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ADAPTING THE ORGANIZATION OF A COMPANY'S ACCOUNTING POLICY TO INCLUDE ENVIRONMENTAL ASPECTS ŚRODOWISKOWA ORGANIZACJA

RACHUNKOWOŚCI

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Summary: Business entities are obliged to keep accounting records in accordance with specific and internally adopted accounting principles (policy) whose basic element is a chart of accounts. Entities are obliged to follow the adopted accounting principles in a reliable and transparent way and to present a financial situation, a financial result and the non-financial aspects of business activities.. The purpose of the article is to define the essence of the organization of accounting principle (policy) in a business entity and to describe desirable changes in the accounting policy and a chart of accounts as a condition for adapting a business entity to including environmental aspects. Apart from the introduction and the conclusion, the article includes three elements focusing on such issues as: accounting as a generator of information on environmental protection, a theoretical analysis of the organization of accounting principles (policy), and a model perspective of environmental accounting principles (policy) and a sample chart of accounts.

Keywords: natural environment, organization of accounting, accounting, chart of accounts, accounting principles.

Streszczenie: Jednostki gospodarcze zobligowane są do prowadzenia rachunkowości zgodnie z określonymi i przyjętymi wewnętrznie zasadami (polityką) rachunkowości, której podstawowym załącznikiem jest plan kont. Wzrastające zainteresowanie ochroną środowiska oraz działalnością proekologiczną przedsiębiorstw determinuje zmiany w organizacji współczesnych podmiotów gospodarczych. Cele artykułu to określenie istoty organizacji zasad (polityki) rachunkowości w jednostce gospodarczej oraz charakterystyka pożądanych zmian w polityce rachunkowości i planiu kont jako warunku dostosowania jednostki gospodarczej do ujmowania aspektów środowiskowych. Osiągnięciu tego celu podporządkowano układ artykułu oraz wykorzystane metody badawcze obejmujące studia literatury przedmiotu oraz analizę opisową. W artykule, poza wstępem i zakończeniem, wyodrębniono trzy punkty poświęcone zagadnieniom rachunkowości jako generatora informacji o ochronie środowiska, teoretycznej analizie organizacji zasad (polityki) rachunkowości oraz modelowemu ujęciu środowiskowych zasad (polityki) rachunkowości wraz z prezentacją wzorcowego planu kont.

Słowa kluczowe: środowisko przyrodnicze, organizacja rachunkowości, rachunkowość, plan kont, zasady rachunkowości.

1. Introduction

The management of environmental protection is a process which has continued for a long time now and is one of the priorities implemented by many countries in Europe and around the world. Economic globalization and the transnational character of environmental protection necessitate the intensification of tasks in this respect. These activities are reflected in European Union legislation, strategies and many environmental programmes. International environmental policy dates back to the 1970s. During the first environmental conference of the United Nations, which was held in Stockholm in June 1972, the Declaration of the United Nations Conference on the Human Environment was proclaimed [Report... 1972]. It was the first international document referring to environmental protection which indicated the need to adopt common principles and cooperate internationally for the environment, thus ensuring that economic development is compatible with the need for environmental protection and improvement. Over the next few years, the environmental policy was enhanced and extended over new areas of activities, and adapted to current environmental needs (among others, the Single European Act (SEA) (1987),¹ the Maastricht Treaty (1993), the Treaty of Amsterdam (1999), the Treaty of Lisbon (2009),² the Treaty on the Functioning of the European Union

¹ SEA (OJ L 169, 29.6.1987) was the first legal act regulating a common European policy in terms of environmental protection and setting its priority objectives. The key tasks formulated in the SEA included preserving, protecting and improving the quality of the environment, ensuring the protection of human health and using natural resources sustainably and rationally.

² Treaties: Maastricht Treaty of 1993 (OJ C 191, 29.7.1992), Treaty of Amsterdam of 1999 (OJ C 340, 10.11.1997) and Treaty of Lisbon of 2009 (OJ C 306, 17.12.2007). These treaties extended the competences of the European institutions and the scope of activities for environmental protection and sustainable development.

