

# Pro-Quality Cost Accounts in a Time of Sustainable Development

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**Abstract**— Enterprises that operate nowadays and want to maintain a competitive advantage on the market, face numerous challenges.

Problems of contemporary world, in particular progressive degradation of natural environment, have forced business entities to conduct their operations in a socially responsible manner, in other words, in line with principles of sustainable development. Corporate social responsibility in this field can be defined as overall activities of a company aimed at implementing this concept within the framework of quality policy. Achieving goals and performing tasks related to implementation of the concept of corporate social responsibility, in accordance with continuous improvement of quality effectiveness, can be supported by pro-quality cost accounting. Broadly understood quality management exploits information from accounting system. Quality costing is considered to be the most important element of quality management system. Undoubtedly it plays a major role in establishing a sustainable development policy and related initiatives, as it provides a framework for implementation of corporate social responsibility (CSR) strategies at all levels of organization's management.

The main reason for choosing this kind of research problem was growing importance of information about quality costs in the era of corporate social responsibility, which has been observed recently. Therefore, the aim of framework is to present a nature and significance of quality costing and pro-quality cost accounting in the management of a modern enterprise. To achieve this purpose, it was necessary to use literature analysis of the subject. Assumed objective of the work was achieved through broader description of the concept of sustainable development, discussion of the essence of quality costing, thorough analysis of pro-quality cost accounts as well as presentation of pilot studies on the use of quality costing models and quality cost accounting in enterprises from the SME group existing in Poland.

Conducted research allowed to identify existing research gap, which refers to the context of a wider application of quality costing as an integral part of modern strategic management accounting systems.

**Keywords**— *sustainable development, CSR, quality, quality costs, pro-quality management concepts.*

## 1. Introduction

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Nowadays we are living in a world of constant change. Changes in technological, social, economic, environmental and political conditions - are becoming more frequent and faster. Globalization of economy causes that they also affect us more and more severely and more directly. Therefore, ability to adapt to changing conditions at the time of making decisions has become a necessity.

In recent decades, interest in social and environmental aspect of running businesses have grown.

Enterprises that operate nowadays and want to maintain a competitive advantage on the market, face numerous challenges.

They are forced to operate in a socially responsible manner, which is consistent with principles of sustainable development. This is due to the fact that under current conditions, maintenance and development of entities depends not only on achieving high economic results, but also on acceptance of business by their environment.

The turning point in the debate on a need for sustainable development requiring transition from disaster to pollution prevention, that is, as an „action at the source” was presented in 1987 in a report entitled „*Our Common Future*” (Brundtland Report). This report contained a list of threats and challenges to the proper development of humanity. Since then, numerous initiatives and activities have been undertaken to disseminate the idea of sustainable development. On 25 September 2015,

193 United Nations (UN) countries adopted the Agenda 2030 for Sustainable Development, an action program defining model of sustainable development at a global level. It has a universal and horizontal character. It includes 17 sustainable development goals (SDGs) and 169 related tasks that reflect three dimensions of sustainable development - economic, social and environmental [1]-[3]. On February 14, 2017, Polish government adopted the Strategy for Responsible Development (SOR), which identified more than 700 actions to strengthening social, economic, environmental and territorial cohesion in our country [see 3].

The concept of sustainable development is interpreted differently in the literature on the subject. Main dilemmas related to the conceptualisation of the term of sustainable development include, inter alia, doubts raised by some authors [4]-[8] regarding possibility of meeting basic assumption of equivalence of all domains (economic, social and environmental) of sustainable development in practice (for more details see: [9]).

Answer to challenges created by the concept of sustainable development is corporate social responsibility. The issue of CSR is not new because it reaches 1930s of twentieth century, but in recent years, in times of economic crisis, it began to play a key role in functioning of enterprises. Inclusion of companies in this activity is very important.

According to ref.[10], [11], [12] Corporate Social Responsibility constitutes the process of learning and including changing social expectations in the management strategy, and also monitoring the impact of such a decision on market competitiveness. It is searching for dynamic balance between interests of all engaged parties, in compliance with the law and socially accepted ethical standards (for instance see: [13], [14]).

If you treat CSR as part of a long-term strategy, it can bring benefits to the company, its stakeholders and general public [15].

