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REFLECTING THE MARKET NEEDS WITH REGARD TO GASTRONOMICAL SERVICES USING THE QFD METHOD

ODZWIERCIEDLENIE POTRZEB RYNKU W ODNIESIENIU DO USŁUGI GASTRONOMICZNEJ PRZY UŻYCIU METODY QFD

Abstract: The gastronomic industry enjoys growing popularity. The number of small gastronomy establishments and large hotel chains is growing, with extensive catering facilities. The struggle for the client has many dimensions, it also takes place within his sensations and feelings. Eating out is much more than cooking and eating at home. It brings people together and people can share something common when eating outside. By perceiving the gastronomic service in this way, we notice the importance of the environment and the people who provide it to us. The aim of the article is to present the possibilities of using the *Quality Function Deployment* (QFD) method in the design of catering services – to translate market requirements into the conditions that a gastronomic service has to meet, wanting to enjoy the interest. The aim of the research is to identify the client's needs and requirements and identifying the positive features of the service and finding methods to achieve them so as to be able to improve the gastronomic service on their basis.

Keywords: QFD – Quality Function Deployment, House of Quality, customer

Streszczenie: Branża gastronomiczna cieszy się rosnącą popularnością. Rośnie ilość lokali małej gastronomii oraz dużych sieci hotelowych z rozbudowanym zapleczem gastronomicznym. Szanse na utrzymanie się na tak nasyconym, konkurencyjnym rynku zależą od satysfakcji klientów, na co największy wpływ ma poziom jakości świadczonych usług. Walka o klienta ma wiele wymiarów, toczy się również w obrębie jego doznań i odczuć. Jadanie poza domem to nie tylko poznawanie smaku potraw, to celebrowanie wolnego czasu, spędzonego najczęściej w otoczeniu bliskich osób. Celem artykułu jest przedstawienie możliwości zastosowania metody *Quality Function Deployment* (QFD) w projektowaniu usług gastronomicznych w celu przełożenia wymagań rynkowych na warunki, które musi spełnić usługa gastronomiczna, chcąc cieszyć się zainteresowaniem. Celem badań jest określenie potrzeb i wymagań klienta oraz zidentyfikowanie pozytywnych cech usługi oraz znalezienie metod ich osiągnięcia tak, aby móc na ich podstawie udoskonalić usługę gastronomiczną.

Słowa kluczowe: QFD - Quality Function Deployment, Dom jakości, klient

Introduction – QFD (*Quality Function Deployment*)

Quality function deployment (QFD) is a customer-oriented design tool with cross-functional team members reaching a consensus in developing a new or improved product to increase customer satisfaction¹. QFD has been employed in the service industry for over two decades². QFD – *Quality Function Deployment*, a method understood as “developing a quality function”, that is, determining at every stage of designing as many factors as possible that can affect the quality of the product

¹ E.E. Karsak, S. Sozer, S.E. Alptekin, *Product planning in quality function deployment using a combined analytic network process and goal programming approach*, “Computers & Industrial Engineering” 2003, 44 (1), pp. 171-190.

² G.H. Mazur, J. Gibson, B. Harries, *QFD Applications in Health Care and Quality of Work Life*, In: Proceedings from the First International Symposium on QFD, Tokio 1995, pp. 45-50.

or the production process³. Quality function deployment process is generally used as customer-oriented quality management and product development methodology in the manufacturing industry. It can, however, be used for developing product and design quality in the service industry⁴.

Akao (1990) defines QFD as “a method for developing a design quality aimed at satisfying the customer and then translating the customer’s demand into design targets and major quality assurance points to be used throughout the production phase”⁵.

The method allows to process recipients’ needs for product characteristics. QFD gives the possibility to define general and technical parameters of the product and its components, as well as parameters at individual stages of the process. In other words, the method translates market / consumer requirements into conditions that must be met at all stages of product development, ranging from design, through the production process, sales and servicing. The motivation for the development of the QFD method was the statement that even if the product is properly designed, its acceptance on the market is the most important. Otherwise, the product will turn out to be unsuccessful, which is why the desires of direct purchasers and those who affect sales to some extent are so important. An example can be a mobile phone, whose main role is the ability to make phone calls, but at the same time is a source of satisfaction, entertainment, fun. That is why it is so important to recognize the needs of consumers, and for this you can use the QFD method. The purpose of QFD has been in the direction of orientation and realization with listening to the voice of customers at different parts to improve a new product/service according to customer demands⁶. The QFD method is based on formulation of product features, as well as their guarantee in multiphase development works, in production processes and in the product itself⁷.

QFD is a product or service design process that takes into account the needs of customers, which translates buyers’ needs into a technical language for each product. It is based on market research, development research, new concepts, innovations, tests performed on the final product. The main principle is relying on the involvement of directly production employees, who become an important element during the implementation of QFD, which requires the creation of employee groups that differ in their expertise, competence and knowledge. The whole process of gathering information, ordering, assigning validity to particular requirements

³ A. Hamrol, *Zarządzanie jakością z przykładami*, PWN, Warszawa 2008, p. 364.

⁴ L.K. Chan, M.L. Wu, *Quality function deployment: A comprehensive review of its concepts and methods*, “Quality Engineering” 2002, 15 (1), pp. 23-35; Y. Akao, G.H. Mazur, *The leading edge in QFD: Past, present, and future*, “International Journal of Quality and Reliability Management” 2003, 20 (1), pp. 20-35. S. Vinodh, S.K. Chinttha, *Application of fuzzy QFD for enabling leanness in a manufacturing organization*, “International Journal of Production Research” 2011, 49 (6), pp. 1627-1644.

⁵ Y. Akao (ed.), *Quality Function Deployment: Integrating Customer Requirements into Product Design*, Productivity Press: Cambridge, MA 1990.