(TFEU) (2012)).³ The development of the environmental policy is supported by numerous conventions, programmes, strategies, protocols and international agreements with regard to environmental protection. These multifaceted activities contributed to the increase of funds for environmental protection by the EU Member States; in the period 2000-2017 the government expenditure of the EU Member States increased from EUR 15.2 to 29.4 million (Eurostat, database).

A very important issue in terms of environmental policy is reliable information on the state of the natural environment and the factors affecting its changes, as well as on the environmental impact of business entities. In order to meet these needs, there has been an EU initiative to extend national accounts over the issues connected with sustainable development and to develop the System of Environmental Economic Accounts (SEEA) which currently have their legal basis in Regulation (EU) No 691/2011 of the European Parliament and of the Council of 6 July 2011 on European environmental economic accounts [Regulation... 2011]. This regulation stipulates a common framework for the collection, compilation, transmission and evaluation of European environmental economic accounts as satellite accounts to the system of national and regional accounts in the Community (ESA 95), by determining common methodology, standards, definitions, classifications and accounting rules intended to be used for compiling environmental economic accounts. Environmental economic accounts which are compiled within the common framework are grouped in the following parts: a module for air emissions accounts and a module for environmentally related taxes by economic activity (Art. 3 of the Regulation).

The environmental policy demands were also transferred to accounting and a new field was created – environmental accounting whose aim is to include the environment and its welfare in economic processes. In the 1980s, green accounting was introduced for the general public by the economist, Professor Peter Wood [Ligi 2014, p. 44].

Accounting is connected with the development of skills in measuring, recording, counting and processing information, thereby formulating economic information. Modern accounting is oriented at retrospective measurement and reporting, and it should also enable prospective measurement predicting the results of activities and risk assessment [Nowak 2013, pp. 497-505]. Accounting is a universal and flexible information and control system reflecting the course and results of a company's activities [Micherda, Świetla 2014, p. 12]. Business entities are obliged to keep accounting records in accordance with specific and internally adopted accounting principles (policy) whose basic element is a chart of accounts.

The most important product of the accounting system is information. Information constitutes data converted into a meaningful and useful context [Baltzan, Phillips

³ Art. 3. TFEU (OJ C 326, 26.10.2012) stipulates that the EU "shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment".

2009, p. 10]. Information is used to make economic, ecological and social decisions. M.C. Minimol. and K.G. Makesh [2014, p. 28] developed an innovative model of environmental accounting which specifies six aspects which should be covered in environmental accounting to measure the ultimate environmental performance of business entities and to facilitate bookkeeping and environmental reporting. According to the authors, this model should involve:

- identifying environmental reporting parameters,
- defining environmental reporting parameters,
- specifying the environmental targets to be achieved,
- developing the environmental performance parameters,
- measuring the environmental performance parameters,
- reporting the environmental performance results.

Growing interest in environmental protection and the ecological activities of enterprises determine changes in the organization of modern business entities which concern identification, measurement, keeping accounting records, valuation and presentation of the effects of business entities' activities, including ecological activities, in financial statements. Environmental accounting enables understanding the role of the natural environment in economy [Hecht 1997]. As N. Zameer Qureshi et al. [2012, p. 87] demonstrated, together with reporting, it should be a necessary element of a business strategy. Changes in the accounting systems of entities are mainly determined by corporate social responsibility in a broad sense which means responsibility of a given company for the business activity it conducts – making a profit and balancing financial and non-financial goals, environmental and social (for further details see: [Krasodomska 2017, pp. 15-19; Śnieżek, Krasodomska, Szadziewska 2018; Gierusz, Martyniuk 2009; Słodowa-Hełpa 2013; Rogall 2010; Scherhorn 2009, p. 52; Pezzy 1989, pp. 321-362; Holme, Watts 2000, p. 9; Eccles, Krzus 2010, pp. 10-11]).

The purpose of the article is to define the essence of the organization of accounting principle (policy) organization in a business entity and describe desirable changes in the accounting policy and a chart of accounts as a condition for adapting a business entity to include environmental aspects. The article is structured in such a way so that the established goal is achieved and the author used such research methods as the study of literature and a descriptive analysis. Apart from the introduction and the conclusion, the article includes three elements focusing on such issues as: accounting as a generator of information on environmental protection, a theoretical analysis of the organization of accounting principles (policy) and a model perspective of environmental accounting principles (policy) and a sample chart of accounts.⁴

⁴ The project is financed within the framework of the programme of the Ministry of Science and Higher Education under the name "Regional Excellence Initiative" in the period 2019-2022; project number 001/RID/2018/19; the amount of financing is PLN 10,684,000.00.

