QUALITY COSTING IN THE HOSPITALITY INDUSTRY – A LITERATURE REVIEW

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Abstract
Purpose – Competitive environment is forcing hotels to adapt new methods and techniques for monitoring revenue, cost and business performance. The term and concept of quality is a significant factor of business success. Therefore, more and more hotels incorporate quality costs objectives in their business policies and strategies. The fulfilment of the quality cost objectives requires the hotel to develop and implement quality costing, as well as to implement reliable tools to assess quality. The purpose of this paper is to determine the development of hotel quality costing system, based on previous research and literature review.
Approach – This paper provides an overview of current research in the field of hotel quality costing and reporting, based on established knowledge about the hotel quality management system. The research has been done according to the review of articles in academic journals. Conclusions about the requirements for achieving hotel quality accounting system have been drawn.
Findings – Previous studies have shown that quality costing and reporting in hotel business is weaker when compared to other industries, and that hotel industry still insufficiently use approach for measuring and managing quality costs.
Originality – The study provides insights into the problem of quality costing in the hospitality industry, from the standpoint of measuring and reporting, as tools for assessing hotel impact on the quality system and for improving its business practice. By implementing quality cost system, hotels shall be able to gain bigger market share, enhanced profitability, reduction in quality costs and improve their reputation.
Keywords quality costing, quality accounting, measuring and managing of quality cost, hospitality industry

INTRODUCTION

The term and concept of quality as a significant factor of business success has been considered by many authors. Hence, there are various quality definitions, from viewing quality as "*Performance to Standards*" to viewing it as a product feature that "*meets Customer's Needs*" and their demands, accordingly, satisfying them (Misra, 2014; Kirlioglu, Cevik, 2013). Quality affects every organization aspect and has a tremendous cost implication, especially in a situation when a poor quality causes dissatisfied client which leads to losses (Misra, 2014).

Within quality system implementation, quality costs are among the key factors for its success. Quality costs can be defined as costs incurred due to ensuring a satisfactory quality and gaining confidence in it, but also as losses that arise if a satisfactory quality level has not been achieved *(ISO 9000:2005, EN ISO 9000:2005)*. Quality costs include *cost of conformance* as the price paid for prevention of poor quality (inspection and quality appraisal), and *cost of non-conformance* as the cost of poor quality caused by

product and service failure (rework and returns), so they can be define as „the costs incurred in the design, implementation, operation and maintenance of a quality management system, the cost of resources committed to continuous improvement, the costs of system, product and service failures, and all other necessary costs and non-value added activities required to achieve a quality product or service“ (Schiffauerova and Thomson, 2006; Plunkett and Dale, 1995).

The first systematic quality cost classification is given in the early fifties of the last century. Feigenbaum (1956) introduced the concept of Total Quality Costs and emphasized the importance of their control in order to achieve successful Total Quality Control. He proposed PAF approach which means classification of quality costs as *prevention costs, appraisal costs and failure costs*. Failure costs are further divided in *internal failure costs* (costs associated with product failure before its delivery to the external customer - cost of scrap, spoilage, rework, material wastage, labor wastage, overheads associated with production, failure analysis, supplier rework, scrap, re-inspection, retest, down time due to quality problem, opportunity cost, or other product downgrades) and *external failure costs* (after delivery to the customer within the warranty or "defects liability period" – warranty charges, customer complaint adjustments, returned merchandize, product recalls, allowances, product liability costs, repairs, replacement of non-conforming defective parts) (Mahmood et al., 2014). Critics of the PAF concept, however, state that this approach does not take into account hidden quality costs such as loss of customer confidence or loss of sales, nor considers the positive effects of price and production volume as a consequence of quality improvement (Drljača, 2003).

