separation between services and production, not deepened cooperation in the process of material production. Service activities occur simultaneously with their user (human or good).

In striving for the excellence of service processes (and the service as a result), the focus should be on the emotional limitations of clients/customers. In the literature on the subject, there is no direct explanation of the variables (perception and emotions) that will normatively affect the perception of quality, the descriptions are rather general. And solving problems related to service quality management is based on the use of numerous research tools (Bello et al., 2020; Biały and Ružbarský, 2018; Ingaldi, Klimecka-Tatar 2020; Klimecka-Tatar, 2018; Cho et al., 2016; Mahmoud and Khalifa, 2015; Wong et al., 2011; Cioca et al., 2011; Sohn et al., 2017; Jubenville and Cairns, 2016).

It is crucial that in order to ensure a favorable position of the company in the market, it is necessary for the customer to notice the excellent quality of services. Customer satisfaction will not only strengthen long-term relationships, but also have a positive impact on the company's reputation, which will increase the market share and ultimately have a positive impact on the financial result (Aluko et al., 2020; Pizam, 2015).

Customer interpretation of the service quality level is perceived as a characteristic form of emotional issues, culture, experience, expectations - generally individual perception and experience (Casidy and Shin, 2015; Jebarajakirthy and Lobo, 2015; Stein and Ramaseshan, 2020). It should be added that also services themselves require a strategic division into groups, which are characterized by a set of factors (the most important) shaping the feelings of customer satisfaction (Riley, 2007; Seong Su Kim and Jungsuk Oh, 2008).

Based on the literature review and research results presented by world-renowned research centers, it is possible to determine a conceptual matrix for the attributes most important from the point of view of the customer service quality perception (Figure 1).

Table 1. Conceptual matrix of service attributes (own study).

<p>Attributes conditioning technical satisfaction</p> <ul style="list-style-type: none"> - compliance with the project - durability of the effect - application of reliable solutions - maintaining performance standards - technically efficient work tools 	<ul style="list-style-type: none"> - feeling satisfied with the end result - aesthetics - uniqueness - appropriate colors - marking 	<p>Attributes conditioning aesthetic and cultural satisfaction</p> <ul style="list-style-type: none"> - the appearance of the rooms where the service is offered - the appearance of the personnel adjusting the service to the trends - unforgettable - cause an increase in adrenaline levels - causing positive feelings - attractiveness of the service - customer comfort
<ul style="list-style-type: none"> - failure-free - clarity of service - solidity of workmanship - trust in the service provider - confidence in the used materials - proper tests 	<ul style="list-style-type: none"> - personalization of the service - way of handling - location - compliance with expectations - a satisfactory price - lead time - punctuality and speed - availability - wide range of service options 	<ul style="list-style-type: none"> - empathy - staff behavior - kindness - improved well-being - repeatability - convenience
<p>Attributes conditioning satisfaction with the level of safety</p> <ul style="list-style-type: none"> - professionalism - service efficiency - consultancy - data safety - up-to-datedness 	<ul style="list-style-type: none"> - general sense of security - no effect on health - no impact on the environment - specialist information - reliability of the information - responsibility - discretion and secrecy 	<p>Attributes conditioning satisfaction from the social / health point of view</p> <ul style="list-style-type: none"> - hygienic aspects - sterile conditions - the provider's competence - expertise - effectiveness - reliability

Despite the fact that the matrix was created on the basis of literature analysis, it should be treated as a subjective study. It will be further analyzed and improved. This matrix can be helpful in conducting research related to the quality of services. Placing a given service in the matrix will allow to focus on a specific group of

attributes that are important to respondents from the point of view of service quality. Additionally, due to the determinants knowledge of the service quality assessment, it will be possible to introduce an optimal management approach in terms of service improvement, as well as an operational management in service enterprises.

Materials and methods

Research has been carried out to classify services according to the proposed conceptual matrix. It was aimed at identifying those services in which the attributes of a given type prevail. The Polish Classification of Products and Services 2015 (PKWiU 2015) was taken into account when creating the list of services. 56 types of different services were listed.

In the research, the publications included in the Web of Science database, which are available in open access or on the ResearchGate platform were used. These publications concerned the study of the quality of various types of services with use of the main research methods based on survey or interview studies (Servqual, Servperf, Importance Performance Analysis - IPA, Kano model, Critical Incident Technique CIT). These papers were published between 2016 and 2020.

