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**MANAGING THE COSTS OF QUALITY
AND ENVIRONMENTAL PROTECTION
AS AN IMPERATIVE OF FINANCIAL SECURITY
OF MODERN ENTERPRISE**

**ZARZĄDZANIE KOSZTAMI JAKOŚCI
I OCHRONY ŚRODOWISKA JAKO IMPERATYW
BEZPIECZEŃSTWA FINANSOWEGO
WSPÓŁCZESNEGO PRZEDSIĘBIORSTWA**

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Abstract

The aim of the article is to present of the modern expected approach to managing quality costs and environmental protection costs, the possibility of presenting these costs in the integrated quality and environmental protection cost account, and the impact of managing these costs on the financial security of the company. The method of critical analysis of scientific literature in the field of quality management and environmental protection, accounting, and financial security was used. Induction and deduction methods were used. An attempt was made to show the benefits that can be achieved by a company using the model of integrated cost accounting for quality and environmental protection in the example of a service company. The topic of research are the costs of quality and the costs of environmental protection. The article shows the legitimacy of the implementation and use of the integrated cost accounting of quality and environmental protection in the context of the financial security of the company. It has been confirmed that acting

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in favor of environmental protection and quality increases the economic efficiency of management. The added value of the article is to show the benefits that can be achieved by companies using a new approach to managing the costs of quality and environmental protection with the use of integrated cost accounting for quality and environmental protection.

Keywords: cost management, quality costs, environmental protection costs, financial security, integrated cost accounting, and environmental protection

Streszczenie

Celem artykułu jest przedstawienie współczesnego oczekiwanego podejścia do zarządzania kosztami jakości i kosztami ochrony środowiska, możliwości prezentacji tych kosztów w zintegrowanym rachunku kosztów jakości i ochrony środowiska oraz wpływu zarządzania tymi kosztami na bezpieczeństwo finansowe przedsiębiorstwa. Zastosowano metodę krytycznej analizy piśmiennictwa naukowego z zakresu zarządzania jakością i ochrony środowiska, rachunkowości oraz bezpieczeństwa finansowego. Wykorzystano metody indukcji i dedukcji. Podjęto próbę pokazania korzyści jakie może osiągnąć przedsiębiorstwo wykorzystując model zintegrowanego rachunku kosztów jakości i ochrony środowiska na przykładzie przedsiębiorstwa usługowego. Obiektem badań są koszty jakości i koszty ochrony środowiska. W artykule wskazano zasadność wdrażania i wykorzystania zintegrowanego rachunku kosztów jakości i ochrony środowiska w kontekście bezpieczeństwa finansowego przedsiębiorstwa. Potwierdzono, że działając na rzecz ochrony środowiska i jakości zwiększa się ekonomiczna efektywność zarządzania. Wartością dodaną artykułu jest pokazanie korzyści jakie mogą osiągnąć przedsiębiorstwa stosując nowe podejście do zarządzania kosztami jakości i ochrony środowiska z wykorzystaniem zintegrowanego rachunku kosztów jakości i ochrony środowiska.

Słowa kluczowe: zarządzanie kosztami, koszty jakości, koszty ochrony środowiska, bezpieczeństwo finansowe, zintegrowany rachunek kosztów i ochrony środowiska

Statement of the problem in general outlook and its connection with important scientific and practical tasks

The global economic crisis drew attention to many important factors which, from the point of view of enterprises operating on the market, were not sufficiently exposed earlier. Such a factor is undoubtedly the concept of the company's financial security. Its basis is effective and efficient management, which is not easy in the light of dynamic changes, in particular in the face of the growing interdependence of the world economy and the concept of sustainable development. As a consequence of these assumptions, the role of environmental protection and the costs incurred in this area is increasing, as well as the role of quality, which occupies an increasingly significant place in the activities of enterprises.

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In such economic conditions, in order to be able to develop and be competitive, enterprises must be aware of the relationships between their activities and the changes they make in the environment or society. They should use available solutions and tools that will provide them with credible and reliable information in various cross-sections, including those relating to past and future events for environmental protection and quality [1],[2].

The most important source of information on the costs of the company's operations is undoubtedly the cost account. It is an important element of the management information system in general and cost management in particular. Properly conducted cost accounting is used to determine the effects and enables control of the economy. It is the basis for making the right economic decisions [3]. Enterprise costs are considered one of the most important categories in a market economy. They significantly affect the financial result of the company.