Philip B. Crosby has defined quality costing system and the basis for evaluation quality costs (Crosby, 1979). He modified Feigenbaum's PAF model by defining two main quality cost groups: the cost of good quality - *cost of conformance* (prevention and appraisal costs) and **the cost of poor quality** - *cost of non-conformance* (internal and external failure costs). According to Crosby, price of conformance are costs in assuring quality (costs when everything was done right at the first time), and the price of non-conformance represents loss incurred when quality is not achieved (when there is a need for rework because it was not done right at the first time) (Tsai, 1998). The price of conformance (prevention and appraisal costs) different authors describe as discretionary, voluntary, acceptable, control-related, controllable, hard and quantifiable or visible. Further on, the price of non-conformance (internal and external failure costs) are described as non-discretionary, involuntary, unacceptable, uncontrolled, failure costs, soft, qualitative or hidden (Angell and Chandra, 2001).

Genichi Taguchi has focused on product design quality and estimated that about 80 % of all defective items are caused by poor product design. He also developed "Taguchi loss function" that is explained as "smaller differences from the target result in smaller cost and larger the differences, larger the costs" (Misra, 2014).

According to Sedevich Fons (2012) "quality costs represent the amount of money that a company has relinquished (lost; either expended or did not obtain) due to ineffectiveness or inefficiency when developing its activities" and they could be classified as follows: *prevention costs* – costs of activities conducted to minimize the gap between planned

objectives and achieved results (quality management system implementation, employee training programs, preventive maintenance tasks, market researches, supplier capability improvement plans); *appraisal costs* – from activities conducted in order to detect differences between specifications or requirements of process outputs and the actual results (control and audit activities); *failure cost* (internal and external)– incurred because of deviations from objectives and specifications on operations generating outputs that are rejected and discarded (waste outputs) or on additional activities for repairing defective products and services (reprocesses); *indirect quality cost* - *opportunity cost* - potential profit that hasn't been earned because of defects detected by customers. The importance of opportunity costs were pointed out by many authors. Opportunity costs are defined as the losses incurred against a missed out opportunity of doing things right at first time and therefore they represent the measure of internal inefficiencies so their analysis will provide immense opportunities for improvement (Sailaja, Basak and Viswanadhan, 2015). It was find out that the hidden cost of quality is more than three times higher than the direct quality cost elements in the manufacturing companies and that most of hidden costs can be reduced if they are properly measured. Therefore, the traditional cost of quality system is inadequate for assessing the overall costs of quality. Cheah, Shahbudin and Taib (2011) were also emphasized the importance of hidden quality costs which may be termed an "opportunity loss", and whose disclosure serves to highlight the potential for improvement. They concluded that the high proportion of hidden quality costs was mainly caused by lack of training, improper production scheduling, lack of employee involvement and inefficient marketing management. Indirect quality costs are difficult to notice; therefore, they are often not appropriately measured nor included in traditional accounting system reports (Luther and Sartawi, 2011). The measurement of indirect hidden quality costs is possible only with the cooperation of the various related departments.

There are various methods and models, tools and techniques used in quality cost management. Companies should develop an appropriate quality cost system according to their needs (Chopra and Garg, 2012).

1. QUALITY COST MEASUREMENT

Quality Cost Management implies the application of various policies, procedures and practices related to the selection, collection, measurement, classification, analysis, reporting and use of quality cost information (Luther and Sartawi, 2011). In order to enable quality cost management, it is necessary to understand their behavior and their structure. The purpose of quality cost management is to reduce costs as well as to improve quality (Desai, 2008). According to Raßfeld, there are two main approaches to assess the benefit of quality management and quality-related measures (Raßfeld et al., 2015, 1077):

- measuring the monetary variation in quality related cost over time (mostly used to assess benefit are internal and external failure cost), and
- measuring the benefit of quality management through sales, customer satisfaction, employee satisfaction, customer loyalty, and market share.

Quality cost measuring starts by collecting data from activities related with quality and analyzing them. This includes analysis of the relationship between costs components and other costs components, and the effect on total costs. In order to conduct quality costs analysis, company can choose among different techniques, such as: *Pareto Analysis, Ratio Analysis, Correlation Analysis, Trend Analysis or Regression Analysis* (Kirlioglu and Cevik, 2013).

Through years quality cost theory started to adapt to modern quality programs and thus started to consider new concepts such as opportunity cost, continuous improvement and resource optimization, and at the same time new contemporary accounting objects appeared such as ABC, non-financial indicators and strategic accounting (Sedevich Fons, 2012). The connection between management accounting and quality lies in preparation of information about quality costs of a product or service, in area of quality grade, quality of design and quality of conformance (Peršić, Janković and Vlašić, 2006).

