

Service Quality—Object of Business Excellence Measuring

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Abstract

The service quality as the object of business excellence measuring is more and more often mentioned with regard to corporate practice, but also at the theoretical level. Universal methods are applied in its evaluation that can aid evaluation systems taking into account the environment of service provision and personal quality of employees. The aim of this paper is to introduce the system of service quality measuring from the perspective of a customer. The paper is divided to following sections: theoretical background, aimed at approaches to define the notion of quality and dimensions of a service quality; research methodology, expert interviews, primary and secondary research and mathematical-statistical methods were applied; results, the outcome is the specification of dimensions of the service quality and the system of quality measuring is presented as a discriminatory function. The proposed index and dimensions and sub-dimensions defined within it form a basis for quantitative assessment of the achieved quality of service. It represents a methodology of creation of a system of service quality measuring; a model of multiple discriminatory analyse which enables the measuring of service quality through sub-dimensions with differentiated weight; a basis for creating an economic-statistical model of quantitative measuring of information.

Keywords: dimension, service, quality, personal, availability, reliability

1. Introduction

1.1 Introduce and Explore Importance of the Problem

The service quality as the object of business excellence measuring is more and more often mentioned with regard to corporate practice, but also at the theoretical level (Philips, 2014; Mateides & Ďaďo, 2002; Kelemen, 2003; Santos, 2003; Bruhn, 2011; Jankalová, 2012; Jankalová, 2014; Jankal, 2014; Giovanis, Athanasopoulou, & Tsoukatos, 2015; Ranaweera & Sigala, 2015; Stamenkov & Dika, 2015). Multi-national institutions, non-profit and public organizations, state, but also enterprises themselves all deal with this issue. The situation in the area of measuring it is quite different. Practice is evidence that enterprises utilise primarily the market research with the focus on expectations and requirements of customers (according to own study performed during 2012 it was 96%) even despite the fact that currently there are numerous other methods, procedures and tools for measuring the quality of a service (models of service quality, models of Business Excellence, standards of ISO 9000 series, industrial standards, Six Sigma, Balanced Scorecard, TQM-Scorecard, Ishikawa diagrams, forms for data collection, development diagram, Pareto charts, histograms, point diagrams, regulation diagrams, affinity charts, charts of mutual links, tree diagrams, matrix diagrams, PDPC charts, data analysis in a matrix, network graph ...). Except for Balanced Scorecard and TQM-Scorecard, these are universal methods that can in the present competitive environment aid measuring systems taking into account the environment of service provision and personal quality of employees. Not everyone might identify with such perception, but every enterprise should realize that they will not achieve business excellence without the constant cycle of measuring of the quality of their own services.

The aim of this paper is to introduce the system of measuring the service quality from the perspective of the customer. The reason why it is necessary to deal with this issue from the perspective of customer is derived from following arguments:

1) service quality expresses (Mateides & Ďaďo, 2002) the ability of service provider to create the required

performance on the grounds of customer's expectations and with a certain standard required by the customer—starting point 1: requirements for the service quality are determined by customers;

2) evaluation of service quality by the customer is the result of individual evaluation of various quality dimensions—starting point 2: service quality is determined on the grounds of evaluation individual service dimensions;

3) quality dimensions are (Bruhn, 1995) various properties of service quality as perceived by internal and external target groups and the existence of a large number thereof is related to heterogeneity of the service sector—starting point 3: quality dimensions are not universal and their selection depends on the nature of service and on the way they are perceived by customers.

The paper is divided to following sections:

- theoretical background; aimed at approaches to define the notion of quality and dimensions of a service quality;
- research methodology; with regard to the nature of proposal expert interviews, primary and secondary research and mathematical-statistical methods were applied;
- results; the outcome is the specification of the service quality dimensions and the system of quality measuring is presented as a discriminatory function.