⁶ L.P. Khoo, N.C. Ho, *Framework of a fuzzy quality function deployment system*, “International Journal of Production Research” 1996, 34 (2), pp. 299-311.

⁷ J. Łańcucki, D. Kowalska, J. Łuczak, *Zarządzanie jakością w przedsiębiorstwie*, Oficyna Wydawnicza Ośrodka Postępu Organizacyjnego sp. z o.o., Bydgoszcz 1995, p. 113.

causes a great improvement in the process of product / service design by a group of people performing various functions in the company. The QFD method promotes teamwork and communication between the participants of the team.

The basic means of the QFD method is **HOQ – House of Quality**. The short version consists of six ranges⁸ (figure 1 shows the individual stages):

1. Define customer requirements.
2. Define the technical requirements of the product / service.
3. Present the relationship between customer expectations and the features of the product / service.
4. Determine the validity of customer requirements, comparison with competitive products / services.
5. Define the validity of technical requirements, presents the target values that are required of the product / service, and compares the compliance of technical parameters against the competition.
6. Define relations between parameters.

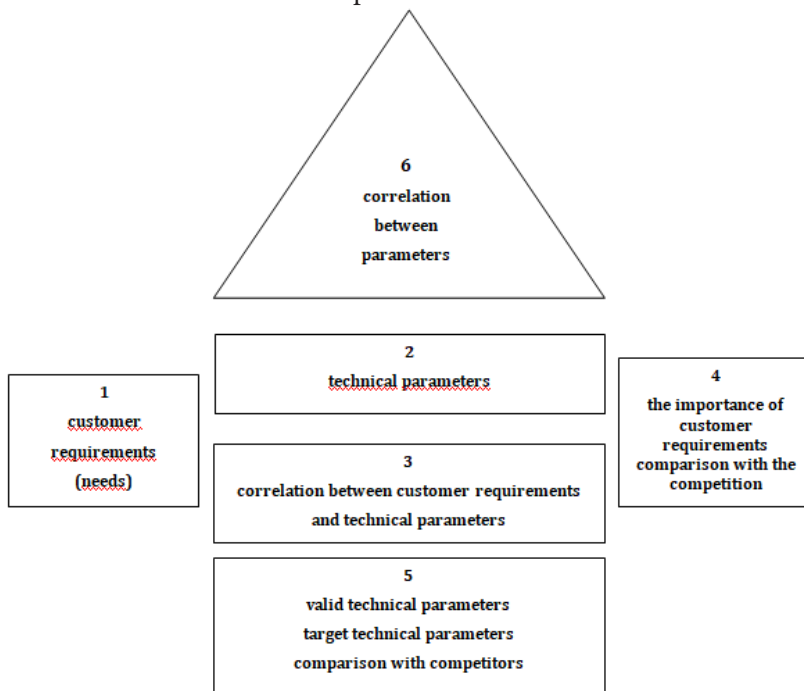


Figure 1. House of Quality

Rysunek 1. Dom jakości

Source: own elaboration based on K. Paryani, A. Masoudi & E.A. Cudney, *QFD application in the hospitality industry: A hotel case study*, "The Quality Management Journal" 2017 (1), p. 7-29.

⁸ L. Cohen, *Quality Function Deployment: How to Make QFD for You*. Canada: Addison-Wesley Publishing Company, 1995.

A complete QFD analysis consists of three main phases closely related to each other:

1. Define the relationship between customer requirements and technical parameters.
2. Transfer of technical parameters of the product to individual elements.
3. Assessment of individual process stages, taking into account the characteristics from phase 2.

The phases are closely related and they answer three basic questions in full composition:

- “WHO” - *Who is our customer?*
- “CO” - *What is the client's wish?*
- “HOW” - *How to meet customer needs?*

Undoubtedly, a full QFD analysis is time-consuming, but nevertheless it correctly determines the expected features of the product, and the products or services designed will be desirable by consumers. QFD application has three main aims⁹ (AUT, 2011):

- To prioritize customer demands which was mentioned/unmentioned.
- To convert these demands into operating characteristics.
- To provide realizing of quality product or service supply all of departments which are focus on customer satisfaction.

1. Study of *Quality Function Deployment* (QFD) in catering services – own research

The method of developing the QFD quality function has been applied to the catering service. The authors of this article determined the attributes of this service and their validity based on the opinion of Internet users collected from the previously established blog (The QFD analysis was based on collected data from Internet users' opinions on catering services. These opinions were collected thanks to the creation of an online blog addressed to customers of gastronomic services. While determining the attributes of this service and their validity in the QFD analysis, the opinions of Internet users collected on this blog were based on them. This gave reliable information). The scientific methodology is as follows in table number 1.

⁹ AUT (Auckland University of Technology) (2011). *Quality function deployment*, Relative Industries Research Institute in New Zealand, <http://www.ciri.org.nz/resources.html>.

Table 1. Methodology – QFD

Tabela 1. Metodologia – QFD

Research methodology	Description
The purpose of the study	The aim of the research is to identify the client's needs and requirements and to identify elements that don't meet them. Identifying the positive features of the service and finding methods to achieve them so as to be able to improve the gastronomic service on their basis.
Research questions that help achieve the goal	<ol style="list-style-type: none"> 1. What requirements should a catering service meet from the point of view of the customer? 2. What qualitative attributes should a catering service have? 3. How important are the individual quality attributes of the service for the customer? 4. What is the most important element of the positive reception of the catering service for the customer? 5. How difficult are the individual quality attributes to implement?
Research tool	"House of Quality", diagram
Stages of the study	<ol style="list-style-type: none"> 1. Identification of customer requirements and determination of their validity. 2. Determination of quality attributes of the service. 3. Determining the relationship between customer requirements, and qualitative attributes. 4. Assessment of the validity of technical parameters. 5. Identification of significant interactions between quality attributes. 6. Evaluation of competitive services. 7. Setting the target values of the gastronomic service attributes. 8. Assessment of difficulties resulting from the provision of services in the catering industry.