Cost of quality models can be classified in five generic groups (Table 1): *PAF model, Crosby's model, opportunity cost model, process cost model and ABC model* (Schiffauerova and Thomson, 2006; Dobrin and Stanciun, 2013; Khaled Omar and Murgan, 2014; Syed, 2015; Zahar, El barkany and El biyaali, 2015).

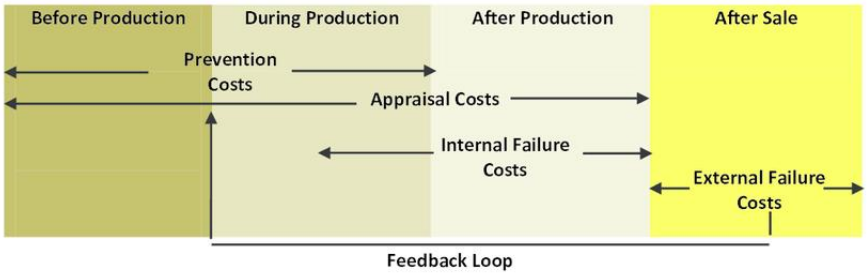
Table 1: **Generic quality cost models and cost categories**

Generic model	***Cost/activity categories***	***Examples of publications describing, analyzing or developing the model***
P-A-F models	prevention + appraisal + failure	Feigenbaum, 1956; Purgslove and Dale, 1995; Merino, 1988; Chang et al., 1996; Sorquist, 1997b; Plunkett and Dale, 1988b; Tatikonda and Tatikonda, 1996, Bottorff, 1997; Israeli and Fisher, 1991, Gupta and Campbell, 1995; Burgess, 1994; Dawes, 1989; Sumanth and Arora, 1992; Morse, 1983; etc.
Crosby's model	conformance + non-conformance	Suminsky, 1994; Denton and Kowalski, 1988
Opportunity or intangible cost models	prevention + appraisal + failure + opportunity	Sandoval-Chavez and Beruvides, 1998; Modarres and Ansari, 1987
	conformance + non-conformance + opportunity	Carr, 1992; Malchi and McGurk, 2001
	tangibles + intangibles	Juran et al., 1975
	P-A-F (failure cost includes opportunity cost)	Heagy, 1991
Process cost models	conformance + non-conformance	Ross, 1977; Marsh, 1989; Goulden and Rawlins, 1995; Crossfield and Dale, 1990
ABC models	value-added + non-value-added	Cooper, 1988; Cooper and Kaplan, 1988; Tsai, 1998; Jorgenson and Enkerlin, 1992; Dawes and Siff, 1993; Hester, 1993

Source: Schiffauerova, A. and Thomson, V. (2006), „A review of research on cost of quality models and best practice ", *International Journal of Quality & Reliability Management*, Vol. 23, Iss: 6.

The literature review indicates that most of quality cost models are based on the P-A-F classification. It also indicates that companies that are managing cost of quality through various cost-of-quality methods are successful in reducing quality costs and improving quality for their customer (ITT, United Technologies Corporation, Essex Telecommunication Products Division; ATT&T Bell Laboratories, Transmission System Division) (Schiffauerova and Thomson, 2006). Quality costs that are classified according to PAF model in three main parts, can additionally be grouped in time periods, according to the time of their appearance in a product life-cycle (Figure 1) (Kirlioglu and Cevik, 2013). Thus, *Prevention Costs* occur before production and encompass pre-production and production stage, *Appraisal Costs* encompass all three production stages (pre-production, production and post-production stage), and *Failure Costs*, divided into two groups (Internal and External failure costs), encompass production and post-production stage - *Internal failure costs*, while *External failure costs* appear in after sale stage when the product or service has already reached the customer (Barfield et al., 2002, according to Kirlioglu and Cevik, 2013).