2. Accounting as a source of information on environmental protection

Accounting combines science and practical activities, and functions in a business entity as part of the assets. In the literature, accounting is defined differently, however, it is always described as a kind of system. Accounting as a system selects, collects and presents data as well as analyses and discloses information concerning conducted business activity [Orzeszko, Bąk 2017, p. 9]. In the accounting system, financial and economic information is issued in the form of reports and statements which may be used by information users to fulfil the management function. Accounting is treated as an information system and it is "the language of business" [Crandall 1969; Feltham 1968; Smith 2015, pp. 1-2; Skoczylas, Dziadul 2018, p. 118].

Accounting provides financial and non-financial information. It can be used to generate information on financial, social and environmental activities and processes. Information coming from the accounting system regarding corporate activities for the protection of the natural environment may concern the past, present and future [Filipiak et al. 2010, p. 9]:

- current and fixed assets involved in activities for environmental protection,
- own and external sources of financing activities for environmental protection,
- expenses and costs arising from tasks in the field of environmental protection,
- cash inflow from ecological activity,
- costs of regular activities of a business entity arising from environmental protection, including optimization of operating costs (cf. [Zimon, Zimon 2019a, pp. 47-51; 2019b, pp. 60-73]),
- costs of investments connected with the protection of the natural environment.

Demand for data and information about corporate activities for the protection of the natural environment is growing. The accounting system is involved in the activities of business entities concerning the protection of the natural environment in terms of, among others [Szczypa 2008, p. 29]:

1. Including environmental protection in corporate finance management (expenses, costs, income, inflows).

2. The requirement of estimating the impact of a given entity's activity on the external environment.

3. Estimating costs of and benefits from new investments, including ecological ones, in terms of obtaining external financing, for example as part of EU programmes or special-purpose funds.

4. Growing demand for information concerning environment-friendly products and services (sustainable packaging, products without "improvement agents", sustainable transport, environmentally-friendly materials).

More in studies by: R.L. Burritt, T. Hahn, S. Schaltegger [2002, pp. 39-50]; G. Lamberton [2005, pp. 7-26], A. Szadziewska [2013], B. Zyznarska-Dworczak [2019]. In terms of activities for environmental protection, the accounting system distinguishes the information function whose execution is determined by detailed functions presented in Table 1.

Table 1. Detailed target functions as a supplement to the information function in environmental
accounting

Detailed target functions	Description	Specification			
Tunctions					
	1	inancial accounting			
1. Recording	Connected with	recording taxes			
and	records of financial	 recording environmental fees and penalties 			
documenting	transactions on	 recording fixed asset depreciation 			
	bookkeeping accounts	• recording ecological investments (expenses + costs)			
		recording salaries			
2. Controlling	Connected with the	• external processes (contacts, cooperation)			
	protection of resources	 fixed assets and construction in progress 			
	and assets against	• own and external cash			
	corruption, abuses,	inventory management			
	maladministration	• reaction to risk connected with environmental activities			
		human capital management			
3. Reporting	Connected with	• reports, statements, plans, life-cycle assessment,			
	preparing obligatory	• timetable of activities and tasks in terms of environmen-			
	and optional reports	tal protection,			
		educational activities,			
		• environmental profit and loss account,			
		• engaging human capital in environmental protection			
		tasks			
	Ma	nagement accounting			
1. Optimization	Connected with	optimization of production activities and processes			
1	creating foundations	effective resource management			
	for making choices	• high effectiveness of educational activities (nature and			
	and taking decisions,	forest education)			
	including ecological	 raising the awareness of employees, consumers and co- 			
	ones	-operators			
2. Motivation	Connected with	• creating a system of various indicators of achievement			
	providing diverse	 developing a system of measures and indicators to exa- 			
	information on	mine the effectiveness of ecological activities			
	business entity	 devising a system of involving employees and assess- 			
	activities in terms	ment criteria of their involvement in ecological activities			
	of financial,				
	economic, social and				
	environmental aspects				
	environmental aspects				

Source: own study on the basis of [Filipiak et al. 2010, pp. 10-12; Sadowska 2019, pp. 127-143; Szczypa 2012, pp. 62-66]. The information function with the support of detailed functions contributes to generating financial information which is included in accounting ledgers such as a journal, a general ledger, subsidiary ledgers, a trial balance and inventory.