Source: own elaboration.

2. Stages of the method QFD

Stage 1. Identification of customer requirements and determination of their validity

As part of the first stage, customer requirements regarding the catering service were defined. The information collected during the interview with customers using catering services in selected restaurants and on the internet blog were grouped de-

pending on the expectations of customers. Then Internet users determined the severity of the identified requirements on a scale **1 - 5**, where **1** is the least significant and **5** is the most important feature from the customer's point of view.

All the information collected on the internet blog was summarized and based on them a final assessment of the validity of consumer requirements selected for the QFD survey was made (cf. Table 2 with Fig. 4), which were categorized in accordance with the kinship diagram.

Table 2. Specifying the requirements of the customers of the catering service

Tabela 2. Specyzowanie wymagań klientów usługi gastronomicznej

Cat.	Requirements	Description	Importance
Material experience	Location	The location of the catering establishment is important from a logistics point of view. It is connected with the convenience of the communication network, parking places, i.e. what affects the ease of access to the restaurant by its customers.	2
	Variety of menu	Consider the preferences of the clientele of their culinary tastes and preferences in a way that will allow guests to find something for themselves at every opportunity.	4
	Arrangement of the interior of the premises	Appropriate development and design of the interior influences the reception of the quality level of the facility. It should provide guests with pleasant impressions and experiences.	3
	Opening hours	They should be so defined that the guests know how to plan a stay in a restaurant, what kind of meals they can count on and in which hours.	2
	Price	The price should be reflected in the quality of the meal and correspond to the level of the premises, including the competition. However, it should not affect the quality of service and too often undergo drastic changes.	4
Intangible experiences	Professionalism of service	That is, the appropriate level of professional knowledge of employees applied in practice, as well as its personal culture, presence and commitment.	5
	Individual approach to guests	Restaurant guests should not be treated routinely, each one is different, has their own preferences and their own expectations as to the service.	4

Mixed	The quality of dishes and drinks	It should be compatible with the one offered by the restaurants in the menu, ads and service suggestions.	5
	The atmosphere of the place	The right atmosphere and creating conditions for rest. It is influenced by both material and non-material aspects of the gastronomic service.	4
	Adapting the premises to guests with children	Restaurants should meet their guests and ensure that their stay together with the whole family is a positive experience. That they and their children can enjoy the entertainment associated with a meal outside the home.	3

Source: own elaboration.

***Mixed category** – the authors of the article, by this category, mean the value combining features of both material and non-material experiences, which together influence the reception of the service by the client.

The highest requirements (**5 points**) have the following requirements:

- Professionalism of service.
- Quality of dishes and drinks.

It is worth noting that these are requirements belonging to the category of intangible experiences, which proves the importance of the non-physical character of the gastronomic service for its consumer. Highly, because up to **4 points** were assessed consumer requirements regarding the diversity of the menu, prices, atmosphere of the place and individual approach to restaurant guests. There are also requirements rated as moderately important (**3 points**), they are; interior arrangement of the premises and adaptation to guests with children. The lowest score (**2 points**) received the requirements regarding the location and opening hours of the premises. It should be noted here that these grades are the average of the grades given by respondents. In an individual approach to the gastronomic service may differ, and therefore should not be overlooked in the management of the restaurant. No doubt, each of them can be an important asset for a restaurant and requires development.

Stage 2. Determining the qualitative attributes of the service

The next step in this analysis of the catering service was to determine the technical parameters that are a response to the previously indicated customer requirements. The characteristics have been determined for the given parameters (cf. Table 3 with Fig. 4), so whether the given parameter is the *max* (+), *minimant* (-) or *nominant* (•). Maxims and minimants are measurable parameters, to which we can assign specific numbers. However, nominants are values for which there is some

optimum at which the product / service best meets the requirements. It is also possible to extract parameters described only in descriptive terms, they include:

- Qualification of staff.
- Location of the restaurants.
- Equipment in the facility and hall.

Table 3. Determination of technical parameters of the gastronomical service




Tabela 3. Wyznaczenie parametrów technicznych usługi gastronomicznej

Technical parameter of the tested service	Characteristic	Description
Staff qualifications		The parameter is described descriptively.
Time of order completion	(-)	The shorter the waiting time for an order, the greater satisfaction with the service provided.
The right price	(•)	This parameter has a certain optimal value, it is the balance between the quality of the gastro-nomic service and the price that is due for it.
The location of the restaurant		The parameter is described descriptively.
Furnishings of the back-office facilities and front (consumer room)		The parameter is described descriptively.
The quality of the dishes and drinks	(+)	The higher the quality of served dishes and beverages, the greater customer satisfaction and a higher level of satisfaction of its needs.
Adaptation of the offer to the individual needs of guests	(•)	This parameter has a certain optimal value, which is the level of adaptation of the restaurant service offer to the needs of each client, including the needs of guests with children, disabled people, foreigners, vegetarians, etc. this has a direct impact on their satisfaction.
Professionalism	(+)	The higher the professionalism of service, the greater the reputation of the premises and the satisfaction of its customers.
The size of the menu	(+)	The greater the choice / variety of dishes and beverages, the more guests have the opportunity to meet their needs.
The size of the premises	(+)	The larger the usable area, the greater the possibilities for its development, the greater the number of tables (guests that can be served), but also the back-up facilities, which enables the introduction of additional catering services and the organization of receptions for a larger number of guests.

Source: own elaboration.