Unfortunately, many companies, especially from the SME sector, are managed based on the information whose main sources are traditional cost accounting. Nowadays they only work when preparing financial statements. Traditional cost accounting distorts data on the cost of products or services provided. They do not distinguish in their structure costs: quality costs or environmental protection costs. This way of allocating costs, although correct from the point of view of the Accounting Act, is not optimal from the point of view of managing a modern enterprise [4]. It does not take into account the dynamic transformations that take place in the external environment of enterprises and impose ever higher demands on enterprises and more difficult problems to solve [5]. They relate in particular to the areas of quality and the need to maintain ecological and social balance in the activities undertaken by managers.

A query of the literature on the subject indicates, however, that both the costs of quality and the costs of environmental protection have not been precisely defined, and so far there has not been developed and adopted a tool providing managers with integrated information on the costs of quality and environmental protection incurred, although the costs quality are a derivative of the entire management system and an effective tool for reducing the company's costs. In the context of the above, the main purpose of the study is to present the modern expected approach to managing quality costs and environmental protection costs, to present a tool - integrated quality and environmental cost accounting – giving the possibility of separating these costs from the total costs of the enterprise included in traditional accounting systems and to show the benefits that may possess companies from the information contained therein.

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To achieve this goal, a critical analysis of scientific literature in the field of quality management, environmental protection, accounting and financial security was carried out. The applied research approach is a case study. Induction and deduction methods were used. An attempt was made to show the benefits that can be achieved by a company using the model of integrated cost accounting for quality and environmental protection on the example of a service company. The object of the research are the costs of quality, environmental protection costs and the revenues of the examined enterprise. At the end, conclusions and recommendations for practice were formulated.

Analysis of latest research where the solution of the problem was initiated. Aims of paper. Methods

Quality Costs

The need to meet the increasing quality requirements imposes new tasks on the company. Its management is forced to the utmost care in the area of quality management. Activities in this regard are aimed not only at searching for ways to optimize costs, but above all, it is necessary to know the size of costs and the essential relationships between them. According to Skrzypek, the improvement of pro-quality activities in an enterprise occurs only when it is possible to measure the impact of quality on economic efficiency, which leads to increased efficiency and lower costs [6]. Quality costs are not a precisely and unequivocally defined concept. As Ciechan-Kujawa points out, this results from the differences in the approach to quality and from the fact that the areas of activities related to quality and other processes intermingle in enterprises [7]. For quality management experts, quality costs are an element, a separate part of production costs, which can be a resource used to reduce total production costs. For economists, quality costs may mean the sum of costs incurred to produce a specific product of a specific quality that meets the customer's requirements and expectations [8]. Quality costs are also defined as all expenses to maintain, ensure and improve the level of quality of products and services that is expected by the customer or has been bindingly agreed with him [9]. In the Polish literature, the problem of quality costs was also discussed by: R. Kolman, L. Wasilewski, K. Cholewicka-Goździk, E. Kindlarsk, T. Borys, B. Oyrzanowski, E. Skrzypek, T. Wawak, K. Lisiecka, A. Hamrol and W. Mantura, A. Iwasiewicz and S. Tkaczyk [10]. The philosophy of comprehensive quality management aims at the most effective use of all resources of a given organization to achieve its goals [11]. One of the ways to confirm that an organization meets high quality requirements is to have a certificate of compliance with the requirements of the PN-EN ISO 9001:2015 standard. The certificate improves the company's image and

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confirms the correctness of the organization's operation in terms of international standards, and more importantly, it confirms the practical implementation of the principles related to the management culture in the organization. This standard is intended to ensure the stability and repeatability of the processes carried out in the organization. Its universality lies in the fact that the written rules of conduct will be appropriate for an organization offering services as well as an organization whose main process is the manufacturing process.

Information on the cost of quality undoubtedly has a large impact on decision-making processes. However, along with economic development, the need for information among internal and external stakeholders in the implementation of environmental activities of the company is also growing. For a modern enterprise, an important area of cost management is not only the management of quality costs, but also the management of environmental protection costs. Their relationship with customer expectations and meeting their needs seems indisputable. Karmańska [12], Sadkowski [3], Micherda (emphasize that the more detailed the classification of costs, the greater the possibility of minimizing waste, optimizing resource management and achieving better financial results. With regard to environmental costs, information on them is important for internal recipients in terms of future actions to reduce these costs and knowledge of the impact of the conducted activity on the quality of the surrounding environment. These data also serve the external needs of the company. Dobija and Kucharczyk indicate that environmental protection should be a central part of the strategic policy of the company [14].