Ref. [16] think that despite disagreements over an appropriate definition, CSR is generally viewed as corporations' responsibility to integrate environmental, social, and governance practices into their business model, beyond mandatory legal requirements.

Analysis of literature in the field of Corporate Social Responsibility, undoubtedly, indicates the essence of this concept, being deeply rooted in broadly understood, intensely progressive

relationships with stakeholders in the area of management of business entities [17] (see also [18]-[19]).

Building sustainable and positive relationships with all interested parties, connected with management of business activities, constitutes starting point for running a business ethically and paying attention to social and ecological environment [20].

While analyzing CSR principles, it can be seen that most of them are consistent with principles of quality management in the company - needs and expectations of consumers/stakeholders, continuous improvement, or organizational commitment. According to Knowles [21], in the heart of both lie respect for individual, integrity, decency and justice.

Quality management system undoubtedly plays a very important role in establishing a sustainable development policy and related initiatives. It provides a framework for implementation of corporate social responsibility (CSR) strategies at all levels of organization management.

Corporate social responsibility in this context can be defined as entire company's activity aimed at implementing this concept as part of quality policy that is a signpost to good business management.

Key for organizational excellence is the combination of concentration on quality in the process level and following needs of stakeholders, giving valuable contribution to the well-being of society.

Quality is the basic determinant of market success, not only in the case of product differentiating strategy. Pro-quality orientation of enterprises allows to reduce operating costs and effectively compete on the market through the use of cost leadership strategies. Currently, it is a basic requirement of competition. Growth of the importance of quality and emergence of new methods and tools supporting quality management results in increase of interest in quality costs.

Issues of using quality costs in making economic decisions are therefore particularly important in managing a modern enterprise. High level of quality costs weakens competitiveness on domestic and global market.

The main reason for choosing this kind of research problem was growing importance of information about quality costs in the era of corporate social responsibility, which has been observed recently. Wide application of quality costing in enterprises, increasingly an integral part of modern strategic

management accounting systems, allows for full, though cost-intensive implementation in any enterprise.

However, taking into account the fact that over 90% of enterprises are enterprises from SME sector, the question arises whether these enterprises are able to, and above all, are they interested in generating information on quality costs? Do they take actions in the area of sustainable development? Do they implement other cost accounting solutions aimed at optimizing costs in the process of continuous improvement?

Therefore, the aim of the work is to present nature and significance of quality costing and pro-quality cost accounting in management of a modern enterprise.

## 2. Materials and methods

Assumed objective of the work was achieved through broader description of the concept of sustainable development, discussion of the essence of quality costing, thorough analysis of pro-quality cost accounts as well as presentation of pilot studies on the use of quality costing models and quality cost accounting in enterprises from the SME group existing in Poland.

Taking into account above assumptions, the following structure of considerations was adopted:

- on the basis of analysis of literature on the subject, the essence of quality costing and increasingly popular Japanese solutions in the field of cost accounting, i.e. Lean Accounting, Target Costing and Kaizen Costing have been discussed;
- pilot studies on implementation of pro-quality cost accounts in enterprises from the SME sector in Poland have been presented;
- existing conclusions have been showed.

Methodological base for consideration was analysis of literature of the subject, as well as feedback based on practitioners' voices.

Conducted research are important because quality costing is considered to be the most important element of quality management system. It is used to assess effectiveness of quality management in an enterprise and to create the basis for implementation of internal quality improvement programs by defining problems to be solved, areas of key activities or opportunities. Currently, quality costing is increasingly an integral part of modern strategic management accounting systems such as

ABC or Lean Management Accounting (along with Target and Kaizen Costing). Measurement of quality costs without their separation is included in the comprehensive cost accounting along with using ABC or Lean Accounting.

Taking into consideration possibilities of enterprises from SME sector and the fact that many of them prepare only tax registers or simplified records of costs for reporting purposes, empirical research will allow to assess application of quality costing in the group of these enterprises and degree of use and interest in pro-quality cost accounts.