Information is reflected in financial statements, i.e. in a balance sheet, a profit and loss account, a statement of changes in equity and a report on company's operations. All these bookkeeping and accounting activities are conducted on the basis of principles (accounting policy and a chart of accounts).

3. Theoretical approach to the organization of accounting principle (policy)

Accounting as an economic information system is subject to organization which enables the smooth operation of its particular elements. The organization of the accounting system can be divided according to information and organization with regard to the accounting department. The organization of accounting with regard to information mainly includes [Foremna-Pilarska, Radawiecka 2007, p. 74]:

- accounting documents,
- accounting records,
- internal control, including inventory,
- reporting.

The organization with regard to the accounting department mainly includes [Foremna-Pilarska, Radawiecka 2007, p. 74]:

- developing an internal organizational structure of the accounting department,
- selecting employees working in the accounting department,
- · dividing tasks among employees of the accounting department,
- technical equipment for the department.

In order to ensure that the accounting system functions properly, the areas involving the scope of the organization of the accounting system in a company have to be determined and connected with each other.

Manager of a given business entity are responsible for organizing and keeping the accounts, whereas each company keeping the accounts has to have the adopted accounting principles (policy) in writing. The accounting solutions adopted by a business entity should result from the Accounting Act and other regulations such as taxation acts or regulations concerning a given industry. Moreover, accounting principles (policy) should be consistent with the specific activity of an entity, its size, legal form, management and control needs [Pałka 2018, p. 13; Kabalski 2009, p. 11; Remlein 2007, p. 304].

The principles of the accounting organization can be divided into [Winiarska (ed.) 2011, p. 15]:

- 1. Planning and control principle.
- 2. Principle of rational division of labour.

As part of the planning and control principle, there should be guidelines concerning documenting the accounting principles, a chart of accounts and a description of the computer software used. Moreover, one should devise instructions for accounting documents and their circulation, an inventory plan as well as determine the course of reporting works, an organizational chart and a detailed plan of the work of the accounting department. The principle of rational division of labour involves creating positions necessary for completing accounting tasks and devising scopes of activities for particular positions as part of the accounting department [Kiziukiewicz 2002, pp. 12-13].

A proper organization of the accounting system also requires [Kiziukiewicz 2002, p. 13; Ossowska, Szczypa 2004, pp. 56-65]:

- observing applicable legal regulations,
- being familiar with accounting forms and techniques,
- determining and analysing the information needs of various groups of stakeholders,
- defining the subject of records on the basis of accounting documents.

One of the key elements of the accounting organization is creating a chart of accounts. A sample chart of accounts is a list structured in terms of economic content which includes particular names and symbols of accounts as well as the way of grouping business transactions on these accounts. Accounts are grouped according to classes from 0 to 8 and include: fixed assets, cash, settlements and claims, materials and goods, expenses according to types and kinds of activity, products and accruals, income and costs, equity (for further details see: [Sawicki (ed.) 1997, pp. 83-88; Nowak 2000, pp. 114-116]).

A chart of accounts has a subjective character which means that it should be created in such a way so that it facilitates completing all the tasks and fulfils the information needs of a business entity and its stakeholders. The most important elements of a chart of accounts are presented in Figure 1.

a list of general	principles	01 45501	principles of	other rules
and subsidiary	of the functioning		establishing	(e.g. costing
accounts	of accounts		the financial result	methods)

Fig. 1. Key elements of a chart of accounts

Source: own work on the basis of [Foremna-Pilarska, Radawiecka 2007, p. 78].

A chart of accounts is a numerical list of accounts set where financial data is recorded to enable the proper preparation of financial statements and reports for information users.

4. Environmental accounting principles (policy) and a sample chart of accounts – model approach

Environmental accounting reflects the course and results of business activity in terms of its environmental impact [Gray, Bebbington 2001, p. 16]. Environmental accounting should generate and disclose information on environmental costs to stakeholders who would be motivated to identify methods for reducing these costs or avoiding them, therefore, they would try to improve the quality of the natural environment [United States Environmental Protection Agency, 1995, p. 18].