Figure 1: **Time-Phased Model for Quality Costs**



Source: Barfield et al., (2002) according to Kirlioglu, H. and Cevik, Z. (2013), "Measuring and Reporting Cost of Quality in a Turkish Manufacturing Company: A Case Study in Electric Industry", *Journal of Economic and Social Studies*, Vol. 3, No. 2, pp. 91.

Implementation of quality improvement programs should be measured and its expected benefits must be estimated. In order to make that possible, company must develop quality cost metrics. Quality cost metrics used for measuring the effect of quality cost system implementation is various. Results of the research conducted in German companies in the manufacturing and service industries have shown great methodological and content diversity in quality controlling – in use of indicators by which different companies in different industries measure the effectiveness and the efficiency of quality management systems (Raßfeld et al., 2015). Detailed metrics for quality cost measurement system represent used quality cost classification, that is, the elements of cost of quality and how their performance is measured. Schiffauerova and Thomson (2006) have listed some examples of detailed and global quality metrics, where global quality metrics is used to measure global performance:

- most common detailed quality cost metrics: *Cost of assets and materials, Cost of preventive labor, Cost of appraisal labor, Cost of defects per 100 pieces, Cost of late deliveries, Percent of repeat sales, Time between service calls, Number of non-conforming calls, Number of complaints received*;

- global quality cost metrics: *Return on quality = increase in profit / cost of the quality improvement program; Quality rate = (input – (quality defects + startup defects + rework))/input; Process quality = (available time - rework time)/available time; First time quality (percent product with no rework).*

The success of quality management systems is measured by monetary and non-monetary indicators that are used "to control the quality management, to provide strategic and operational goal orientation, to identify the quality situation as well as weaknesses, and to enable benchmarking with other sectors or companies" (Raßfeld et al., 2015) which implies determination of costs, benefits, and profitability. The aim is to find quality level that will minimize total quality costs. By focusing on prevention costs (quality training, quality planning, quality administration, vendor evaluation, development and ratings) and costs related with ISO certification, it is possible to significantly reduce the failure costs (wastage, rejections, discounts,) (Porter and Rayner, 1992; Plunkett and Dale, 1987). Implementation of quality cost system can reduce total quality cost significantly (for 23%), reduce cost of quality in terms of annual sales (CoQ/sales - from 9,93% to 7,56%), and reduce cost of quality in terms of profit (CoQ/profit - from 95 % to 76 %) (Porter and Rayner, 1992; Plunkett and Dale, 1987; Chopra and Garg, 2012). Crosby has defined the percentage of sales or the *percentage of productivity costs* as an approach to evaluate the significance of the cost of quality measures (*2,5 % of sales* is acceptable*)*. Juran and Gryna (1993) point out that in the manufacturing industry the annual company's costs of poor quality are 15% of sales, while in service industry those costs are about 30% of production costs (Pekanov Starčević, Mioč and Mioč, 2015). Furthermore, investing of 1$ in quality improvement results in a reduction of up to 15$ in non-conformance costs - cost of poor quality (Butler, D.: *Introduction to Costumer Focused Quality (CFQ) or TQM*, David Butler Associates, inc Ohio, 2001, p. 1-2, according to Peršić, 2003, 8). Identifying and measuring costs of poor quality can reduce losses on account of costs of poor quality through taking corrective actions, and thereby improve labor productivity and profitability of the company (Mahmood et al., 2014). The employees that are responsible for specific activities will be more careful and will make fewer mistakes if they know that they have been studied through collecting data of poor quality costs, and that can reduce costs of poor quality (*Hawthorn Effect* - Mahmood et al., 2014).

Quality cost measurement enables managers to identify unnecessary costs and take appropriate actions to eliminate these costs and reduce the occurrence of poor quality. That way management can identify an area that requires taking preventive measures (Kirlioglu and Cevik, 2013). According to a survey conducted on certified (ISO 9001) Croatian companies (Rogošić, 2009, 115), companies that measure quality costs significantly reduced produced defects, and thus increased revenue and reduced overall quality cost they were trying to optimize. It has been proved that quality cost program, on the one hand, decreases defects, overall costs and customer complaints, and on the other hand it increases sales, profit, capacity, customer satisfaction and employee satisfaction and therefore identifying and measuring quality costs will enable taking targeted actions in order to reduce the costs of quality. Thus, "increasing prevention costs and decreasing external failure costs can directly improve the level of customer satisfaction" (Zahar, El barkany and El biyaali, 2015).