## 3. The role of quality costing in management of an enterprise in a time of sustainable development

Changes taking place in the environment create new opportunities for development and success for business units, but at the same time they are a source of threat to their further existence. Universal access to information translates into increased awareness, expectations and the negotiating position of customers in relation to products offered on the market. As rightly stated by Bryke [22] "the most important tasks that 21st century enterprises face today are acquiring knowledge and using their employees' skills to create values that are valuable to customers, making customers aware of these values and ruthlessly fulfilling promises. Implementation of these functions takes place in conditions in which both the client and competitor can be "here and everywhere". The basis and pre-condition is learning and making changes faster than competition. Therefore, business entities strive to increase flexibility of operations, using management instruments that ensure ability to quickly respond to changing external and internal conditions. One of factors determining the market success of the organization is, as already mentioned, quality of services and products manufactured.

Modern enterprises operate in a rapidly changing environment, in conditions of intensive technology development and very high competition. Business reality points to the growing dependence of producers on consumers. In recent years, the market imposes necessity to constantly increase quality of products, leaving at the same time few possibilities to raise prices, and often even forces them to lower them [23]. Today's consumer is a

consumer expecting high quality products and services. [24].

Additionally, as opposed to traditional product-related factors that have influenced consumers' opinions of companies in the past, consumers now increasingly emphasize aspects of CSR as important factors in their purchasing decisions [25]. European experience has shown that in order to increase efficiency and effectiveness of management in an enterprise, it is necessary to integrate quality management solutions into existing systems. ISO standards have become not only a market opportunity, but first of all the first level of system optimization of the organization. Introduction of our own quality management system for many enterprises has become an attempt to gain competitive advantage over competition (thanks to the ISO certificate) as well as possibility of ordering processes taking place in the enterprise and improving resource efficiency (see eg.: [26]). Such actions may result, among other things, in system identification of bottlenecks and barriers hindering achievement of better results and hampering development.

Increase in interest in quality has contributed to intensification of research on the structure and division of quality costs for enterprises. Earlier, quality costs in accounting were often treated very briefly, which resulted from the low and insufficient level of knowledge in this area and the lack of implementation of integrated management systems.

Evolution of the concept of quality and quality costs is very rich and interesting, but it exceeds the scope of this study (for more, see: [27]). It is worth mentioning, however, that the term "quality costs" was used for the first time by A. Feigenbaum and J.M. Juran in the 1950s, however, this problem can be found in principle in the first models of quality management. Foundations of the first quality cost classifications are:

- a cycle (or circle) of Shewhart - Deming consisting of four successive stages, i.e., plan, execute, check and react,
- three quality processes implemented by Juran: planning, control and improvement.

Currently, quality cost accounting is considered the most important element of quality management system.

There are many concepts of quality costs in the literature on the subject. However, due to the fact that concept of quality approximates their structure,

both the theory of quality management and economic practice often defines costs through their structure. Most frequently presented are characteristics of the concepts of the most important authorities in this field: A.V. Feigenbaum, J.M. Juran, P. Crosby, G. Taguchi, J. Banka, J.J. Dahlgaard, K. Kristensen and G.H. Kanji and quality costs based on the international standard ISO 9000 standards (for more information [28]-[31]; [24], [27]). Considering today's pro-market attitude of enterprises and undertaking difficult-to-measure activities, such as shaping the company's image (which may also be a value for the client), quality costs can be defined as all costs incurred by the enterprise to achieve full customer satisfaction at the time of sale and during the use of the product [32].

Cost of quality accounting is a tool supporting and enabling quality management. It aims to record and analyze quality-related costs, leading to their optimization, thanks to the identification of ineffective activities and internal improvement actions. Information on quality costs should be useful in fulfilling management functions in an organization, i.e. should be used in planning (including improvement), performance, control and improvement of activities [24].

#### 4. Idea of pro-quality cost accounts

As already mentioned, currently the quality cost accounting is increasingly an integral part of modern strategic management accounting systems, i.e. ABC or Lean Management Accounting (along with Target and Kaizen Costing). Modern cost accounting systems allow for a correct reflection of the cost creation process in conditions of global market economy and creation of real information on product costs necessary to make optimal strategic decisions. Methods of cost accounting inspired by Japanese management methods are increasingly the subject of research, the most popular of which is certainly Toyota Production System (TPS), from which Lean Management conquers consecutive sectors and branches of the economy. *Kaizen*, *kanban*, *muda* or *hoshin kanri* are concepts that we hear more and more often in Polish enterprises. Characteristic for Japanese strategic management is the evolutionary implementation of new technologies in the field of production, information systems and integrated systems of organization of production and distribution processes (Just-in-Time), striving for

knowledge, readiness to postpone maximization of profit for increasing market share and increasing activity organizations in the markets.

