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*The Functioning of the Accounting Information System Based  
on the Conception of Activity-based Costing*

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Funkcjonowanie systemu informacyjnego rachunkowości w oparciu o koncepcję rachunku kosztów działań

**Keywords:** accounting information system; activity-based costing; process; activity; cost object

**Słowa kluczowe:** system informacyjny rachunkowości; rachunek kosztów działań; proces; działanie; obiekt kosztów

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### **Introduction**

The accounting information system is responsible for providing a significant part of quantifiable information used by managers in the decision-making process. Just like any other part of the enterprise, it needs to function effectively. This means that the recipients will receive all the required information and the costs of preparing this information should be kept as low as possible. Knowing the costs of accounting therefore plays a crucial role in managing this sphere of business operations. Therefore, it is appropriate to apply the methodology of activity-based costing (ABC) to obtain the exact cost information, thus forming the basis for decision-making.

The objective of the article is identification and descriptive processes and activities performed in the accounting information system and also to present strengths and weaknesses of using a process approach to determine the cost of the functioning

of the investigated system. Achieving this objective required conduction of analysis of literature and an analysis of how accounting is kept in selected enterprises (information came from observations and free-form interviews conducted with the staff of the financial and accounting departments). The main result of the research is a detailed description of the activities in the accounting information system. These activities cause consumption of resources and therefore generate costs.

### **1. Reasons for the application of the activity-based costing methodology to managing the accounting sphere**

In Poland, accounting regulations require economic units to use the cost accounting system, which in its assumptions corresponds to the model of full costing [Turyna, 1997, p. 96] and consequently demonstrates numerous imperfections. For example, they result from the top-down way of classifying and accounting for the costs of basic operating activities, which may lead to incorrect calculation of product cost [Wnuk-Pel, 2006, p. 26]. From the point of view of evaluating the accounting system, the usefulness of reporting cost accounting is very small. Entities record the costs of non-production activities only within two functions: as a cost of sales or a cost of general management [The Act of 29 September 1994 on accounting, Annex No. 1: Profit and loss account (calculation variant)]. Accounting costs are the accounting departments' costs, which are a subset of the cost of general management, as well as costs incurred outside these departments, which are assigned to products. Therefore, without detailed analytical records, it is impossible to determine the full costs related to accounting.

Economic entities interested in measuring and improving the functioning of their accounting systems must therefore look for new solutions, the most appropriate of which is the concept of activity-based costing (ABC). Its advantages derive from two basic causes:

- activity-based costing calculates the exact cost of different objects, not just tangible products [Miller, Pniewski, Polakowski, 2000, p. 8],
- activity-based costing takes into account the interrelationships between different organizational units of the company that carry out the same activities [Wnuk-Pel, 2006, p. 26].

We should also not overlook other advantages of the process approach. It allows, for example, identifying specific reasons for costs. According to the ABC concept, the direct reason for incurring costs is consciously carried out activities that engage and consume resources [Nowak, 2016, pp. 210–211]. The place of cost formation is irrelevant. Therefore, assuming the methodology of the process approach, it should be assumed that the accounting costs are generated not so much by the organizational units dealing with accounting as by the activities that accounting requires. It is also worth identifying the actual reason for performing these activities, for which infor-

mation needs reported by recipients should be recognized. Accounting departments function to provide information for entities that use this information when making decisions. Therefore, it is not possible to attribute full responsibility for the costs of accounting to the accounting departments, and at least part of this responsibility should be taken over by users of the information. The suitability of activity-based costing is also related to the planning sphere. Based on information about the costs incurred, it is possible to estimate the amounts of future costs.

Ranking the aforesaid arguments allows us to posit a thesis that activity-based costing should be applied in enterprises to the study of the accounting information system. This is because reporting cost recognition does not allow obtaining sufficiently accurate data that could be included in the conducted analyses, thus making it difficult to make management decisions.