Although great number of managers realizes the benefits of quality cost management, only a small number of companies uses quality cost system, or systematically tracks quality costs by including all quality cost categories in total quality costs and estimate value for all quality cost categories. This means that tracking and reporting costs of quality is not widely accepted by firms (Shah and Mandal, 1999; Sower at al., 2007; Chopra and Garg, 2012), or that they underestimate the importance of quality costs (Schiffauerova and Thomson, 2006; Tatikonda and Tatikonda, 1996) mostly because of lack of knowledge about how to identify and measure quality costs, or how to implement quality cost system. Small companies, on the other hand, usually don't have the budget for quality and do not track quality costs (Plunkett and Dale, 1983). Ignoring conformance cost (investing in preventive activities), will cause the additional costs that are not visible and thus are not quantified. In other words, while focusing on non-conformance costs and giving less importance to conformance costs, the company "endures more costs that it can measure" – that is, there may be a non-visual negative effect on the company such as loss of customers, bad brand recognition, poor employee motivation etc. (Kirlioglu and Cevik, 2013). Therefore, it is of great importance to establish an effective quality cost management system that will provide appropriate information basis for decision making at all management levels.

A successful quality cost program implementation depends on four crucial factors: *management support and commitment, understanding concepts of cost of quality, effective systems and application and cooperation from other departments* (Rodchua, 2006). Even though quality cost and accounting are important information sources for decision making and therefore important management control tools, they are not being used optimally because they are managed by different departments (Sedevich Fons, 2012). A lack of understanding on the quality cost concept, inadequate accounting and information systems that do not support the collection of quality data and a tendency to hide the truth are barriers to implementation of quality costing (Cheah, Shahbudin and Taib, 2011). It should also take into consideration that investing in preventive activities can increase total quality costs in the short run, but in the long run, investing in preventive activities and quality system implementation will cause decreasing in failure costs and thus reduction of total costs (Kirlioglu and Cevik, 2013).

Quality cost elements are different for a particular industrial sector (Plunkett and Dale, 1986), and since there is no accounting standard for quality costing, selected cost structure of the quality cost model depends on the judgment of quality managers or quality data collectors, therefore elements of quality costs structure are different in various companies, in accordance to their needs (Schiffauerova and Thomson, 2006).

Quality of internal processes and product quality performance can affect operational efficiency and business performance, therefore Garvin proposed two main routes for the effect of quality on business performance (Garvin, 1984, *according to* Sousa and Voss, 2002, 95):

- *manufacturing route* – improved internal process quality (fewer defects, scrap and rework) results in improved operational performance (lower manufacturing costs, more dependable processes), and subsequent improvement;
- *market route* – improvements in product quality lead to increased sales and larger market shares, or less elastic demand and higher prices.

In order to ensure quality in accordance with the requirements of customers, companies implement management systems that enable managers to plan, control, secure, and improve product or service (Raßfeld et al., 2015). In highly competitive market a company cannot survive with low quality products. To gain a competitive advantage, company should produce high quality products and take into account their quality costs, that is, company should produce high quality products in a low quality costs (Kirlioglu and Cevik, 2013). That is possible only if costs of quality are identified and measured (Zahar, El barkany and El biyaali, 2015). Quality Costs will point those areas where there is a potential for business process improvement, and thus the improvement efforts will be focused precisely where they will give the best results (Yadav and Gahlot, 2014). There is a positive correlation between quality and a higher return on investment, whereby the quality improvement strategy usually leads to a market share increase (Lazibat, 2009). Therefore, improving the business processes quality will affect the hotel profitability.