Environmental protection costs

Due to the dynamic development of the concept of environmental costs, there are many approaches and definitions in the literature. In Poland, this topic was studied in detail by: Famielec [15], Górka, Poskrobko, Radecki [16], Stępień [17], Kryg [18], Akdoğan, Hiçyorulmaz, [19]. According to Stępień, the costs of environmental protection are the deliberate consumption of material resources, labor and external services expressed in money, which results in maintaining ecological balance (optimal state of the environment with the possibility of self-cleaning. In practice, environmental costs usually include various categories of costs environmental management, environmental protection activities and environmental impacts [20]. From the enterprise level, external environmental costs can be defined as pollution caused by enterprises that has not been internalized, reduced, removed or processed, as a result of which they have not yet been included in the economic calculation of the perpetrator's enterprise, but are borne

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by others in the form of tangible or intangible burdens [21]. According to Szadziwska, the category of environmental costs at the enterprise level includes [22]:

- 1) running costs of environmental protection – operating and maintenance costs, the main purpose of which is to prevent, neutralize, reduce or eliminate pollution and other environmental impacts, fees and purchase of environmental services aimed at limiting the negative impact on the environment;
- 2) costs incurred for projects in the field of environmental protection, which are the sum of financial outlays for preventing pollution and its disposal;
- 3) internalized external costs – ecological fees and taxes, including emissions trading fees for obtaining permits for emission of substances, including integrated permits.

Generally, the costs of environmental protection can be defined as: the equivalent of the sum of the most valuable other economic and social benefits that must be given up in exchange for taking protective measures.

The presented definitions have common areas, which include the inclusion in environmental costs of: resource use, pollution prevention and restitution.

In the face of the pressure that entities conducting extensive economic activity are currently subjected to, it is essential and necessary in the perspective of time to try to distinguish all possible environmental costs and quality costs.

The presented definitions of quality costs and environmental protection costs in the literature confirm the diversity of authors' approaches to the issues related to this issue. Along with the development of interest in quality and environmental protection costs, various cost categorizations were created, the types of which interpenetrate in the structure, and new elements used for division appear, such as the costs of lost benefits, the so-called hidden cost estimates. The most important criterion for the division of costs related to quality or environmental protection should be their availability. Most of the cost items are hidden costs, and there are relatively few visible and easily measurable costs, especially in the case of quality costs. From the point of view of a company that strives to increase the effectiveness of management systems, improve quality and optimize the costs associated with it, it is crucial and causing the most problems to identify their places of origin, so that they are recorded according to actual places of origin, not places of disclosure [23]. The economic calculation of enterprises does not reflect the costs of quality and environmental costs arising from non-equivalent destruction and use of elements of the natural environment, although these costs have a significant impact on the financial results achieved. Additionally, according to Dobrzański [24], this information should be used by the state to define environmental

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protection instruments, including economic ones. These tools should be in the form of steering standards, specifying tasks, directions and methods of action in the field of environmental protection. Be the basis for the rational and effective use of resources owned by entities.

Exposition of main material of research with complete substantiation of obtained scientific results. Discussion

Integrated cost accounting for quality and environmental protection

Both the increase in the importance of environmental protection in the activities of enterprises and the expected increase in the quality of manufactured products or services render it necessary to obtain information on the impact of the company's operations on the natural environment, including environmental costs and knowledge of the costs of maintaining quality. A special role in providing this type of data may be played by the integrated account of the costs of quality and environmental protection kept in the economic entity, which is part of the accounting subsystem. Its tasks include, above all, providing information necessary for:

- external assessment (i.e. by the environment) of the company's activities in terms of their impact on the environment
- determination of the amount of charges incurred for the use of the environment or its pollution in the form of ecological fees and taxes, costs of transferable emission rights, compensation fees, product and deposit fees;
- control and actions aimed at minimizing the pollution generated; identifying environmental costs in the company that may be hidden in overheads and allocating them to products;
- designing pro-ecological products, processes and services;
- determining the quality costs of new products and the process of their production or services provided;
- assessment of the quality of new products or services provided;
- costs of preventing and capturing internal and external non-compliances;
- opportunity cost assessments;
- assessment of the impact of the costs of quality and environmental protection on the economic efficiency of the company.