Stage 3. Determining the relationship between customer requirements and quality attributes

At this stage, a matrix of dependencies between customer requirements was built, and the quality attributes of the tested service. To this end, the following groups of connections have been distinguished (the QFD method distinguishes several levels of dependencies and is assigned numerical values: 9, 3, 1, depending on the strength of dependence):

- **Strong dependence** (marked with ) - value 9.
- **Medium dependence** (marked with symbol ) - value 3.
- **Weak dependence** (marked by symbol ) - value 1.
- **No dependency** (no symbol sign, which is equivalent to no entry in the matrix field) - value 0.

There are no dependencies between some of the requirements and the quality parameters of the service. However, there are many strong, medium and weak connections (cf. Fig. 4).

Strong links (value 9) include: *A variety of menu and delivery time*. An extensive menu card (sophisticated dishes, lots of items, the ability to mix additives by the customer, complicated preparatory activities of dishes) results in longer delivery time. *A variety of menus, and adaptation of the offer to individual customer needs*. The more possibilities, the more tastes you can satisfy, for example, vegetarians or people on a diet.

- **Interior design, and equipment in the back and front**. The room's equipment has a big influence on the final reception of the interior by the guests. It contributes to its functionality and comfort of stay.

- **Interior design, and the size of the premises**. Large premises have more freedom in arranging the interior. They can afford to use many motifs and diversity of zones in the consumption room, which affects its reception by consumers.

- **Price and the level of quality of food and drinks**. High level of quality of dishes and drinks is often associated with the necessity of using higher-end products, which is reflected in their price.

- **Professionalism of the service, and his qualifications**. Professional service is qualified service, able to use your knowledge acquired during the education process, training and work to meet the needs of customers. Thus, the more qualified the more professional employees.

- **Professional service and delivery time**. Professional service affects its efficient and solid work to shorten the time of the contract.

- **Professional service, and the level of quality of food and drinks**. The knowledge of employees about the products they offer and their practical skills increase the quality of dishes and drinks served to guests.

- **Professional service, and adaptation of the offer to individual customer needs.** Thanks to the competence of employees, each guest can receive a service tailored to their needs.

- **An individual approach to the guests, and the qualifications of the staff.** As in the previous case, the degree to which the customer will be satisfied depends on how much he feels that the staff met his individual expectations for the service.

- **The quality of dishes and drinks, and the duration of the contract.** The higher the quality of the dishes and beverages offered, the more careful and time-consuming it is to prepare them, which increases the time of their implementation.

- **The quality of dishes and drinks, and the equipment of the back and front.** The equipment of the restaurant helps its employees to improve the quality of the dishes and drinks offered.

- **The atmosphere of the place, and the location of the restaurant.** The location of a restaurant can increase its attractiveness and build a unique atmosphere and character of the service.

- **The atmosphere of the place, and the equipment of the back and front.** The equipment affects all types of amenities for guests (e.g. a changing table in the toilet, a children's corner, a juicer) so that the place becomes more friendly to guests, family and warm.

- **The atmosphere of the place, and the level of quality of food and drinks.** The atmosphere of the restaurant is primarily built by satisfied guests and smiling service. The quality of dishes / drinks is the basic factor on which it depends.

- **The atmosphere of the place and the professionalism of service.** Professional service builds the atmosphere of the place, causing that guests feel "pampered", safe and satisfied with the service.

- **Adaptation of the premises to guests with children, and equipment of the back and front.** Furnishing the premises may result in its adaptation for guests arriving with whole families (e.g. the above-mentioned changing table).

- **Adapting the premises to guests with children, and the size of the premises.** A larger place has a greater opportunity to adapt to the needs of families with children. It can designate an area for children, a corner for nursing mothers, etc., which will satisfy their parents.

The **medium links (value 3)** include:

- **The location and the right price.** All factors related to the location of the facility, i.e. the vicinity of the center, convenient places for tourists, car parks, main routes, the presence of competition affect the price of the service. Sometimes it favors lowering it, and sometimes it forces it to grow.

- **The location and the size of the premises.** The place where the place is located often forces its size, e.g. in an old tenement house there will be predetermined size options.

- ***A variety of menus, and the equipment of the back and front.*** Additional devices and elements of the tableware give the opportunity to prepare more dishes or even the most sophisticated drinks.

- ***Opening hours and the location of the restaurant.*** Locating the premises has a big impact on the hours of its operation (e.g. a restaurant in the city center will be open longer than the one on its edge due to the hours of customer visits).

- ***Opening hours, and adaptation of the offer to individual customer needs.*** Some restaurants lengthen the opening hours occasionally in response to such a need of their guests.

- ***Individual approach to guests, and the time of order fulfillment.*** If the restaurant gives its guests the opportunity to compose their own dishes, this can extend the time of their implementation, and also affect the implementation of other orders, especially during rush hour.

- ***An individual approach to the guests, and the equipment of the back and front.*** All kinds of above-standard equipment give you the opportunity to carry out unusual orders and meet the exorbitant needs of customers.

- ***The quality of dishes and drinks, and the size of the menu.*** Too large a menu may carry a risk that the restaurant will not be able to maintain high quality of all offered dishes and beverages in the long run, especially when it comes to costs associated with storing and processing a large amount of raw materials.

- ***The atmosphere of the place and the qualifications of the staff.*** Qualified staff creates the atmosphere of the place through their attitude, approach to guests and their appearance.

- ***The atmosphere of the place, and the adaptation of the offer to individual customer needs.*** What the restaurant represents must be consistent with what it offers its guests.

- ***The atmosphere of the place, and the size of the premises.*** The larger the premises, the greater the opportunity to develop it in the most comfortable way for guests (e.g. creating zones, bigger intervals between tables that have a positive impact on the privacy of guests) thanks to this the atmosphere in the restaurant becomes more attractive and attracts customers.