## 2. Activities performed in the accounting information system

Implementation of activity-based costing in an enterprise unit must be preceded by the definition of activities that are carried out in it [Kaplan, Cooper, 2002, p. 115]. The activity is, after all, the essence of a process-based approach and should be understood as a deliberate work, during which the resources of the enterprise are used [Świdarska, Pielaszek, Rybarczyk, 2003, pp. 3–42]. The concept of ABC also employs terms such as “process” and “action”. The process is a sequence of interrelated activities performed to achieve the desired effect [Nowak, 2016, p. 213]. Action in turn should be treated as individual tasks performed by a machine or a person [Bryła, Rumniak, 2003, p. 200].

In the ABC system, the most important role is played by activities because they are used to control costs. Processes may be too heterogeneous to analyse costs in their cross-section, while the use of elementary actions for this purpose would unnecessarily complicate the model. A key process that is used to conduct accounting can be thus called “providing reporting and managerial information”. The reporting information pertains to past economic events as defined by applicable regulations and is included in financial statements, tax returns and statements prepared for statistical purposes. Managerial information relates, however, mainly to the present and the future, and the form of their presentation is only the needs reported by management [see Bujak, 2013, pp. 23–24]. Based on observations and interviews, a detailed analysis of the functioning of the accounting system allows distinguishing, as part of key processes, the individual activities and the most important actions that are presented in Fig. 1.

Providing information to recipients requires, in the first place, the implementation of action called “preparation of source data”. It covers activities preceding the proper processing of data, above all:

- obtaining accounting data in the form of information about economic operations,

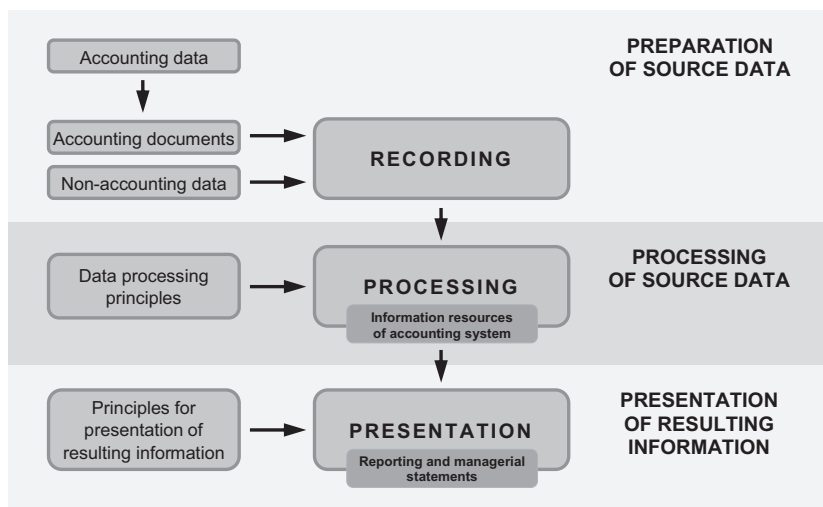


Fig. 1. Actions and activities related to the operation of the accounting information system

Source: own study.

- obtaining non-accounting source data,
- preparation of accounting documents,
- control of accounting documents,
- control of non-accounting source data,
- decreeing accounting documents,
- recording of accounting documents in accounting ledgers,
- recording of non-accounting source data in any of the recording devices for management needs (e.g. in paper or electronic files, spreadsheets, databases).

The next stage of works related to accounting, and the second separate activity, is the “processing of source data”. Its purpose is to transform data into information that the recipient needs. Among the activities performed within the discussed activity, we can identify:

- developing procedures for transforming accounting and non-accounting source data to bring them to the form expected by the recipient, e.g. formulating principles for preparing individual components of financial statements or tax returns based on turnover and balances of relevant accounts, defining methods of preparing management reports,
- preparation of accounting and non-accounting recording equipment for registration of source data (opening accounting ledgers, setting up paper or electronic files, creating ready-to-use spreadsheets, databases, etc.),
- performing calculations related to transforming accounting and non-accounting source data into resulting information, both by means of IT tools and manually,

- archiving information resources of the accounting system, including source data and information obtained as a result of processing.