Implementation of the above-mentioned tasks by the integrated cost account for quality and environmental protection (ZRKJiOŚ) is related to the adoption of appropriate solutions in the entity in the field of measuring environmental costs, costs of quality,

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their grouping and inclusion in the records. A prerequisite for their determination is the determination of the impact of the economic entity's activity on the natural environment and the needs related to the implementation of the environmental protection and quality objectives set in it, and the identification of activities and processes in which these costs occur. Processes and activities will generate quality costs or environmental protection costs to varying degrees. Some more noticeable, others more difficult to identify. In each enterprise, the strength of this relationship will be different due to the type of activity, its scope and activities performed in the organization.

The authors, presenting the classification of quality costs and environmental protection costs in the integrated account of quality and environmental protection costs, took into account such items that should not be difficult to identify and, most importantly, to estimate in enterprises. With regard to quality costs, the following were distinguished: prevention costs, quality assessment costs, costs of internal non-compliances and costs of external non-compliances as well as costs of lost profits. This category refers to hidden cost estimates and includes many cost items that are not easy to analyze and quantify – for example, lost sales due to poor quality in the past. One way to calculate these costs is to estimate them based on information about the value of lost orders or lost market share. Loss of reputation, consequences of failed preventive activities, development costs of failed products/services - these are just a few examples of cost items that are difficult to calculate. To calculate these costs, you must manage the risk of such losses and perform a detailed analysis of important non-conformances resulting from critical errors. On the basis of analyzes of registered losses and additional information, often hidden and estimated [25], companies calculate the costs of lost profits. With regard to the costs of environmental protection, the costs of using the environment, the costs of prevention for environmental protection, the costs of assessing environmental protection, the costs of non-adjustment to environmental protection requirements and the costs of restitution have been made. So far, quality costs and environmental protection costs have been an element often treated superficially in the accounting of enterprises, which results from the low and insufficient level of knowledge in this area and the lack of implementation of integrated management systems. The current situation on the markets forces enterprises to implement an integrated cost accounting of quality and environmental protection in order to be able to control their operations more easily and compete with other entities by improving the quality of the products/services offered in accordance with the concept of sustainable development. The purpose of the presented integrated cost accounting for quality and environmental protection (ZRKJiOŚ) is primarily to provide information on the development of

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quality costs and environmental protection costs in various sections, to show the impact of the separated costs on the company's financial results, as well as the possibility of using this data for in-depth financial analysis of the company. The ratio of the share of quality costs and environmental protection costs in total costs allows customers to assess how important it is for the company to care for quality and environmental protection in total costs. Such information can contribute to building a positive image of the company, which in turn can translate into greater customer interest and positive relationships with other stakeholders, such as employees, suppliers or investors. In addition, customers increasingly require companies to produce their products and services in accordance with quality and ecological standards. In practice, it is assumed that the share of quality and environmental protection costs in total costs may have a significant impact on the company's financial results [26]. To show the legitimacy of the implementation and benefits of the integrated cost accounting for quality and environmental protection (ZRKJiOŚ), the example of a limited liability company was used. from the service sector, using selected components of the ZRKJiOŚ in the business profile of the surveyed company. The analyzed company provides advisory services in the field of accounting, HR and payroll as well as tax advisory. It has its head office in Warsaw and two branch offices. It operates in the Mazowieckie and Łódzkie voivodships. It provides ongoing services to over 120 customers. In 2007, the company implemented a quality management system compliant with the ISO 9001:2015 standard. The cost of external services for the implementation of the quality management system in the audited company was PLN 10,760, which accounted for 2% of the company's total operating costs. This result shows that the costs of implementing a quality management system are not significant. And this means that entrepreneurs should not reject its use because of the implementation costs. A similar opinion on the cost of ISO implementation is held by the Quality Management Institute (ikmj.com). These costs were not included in the integrated cost account for quality and environmental protection of the audited company due to the time frame of the prepared ZRKJiOŚ – 2021–2022. The quality management system in the analyzed company has become a tool that enables it to raise the level of quality of services provided as a result of continuous improvement of methods and methods of operation, cost monitoring, which has a direct impact on ensuring the financial stability of the entity.