- ***Adapting the premises to guests with children, and the qualifications of the staff.*** Experienced staff are able to meet the needs of their guests. He knows how to behave in every situation, and children in the restaurant undoubtedly require more care and attention than adults.

The **weak links (value 1)** include:

- ***The atmosphere of the place and the time of order fulfillment.*** If the consumption takes place in a nice, caring and comfortable environment, guests are able to wait longer for their order, not counting the waiting time nervously.

- **Interior design, and the right price.** The appearance of the interior of the premises by building certain associations affects the client's expectations as to the services offered and the prices thereof, e.g. guests visiting an exclusive French restaurant by assessing its interior are preparing subconsciously to be able to pay a high bill for dinner.
- **Adapting the premises to guests with children, and the size of the menu.** If the restaurant is able to expand more its menu card should it include specially arranged dishes for children, it will certainly result in frequent visits of entire families.

Stage 4. Assessment of the validity of technical parameters

In this stage of the QFD study, the hierarchy of individual technical parameters was determined taking into account their importance in the general concept of the gastronomic service. Having numerical assessments characterizing the importance of individual customer requirements and their links to quality attributes, appropriate calculations were made to obtain the validity of individual parameters. This is illustrated in the tables 4 -13.

Table 4. The indicator of importance for the parameter: QUALIFICATION OF PERSONNEL
Tabela 4. Wskaźnik ważności dla parametru: KWALIFIKACJE PERSONELU

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Professionalism of service	5	9	45
2.	Individual approach to guests	4	9	36
3.	The quality of dishes and drinks	5	9	45
4.	The atmosphere of the place	4	3	12
5.	Adapting the premises to guests with children	3	3	9
The indicator of importance for this parameter				147

Source: own elaboration.

Table 5. The indicator of importance for the parameter: TIME OF ORDER COMPLETION
Tabela 5. Wskaźnik ważności dla parametru: CZAS REALIZACJI ZAMÓWIENIA

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Variety of menu	4	9	36
2.	Professionalism of service	5	9	45
3.	Individual approach to guests	4	3	12
4.	The quality of dishes and drinks	5	9	45
5.	The atmosphere of the place	4	1	4
The indicator of importance for this parameter				142

Source: own elaboration.

Table 6. The indicator of importance for the parameter: THE RIGHT PRICE
Tabela 6. Wskaźnik ważności dla parametru: ODPOWIEDNIA CENA

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Location	2	3	6
2.	Interior design	3	1	3
3.	The quality of dishes and drinks	5	9	45
The indicator of importance for this parameter				54

Source: own elaboration.

Table 7. The indicator of importance for the parameter: LOCATION OF RESTAURANT
Tabela 7. Wskaźnik ważności dla parametru: LOKALIZACJA RESTAURACJI

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Opening hours	2	3	6
2.	The atmosphere of the place	4	9	36
The indicator of importance for this parameter				42

Source: own elaboration.

Table 8. The indicator of importance for the parameter: FURNISHINGS OF BACK AND FRONT

Tabela 8. Wskaźnik ważności dla parametru: WYPOSAŻENIE ZAPLECZA I FRONTU

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Variety of menus	4	3	12
2.	Arrangement of the interior of the premises	3	9	27
3.	Professionalism of service	5	1	5
4.	Individual approach to guests	4	3	12
5.	The quality of dishes and drinks	5	9	45
6.	The atmosphere of the place	4	9	36
7.	Adapting the premises to guests with children	3	9	27
The indicator of importance for this parameter				164

Source: own elaboration.

Table 9. The indicator of importance for the parameter: THE LEVEL OF QUALITY OF FOOD AND BEVERAGES

Tabela 9. Wskaźnik ważności dla parametru: POZIOM JAKOŚCI POTRAW I NAPOJÓW

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Price	4	9	36
2.	Professionalism of service	5	9	45
3.	The atmosphere of the place	4	9	36
The indicator of importance for this parameter				117

Source: own elaboration.

Table 10. The indicator of importance for the parameter: ADAPTATION OFFERS FOR INDIVIDUAL GUESTS

Tabela 10. Wskaźnik ważności dla parametru: PRZYSTOSOWANIE OFERTY DO INDYWIDUALNYCH GOŚCI

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Variety of menus	4	9	36
2.	Opening hours	2	3	6
3.	Professionalism of service	5	9	45
4.	The atmosphere of the place	4	3	12
The indicator of importance for this parameter				99

Source: own elaboration.

Table 11. The indicator of importance for the parameter: PROFESSIONAL SERVICE

Tabela 11. Wskaźnik ważności dla parametru: FACHOWOŚĆ OBSŁUGI

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Individual approach to guests	4	9	36
2.	The quality of dishes and drinks	5	9	45
3.	The atmosphere of the place	4	9	36
The indicator of importance for this parameter				117

Source: own elaboration.

Table 12. The indicator of importance for the parameter: MENU DIVERSITY

Tabela 12. Wskaźnik ważności dla parametru: FACHOWOŚĆ OBSŁUGI

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	The quality of dishes and drinks	5	3	15
2.	The atmosphere of the place	4	1	4
3.	Adapting the premises to guests with children	3	1	3
The indicator of importance for this parameter				22

Source: own elaboration.

Table 13. The indicator of importance for the parameter: SIZE OF THE LOCAL

Tabela 13. Wskaźnik ważności dla parametru: WIELKOŚĆ LOKALU

ordinal	Customer requirements	Importance indicator of requirements	Dependency ratio	Product
1.	Location	2	3	6
2.	Arrangement of the interior of the premises	3	9	27
3.	The atmosphere of the place	4	3	12
4.	Adapting the premises to guests with children	3	9	27
The indicator of importance for this parameter				72

Source: own elaboration.