2. THE BASIS FOR QUALITY COST MANAGEMENT IN THE HOSPITALITY INDUSTRY

A reviewed quality cost literature shows that the largest number of published papers contain information on the measurement, collection and uses of quality related costs in manufacturing companies, while the number of published work considering quality costs in service industry is significantly smaller – e. g. in financial sector (Duarte, 2014) or healthcare industry (Uyar, Neyis, 2014; Zahar, El barkany and El biyaali, 2015). Although there are a number of articles providing a description of quality dimensions and impact of quality system implementation on business performance in hospitality, only a few authors consider the quality cost system as a key factor for quality management in the hotel industry (Table 2). Ramphal (2016), for example mentions the costs of quality only as one of the quality evaluation methods among the other methods, pointing out that measuring service quality is the first step to quality improvement.

Table 2: **An overview of some major authors that contributed to the development of quality cost accounting system in hospitality industry**

AUTHOR	PAPER	CONTRIBUTION / FINDINGS
Bohan, Horney (1991)	Pinpointing the real cost of quality in a service company cost of quality in a service company	The cost of quality process can greatly benefit any organization. High quality is less expensive than poor quality - it costs much less to prevent problems than to correct them. Activities and expenditures should be devoted to prevention in order to reduce internal and external failures.
Luchars, Hinkin (1996)	The service-quality audit: A hotel case study	A service audit that quantifies the cost of everyday errors can help hotel managers to identify the source of quality problems and them to decide where to invest in service-quality improvements

AUTHOR	PAPER	CONTRIBUTION / FINDINGS
Ramdeen, Santos, Chatfield (2007)	Measuring the cost of quality in a hotel restaurant operation	Measuring and sustaining the cost of quality by using the PAF model leads to strategic benefits. Investing in prevention activities in order to improve quality will lead to a reduction in failure as well as in appraisal costs and therefore increase profitability.
Zanini Gavranić (2007)	Monitoring of Quality Costs in the Croatian Hotel Industry	The author conducted a survey in Croatian hotel industry, researching what are the preconditions for the implementation of quality cost accounting as part of management accounting. Business improvement through the application of the TQM principle obligates management to ensure a methodological basis on the level of responsibility centers for monitoring, classification, grouping and presentation of quality costs
Zanini Gavranić (2011)	Accounting assumptions in preparation of business information for decision making in the hotel industry	The author proposes an improved management accounting system model that includes quality costs accounting in order to ensure relevant information for TQM and quality improvement.
Pamfilie, Stan (2012)	Managing Quality Costs – A Must for Growing Organizational Performance (A Case Study on Romanian Business Hotels)	Quality costs can be used as a tool for optimization of processes and activities relevant to quality and that way a potential source to maximize the organizations profit. The authors have conducted research among hotel managers about their perception of quality costs and the importance of highlighting and measuring each type of quality cost.

Source: Authors

In the hospitality industry, quality is a key factor of creating value for the client and a key factor of gaining competitive advantage. Therefore, in order to manage quality, it is necessary to identify, measure and report about costs related with the service quality (Bohan and Horney, 1991). Implementation of quality cost management system is more common in manufacturing industry than it is in service industry and one of the reasons is tangible product that facilitates measurement of quality costs related with the product and standardizing the model that will be widely applicable. In contrast to that, in service industries, defining such cost categories is quite demanding (Duarte, 2014). Tourist service is based primarily on personal contact, thus its quality depends primarily on the quality of provided personal services, which may be a problem in identifying quality costs (Zanini Gavranić, 2011). The services provided are intangible, inseparable from the service producer, non-standardized and perishable, and this "implies a critical importance for the producer-consumer interaction within the service offer in determining the customer's perceptions of service quality" (Haynes, Fryer, 2000, 241). Management

information requirements arise from the specifics of hotel industry, therefore it is necessary to ensure appropriate information on the activities included in specific processes in a hotel - accommodation (rooms); food and beverage preparation and service process; other services process (Zanini Gavranić, 2011).