To prepare the ZRKJiOŚ (table 2), the source material of the audited company was used in the form of documents (invoices, bills, payrolls) confirming the occurrence of quality costs and environmental protection costs, entries in the accounts of the Optima

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financial and accounting system, reporting data for the period 2007–2022 and estimates presented in table 1.

Table 1. Summary list of assumptions used to prepare the Integrated Quality and Environmental Account for the period 2021–2022

No.	Assumptions used for calculations	2021	2022
1.	Number of hours worked in a month	168	168
2.	The number of employees employed	16	16
3.	Annual gross salary	1242 310 zł	1361870 zł
4.	Monthly salary of all employees	103 525 zł	113 489 zł
5.	The average monthly salary cost of one employee	6470 zł	7093 zł
6.	Average man-hour cost = gross salary cost/number of employees	38, 50 zł	42,00 zł
7.	The annual cost of social insurance for employees whose social insurance contributions are charged to the employer	236 381 zł	256 593 zł
8.	Monthly average social security cost of employees = Annual social security cost/ number of employees whose social security contributions are charged to the employer	19 698 zł	21 383 zł
9.	Monthly average cost of social insurance per employee	1231zł	1336 zł
10.	The cost of social security man-hours	7,30 zł	8,00 zł
11.	The total cost of an employee's man-hour	45, 80 zł	50, 00 zł
12.	The hourly cost of the internal auditor	74 zł	80 zł
12.	The total man-hour cost of the quality management representative	60, 00 zł	62, 00 zł
13.	The full cost of the manager's man-hour	82,00 zł	119,00 zł

Source: own study based on statements and reports of the audited company.

The summary of data presented in Table 1 allows not only to estimate the costs of quality and environmental protection. It can be used as a tool for monitoring development trends in the industry and adapting, for example, the company's remuneration policy to changing market conditions.

Until 2022, the audited company, despite having had a quality management system for 15 years, did not separate the costs incurred in the recording system – quality costs and environmental protection costs. Nor did it prepare a quality cost account, let alone an Integrated quality and environmental cost account. This state of affairs concerns the audited company as well as all its clients – 124. In the integrated account of the costs of quality and environmental protection of the analyzed company, the estimable and separate costs of quality and environmental protection incurred in 2021 and 2022 were identified (Table 2).



Table 2. Integrated cost account for quality and environmental protection costs of a company providing business consulting services, including accounting, payroll and tax services (2021–2022)

COST ITEMS	CURRENT PERIOD	PAST PERIOD
I.QUALITY COSTS	2022	2021
A. Costs of prevention/preventive activities:	PLN	PLN
1. Development of quality programs – external consulting cost, services invoice Internal (settlement number of man-hours)		
2. Development of quality programs – internal costs (hourly rate (1) x number of hours)	3570	2460
3. Implementation of the ISO 9001-2015 quality management system (development of full documentation, including the organizational context of the entity).		
4. Remuneration of the quality management representative	36 000	36.000
5. Suppliers evaluation	2976	2880
6. Process quality control	4284	4920
7. Maintaining and developing the quality management system	7500	5500
8. A. Training and development of employee awareness - external trainings		
9. B. Training and development of employee awareness - internal trainings (hourly rate of the manager conducting training (2) x number of hours)	1460	1400
10. Other costs		
B. Quality Assessment Costs:		
1. Testing and inspection of input materials		
2. Trial and inspection of own products/services		
3. Maintenance and calibration of test and inspection instruments		
4. Measuring equipment and testing equipment		
5. Document reviews/man hours (internal auditor)	5450	4540
6. Internal audits – (Valuation using used man-hours)	5600	5180
7. External Audit – Invoice	2500	2800
8. Other Costs		
C. Costs of internal non-compliance:		
1. Fixing defects (Quoting using man-hours used)	4800	4368
2. Unplanned breaks		
3. Repeated service/processing	6000	5460
4. Implementation of preventive actions, valuation using man-hours used	3000	2730
5. Other costs		