The last activity is the “presentation of resulting information”. The most important actions required to implement this activity include:

- preparation of paper or electronic forms used to present the resulting information,
- giving the resulting information a form required by users, e.g. printing financial statements and tax returns, preparing paper or electronic reports for management purposes,
- providing the generated information to users, e.g. publication of financial statements, sending tax returns, submitting management reports to management.

Accounting in business units requires additionally other activities that cannot be directly related to providing information. These are auxiliary activities, and they are part of processes that have a connection not only with accounting, but also with other business unit segments, e.g. production, marketing or sales. These processes can be described as “business management” and “technical-administrative support of the company’s activity”.

The activity to be distinguished in the “business management” process is “accounting system management”. It primarily involves the middle and high level management staff, who perform, for example, actions such as:

- making decisions regarding the organization of the accounting sphere (including the development of decision options, their analysis, and then the selection and adoption of a specific decision),
- training of human resources,
- motivating and controlling employees,
- researching the efficiency of accounting.

“Technical-administrative support of the company’s activity” includes three activities that are extremely important from the point of view of accounting. The first is “ensuring the proper functioning of computer equipment”, which is associated with ongoing maintenance and repairs of equipment, IT infrastructure, ad hoc technical and software support and securing devices against unauthorized access or threats from malicious software coming from the Internet.

The second activity is “ensuring adequate working conditions for those in employment”. It involves, for example, cleaning, protection of real estate and movable property, lighting, heating and ongoing renovation of buildings. In practice, the costs associated with it are very difficult to directly assign to specific organizational units, and even more to the activities, because they concern all areas of the economic unit.

The third activity identified as part of “technical-administrative support of the company’s activity” is “personnel and administration services for employed persons”. This includes preparation of documents related to employment, keeping personal files of employees or organization of social care by the employer. Fig. 2 presents a synthetic summary of the processes and activities necessary to conduct accounting.

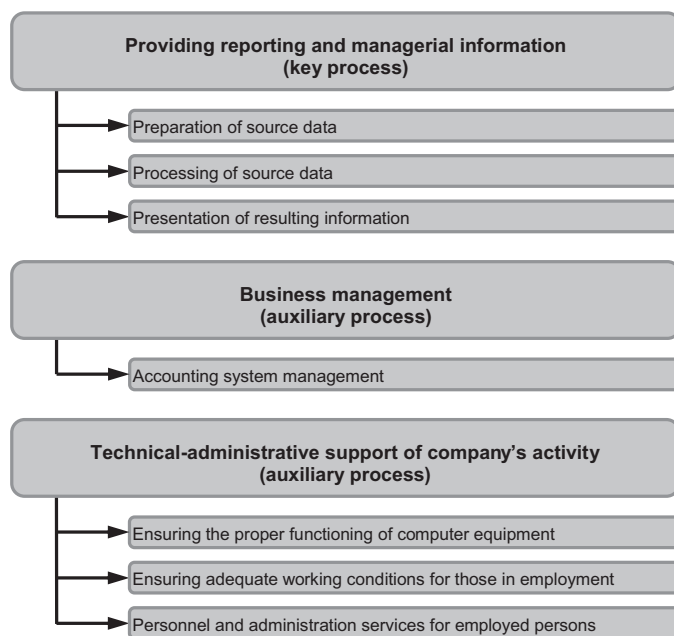


Fig. 2. Processes and activities carried out in enterprises in connection with accounting

Source: own study.

### 3. Cost objects related to accounting

The application of the ABC concept to the accounting system additionally requires identification of cost objects, for which the cost measurement is deliberate [Miller, Pniewski, Polakowski, 2000, p. 8]. From the viewpoint of the accounting system, three objects can be identified: resulting statements, information recipients and data providers.