Ramdeen, Santos and Chatfield (2007) pointed out that measuring and sustaining the cost of quality by using the PAF model leads to some strategic benefits which can be summarized into three major categories, as follows: „strategic benefits from prevention or proactive approaches that seek to identify potential problems before they occur; strategic benefits obtained from appraisal activities to ensure that quality food and services meet specific standards that will satisfy the customers' requirements; strategic benefits from identifying serving failures that will enable the restaurant to assess overall food and service quality". Application of PAF model in hospitality implies cost classification as follows, according to Ramphal (2016): prevention costs as the costs used to prevent poor service delivery, appraisal costs as costs related to auditing or self assessments in order to evaluate the services quality, internal failure costs that include the cost of scraping and dumping of products (stale foods, unaccepted meals, cancellations) rejected by customers and external costs that can relate to costs of delivery, reputational damage cost and loss of potential customers. Quality cost classification based on PAF model for hotel industry proposed by Zanini Gavranić (2007) is presented in Table 3.

Table 3: **Quality Costs in Croatian Hotel Industry**

No.		Description
		I. Prevention Costs
1.	Quality costs	Reference books
2.		Plants
3.		Travel expenses for visits the purpose of which is to get to know the competition
4.		Flowers in the reception area
5.		Supplier analysis
6.		Gifts for guests
7.		Rewards for workers
8.		Visits to competing business entities
9.		Flowers in rooms
10.		Education in quality assurance
11.		Activities in cooperation with suppliers
12.		Costs related to quality assessment in the selection of suppliers
13.		Costs related to the checking of suppliers' activities in the process of their selection
14.		Costs related to quality planning
15.		Costs related to new product launches
16.		Pillow sweets
17.		Costs related to supplier consultation
		II. Testing Costs
1.		Hotel managers' stays at hotels to get familiar with products and services
2.		Costs related to determining the quality of products bought through inspection upon reception
3.		Lab testing
4.		Costs of stock testing

No.		Description
5.		Cost of quality AUDIT (independent assessment)
6.		Cost of quality AUDIT (independent check)
7.		Supervision (specialized organizations)
8.		Costs related to no name guests
9.		Materials and supplies necessary to perform control
		III. Costs arising due to internal errors (low-quality product or service as yet not affecting the guest)
1.	Costs of non-quality	Reduced selling prices due to low quality
2.		Repeated services (cleaning, towels) if the first-time service proved not good
3.		Loss of earnings due to low quality
4.		Junk due to quality deviations
5.		Repeated control and testing
		IV. Costs arising due to external errors (low-quality product or service already affecting the guest)
1.		Discounts due to guest complaints
2.		Free services
3.		Subsequently determined expenses (complaints from previous years)
4.		Discounts to guests on the spot
5.		Discounts to tour operators for defaults in the fulfillment of contracts

Source: Zanini Gavranić, T. (2007): "Monitoring of Quality Costs in the Croatian Hotel Industry", *Journal of Management, Informatics and Human Resources*, Vol. 40, No 5, pp. 218-228

The uniform system of accounts for the hospitality industry (USALI) is used because "it ensures transparency of information concerning the business results realized by particular responsibility centers called departments and allows cross-comparison of internally realized results with regards to particular activities within particular companies" (Zanini Gavranić, 2007). According to the research, USALI standards have been successfully implemented in the Croatian hospitality industry over the 20 years (Peršić, Janković and Vlašić, 2013, 4). An increase in implementation of USALI methodology was noticed, and besides, the need for implementation of an improved segment reporting system with new performance measures, such as eco-measures or quality measures, is emphasized (Peršić, Janković and Poldrugovac, 2012, 38).

Ramdeen, Santos and Chatfield (2007) have researched costs of quality in hotel restaurant using the PAF model and evaluate their significance as a percentage of sales. They found out that costs of quality were 12 to 16 percent over a two-year period (which is much higher than suggested 2-4 percent of sales). The research results indicated the need for investing in prevention activities in order to improve quality which will lead to a reduction in failure costs (internal and external) as well as in appraisal costs. "The effect of an investment in prevention activities is to improve the quality of food and services that will eventually lead to an increase in customers' satisfaction and ultimately the restaurant profitability and competitive advantages". Their findings suggest that measuring quality costs, e. g. *quality cost accounting, can improve business process and therefore result in overall profitability improved*.

