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METHODOLOGICAL BASIS OF FORMATION OF STRATEGIC MANAGEMENT ACCOUNTING IN IT-CLUSTER

Abstract. The necessity of development of the conceptual basis of formation of the accounting information in strategic management of IT-cluster is substantiated. On the basis of the system approach the concept of the account is formed: the place of the account in information system of strategic management is defined; specified and structured basic elements (purpose, tasks, functions, subjects, methods, tools), which form the methodological basis of modern management accounting theory. The study of the structure of strategic management was conducted on the example of the Lviv cluster of information technology and business services (Lviv IT-cluster), which operates as an association of IT companies, Lviv City Council and educational institutions. It is established that the object of management is the joint activities of independent interacting economic entities, each of which in an integrated structure performs its functions. It is established that strategic management accounting provides coordination of interaction of its participants and serves as an information base for development of long-term strategy of development in IT-cluster. It is determined that the introduction of strategic management accounting in the cluster will solve the problem of forecasting and planning the activities of the association as a whole and its individual members. The list of methods and tools of strategic management accounting in the cluster grouped by the authors allows to consider this accounting system not only as an information source of decision-making, but as a tool resource for strategy support. It is determined that the key tools of management accounting in the IT-cluster are SWOT-analysis, a system of balanced scores, benchmarking and budgeting.

Keywords: management accounting, strategy, integrated structures, cluster.

JEL Classification M41, L24, O32

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МЕТОДОЛОГІЧНІ ОСНОВИ ФОРМУВАННЯ СТРАТЕГІЧНОГО УПРАВЛІНСЬКОГО ОБЛІКУ В ІТ-КЛАСТЕРІ

Анотація. Обґрунтовано необхідність розвитку концептуального базису формування облікової інформації у стратегічному управлінні ІТ-кластером. На основі системного підходу сформована концепція обліку: визначено місце обліку в інформаційній системі стратегічного управління; уточнені і структуровані базові елементи (мета, завдання, функції, суб'єкти, методи, інструменти), які становлять методологічну основу сучасної теорії управлінського обліку. Дослідження структури стратегічного управління було проведено на прикладі Львівського кластера інформаційних технологій і бізнес-послуг (Львівський ІТ-кластер), яке здійснює свою діяльність як об'єднання ІТ-компаній, Львівської міської ради і закладів освіти. Визначено, що об'єктом управління є спільна діяльність незалежних один від одного взаємодіючих економічних суб'єктів, кожен з яких в інтегрованій структурі виконує свої функції. Установлено, що стратегічний управлінський облік забезпечує координацію взаємодії його учасників і служить інформаційною базою для розроблення довгострокової стратегії розвитку в ІТ-кластері. Визначено, що впровадження стратегічного управлінського обліку в кластері дозволить розв'язати проблему прогнозування і планування діяльності об'єднання в цілому та окремих його учасників. Згрупований перелік методів та інструментів стратегічного управлінського обліку в кластері дозволяє розглядати цю облікову систему не тільки як інформаційне джерело ухвалення рішень, але і як інструментальний ресурс забезпечення стратегії. Визначено, що ключовими інструментами управлінського обліку в ІТ-кластері є SWOT-аналіз, система збалансованих показників, бенчмаркінг і бюджетування.

Ключові слова: управлінський облік, стратегія, інтегровані структури, кластер.

Формул: 0; рис.: 2; табл.: 1; бібл.: 10.

Introduction. The main goal of Ukraine's economic policy is to increase the competitiveness of domestic products and increase the share of national enterprises in domestic and world markets. One of the effective tools to increase the competitiveness of products and economic growth of the regions is the activity of the cluster as geographically close interconnected enterprises, united by a single material, financial and information flows. The cluster approach can become one of the effective directions of development of economy of Ukraine in the conditions of European integration.

To form a strategy for development and management decisions in modern business conditions, the cluster management system requires the use of qualitatively new approaches and mechanisms. The effectiveness of management depends on information support, among which an important place is given to the system of management accounting. The globalization of the world economy and the dynamism of the external environment necessitate the creation of strategically oriented management accounting in cluster structures.

The analysis of research and problem statement. General aspects of the study of scientific and practical problems of strategic management development in the cluster have been the subject of research by a number of scientists. In particular, Kuei-Hsien Niu, Grant Miles, Chung-Shing Lee studied the strategic development of network clusters in the context of global competitiveness [1], C. Bevilacqua, I. G. Anversa, G. Cantafio and P. Pizzimenti investigated local cluster strategies [2], J. S. Tsertseil considered the mechanisms of strategic management of the petrochemical cluster in the Republic of Tatarstan [3], K. B. Dobrova conducted a comprehensive study of financial and economic aspects of strategic management of industrial clusters [4], O. V. Kostenko analyzed methodological approaches to building a cluster development strategy [5].