Thanks to the calculations made for each technical parameter, the ones that have the greatest impact on meeting the clients' requirements (quality attributes) were distinguished with the highest relevance), include:

- Furnishings of the back and front - **164 (I)**.
- Staff qualifications - **147 (II)**.
- Delivery time - **142 (III)**.
- The level of quality of food and beverages and professional service - **117 (IV)**.

These parameters should be the priority for creating a catering service that meets the clients' requirements. The Figure 2 presents the overall meaning of qualitative attributes in the opinion of consumers. It was designated as a percentage of the importance indicator for individual attributes, where their sum equals 100%.

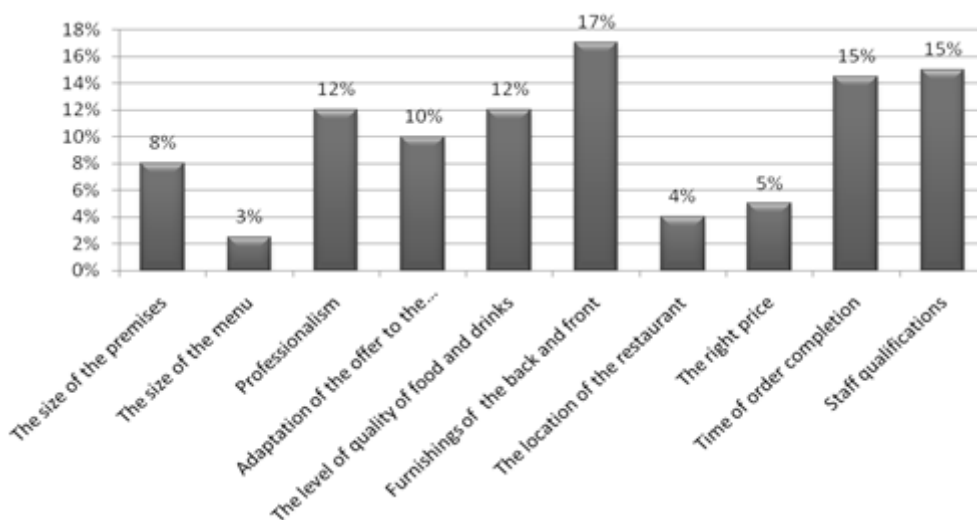


Figure 2. Percentage importance of individual quality attributes of a gastronomic service in the opinion of its customers

Rysunek 2. Procentowe znaczenie poszczególnych atrybutów jakościowych usługi gastronomicznej w opinii jej klientów

Source: own study.

The figure above shows that the size of the menu (2.5%) and restaurant location (4%) is the least important for the customer.

Stage 5. Identification of significant interactions between qualitative attributes

As part of the fifth stage, the correlation was determined between the designated attributes of the quality of the gastronomic service, having a direct impact on meeting the clients' requirements. On this basis, it can be determined that there is a possibility to improve the existing concept of the service by changing selected, significant features without adversely affecting other attributes. These dependencies can be divided into:

- **positive (+),**
- **negative (-),**
- **neutral (no mark symbol).**

The figure between the technical parameters that appear in the service being examined is illustrated in the figure below (Figure 3).

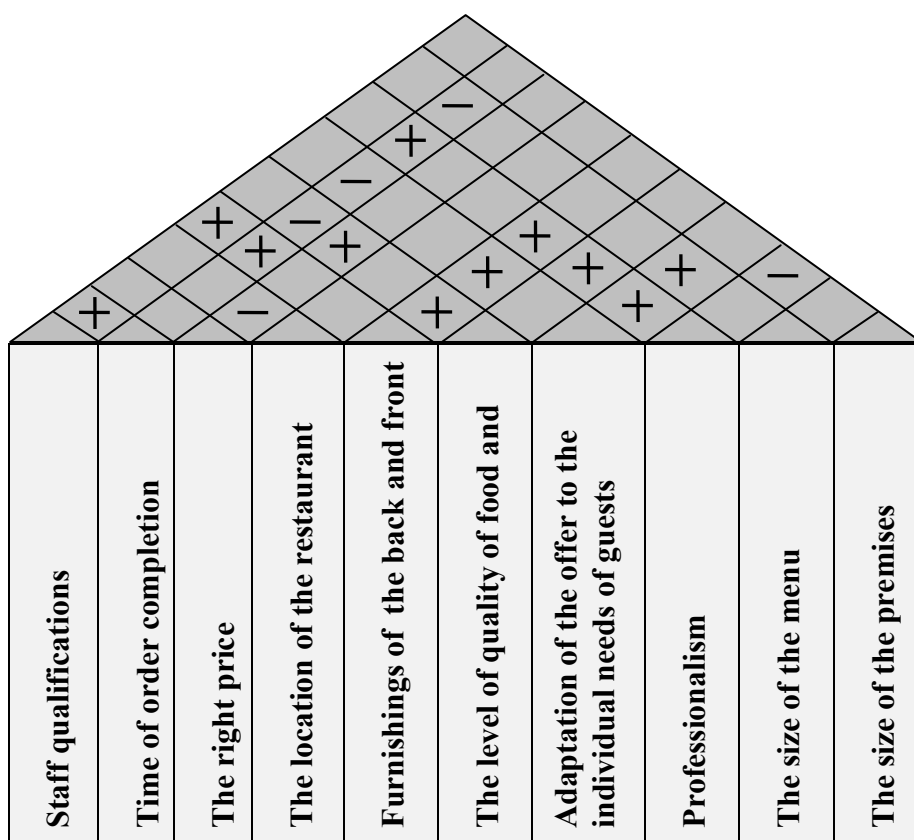


Figure 3. Visualization of stage 5 of the QFD method – identification of significant interactions between qualitative attributes

Rysunek 3. Zobrazowanie etapu 5 metody QFD – identyfikacja istotnych oddziaływań pomiędzy atrybutami jakościowymi

Source: own study.