1.2 Describe Relevant Scholarship

Broadly is quality defined from various perspectives, depending on individual concepts and approaches to it (Grönroos, 1984; Kamiske & Brauer, 1999; Haller, 2001; Parasuraman, Zeithaml, & Berry, 1988; Zeithaml, Parasuraman, & Berry, 1990; Parasuraman, Zeithaml, & Berry, 1994; Bruhn, 2011; Reguly, 1998; Meyer & Mattmüller, 1987; Jankal, 2003; Jankalová, 2003; Kelemen, 2003; Pepur, Mihanović, & Pepur, 2013; Nell & Cant, 2014; Dahlgaard, Dahlgaard-Park, & Chen, 2014; Wang, Chang, & Chen, 2015; Đonlagić & Fazlić, 2015; Ježovita, 2015). According to Prof. D. Garvin there are five various approaches to defining the notion of quality (Garvin, 1984): the transcendent approach of philosophy (Pirsig, 1974; Tuchman, 1980; Reeves & Bednar, 1994); the product-based approach of economics (Abbott, 1955; Leffler, 1982; Steenkamp, 1989); the user-based approach of economics, marketing and operations management (Feigenbaum, 1961; Edwards, 1968; Gilmore, 1974; Juran, 1974; Gronroos, 1983; Parasuraman et al., 1985); the manufacturing-based approach (Gilmore, 1974; Crosby, 1979) and the value-based approach of operations management. Table 1 presents representative examples of quality definition according to each approach.

Table 1. Examples of quality definition according to approaches to defining quality

Approaches to defining quality	Definitions of quality
The transcendent approach	<p>“Quality is neither mind nor matter, but a third entity independent of the two ... even though quality cannot be defined, you know what it is.” (Pirsig, 1974)</p> <p>“... a condition of excellence implying fine quality as distinct from poor quality ... Quality is achieving or reaching for the highest standard as against being satisfied with the sloppy or fraudulent.” (Tuchman, 1980)</p>
The product-based approach	<p>“Differences in quality amount to differences in the quantity of some desired ingredient or attribute.” (Abbott, 1955)</p> <p>“Quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute.” (Leffler, 1982)</p>
The user-based approach	<p>“Quality consists of the capacity to satisfy wants...” (Edwards, 1968)</p> <p>“Quality is the degree to which a specific product satisfies the wants of a specific consumer.” (Gilmore, 1974)</p> <p>“Quality is any aspect of a product, including the services included in the contract of sales, which influences the demand curve.” (Dorfman & Steiner, 1954)</p>

	“In the final analysis of the marketplace, the quality of a product depends on how well it fits patterns of consumer preferences.” (Kuehn & Day, 1962)
	“Quality consists of the extent to which a specimen [a product-brand-model-seller combination] possesses the service characteristics you desire.” (Maynes, 1976)
	“Quality is fitness for use.” (Juran, 1974)
The manufacturing-based approach	“Quality means conformance to requirements.” (Crosby, 1979) “Quality is the degree to which a specific product conforms to a design or specification.” (Gilmore, 1974)
The value-based approach	“Quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost.” (Broh, 1982) “Quality means best for certain customer conditions. These conditions are (a) the actual use and (b) the selling price of the product.” (Feigenbaum, 1961)

Another categorization of approaches to defining quality was dealt with by Parasuraman, Zeithaml and Berry, namely from the perspective (Parasuraman, Zeithaml, & Berry, 1988):