Those articles that provided information on the quality of the specific service and the characteristics listed as attributes during the study were selected. In case of the Kano model it was not possible to use only word "Kano", as there were also papers about the city of Kano in Nigeria, therefore the expression "Kano model" was used. Additionally, this method is used also to design and evaluate the quality of products, hence the big difference between number of the found papers and the analyzed papers. The name of the IPA method was introduced in the full version. This method was also used for a purpose other than service quality assessment, so many papers were omitted here as well.

After entering the words to be included in the title in the form of the names of individual methods, 497 publications were selected (Servqual 131, Servperf 9, Kano model 163, IPA 187 and CIT 7). However, after checking the abstracts and availability of articles in open access or on the ResearchGate platform, 236 publications were selected (Servqual 87, Servperf 9, Kano 61, IPA 73 and CIT 6). For individual services, it was checked whether the attributes specified in the conceptual matrix appeared and their frequency in individual publications was marked.

It is possible to create a separate matrix for a specific service, selecting the number of indications referring to a specific matrix field and a specific attribute. Thus, it is possible to determine which attributes are predominant, and thus to determine the type of service. The article presents cumulative results showing services placed in individual fields of the matrix according to the largest number of attributes of a given group.

Unfortunately, the available publications do not refer to all services included in the PKWiU 2015 classification. Therefore, two matrices were created. The first matrix relates to the services that were identified according to the literature analysis. The second matrix contains the remaining services. They were classified into individual fields of the matrix on the basis of deduction. It is therefore only a classification proposal that should be verified on the basis of other studies due to their subjectivity.

Thanks to the research, it is possible to identify those services that are specific to given groups of attributes. These are the services that are in the corner fields of the matrix. Services located in the common parts of individual attribute groups should be treated as mixed services, without a large advantage of the given attribute group. Some services cannot be classified into any of the categories because they relate to a mixture of different types of attributes and they are in the middle of the matrix.

Results and discussion

As mentioned before, 236 articles were eventually selected for the analysis. Unfortunately, the available papers did not refer to all services listed according to the PKWiU 2015 classification. The analyzed papers concerned only 31 different types of services. Many research on quality assessment using selected methods (Servqual, Servperf, IPA, Kano, CIT) referred to medical and educational services. Numerous publications also referred to: administrative services, banking services, financial services, catering services, commercial services, hotel services, IT services, entertainment services, sports services, transportation services and tourist services. The remaining services appeared in 1-3 studies, so it cannot be fully concluded whether the results of the analysis are representative in their cases. Due to the frequency of occurrence of attributes in individual articles, the classification of services was made using the conceptual matrix of service attributes (Fig. 2).

Table 2. Conceptual matrix of service attributes - distribution of the services in the matrix according to the available literature (own study).

<p>Attributes conditioning technical satisfaction</p> <ul style="list-style-type: none"> - construction services - repair services - renovation services 	<ul style="list-style-type: none"> - printing services - catering services - hotel services 	<p>Attributes conditioning aesthetic and cultural satisfaction</p> <ul style="list-style-type: none"> - art services - museum services - recreational services - entertainment services - sports services - television and radio broadcasting services
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<ul style="list-style-type: none"> - architectural services - consulting and engineering services - energy services - IT services - transportation services 	<ul style="list-style-type: none"> - consulting services - commercial services - courier services - warehouse services - telecommunication services - tourist services 	<ul style="list-style-type: none"> - beauty services
<p>Attributes conditioning satisfaction with the level of safety</p> <ul style="list-style-type: none"> - banking services - financial services 	<ul style="list-style-type: none"> - insurance services 	<p>Attributes conditioning satisfaction from the social / health point of view</p> <ul style="list-style-type: none"> - administrative services - educational services - medical services - research and development services

On the basis of the literature research, the types of services typical for the main attributes determining individual types of satisfaction were selected. Services with predominant attributes conditioning aesthetic and cultural satisfaction and services with predominant attributes conditioning satisfaction from the social / health point of view have strong representatives. In case of the second group, educational and medical services dominate. It should be emphasized that these two services are the ones most often analyzed in terms of service quality.