The **positive (+)** dependencies between the relevant attributes of the gastronomic service include:

- **Qualifications of the staff and the time of the contract.** The higher qualified staff (cooks, waiters), the more efficient and therefore the faster realization of orders.
- **Qualification of personnel, and furnishings of the back and front.** Qualified staff do not require extra furnishings. However, if the premises can afford additional improvements, this increases the standard of services even more.
- **Time of the contract, and the furnishings of the back and front.** Order fulfillment can significantly improve the appropriate furnishings
- **Time of order completion and professionalism of service.** The professional approach of the staff at each stage of order fulfillment shortens the time of service provision.

- **Right price and the quality level of food and drinks.** The price should be adequate to the actual quality of served dishes and beverages.
- **Furnishings of the back and front, and the level of quality of dishes and drinks.** Appropriate furnishings increases the quality of the dishes and beverages offered.
- **Furnishings of the back and front, and adaptation of the offer to the individual needs of guests.** Better the furnishings the greater and more sophisticated expectations of guests can be met.
- **Furnishings of the back and front, and the professionalism of service.** What the staff is working on influences the effect of their work and its assessment by customers.
- **Level of quality of dishes and drinks, and the professionalism of service.** The professional staff is able to serve high-quality food and drinks.
- **Adapting the offer to the individual needs of the guests, and professional service.** Greater the competences of employees, more they can focus on the individual expectations of each guest.
- **Adaptation of the offer to the individual needs of guests, and an extensive menu.** More the restaurant wants to satisfy, more extensive the menu card must be.

The negative (-) dependencies between significant attributes characterizing the gastronomic service include:

- **Time of order completion and the quality level of food and drinks.** The higher the quality of issued beverages and dishes, the longer the time of preparation, especially in situations of increased traffic in the restaurant.
- **Time of order completion and adaptation of the offer to the individual needs of guests.** In order to satisfy the extraordinary needs of guests, the time of completing such an order may significantly increase, as well as prolong the implementation of other orders and inhibit the smoothness of service for other guests.
- **Time of order completion** and the size of menu. An extensive menu card can in situations of increased traffic, increase the time of order fulfillment.
- **The right price and the location of the restaurant.** Often the location of a restaurant forces a drastic increase or a reduction in prices in relation to the desired level.
- **Professionalism and the size of the premises.** The larger the premises, the more guests are able to receive at the same time, if it is not associated with an increased amount of staff in the so-called hours - the professionalism of the service can take a knock.

In the surveyed gastronomy model, one can notice the majority of neutral relations and a significant number of positive dependencies. This enables the improvement of the service concept in the future.

Stage 6. Evaluation of competitive services

The analysis of the gastronomic service conducted by the authors of the article was based on the experience gathered in the examined restaurants and on the opinions collected on the internet blog, therefore no evaluation of competition was carried out in this method of QFD. It has the character of service design taking into account its most important qualitative characteristics for customers.

Stage 7. Setting the target values of the gastronomic service attributes

When developing the data collected for the implementation of the gastronomic service, the target values of individual service attributes were not set, therefore this stage was omitted.

Stage 8. Assessment of difficulties resulting from providing services in the catering industry

In the last stage of the QFD method an assessment (**on a 10-point scale**) of technical and organizational difficulties that could occur while achieving the quality parameters of the gastronomic service was made. The greatest difficulty (**10 points**) is the ***professionalism of service***. This is very difficult due to the unpredictability of employees' fluctuations. Restaurant guests get used to a certain level of service, treating it as the standard of a given institution and regardless of the employment turnover, they expect this standard to remain unchanged.

Quality of dishes and drinks also obtained high scores (**8 points**) as this can not undergo drastic changes, so as not to discourage guests. It is connected with frequent control of product deliveries, searching for better channels of their distribution and often the fight for the possibility of maintaining it at an unchanged level in relation to the price. A major role is also played by the ***furnishings of the back and front*** (**7 points**), adapting the offer to the individual needs of the guests and the appropriate price.

The least number of points (**2 points**) was received by ***the size of menu***, it is not a factor that significantly affects the perceived quality of the service. There are premises with a "***reduced menu card***", but built in a way that would satisfy many expectations.

The information gained at this stage enables identification of problems that may occur during the process of providing the service. Thanks to such knowledge it is possible to design possible corrective actions in advance.