- perceived quality versus objective quality (Garvin, 1983; Dodds & Monroe, 1984; Holbrook & Corfman, 1985; Jacoby & Olson, 1985; Zeithaml, 1987); Holbrook and Corfman (1985) note, that consumers do not use the term quality in the same way as researchers and marketers, who define it conceptually (the conceptual meaning distinguishes between mechanistic and humanistic quality (Holbrook & Corfman, 1985): “mechanistic quality involves an objective aspect or feature of a thing or event, humanistic quality involves the subjective response of people to objects and is therefore a highly relativistic phenomenon that differs between judges”;
- quality as attitude (Olshavsky, 1985; Parasuraman, Zeithaml, & Berry, 1985); Olshavsky (1985), Parasuraman, Zeithaml and Berry (1985) have emphasized that service quality is an overall evaluation similar to attitude;
- quality versus satisfaction (Oliver, 1981; Howard & Sheth, 1969; Hunt, 1979); perceived service quality is a global judgment, or attitude, relating to the superiority of the service, whereas satisfaction is related to a specific transaction;
- expectations compared to perceptions (Sasser, Olsen, & Wyckoff, 1978; Grönroos, 1982; Lehtinen & Lehtinen, 1982; Parasuraman, Zeithaml, & Berry, 1985); perceived service quality is therefore viewed as the degree and direction of discrepancy between consumers’ perceptions and expectations (expectations are viewed as desires or wants of consumers, what they feel a service provider should offer rather than would offer).

Both the co-existence and inconsistency of individual approaches to defining the notion of quality gradually brought the need to determine dimensions of quality of services. Dimensions of quality of services according to these authors can serve as an example: Sasser, Olsen and Wyckoff’s (1978) security, consistency, attitude, completeness, condition, availability, training of service providers; Lehtinen and Lehtinen’s (1982) interactive, physical and corporate quality; Grönroos’s (1984) technical, functional and reputational quality; Leblanc and Nguyen’s (1988) corporate image, internal organisation, physical support of the service producing system, staff/customer interaction, and the level of customer satisfaction; Garvin’s (1988) performance, features, reliability, conformance, durability, service ability, aesthetics and perceived quality; Hedvall and Paltschik’s (1989) willingness and ability to serve, physical and psychological access; Rust and Oliver’s (1994) functional quality, technical quality and environment quality.

Another division of dimensions of quality of services was dealt with by Parasuraman, Zeithaml and Berry (Parasuraman, Zeithaml, & Berry, 1985). On the grounds of experience obtained during interviews with service providers and their own customers they specified 10 dimensions which should contribute to clarification of quality of service provision (reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, tangibles). These 10 dimensions and their descriptions served as the basic structure of the service quality domain form which items were derived for the SERVQUAL scale. In the end, they reduced the number of dimensions to five (Parasuraman, Zeithaml, & Berry, 1988), which were presented as follows:

- tangibles—physical facilities, equipment, and appearance of personnel;
- reliability—ability to perform the promised service dependably and accurately;

- responsiveness—willingness to help customers and provide prompt service;
- assurance—knowledge and courtesy of employees and their ability to inspire trust and confidence;
- empathy—caring, individualized attention the firm provides its customers.

Marketing literature pays attention to 3 dimensions of service quality (Donabedian, 1988): potential dimension, process dimension and result dimension. Potential dimension relates to the observation of structures and potentials of the service provider (management, resources-material, information, human). It is influenced by activity, i.e., specification of service (description and features of service) and readiness to provide it, whereas the potential dimension does not include only technical possibilities, but also organisation and systemic relations, including qualification and motivation of employees. Process dimension captures the service as a sequence of activities (processes) consisting of the marketing process, design process and process of service provision. Result dimension relates to the assessment of the process of result of a service (satisfaction/dissatisfaction of a customer with the service or with the provider of the respective service), implying that the services reach the level of excellent quality only when they correspond with target requirements and each level of excellent quality shall correspond with the same value the customer is willing to pay as function of his/her wishes and requirements.