However, in the case of the group of services with predominant attributes conditioning technical satisfaction, it should be remembered that the researches on the individual services that were classified here are very rare, so the result cannot be confirmed in one hundred percent, so these results are proposed to be confirmed.

Based on deduction, the remaining 25 services were classified using the same matrix (Fig. 3).

Table 3. Conceptual matrix of service attributes - distribution of the remaining services in the matrix (own study).

<p>Attributes conditioning technical satisfaction</p> <ul style="list-style-type: none"> - agricultural services 	<ul style="list-style-type: none"> - cleaning services - laundry services - publishing services 	<p>Attributes conditioning aesthetic and cultural satisfaction</p> <ul style="list-style-type: none"> - music services - theater services - library services - gaming services - services related to recording video, sound, etc.
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<ul style="list-style-type: none"> - detective services - real estate services - maintenance services 	<ul style="list-style-type: none"> - postal services - advertising services 	<ul style="list-style-type: none"> - hairdressing services
Attributes conditioning satisfaction with the level of safety	<ul style="list-style-type: none"> - security services - social assistance services - information services - employment services - office administrative services - services provided by member organizations - services provided by international and extraterritorial organizations 	Attributes conditioning satisfaction from the social / health point of view <ul style="list-style-type: none"> - dental services - legal services - veterinary services

One group of services with a large predominance of attributes conditioning satisfaction with the level of safety remained empty. It is impossible to match this group with too many types of services, in which only these attributes predominate to a very large extent. The three boxes (right corner and bottom middle) contain numerous different services. However, these results need to be confirmed through other studies.

Limitations in the presented results can be indicated. First, the conceptual matrix of service attributes itself, which was created on the basis of literature research, is not free from subjectivism, which means that it requires additional research. Perhaps some important service attributes have been omitted, while any attribute contained in the matrix should be removed or shuffled within its internal fields. Secondly, in the case of services for which 1-3 publications were found, it is not possible to be fully sure of the obtained results, which means the need of further analysis. For services that have been classified on the basis of deduction, confirmation of the obtained results is required.

It is proposed to use for this purpose a survey conducted among customers using these services. They could indicate from the list of all the attributes included in the conceptual matrix of service attributes the most important ones from the point of view of a specific feature. Of course, in this case, the attributes should not be grouped so as not to affect the answers of the respondents.

Many authors indicate certain characteristics of services, i.e. immateriality, simultaneous provision and consumption of the service, heterogeneity, impermanence, no possibility of purchasing, high interaction with the customers (Parasuraman et al., 1991; Royne et al., 1998; Kasper et al., 2006). In many publications, it was proposed to take into account ten groups of attributes during the assessment of service quality, from which five main elements are commonly used, i.e. tangibles, reliability, responsiveness, assurance and empathy (Royne

et al., 1998; Sandhu & Bala, 2011; Khurana, 2008; Saengchai & Jermstiparsert 2020; Fitzsimmons and Fitzsimmons, 1998; Zeithaml et al., 1988; Brady et al., 2002; Mbise and Tuninga, 2016). However, such a list of features is not enough. It should be remembered that in the market we can find many types of services, therefore the attributes taken into account in the study should be selected according to the specificity of a given service. Many practitioners say that this is the most difficult stage of research. The available publications describe the features of single, specific services, there is no general research on this subject. The presented results are therefore a supplement to the knowledge about the attributes of services and may be useful as a starting material for selecting the attributes of individual types of services.

Understating customer requirements for the offered services and defining the attributes that allow to describe and measure these requirements, is one of the first stages of the quality management process in the every company. The conceptual matrix of service attributes can be treated as a supporting tool that can be used in this area, and which task is to facilitate the process of proper selecting the quality attributes.

Summary

Changes of market conditions, but most of all changes of customer requirements, make enterprises look for solutions what to do to convince these customers to themselves and their products. One of the most important solutions in this case is quality assessment in order to check whether these requirements are met, and if not, to look for methods to adapt the product to these requirements. This is especially important in the case of service companies. Unfortunately, in this case, appropriate service quality management is hampered by not only high customer subjectivity, but also by the lack of specific attributes that should be included in the service.

To sum up, the use of the conceptual matrix of service attributes proposed in the paper by service companies can serve as a tool that will facilitate the selection of attributes to evaluate a specific type of services. It is a very useful tool for proper quality management in the service companies. It will facilitate decision-making related to the selection of attributes, indicate what must be included and what can be omitted in the study, and also help to improve the quality of offered services.