Aiming at economic expansion, Japanese paid special attention to cost accounting, because it provides important information for decision-making, especially in conditions of growing competition, when cost reduction is sought. Use of modern technologies, together with new solutions in the field of cost measurement and their reduction, enabled production of high quality products, consistent with expectations of customers [33].

Since nineties of the last century, there has been a steady increase in interest among both US and European managers in concepts of comprehensive cost management, developed since the mid-sixties at Toyota Co. This concept was recognized as the main reason for achieving high competitiveness of this corporation in the global car market and shaped a new philosophy in organization's management and culture, and its main creators were Sakichi Toyoda, Kaiichiro Toyoda, Eiji Toyoda and Taiichi Ohno. It is referred to in literature as lean thinking or lean enterprise [34]-[37]. The concept of a lean enterprise has been extensively explained in the study of Jams P. Womack and Daniel T. Jones [37]-[38].

Nowadays, Lean Management approach is implemented more and more frequently together with Lean Accounting principle - oriented at measuring the value created for client in the long term and focused on value streams [39]-[43].

Basic premise of the Lean Management concept was a need to eliminate wastage, which in a broad sense is called *muda* in Japanese culture. Business management in line with Lean Management therefore consists in redesigning organizational structure and existing processes in a way that ensures elimination of activities that do not contribute to increasing the value of product offered to clients. Client's needs are put first. Lean Management therefore means a process of continuous search for possibility of avoiding waste, which in turn allows cost reductions and increased customer satisfaction [44]. For more, see for example: [45]-[47].

Comprehensive application of the Lean approach in management accounting system requires, as in management, simultaneous implementation of several new methods which are included in addition to the cost of quality, e.g. product Life

Cycle Costing (LCC), target costing or cost reduction accounting (Kaizen Costing). Sometimes a standard cost accounting is also used as a complementary tool, especially during transition of the company to the Lean rules (this issue is broadly addressed, among others, by Sobańska, [48]-[47], Satanova and Sedliacikova [49]). These methods are strongly integrated with each other, they create a system of accounts integrated by performance communication system (Scoreboards) with production system and management system based on principles of a lean enterprise.

Product life cycle costing is a method of strategic cost management, in which the most important thing is taking actions to fully satisfy the customer. In this system, costs are considered in the long-term, from perspective of the whole product life cycle, from the moment the "product idea" appears in the company until definitive cessation of its production. This costing method is therefore based on observation of product through the prism of its costs and revenues over the entire period of its economic life [50]. It enables controlling the implementation of adopted strategy over time (according to phases and periods).

Main focus is on estimating the level of future costs before they are incurred, which enables long-term cost management. Therefore, it enables possibility of early development of costs incurred in future.

Another tool of management accounting that is part of strategic trend of cost accounting tools with customer and product orientation and supporting the construction of a cost management system is Target Costing. The effect of its application is to improve processes occurring in the enterprise and reduce all costs of components of a given product already in the planning and designing phase of products. It is a kind of decision-making account supporting product design process. Its essence is to ensure that costs of designed product are maintained at a level allowing simultaneous meeting of customer expectations as to price and functional parameters as well as accepted financial goals as to the profitability of product. Thus, this approach seeks not only to reduce costs at any price, but to shape their appropriate structure and size, taking into account the level of product functionality and quality desired by buyers. This means necessity to implement a cost control system that allows analyzing expenditures at the same time in terms of consumer value and cost per unit [51]-[53]. Target costing builds a reversed process,

because it starts in future (market expectations, target price, features, quality or functionality), formulating current challenges (design alternatives, production technology, choice of materials, etc.). At the same time, thanks to knowledge and experience from the past, it supports solving open problems (databases, cost tables, experience from the production of previous models, knowledge and individual experience of members of interdisciplinary teams). Integration of knowledge from many different fields, market orientation and future orientation may result in target costing philosophy becoming a paradigm of a learning organization [54].