Every author that dealt with dimensions of service quality has brought something new, inspiring and despite frequent differences or even critical opinions contained in individual concepts, every one of them has brought correct view of service quality, what is related to the said multi-dimensionality. The situation is different from the perspective of the customer, because the customer does not perceive technical or reputational quality in the moment the service is provided to him, but rather the functional quality affected by the environment in which the service is provided (behaviour of employees, waiting time, etc.). We follow here work of Grönroos (1984), according to whom technical quality is linked with relatively measurable service elements, the standard of which can be assessed only by experts (repairs of technical equipment), or such service quality can be assessed only after the lapse of a certain interval of time (complicated surgery). Also (Kang & James, 2004) the developers of SERVQUAL initially suggested that service quality consists of functional (process) and technical (outcome) dimensions (Parasuraman, Zeithaml, & Berry, 1985). However, the such described SERVQUAL instrument does not include any measure of the technical quality dimension. This is not the only aspect of criticism of many authors (Babakus & Boller, 1992; Carman, 1990; Cronin & Taylor, 1992; Asubonteng et al., 1996; Buttle, 1996). Criticisms include (Kang & James, 2004) the use of difference scores, dimensionality, applicability and the lack of validity of the model, especially with respect to the dependence or independence of the five main variables (Babakus & Boller, 1992; Carman, 1990; Cronin & Taylor, 1992). Also Cui et al. (Cui, Lewis, & Park, 2003) declared that the scale does not seem to be appropriate in every cultural context. A more conceptualization of the service quality dimensions was proposed by Rust and Oliver (1994). They described a model of three dimensions like functional quality, technical quality and environment quality. While research supports the contention (Kang & James, 2004) that the service environment affects service quality perceptions (Bitner, 1992; Spangenberg, Crowley, & Henderson, 1996), it is conceptually difficult to distinguish the notion of service environment from the concept of functional quality that has been suggested in the literature. For example, Brady and Cronin (2001) proposed three factors comprising the service environment: ambient conditions, facility design and social factors. Also, they described that the service environments are elements of the service delivery process.

What are the disadvantages of the dimensional structure of service quality according to these authors from the perspective of the customer? We assume that customer's perception of quality includes more than mere satisfaction from provided service. Customer's opinion is affected also by the way his request was received, method of timing of need satisfaction, clarity and willingness, accuracy and punctuality of dealing with the request.

Robinson (1999) declared a summary of different areas of disagreement in the dimensional structure of service quality (Table 2).

Table 2. How to measure service quality: a summary of areas of disagreement

Area	Nature of disagreement
The purpose of the measurement instrument	Is the prime purpose diagnostic or predictive?
The definition of service quality	Does the nature of the attitude relate to performance, expectations and/or ideal standards?
Models for service quality measurement	To measure expectation or not?
	To measure importance or not?
The dimensionality of service quality	Are the 5 dimensions of service quality correct for its original context?
Issues relating to expectations	What is the definition of expectations?
	Is it necessary to identify which items are vector attributes and which are classic ideal point attributes?
	When to measure expectations, before or after the service encounter?
The format of the measurement instrument	Which measurement approach is best: difference score, nondifference score or semantic-differential scales?
	Should importance be measured by item or dimension, or inferred from performance and expectations scores?

We focus for the needs of this research on following 4 basic questions, the evaluation of which is shown in the Table 3:

- Q1: Are dimensions of service quality comprehensible? Comprehensibility means that dimensions are clearly defined and their content is also clear.
- Q2: Do dimensions of service quality take into account personal quality of employees? Personal quality are personal characteristics of an employer.
- Q3: Do dimensions of service quality take into account service availability (both time and geographic)? Service availability is from the perspective of access to it (time, geographic), from the perspective of information necessary for the customer in relation to utilisation of such service, and from the perspective of environment in which the service is provided.
- Q4: Do dimensions of service quality take into account service reliability? Service reliability is the ability of the enterprise to perform all that was promised.

Different researchers have provided different dimensions of service quality, what induces also their different interpretation. Based on empirical data and findings obtained from customers, substantial shortcomings of individual approaches include:

- ambiguity of definition of dimensions of service quality resulting in different interpretations of their content (Grönroos, 1984; Oliver & Rust, 1994),
- universality of quality dimensions for products and services (Garvin, 1988),
- they take into account the personal quality of employees only to a limited extent (most significantly Parasuraman, Zeithaml, & Berry, 1988),
- they deal with geographic and time availability of service only to a limited extent; only the environment in which the service is provided is preferred by all approaches,
- dimension of service reliability has been significantly manifested only the approach of Garvin (1988); it is not present at all in Lehtinen and Lehtinen (1982), Hedvall and Paltschik (1989),
- approaches of Lehtinen and Lehtinen (1982), Grönroos (1984), Leblanc and Nguyen (1988) pay high attention to dimensions such as corporate quality (reputational quality, corporate image), what is not important from the perspective of customer in relation to the quality of provided service.