Each statement contains many detailed items. Because the recipients expect satisfaction of their information needs in this form, the cost estimation of a single statement plays a key role in researching the efficiency and management of the accounting sphere. Generated sets of information often significantly differ from each other, so as a consequence, costs of their preparation must also be different.

Knowledge of the costs of preparing statements allows determining the costs of recipients of information. An important role in this case is played by the breakdown of recipients into two groups: external and internal. External recipients, who are actually quite diverse, can be treated as a single recipient. From the point of view of the economic entity, it does not matter whether the results statement is prepared for the tax office, statistical office or any other institution. Regardless of the will of the enterprises, these have to be drawn up. On the other hand, it is advisable to identify

entities included in the second group of recipients because knowledge of the costs that the internal users of information contribute to would enable them to hold particular individuals or organizational cells responsible, enabling precise measurement of the “internal” profitability of the business unit at the level of responsibility centres.

Other cost objects that can be examined are source data providers. Some departments of enterprises, or some external contractors, may provide much larger amounts of data that require processing than others. The assignment of costs to the relevant departments for which they are responsible should be considered a valuable complement to the multidimensional efficiency analysis.

## Conclusions

The use of the process approach to measuring the cost of an accounting information system is purposeful and fully justified. However, improving the way of operation takes place only in the sphere of management, because managers use more accurate data to make decisions [cf. Armstrong, 2002, p. 104]. The implementation of activity-based costing and activity-based management alone never guarantees any financial or non-financial benefits. It may even be that high implementation costs will lead to losses. Moreover, the argument of continuous improvement must not be considered the domain of the ABC model only. Any enterprise can undertake effective improvement attempts, for example, by limiting the use of resources or implementing new production technologies. Nevertheless, it is activity-based costing that is able to provide new, extremely useful cost information [Miller, Pniewski, Polakowski, 2000, p. 7].

Unfortunately, the practical implementation of the process approach is not always without obstacles, and the success of this venture depends on many factors [see Englund, Gerdin, 2008, p. 154]. The ABC method, despite its numerous advantages, is far from devoid of drawbacks, such as labour-related costs associated with duplicate registration activities or adapting the discussed concept to the specifics of an entity and the need to train staff and develop IT systems. These limitations, however, should not obscure the benefits that can be achieved by obtaining accurate cost information. It should also be noted that particularly large potential in the scope of cost reduction, and thus improvement of efficiency, lies in larger business entities in which complex firm processes occur and that bear high costs [Cagwin, Bouwman, 2002, p. 2].

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### **Funkcjonowanie systemu informacyjnego rachunkowości w oparciu o koncepcję rachunku kosztów działań**

System informacyjny rachunkowości ma za zadanie dostarczać informacji dla potrzeb podejmowania decyzji, przy czym – zgodnie z zasadą racjonalnego gospodarowania – informacje te powinny być przygotowane po najniższym możliwym koszcie. Ewidencja księgowa, oparta na obowiązujących przepisach, nie dostarcza jednak precyzyjnych danych na temat kosztów związanych z prowadzeniem rachunkowości. Dlatego w tym celu można wykorzystać metodykę rachunku kosztów działań. W artykule scharakteryzowano możliwości zastosowania omawianego podejścia do ustalenia kosztów funkcjonowania systemu informacyjnego rachunkowości, zidentyfikowano i opisano również procesy oraz działania, które są wykonywane w badanym systemie.

### **The Functioning of the Accounting Information System Based on the Conception of Activity-based Costing**

The accounting information system is designed to provide information for the purposes of making decisions, and in accordance with the principle of rational management, this information should be prepared at the lowest possible cost. The accounting records, based on the applicable regulations, however, do not provide precise data on the costs related to accounting. Therefore, for this purpose, the methodology of activity-based costing can be used. The article characterizes strengths and weaknesses of applying the discussed approach to determining the costs of the operation of the accounting information system, and it also identified and described the processes and activities that are carried out in the examined system.