As P. Szczypa [2012, p. 185] rightly emphasises, accounting for environmental protection purposes requires relevant ecological information (economic information) which determines the possibility of its existence. Economic information and accounting should be always considered as being mutually related. According to the Public Accounts and Estimates Committee [1999, p. 9], environmental accounting is the process of bringing information about the environment, and the impact of human activities on it. In the future, this information determines making management decisions. Environmental accounting is a part of accounting that takes account of environmental costs. It is a system which involves collecting information constantly and regularly about activities and processes with regard to the protection of the natural environment.

The most important areas which fall within the interest of environmental accounting are [Węgrzyńska 2013, pp. 98-99; Sadowska, 2019, pp. 135-136]:

- consumption of energy and materials,
- waste type and value,
- waste disposal and packaging management,
- environmental investments, expenditures, costs,
- environmental budgeting,
- measurement, identification, valuation and disclosure of environmental phenomena.

The most significant challenges that the accounting system currently faces include: defining environmental terminology, registering and controlling environmental projects in order to allocate and record them properly, establishing the methods and instruments of measurement and valuation of environmental phenomena, obtaining information and providing it to information users.

The accounting policy (principles) for the purposes of environmental accounting should be specified in particular in terms of the methods of the valuation of assets and liabilities which are part of company's ecological activities. Basic changes should be also introduced to a corporate chart of accounts, especially to the class in which the records of costs are kept, or income connected with the environmental activities of a company. The proposal for changes in the accounting policy of a business entity is presented in Table 2.

	r enanges in the decounting	s poney (principles) selected aspects
Accounting policy instruments	How to adapt them to generating environmental information	Examples
Accounting books (a general ledger and subsidiary ledgers), a journal, registers, inventory	by modifying a chart of accounts or adapting particular classes, mainly 4, 5, 7 (costs and income) to registering environmental events	 consumption of materials for the purposes of environmental activities, consumption of energy remuneration for employees participating in tasks for the environment costs of activities for saving resources costs of treatment, revitalization, nature and forest education
Valuation methods	by applying new valuation methods to environmental activities by developing new valuation guidelines and standards	 valuation of inventories of finished goods or work in progress involved in environmental activities determining the value of the financial result by taking account of elements from activities for the environment valuation of fixed assets and construction in pro- gress used in environmental activities valuation of liabilities involved in environmental activities, especially incurred liabilities (credits, loans)
Chart of accounts	by structuring and adapting, as part of specific classes, accounts to keeping records of environmental activities	 fixed assets intended to be used for environmental activities cash, including short-term securities, connected with ecological activities settlements and claims with contractors involving, among others, ecological activities purchase of materials and goods for ecological purposes, i.e. nature and forest education, 'environmental picnics' costs incurred as a result of current activities for the natural environment products used to perform environmental tasks and accruals income from ecological activity subsidies, extraordinary losses and profits

Table 2. Proposal for changes in the accounting policy (principles) - selected aspects

Source: [Zysnarska 2006, p. 27, 8344-45; Sadowska 2019, pp. 133-134; Szczypa 2012, pp. 63, 69].

Environmental accounting requires changes in the corporate chart of accounts. These changes should involve general ledger accounts which include the company's ecological activity. An example of such a solution is presented in Table 3 (including the general level of a chart of accounts, according to classes).