Differences of quality dimensions present a suggestion to create a new concept of measurement of the service quality, for which such dimensions should be defined, which customers use to consider the service quality.

Table 3. Approaches to defining dimensions of quality of services (comparing)

Approaches to defining dimensions of quality of services	Q1	Q2	Q3	Q4	Average	Rank	
Sasser, Oslen and Wyckoff (1978) security, consistency, attitude, completeness, condition, availability, training of service providers	1	2	attitude, training of service providers 2	availability 2	security, consistency, completeness, condition 2	1.75	2.
Lehtinen and Lehtinen (1982) interactive, physical and corporate quality	2	2	interactive quality 2	physical quality 2		2.25	6.
Grönroos (1984) technical, functional and reputational quality	3	3		functional quality 2	technical quality 2	2.50	8.
Leblanc and Nguyen (1988) corporate image, internal organisation, physical support of the service producing system, staff/customer interaction, the level of customer satisfaction	1	2	staff/customer interaction 2	physical support of the service producing system 2	the level of customer satisfaction 2	1.75	3.
Garvin (1988) performance, features, reliability, conformance, durability, service ability, aesthetics and perceived quality	2	3		aesthetics and perceived quality 2	performance, features, reliability, conformance, durability, service ability 1	2.00	4.
Parasuraman, Zeithaml and Berry (1988) tangibles, reliability, responsiveness, assurance, empathy	1	1	responsiveness, assurance, empathy 1	tangibles 2	reliability 2	1.50	1.
Hedvall and Paltschik (1989) willingness and ability to serve, physical and psychological access	2	2	willingness and ability to serve 2	physical and psychological access 2		2.25	5.
Oliver and Rust (1994) functional quality, technical quality and environment quality	3	3		functional quality, environment quality 2	technical quality 2	2.50	7.

2. Method

The aim of the paper is to present the system of quality measuring from the perspective of the customer. The fulfilment of the said aim was preceded by:

- determination of dimensions and sub-dimensions of the service quality in order to create an measuring system

in the form of I_{QS} index,

- performance of questionnaire-based collection of data for the purpose of determining the degree of importance of individual dimensions or sub-dimensions of the service quality from the perspective of customer,
- evaluation of the importance of dimensions or sub-dimensions of the service quality using mathematical-statistical methods,
- determination of discriminatory function for the calculation of the service quality index I_{QS} .

The primary research was performed in two stages: by expert interviews in the first stage and by questionnaire method in the second stage (a random sample). Structured expert interviews with open-ended questions were made with selected experts in form of structured interview “face-to-face”. Answers were categorised and summarised for the purpose of determination of dimensions and sub-dimensions of the service quality (Table 4, 5, 6, 7).

The calculation of the service quality index I_{QS} depends on the determination of the size of weights expressing the rate of importance of individual dimensions or sub-dimensions from the perspective of the customer. The questionnaire-based collection of data was performed for this purpose, where a minimum of 385 customers had to be addressed with regard to the 95% reliability and 5% maximum estimate error. As out of 392 questionnaires some were incorrectly filled, the total size of the statistical group was reduced to 387. Questions were open-ended (identification, attitude) and the task of respondents was to assign to stated dimensions and sub-dimensions of the index (Table 4, 5, 6, 7) weight in value ranging from 0 to 100% provided that the sum of assigned weights will equal 100.

The determination of weight in this index was preceded by:

- definition of the statistical group n ,
- determination of the number of classes m , i.e., number of groups to which the statistical group was divided,
- determination of the interval h , which included percentage evaluation of importance and significance of features,
- calculation of frequency of character values in the interval,
- determination of modal interval.