To achieve cost of product accepted by the client, Target Costing determined the cost of a new product based solely on external relations. Cost assumed for the product is determined as difference between the price accepted by customer and profitability accepted by investors. This costing method therefore integrates the concept of value management for shareholder with the concept of value management for client. The Target Costing - Kaizen Costing allows to achieve expected cost of the product. Its purpose is to enable current costs of product to be reduced to the level of assumed costs (strategic goal) in production phase in the product life cycle (for more see eg: [55]).

Life Cycle Costing, Target Costing and Kaizen Costing are integrated with each other. New Japanese concepts enabled focusing strategic management processes on achieving maximum customer satisfaction with purchased products, which guarantees the company to realize expected long-term profits and increase company's value. Implementation of Target Costing and Kaizen Costing followed introduction of Lean Manufacturing principles. This required companies to change their work organization (moving away from individual work for team work, including work of management accounting specialists), developing a culture of continuous improvement and introducing a system of motivating employees for their involvement in implementation of strategy set by top management based on non-financial performance measures (e.g. number of errors, number of completed orders on time) (for more information see: [47]-[48]).

It should be emphasized that kaizen is not only a costing method but a concept originating from Japanese enterprises and an approach to work and business that reflects Japanese philosophy. Kaizen

means perfection, improvement of every aspect of organization's functioning, every process occurring in it, but in a continuous, systematic way, i.e. by small steps [56].

The author of *kaizen* concept in terms of management is Masaaki Imai - founder of Kaizen Institute, a Japanese professor in management, the author of world bestsellers, most famous of which are: "Kaizen: The key to Japan's competitive success" [57] and *Gemba Kaizen: a Commonsense, Low-Cost Approach to Management* [58].

The first *kaizen* definition from 1986 stated that "this is a state in which you are never satisfied with the *status quo*, never-ending pursuit for improvement, which begins with recognition of problems" [57]. After years, Imai presented a new definition of *kaizen*, in which he said that "this is a state in which every person in organization has a feeling that today's standard is the worst possible way of doing work" ([59]; after [60]). This means that the starting point for improvement are standards functioning in organization, while awareness of people should be rooted in the pursuit of continuous improvement, which coincides with earlier definition of dissatisfaction with *status quo*. According to Miller, Wroblewski and Villafuerty [61] *kaizen* culture is based on implementation of a set of key beliefs, which include, among others: commitment of all employees, service leadership, visualization of reality, respect for people, appreciation of standards, scientific problem solving, alignment of organization's goal not only with needs of clients, but also with needs of a wider group of stakeholders, curiosity, humbleness and awareness that each step requires a far-reaching look into the future.

Therefore, *Kaizen* will be on the one hand an element of a man-oriented organizational culture in scientific solving of problems [61]-[62], and on the other - the art of implementing certain basic concepts and systems [58], where a PDCA cycle (Deming cycle) can be considered as a kind of *kaizen* "engine".

## 5. Results and discussion

Basic goal of research, which is being implemented, is the need to acquire knowledge about the use of pro-quality cost accounts in enterprises operating in Poland. An important determinant was also recognition of the degree of application of quality costing and pro-quality accounts depending on the size of enterprise.

Research was based on enterprises from the production and services sectors. In the months of April - October 2018, pilot studies were made as a prelude to relevant surveys. Pilot studies were conducted in a form of personal interviews with managerial staff of selected production and service companies from SME sector in order to determine target research group.

Vast majority of enterprises in the SME sector are microenterprises and small enterprises. Most of these companies apply simplified forms of accounting only for tax purposes, which means that these units have access to a much smaller amount of information supporting decision-making process and limited knowledge about costs incurred. Small enterprises that keep accounting books very often limit their activity to recording costs only for reporting purposes. Within the group of these companies, quality costs even if counted have a simplified form. Due to the above, mid-sized companies employing from 50-250 people were selected as a target research group.

Obtained information on cost accounting and application of solutions in the field of quality cost accounting was important when formulating the questionnaire. In addition, in October 2018, selected enterprises from target group were asked to fill in the questionnaire in order to verify it. Respondents were managerial staff and main accountants. These people were asked to complete the questionnaire and indicate their comments, both substantive and technical, regarding ergonomics of the survey. Purpose of this activity was to prepare a questionnaire in such a way that it would be clear and understandable for respondents. On the one hand, detailed, but on the other hand not leading to negative reception. Collected remarks were used to develop the final version of questionnaire, which is being implemented.