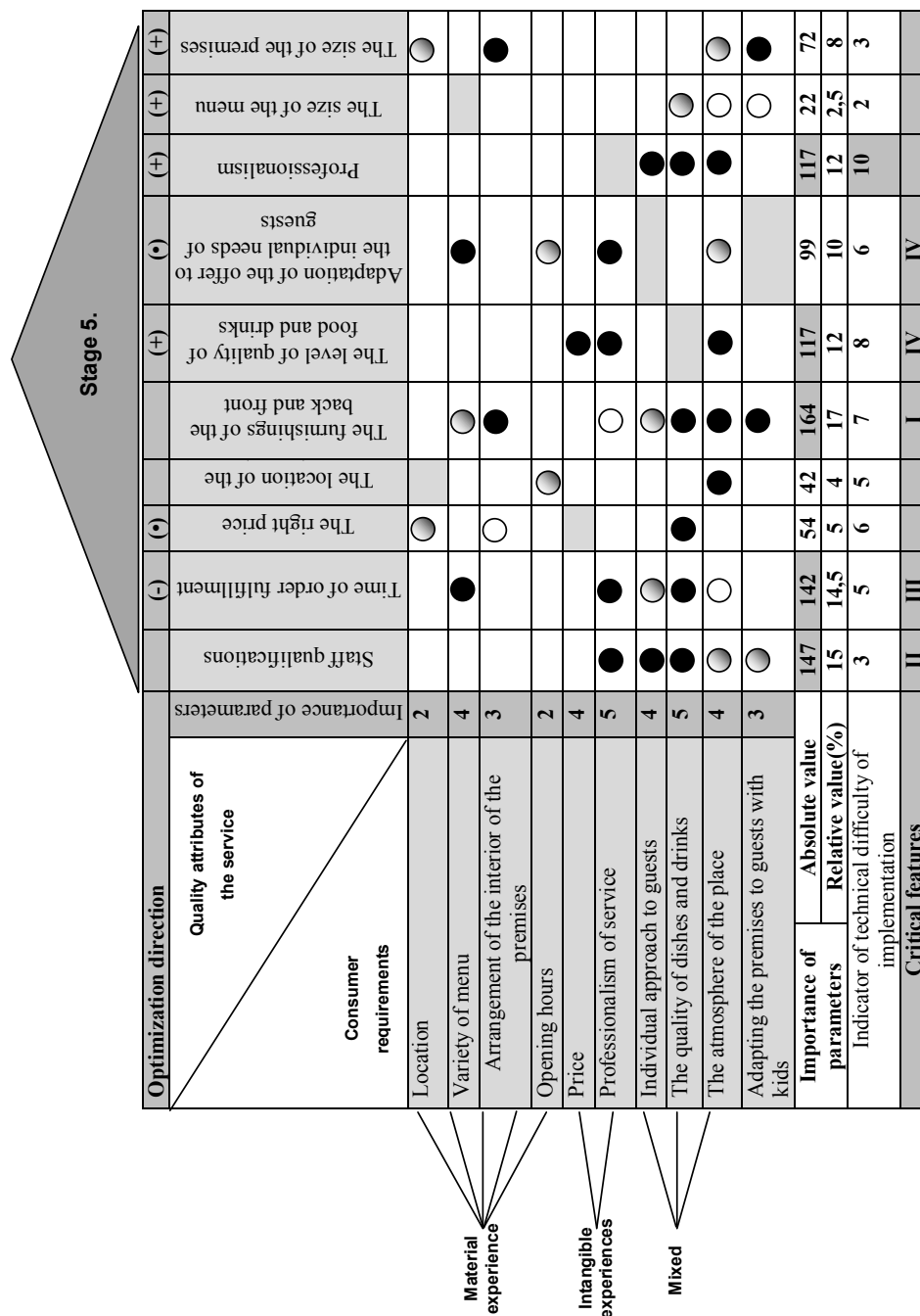


Figure 4. QFD analysis for a gastronomic service
 Rysunek 4. Analiza QFD dla usługi gastronomicznej
 Source: own study.

3. Conclusions from the conducted study using the QFD method

Based on the analytical outcomes of the development of the QFD quality function, the authors of the article drew the following conclusions:

1. The most important requirements for the catering service by its customers are: professional service and high quality of dishes and beverages, as well as the atmosphere of the place, price, individual approach to guests and diversity in menu.
2. It is important to identify features such as locations, size of the premises and adaptation of the offer to the market at the very beginning of the planning of the premises and services.
3. Very important qualitative attributes of the gastronomic service are: equipment of the back and front, qualification of staff and time of order fulfillment.
4. There are many strong and weak dependencies between qualitative attributes and consumer requirements that affect the quality of the gastronomic service.
5. The greatest difficulty in providing a gastronomic service that meets the expectations of customers is to create a professional team among employees.

The quality of catering services for many restaurant owners is associated only with menu items and service. Most of them, however, do not realize the complexity of this issue. The perceived quality of the services provided in this industry consists of many elements; atmosphere of the place, development and furnishing of the premises, all sensations and feelings related to the stay of the guests (comfort, privacy, music, colors, smells, service humor). It is important to realize that every customer is different. There are different needs, desires and expectations. Just as different motives guide the customer when choosing this, and not the other premises, so are the different reasons why the customer will come back or will not want to come back. The research used in this article allows to know the needs of consumers, focusing even on unconventional and highly individualized factors. They can make it possible to create a place with a future that provides jobs for many years. You can't achieve long-term success without full commitment and continuous improvement of quality.

4. Discussion

QFD is a profitable tool for the service industry, specifically for the hospitality industry. It can be successfully used in the catering industry. QFD can be also used in conjunction with SERVQUAL and with the Kano model as part of the integrated application of methods. OFD serves not only to support the further development of existing services, but also to the development of innovation¹⁰. QFD can be employed successfully for development of new and enhancement of existing services. Some typology of services appears useful in order to employ methods successfully

¹⁰ G. Herzwurm, S. Schockert, W. Mellis, *Joint Requirements Engineering. QFD for Rapid Customer-Focused Software and Internet-Development*, Braunschweig/Wiesbaden 2000.

(cf. in the following: Bullinger, Fähnrich, Meiren¹¹). Customer-oriented services, also in the form of product add-ons, will increase in importance with growing globalization and intensity of competition - QFD methods can therefore be necessary to design the highest level of services.

Quality function deployment (QFD) is a methodology for capturing and translating the voice of the customer (VOC) into engineering characteristics of products or services. In addition, the process prioritizes and deploys these customer-driven characteristics throughout the product or service development to meet the VOC (that is, customer needs, wants, and expectations). QFD determines effective development targets for the prioritized product and service characteristics. The QFD process has been used and documented extensively in product development. The service industry, however, lacks in the application of this process¹².

The aim of this article was to show practitioners and researchers how this process, in its entirety, can be used as a planning process to combine customer requirements and service features in the catering industry. A case study was developed to illustrate the use of the QFD process in this industry.

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