The reason to define and determine said facts was to determine, on the grounds of relations between the frequency of modal and adjacent intervals, the weight of dimensions or sub-dimensions as the modulus of importance. In other words, to find such value of the character x , which shows the highest frequency in the statistical group and is therefore most typical for the given statistical group. In addition to empiric research, in individual cases of determining frequencies I verified the accuracy also by means of Microsoft Excel. Results of this determination are in the chapter 3.

3. Results

The basis of service quality measuring is to determine the resulting value of the service quality index I_{QS} , which represents the system of dimensions and sub-dimensions of the service quality from the perspective of the customer (Figure 1).

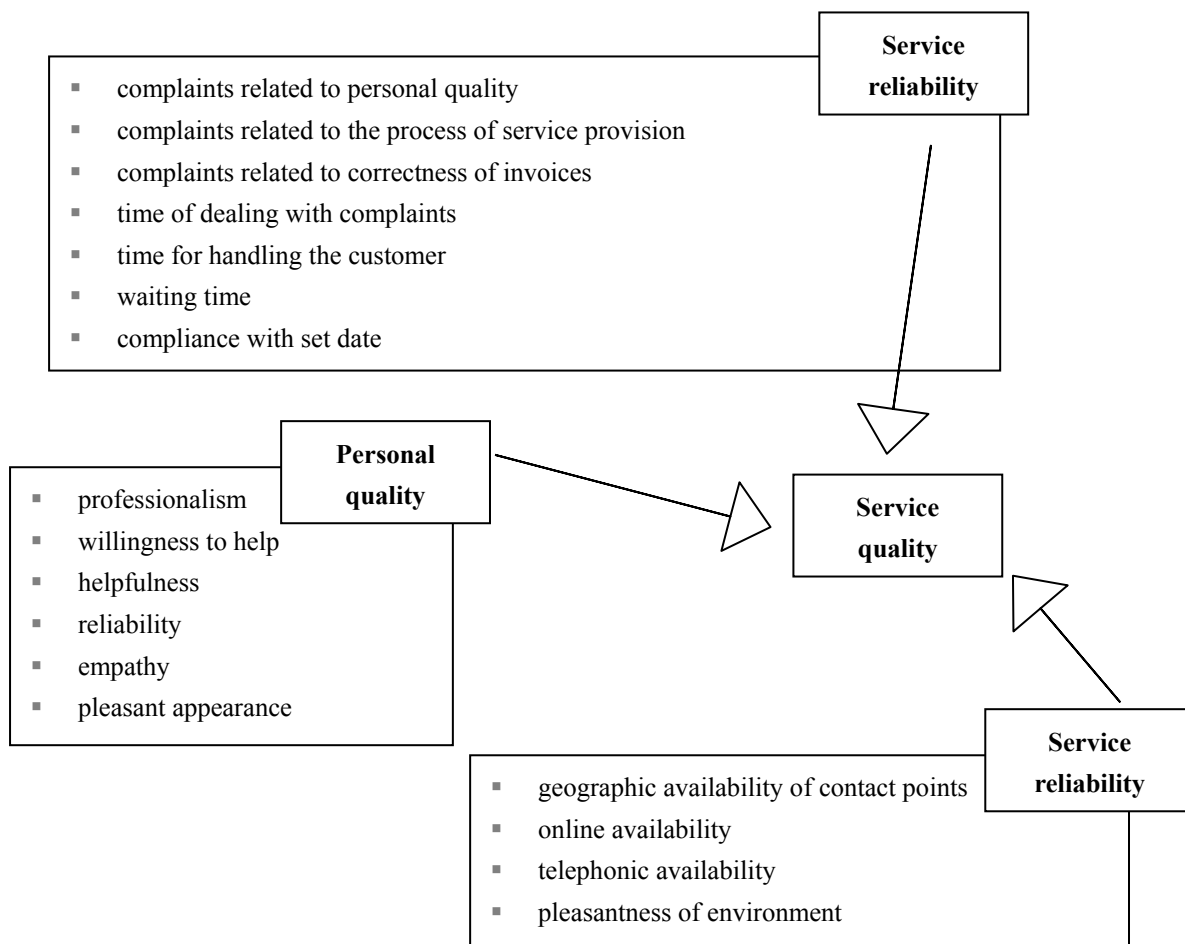


Figure 1. Dimensions and sub-dimensions of the service quality index

Expert interviews completed with knowledge from specialised literature and findings obtained by own research activity have become the starting point for definition of dimensions or sub-dimensions of the quality of service.