Survey was divided into three parts. First part is a data sheet and contains data characterizing the enterprise, second part deals with applied cost records, while third part contains fundamental questions concerning the use of quality costing and pro-quality cost accounting. The questionnaire also used a formula of open questions, allowing respondents to comment more broadly on a specific problem. The comment complements an answer, with very valuable opinions from the point of view of survey participants. Collected material, to the extent it will be possible, will be subject to analysis and statistical inference. This will allow, inter alia,

to determine relationship between the use of individual solutions and cost accounting instruments and characteristics of enterprises, assess the degree of use and interest in quality costing and other pro-quality cost accounting.

## 6. Conclusion

The word quality is often found in proposals, company vision or advertising slogans. However, one should answer the question, who is responsible for quality in enterprise? The answer is often: quality department, quality manager, quality controllers, employees, etc. Many times the company's management forgets that quality is a result of many factors, of which the advanced technologies in which it has just invested are not the most important. It is also important to be aware that it is unacceptable to improve financial ratios and efficiency at the expense of quality.

The interest in quality costing in Poland started in 1970s. In the literature on the subject from this period, one can find publications on both the essence and classification of quality costs as well as examples of practical applications. However, it started to be widely used in the early 1990s after the change of economic system in Poland. Dynamic changes taking place in the environment in the last two decades, and thus development of new management methods resulted in increased interest in quality and quality costs. This issue is raised by theoreticians and practitioners in both management and accounting. It concerns not only clarification of essence of quality costs and popularized concepts but also application of this solution both in business units as well as in the public sector, universities and health care. It should also be noted that during the period under review there has been a change in the initiated considerations. Transformation of quality management and creation of many new tools supporting quality management have changed the nature of quality costing. As a result of evolution, this method is now an integral part of management process. It has become an information-control-decision system with an extended scope of tasks. Quality costs, which were originally part of operational management, are currently also used for strategic decisions and are also reflected in management accounting. Currently, quality costing is increasingly an integral part of modern strategic management accounting systems, i.e. ABC, *Lean Management Accounting*. It should be noted that in

the 90s of the twentieth century there was an increase in interest in methods of costing used exemplary in Toyota from the 1960s, such as: Target Costing, cost reduction system (Kaizen Costing), Open Book Accounting, Value Stream Costing, Features and Characteristics Costing. These methods, strongly interrelated, represent a system of accounts integrated by the system of communicating achievements (scoreboards) with production system and management system, based on principles of a lean enterprise.

Conducted literature analysis and pilot studies in companies indicate that modern enterprises are focused on quality. Currently, having a certified Quality Management System is obvious, while creating an individual form of TQM perception is an asset. However, despite the fact that quality costing has been popular in Poland since 1990s, in many enterprises only part of quality costing has been implemented, many other entities are just implementing or considering a comprehensive implementation of quality costing.

This is due to the fact that 90% of companies are enterprises from SME sector. Most of these enterprises are micro and small enterprises, which despite challenges they have to face, despite the rapid increase in information and control requirements set for accounting systems to support the decision-making process, in the era of sustainable development, when they are expected to take actions in the field of social responsibility - do not realize the need to optimize costs, including quality costs, or there is no adequate capital to implement new accounting solutions. Many of these companies are trying to survive in the market, not sure what will be "tomorrow". Situation is different in the case of larger enterprises, classified as medium-sized enterprises. In these companies, interest in cost of quality and other modern methods, including Japanese solutions in the field of cost accounting, is definitely higher.

These companies perceive quality cost management as one of essential elements for assessing and improving efficiency.

Many enterprises declare to continuously improve quality system and quality costing. More and more companies are also interested in lean philosophy and its application in management (Lean Management) and in accounting (Lean Accounting) as well as possibility of combining specific methods of cost accounting.

Conducted research allowed to identify existing research gap, which refers to the context of a wider application of quality costing as an integral part of modern strategic management accounting systems. Further research will aim at defining dependencies between the use of individual solutions and cost accounting instruments and features of enterprises from target group, assessment of the degree of use and interest in quality costing and other pro-quality cost accounts in the context of corporate social responsibility.

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