The performed and presented studies are not free from limitations. The conceptual matrix of service attributes was created on the basis of literature research, is not free from subjectivism. Perhaps some important service attributes have been omitted, while any attribute contained in the matrix should be removed or shuffled within its internal fields. In case of the classification of services based on the literature review, for some types of services only 1-3 publications were found so the results are not fully sure. In case of the classification based on deduction, confirmation of the obtained results is required due to its subjectivism.

Further research is planned to confirm the achieved results, especially in the case of classification of services based on deduction and those services for which not too many publications were found. It is also proposed to use the obtained results in other studies on service quality management, when selecting service attributes.

The conceptual matrix and classification are the basis for further research. Thanks to the research, it was possible to identify the representatives of pure groups of attributes: renovation services (attributes conditioning technical satisfaction), art services (attributes conditioning aesthetic and cultural satisfaction), banking services (attributes conditioning satisfaction with the level of safety), and medical services (attributes conditioning satisfaction from the social / health point of view). These services will be the basis for the planned project, which will be submitted as a proposal regarding management and evaluation of the service quality in the aspect of international human resource management to the Polish Ministry of Science and Higher Education.

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NOWE PODEJŚCIE DO ZARZĄDZANIA JAKOŚCIĄ: KONCEPCYJNA MATRYCA CECH USŁUG

Streszczenie: Ocena jakości danej usługi pozwala na identyfikację jej mocnych i słabych stron oraz ewentualną poprawę. Stosowane w tym celu metody opierają się głównie na ankietach wypełnianych przez klientów. W tych ankietach wymienione są atrybuty, które mają definiować tę jakość. Dobór takich atrybutów jest jedną z najtrudniejszych części opracowania. Celem artykułu było zebranie najważniejszych atrybutów, które można wykorzystać do oceny jakości usług oraz sklasyfikowanie usług według tych atrybutów. W tym celu stworzono koncepcyjną macierz atrybutów usług z podziałem atrybutów na cztery grupy: atrybuty warunkujące satysfakcję techniczną, atrybuty warunkujące satysfakcję estetyczną i kulturową, atrybuty warunkujące satysfakcję z poziomu bezpieczeństwa oraz atrybuty warunkujące satysfakcję z życia społecznego / zdrowotny punkt widzenia. Wyróżniono również atrybuty w częściach wspólnych między podobnymi parami grup i dla wszystkich grup razem. Usługi zostały również podzielone na poszczególne grupy atrybutów zgodnie z koncepcyjną macierzą atrybutów usług. Dzięki

temu możliwe jest wskazanie charakterystycznych cech i atrybutów dla poszczególnych rodzajów usług. Możliwe jest również wskazanie przedstawicieli poszczególnych grup atrybutów. Matryca ta jest pomocnym narzędziem usprawniającym proces zarządzania jakością, które można wykorzystać przy prowadzeniu badań jakości usług, a jej zadaniem jest pomoc w doborze atrybutów do takich badań.

Słowa kluczowe: zarządzanie jakością, jakość usług, firmy usługowe, satysfakcja klienta, kształtowanie jakości.

质量管理的新方法:服务属性的概念矩阵

摘要:对给定服务质量的评估可以确定其优势和劣势以及可能的改进。用于此目的的方法主要基于客户填写的调查。在这些调查中,列出了定义此质量的属性。这些属性的选择是研究中最困难的部分之一。本文的目的是收集最重要的属性,这些属性可用于评估服务质量并根据这些属性对服务进行分类。为此,创建了服务属性的概念矩阵,并将属性分为四类:属性调节技术满意度,属性调节美学和文化满意度,属性调节安全级别的满意度以及属性来自社会/健康的观点。还区分了相似的组对之间以及所有组在一起的公共部分中的属性。根据服务属性的概念矩阵,服务也被分为各个属性组。由于这个原因,有可能指示出每种服务类型的特征和属性。也可以指示各个属性组的代表。此矩阵是促进质量管理过程的有用工具,可以在进行服务质量研究时使用,其任务是帮助选择此类研究的属性。

关键词: 质量管理, 服务质量, 服务公司, 客户满意度, 质量塑造。