In the case of determining weights for individual dimensions and sub-dimensions defined within them the size of weights depends on the subjective approach of the respondent (customer) influenced by his/her certain abilities and last but not least also by his/her positive or negative experience with the provision of service by the particular enterprise. Due to this fact weights in this index are not of a prescribed nature but only a manifestation of preferences of that group of customers which was the sample in the primary research. Only those sub-dimensions that are deemed by respondents significant and important in evaluation of the service quality were included in the index (Table 4, 5, 6, 7).

Table 4. Weights of sub-dimensions of the dimension personal quality

Sub-dimensions of the dimension personal quality	Weight of the sub-dimensions
professionalism	27.9%
willingness to help	14.9%
helpfulness	21.3%
reliability	15.7%
empathy	12.4%
pleasant appearance	7.8%
Σ	100.0%

Table 5. Weights of sub-dimensions of the dimension service availability

Sub-dimensions of the dimension service availability	Weight of the sub-dimensions
geographic availability of contact points	18.2%
online availability	37.3%
telephonic availability	27.9%
pleasantness of environment	16.6%
Σ	100.0%

Table 6. Weights of sub-dimensions of the dimension service reliability

Sub-dimensions of the dimension service reliability	Weight of the sub-dimensions
complaints related to personal quality	18.3%
complaints related to the process of service provision	10.3%
complaints related to correctness of invoices	11.6%
time of dealing with complaints	12.4%
time for handling the customer	15.7%
waiting time	16.5%
compliance with set date	15.2%
Σ	100.0%

Table 7. Weights of dimensions personal quality, service availability, service reliability

Dimensions	Weight of the dimensions
personal quality	41.6%
service availability	24.3%
service reliability	34.1%
Σ	100.0%

The service quality index (I_{QS}) represents a discriminatory function enabling differentiation of enterprises from the aspect of three dimensions, namely the personal quality of an employee, availability and reliability of service. This important viewpoint is included in form of partial indices personal quality (i_q), availability (i_a), reliability (i_r), the degree of importance of which is in relation to the evaluation of service quality expressed by assigned weights (1):

$$I_{QS} = 41,6 * i_q + 24,3 * i_a + 34,1 * i_r \tag{1}$$

The partial index personal quality of an employee has a 41.6% share within the whole index. With regard to results (Table 4), it consists of six sub-dimensions and is recorded in the following form (2):

$$i_q = \sum_{j=1}^6 v_{qj} * u_{qj} \tag{2}$$

$$i_q \in \{u_{q1}; u_{q2}; u_{q3}; \dots u_{q6}\}; v_{qj} \in \langle 0;1 \rangle; u_{qj} \in \langle 0;1 \rangle$$

where i_q = partial index personal quality, v_{qj} = weight of j-th sub-dimension of dimension personal quality, u_{qj} = value of j-th sub-dimension of dimension personal quality, j = sub-dimensions of dimension personal quality (1-6).

The partial index availability has a 24.3% share within the whole index. With regard to results (Table 5), it consists of four sub-dimensions and is recorded in the following form (3):

$$i_a = \sum_{j=1}^4 v_{aj} * u_{aj} \tag{3}$$

$$i_a \in \{u_{a1}; u_{a2}; u_{a3}; u_{a4}\}; v_{aj} \in \langle 0;1 \rangle; u_{aj} \in \langle 0;1 \rangle$$

where i_a = partial index availability, v_{aj} = weight of j-th sub-dimension of dimension availability, u_{aj} = value of j-th sub-dimension of dimension availability, j = sub-dimensions of dimension availability (1-4).