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D. Costs of external non-compliance:		
1. Creation of a complaints department		
2. Replacement of damaged products/part		
3. Repetition of the service (Price based on used man-hours)	550	400
4. Correcting the defect		
5. Discounts, rebates -ADJUSTING INVOICE-	3800	2400
6. Reimbursement – INVOICE		
7. Costs of specialists' opinions – EXTERNAL SERVICES		
8. Implementation of preventive actions – valuation of employee training	9500	21500
9. Other Costs		
E. Opportunity costs		
1. Loss of revenue due to the departure of existing customers		
2. Loss of potential customers (Number of meetings with potential customers, valuation of potential contracts)		
3. Loss of customer loyalty (Total revenue in year n / Number of customers in year n)	4980	3830
4. Costs of rebuilding customer loyalty		
5. Conflicts, disputes between departments (WORKING HOURS)		
6. Other Costs		
TOTAL QUALITY COSTS (A+B+C+D+E)	101 970	78 370
II.ENVIRONMENTAL PROTECTION COSTS		
A. Costs of using the environment		
1. Fees for using the environment.		
2. Eco taxes		
3. Charges for waste storage	1164	1164
4. Water consumption charges	7560	6132
5. Charges for electricity consumption	36160	12200
6. Other fees for using the environment (gas)	14800	12900
7. Fees for pollution removal		
8. Wastewater treatment costs		
9. Consumption of office supplies	11400	8946
10. Consumption of household materials	6450	5800
11. Car lump sum	25283	17004
12. Other Costs		
B. Costs of prevention for environmental protection:		
1. Employee training in the field of environmental protection,		
2. Ecological risk insurance costs,		
3. Amortization of fixed assets involved in preventing environmental non-compliance (photovoltaic panels)	41 000	

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Szczerbak M., Ostanek A.,(2023). Managing the Costs of Quality and Environmental Protection as an Imperative of Financial Security of Modern Enterprise

International Journal of Legal Studies, 2(14)2023: 335 - 352

DOI 10.5604/01.3001.0054.2719

4. Other Costs		
C. Environmental Protection Assessment Costs:		
1. Audit of environmental activities		
2. Product and process control		
3. Noise measurement in facilities		
4. Other Costs		
D. Costs of non-compliance with environmental protection requirements:		
1. Treatment and disposal of toxic waste		
2. Medical care due to air pollution		
3. Removal of the effects of ecological failures (in and outside the company, pollution of the lake, water, soil, air)		
4. Other costs		
E. Restitution costs:		
1. Costs incurred to replace used (destroyed) environmental resources i		
2. Costs of liquidation of the effects of the conducted production activity		
3. Other Costs		
TOTAL ENVIRONMENTAL PROTECTION COSTS (A+B+C+D+E)	143 817	64146
TOTAL QUALITY COSTS (A+B+C+D+E)	101970	78370
TOTAL QUALITY COSTS END ENVIRONMENTAL PROTECTION COSTS	245787	142516
I. TOTAL OPERATING COSTS	3 433 667	3 241 800
II. TOTAL REVENUE OF THE COMPANY INCLUDING REVENUE FROM ENVIRONMENTAL PROTECTION: SUBSIDIES, AWARDS, REVENUE FROM WASTE RECYCLING	3 894 099	3 488 313
III. ZYSK/STRATA NETTO	365 551	194 551
IV. PERCENTAGE SHARE OF QUALITY COSTS IN TOTAL COSTS	3,00 %	2,0%
V. PERCENTAGE SHARE OF ENVIRONMENTAL PROTECTION COSTS IN TOTAL COSTS	4,20 %	2,40%
VI. PERCENTAGE SHARE OF QUALITY AND ENVIRONMENTAL PROTECTION COSTS IN TOTAL REVENUE	7,20%	4,40%

(1) Average hourly rate in 2022 = Total Employment Cost / Number of Employees / 168 hours

(2) Average hourly rate in 2022 = Total Cost of Management / Number of Managers / 168 hours

Source: Own elaboration based on the systematics of costs presented in: Hansen, D.R, Mowen, M.M., Guang, L. (2007), Szczypa, P. (2011), Karmańska, A. (2007), Sadkowski, W. (2020).