	Class		
Account name	Fixed assets		
1			
Fixed assets Construction in progress Intangible assets	 fixed assets connected with environmental activities, shelters, car parks, buildings, forester's lodges, machines, investments connected with building an incineration plant, a sewage treatment plant, wind farms, depreciation of fixed assets used for the purpose of ecological activities, water treatment machines with improvements fixed assets for sewage treatment machines for retaining and neutralizing gaseous pollutants equipment for noise and vibration protection machines for sewage sludge treatment licences for clean technologies costs of development works for environmental protection 		
	Cash		
Cash (in hand and at bank) Bank credits, loans	 environmental penalties, environmental fees, withdrawals or deposits for public and private compensation, court fees taken out in connection with the performance of new tasks or environmental investments 		
	Settlements and claims		
Settlements with providers and recipients Other settlements	 settlements and claims connected with ecological activities, i.e. for tra- ining, workshops, printing brochures concerning environmental acti- vities and settlements connected with them granting a loan to the company for ecological purposes, the received loan from a shareholder which should be used for environ- mental education 		
	Goods and materials		
Materials Goods	 purchase of materials and goods necessary for conducting environmental activities, educational materials, paper, books, valuation of stocks of materials and goods, e.g. purchased clothes – t-shirts with a company logo promoting environmental activities there should be a separate subsidiary account, e.g. "Waste for recycling", "Waste for resale" 		
Demagistics	Costs according to types and places where they have been incurred • depreciation of buildings, fixed equipment, machines and devices used		
Depreciation Materials and energy consumption Outsourced services Taxes and fees Salaries and overheads Renovation Supporting activities Outsourcing services Overheads	 depreciation of buildings, fixed equipment, machines and devices used only for environmental activities material consumption, electric energy and heat consumption, water consumption for conducting ecological activities renovation, transport, logistic, printing, IT, advisory services connected with achieving environmental objectives, e.g. developing or reconstructing a website, printing leaflets and brochures for environmental education purposes pollution charges remuneration for employees engaged directly or indirectly in company's ecological activities, allocation according to keys for indirect costs, incentives, environmental bonuses 		

Table 3. A chart of accounts adapted to a company's environmental activity

1	2		
	 renovation of fixed assets, machines and equipment used for environmental purposes, e.g. shelters, an education trail located at company premises rental of equipment for ecological activities, purchase of software 		
	• costs of the prevention of environmental degradation		
	 costs of pollution reduction costs of environmental restoration 		
	Products and accruals		
Costs of fixed asset renovation	accrued costs of the renovation of fixed asset used for environmental purposes		
	Income and costs related to them		
Financial income Financial costs Other incomes and operational costs	 dividends from shares acquired in connection with ecological goals exchange differences on transactions concerning environmental activities revenues from the sale of environmental fixed assets redemption of liabilities connected with environmental activities costs of liquidation of fixed assets costs of the sale of industrial waste costs of other protective measures Equity and financial result 		
Equity Financial result	 environmental fund shares donations for ecological purposes contributions in kind the financial result which is divided by taking account of future needs in terms of environmental goals 		

Table	3,	cont.
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Source: own study on the basis of [Węgrzyńska 2013, pp. 101-107; Majchrzak 2008, pp. 253-257].

Change in the environmental awareness of the society means that companies are forced to take account of the ecological consequences of their business activities in order to minimize their negative impact on the environment. Changes introduced to the accounting policy and a chart of accounts will determine generating information on such phenomena, thus contribute to the increasing acceptance of the activities of business entities. It should be noted, that these changes will depend on the size of the entity and the activities conducted: production, service or trade. They should be individually designed.

5. Conclusion

Accounting policy (principles) together with a corporate chart of accounts have a normative character, and constitute an internal standard referring to creating organizational rules and operating the accounting system in a business entity. The reasons for developing a chart of accounts in the environmental accounting system result from its tasks and features, whereas its purpose is to express a perception and presentation model of economic status and processes inherent in accounting [Szychta 2001, p. 111]. The information obtained from the environmental accounting system should provide knowledge of [Kiziukiewicz, Majchrzak 2005, p. 103]:

- the level of damage to the environment due to human activity,
- the state of ecosystems and their sensitivity,
- the consequences of applying environmental policy methods and tools,
- expenditure and costs as well as the effects of environmental management. The purpose of the article was to define the escence of the organization

The purpose of the article was to define the essence of the organization of the accounting principle (policy) in a business entity and describe the desirable changes in the accounting policy and charts of accounts as a condition for adapting a business entity to including environmental aspects. Among the proposed changes in the accounting policy (principles), the authors suggested modifying a chart of accounts by adapting it to the company's environmental activities. The chart can be structured differently depending on the needs of the specific business entity.

The changes introduced to the accounting policy and the chart of accounts should ensure a reliable and true picture of the environmental impact. The information collected in the environmental accounting system should enable the assessment of the attitude of the business entity towards the natural environment and the impact of the conducted business activities on its surroundings as well as a company's financial result.

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