The partial index reliability has a 34.1% share within the whole index. With regard to results (Table 6), it consists of seven sub-dimensions and is recorded in the following form (4):

$$i_r = \sum_{j=1}^7 v_{rj} * u_{rj} \quad (4)$$

$$i_r \in \{u_{r1}; u_{r2}; u_{r3}; u_{r4}; \dots u_{r7}\}; v_{rj} \in \langle 0;1 \rangle; u_{rj} \in \langle 0;1 \rangle$$

where i_r = partial index reliability, v_{rj} = weight of j-th sub-dimension of dimension reliability, u_{rj} = value of j-th sub-dimension of dimension reliability, j = sub-dimensions of dimension reliability (1-7).

With regard to relations (1), (2), (3), (4) the index of the quality of service can be written down as the discriminatory function in form (5):

$$I_{QS} = 41,6 * \sum_{j=1}^6 v_{qj} * u_{qj} + 24,3 * \sum_{j=1}^4 v_{aj} * u_{aj} + 34,1 * \sum_{j=1}^7 v_{rj} * u_{rj} \quad (5)$$

4. Discussion

If we perceive the quality of service as object of the business excellence measuring, a necessary step towards the performance of the measuring process is the knowledge of individual dimensions and sub-dimensions of the service quality. Each author who dealt with service quality dimensions brought something new and inspiring and despite frequent differences or even critical opinions regarding individual concepts, each one brought also a correct view of the service quality, what is caused by the mentioned heterogeneity. Differences of quality dimensions presented a suggestion to create a new concept of measurement of the service quality, for which such dimensions should be defined, which customers use to consider the service quality and which combined both the soft and the hard quality into one whole (Figure 1). The soft quality of service represents emotional area and with regard to obtained results it includes the dimension personal quality of an employee with sub-dimensions: professionalism, willingness to help, helpfulness, reliability, empathy, pleasant appearance; and the dimension service reliability with sub-dimensions: complaints related to personal quality, complaints related to the process of service provision, complaints related to correctness of invoices, time of dealing with complaints, time for handling the customer, waiting time and compliance with set date. The hard quality represents the tangibility of service and includes the dimension service availability with sub-dimensions: geographic availability of contact points, online availability, telephonic availability, pleasantness of environment.

Each service provider can individually calculate the values of individual sub-dimensions provided that following preconditions are met:

- Personal quality of an employee is the basis for service quality and starts with the employee himself/herself. The level of his/her performance can be evaluated for instance by means of mystery shopping (Jankal & Jankalová, 2011), where a scale of five degrees (0; 0.25; 0.5; 0.75; 1) with growing quality standard is used for the needs of evaluation.
- Service reliability expresses the ability of enterprise to perform all that was promised. For the needs of measuring it is necessary to determine target values for individual sub-dimensions, which will provide important information about the required standard of quality.
- With regard to the dimension availability three aspects should be observed, namely the availability of service from the perspective of access to it (time, geographic), availability of service from the perspective of information necessary for the customer in relation to the usage of such service and from the perspective of environment in which the service is provided.

What does it imply for enterprises providing services?

- To be primarily a reliable supplier and to provide the customer with exactly what s/he was promised (dimension service reliability), because to do what you are expected to do is the provided minimum of care for the customer.
- To be constantly aware of the significance of human factor in evaluating the quality by the customer, because it is the behaviour of employees (dimension personal quality of employees) which has a decisive impact on how the customer perceives the quality of provided services.

On the grounds of obtained results, the proposed index and dimensions and sub-dimensions defined within it form a basis for quantitative assessment of the achieved quality of service. Among other things, it represents:

- a methodology of creation of a system of service quality measuring,

- a model of multiple discriminatory analysis which enables the measuring of service quality through sub-dimensions with differentiated weight,
- a basis for creating an economic-statistical model of quantitative measuring of information, i.e., information provided in form of numerical indicators.

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