Business improvement through the application of the TQM principle obligates management to ensure a methodological basis on the level of responsibility centers for monitoring, classification, grouping and presentation of quality costs, therefore in management accounting the quality cost reporting method must be adjusted to the demands of the management (Zanini Gavranić, 2007). Management accounting must design accounting system and methods that will enable identifying and reporting on quality costs in internal processes (Peršić, 2003), and in order to do so an accounting method based on activities i.e. processes should be implemented. That way it would be possible to identify quality costs related with specific activity or process and to remove those activities that do not contribute to the quality (Zanini Gavranić, 2011). Quality cost reports should contain information on quality cost volume and structure in a certain accounting period (both absolute amount and relative ratio) (Rogošić, 2009, 120). The results of implemented quality system are monitored in the context of the achieved gross operating profit (G. O. P.), overnights, income or another indicator (Zanini Gavranić, 2011).

Successful implementation of quality cost accounting system depends on the IT support level (Peršić, 2005; Rogošić, 2009). The form, content and frequency of quality costs accounting reports should be based on the information requirements of quality managers (Lazibat and Sutić, 2011). The cooperation is needed between general manager and quality manager, IT, accountant and marketing, who will define the starting-points for internal reporting on cost of quality (Peršić and Drljača, 2003). Measuring quality costs requires technical as well as accounting knowledge and techniques. It requires joint effort of different departments, including quality control, accounting, engineering, production, marketing and service (Mwaura and Nyaboga, 2007, according to Chopra and Garg, 2011). The aim is to identify areas where quality improvement is possible through lightning hidden quality costs, but it should be kept in mind that quality cost accounting is only a tool and that for further successful implementation of the quality cost program, management support is crucial (Rodchua, 2006). So, quality improvement is the responsibility of management which by taking appropriate actions can affect the quality cost reduction and increase efficiency (Cheah, Shahbudin and Taib, 2011).

CONCLUSION

The literature review indicates that most of quality cost models are based on the P-A-F classification. It also indicates that companies that are managing cost of quality through various cost-of-quality methods are successful in reducing quality costs and improving quality for their customer. Quality costs that are classified according to PAF model in three main parts, should additionally be grouped in time periods, according to the time of their appearance in a product life-cycle. Quality cost measuring starts by collecting data from activities related with quality and analyzing them. This includes analysis of the relationship between costs components and the effect on total costs. Hotels have to detect, measure, record and analyze quality costs in order to optimize them. In order to conduct quality costs analysis, company can choose among different techniques, such as: Pareto Analysis, Ratio Analysis, Correlation Analysis, Trend Analysis or Regression Analysis.

Through years quality cost theory started to adapt to modern quality programs and thus started to consider new concepts such as opportunity cost, continuous improvement and resource optimization, and at the same time new contemporary accounting objects appeared such as ABC, non-financial indicators and strategic accounting.

The quality of information presented in managers' report is essential for the successful implementation of effective quality management. Traditional accounting systems do not provide information useful for measuring and evaluating the quality. There is an increase in need for new information and refocusing of existing systems in areas of measuring and reporting quality cost and non-quality costs. The lack of raw data causes practical difficulties, therefore accounting and financial systems need to be brought more into play to produce better information.

A review of quality cost accounting literature indicates that this issue is being explored and applied mainly in the manufacturing industry, while only a smaller number of articles deals with quality cost accounting in the service industry - especially hotel industry. Namely, the number of articles that present the research results of quality cost accounting in hotel industry is almost negligible. This is partly because of the specific features of hotel service that is intangible and closely related to the person that provides it. Thus quality of services depends on the human factor and is based on personal contact rather than on material factors, which causes difficulties in identifying cost of quality. Likewise, lack of understanding for the cost of quality concept, that is, insufficient investment in education as well as inadequate, insufficiently developed information system that does not support the collection of quality cost data are the main barrieres to development of cost quality accounting model in a hotel. Although Croatian hotel companies, according to the conducted research, have mainly implemented the quality systems and they do recognize the purpose and the importance of recording and measuring quality costs, there is a need for information system modernization. The direction of this modernization should be the assurance of the methodological basis for identifying, measuring, classifying and reporting on quality costs on the level of responsibility centers. This also implies the development of a chart of accounts that will enable the recording of quality costs of in order to improve the accounting information system of hotel.

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