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In 2021, the company generated a profit of PLN 194,551 with relatively insignificant costs of quality and environmental protection, constituting 4.40% of total costs in 2021 and 7.20% of total costs in 2022, in which the company recorded almost twice as much profit – PLN 365,551. The relatively low – 2.40% share of environmental protection costs in 2021 resulted from the lack of environmental policy in the surveyed company. Such a decision resulted in the inclusion of the company's costs in the traditional breakdown of costs by type. Identification of quality costs and environmental protection costs enabled the company to carry out activities in the field of environmental protection. In 2022, the share of costs increased to 4.20% – which resulted from the assumptions of the environmental policy developed and adopted by the management board, i.a. installing photovoltaic panels. Referring to the 2% share of quality costs in the total cost structure in 2021 and 3% in 2022, it should be stated that the company effectively manages the quality of its services, minimizes the occurrence of non-compliance, complaint costs and other quality-related expenses. The costs incurred also show that the audited company focuses on activities preventing non-compliance: it hired a quality management representative, organizes internal and external training, conducts internal audits, and manages risk. It is also worth emphasizing that lower quality costs are characteristic of the service industry because there is no risk of physical defects or complicated production processes. In the consulting industry, which is represented by the surveyed enterprise, there is a relatively frequent risk of non-compliance relating to frequently changing legal regulations. The analysis of the available documents, reports and financial statements shows that the audited company is improving and optimizing its processes to reduce this risk as well.

The managers of the company, analyzing the information from ZRKJiOŚ, have taken steps to improve the work before the next ZRKJiOŚ, which the company will prepare for 2023. Firstly, the accounting systems and processes will be supplemented with items of quality and environmental protection costs included in ZRKJiOŚ, secondly, the formulas proposed will be introduced by the authors to calculate/estimate costs that are difficult to measure, especially the costs of lost opportunities and the calculated indicators of quality and environmental protection costs [27].

The management board of the audited company decided to use the Integrated Quality and Environmental Protection Cost Account, excluding items specific to manufacturing companies.

The items of quality costs related to the prevention of non-compliances and the costs of lost opportunities, on the one hand, raised doubts among the management staff of the audited company as to the level of their estimation. On the other hand, these costs

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DOI 10.5604/01.3001.0054.2719

were considered important because they affect the results achieved, especially when making decisions with high risk and volatile market conditions. They will therefore be estimated and compared to previous years.

Conclusion

Contemporary trends in the approach to running a business force entrepreneurs to take action and implement the best practices in the field of environmental management and quality.

The authors propose a new cost management model – Integrated quality and environmental cost accounting, which can be an important aid in measuring the costs of quality and environmental benefits in making management decisions and achieving the adopted goals at all levels of activity. This account comprehensively and multifacettedly covers economic issues in the field of company activities for the quality of services provided or manufactured products and environmental protection, proposing the possibility of financial reflection of complex ecological and quality processes on the basis of the accounting system.

The analysis of the Integrated Quality and Environmental Cost Accounting in the audited service company made it possible to formulate the following conclusions regarding the benefits that may result from its application:

- Implementation of quality cost accounting will make it possible to organize information on quality costs, indicate problem areas, dependencies between groups of these costs and environmental protection costs.
- Identifying and separating the costs of quality and environmental protection increases the transparency and control of these costs and minimizes the risk associated with improper management of these costs.
- ZRKJiOŚ makes it possible to identify activities that do not bring value to the services provided from the customer's point of view, lead to a waste of resources and generate additional costs,
- ZRKJiOŚ helps to reveal areas where actions should be taken to protect the environment, diagnose areas of improving the quality and efficiency of operation.
- An integrated cost account for quality and environmental protection gives a sense of security, certainty of functioning and development, as well as guarantees of their preservation, which is indicated by the costs of preventive measures to protect against an excess of weaknesses and a deficiency of strengths of the enterprise. The definition of a company's financial security

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includes not only the problems of the company's ability to maintain and achieve liquidity and financial solvency, but also profitability, which is ensured by the high quality of services provided and environmental protection activities expected by customers.

In the light of the formulated conclusions, the authors postulate the continuation of research in the field of identifying quality costs and environmental protection costs and their impact on the company's results, as well as assessing the usefulness of the proposed integrated quality and environmental protection cost accounting, taking into account the division into industries and sectors in which enterprises operate. It is also recommended to separate the segment of quality and environmental protection costs in the profit and loss account, which will allow external users to better understand the company's commitment to improving quality and environmental protection and to draw conclusions about its sustainable development strategy. It will also enable the company's results to be compared with other enterprises in terms of its activities in the area of quality and environmental protection.

The use of new cost management solutions, such as integrated cost accounting for quality and environmental protection, by enterprises, especially from the SME sector, will prove the increasing market maturity of such entities.

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