Problems of accounting support of strategic management of cluster structures were considered in the works: A. A. Osmonova, L. I. Pronyaeva, A. A. Pylypenko, O. A. Fedotenkova,

I. A. Yukhimenko-Nazaruk etc. However, without diminishing the value of the work of the above-mentioned scientists, it should be recognized that strategic management accounting in IT-clusters has its own specific features, is accompanied by certain problems and needs to be improved.

The purpose of the article is to investigate the methodological provisions of the formation of strategic management accounting in IT-clusters.

Research results. Important in creating a holistic view of management accounting is the identification of an organized set of interconnected system-forming elements that form its conceptual basis and mechanism of practical implementation, aimed at achieving the goals of subject-object relations and information support of strategic goals of the IT-cluster. Such structured components of strategic management accounting are the purpose and objectives, subjects, methods and tools. With this in mind, we propose a conceptual approach to the formation of accounting information in the strategic management of the cluster (*Fig. 1*), which determines the basics of construction and maintenance of strategic management accounting and is its theoretical and methodological basis.

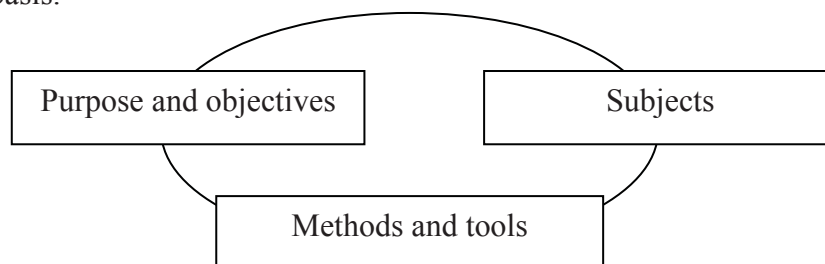


Fig. 1. **Conceptual basis of strategic management accounting in the IT-cluster**

Source: developed by the authors.

The main purpose of strategic management accounting in the IT-cluster is to focus on the presentation of regularity and systematic formation of strategically important information. The above wording defines the main tasks of accounting. According to A. A. Osmonova the task of the cluster management accounting system is to systematize information flows, minimize by reducing its duplication, provide effective access to information resources of enterprises that are part of the cluster, managers at all levels to make motivated management decisions [6, p. 8].

When forming the tasks of strategic management accounting, it is necessary to take into account that the management system in the cluster is quite complex, so it must generate information based on user requests at different levels of the hierarchy:

- at the highest level based on the degree of achievement of the strategic goal of the organizational structure;
- at a lower level based on the degree of achievement of the tactical goal of each member of the cluster.

It is important to note that the tasks of management accounting in the IT-cluster are not only to register the facts of economic life in order to provide information to interested users, but should be aimed at improving the competitiveness of economic development of regions and the state as a whole. Management accounting in the cluster as an integrator of information flows, in addition to the usual, must ensure the implementation of the following tasks:

- to promote the coordination of relations between the participants and is obliged to become an information basis for the development of tactics and strategies for the development of the association;
- to promote the reflection of specific and cluster-specific objects of accounting (participants' contributions, transaction costs, costs of innovation);
- identification and assessment of reserves and non-financial factors that significantly affect the development of the association;
- formation of an information base for planning, forecasting, analysis and control of financial and economic activities of the cluster [7].

Solving these management accounting tasks will ensure the achievement of the goal of creating complete, reliable and relevant information for effective management and will play an important role in the harmonious development of the IT-cluster. The proposed tasks will expand the purpose of management accounting in ensuring the performance of functions. Since management accounting is an information component of the cluster management process, it must perform a number of functions derived from management functions: planning and forecasting, analytical, control, communication and coordination. However, the main function of management accounting in the strategic management of the cluster is the information support of long-term management decisions.

A distinctive feature of inter-organizational strategic accounting is its ability to generate data on the presence and impact on the activities of the association of factors of the external macroenvironment and the internal environment of the cluster [8, p. 1419]. The influence of environmental factors on the construction of the accounting system in the cluster is described in more detail in the author’s work [9].

To identify the subjects, it is important to study the management structure, which was conducted on the example of the Lviv cluster of information technology and business services (Lviv IT-cluster). Lviv IT-cluster is a community of IT companies (about 100 participants), Lviv City Council and educational institutions (Lviv Polytechnic National University, Ivan Franko Lviv University, Ukrainian Catholic University, IT step university), whose efforts are aimed at developing the industry and region.

The supreme governing body of the Lviv IT-cluster is the General Meeting of participants who make strategic decisions. The collegial governing body is the Supervisory Board, which includes representatives of the cluster members. The generalized management structure of the Lviv IT-cluster is shown in Fig. 2.

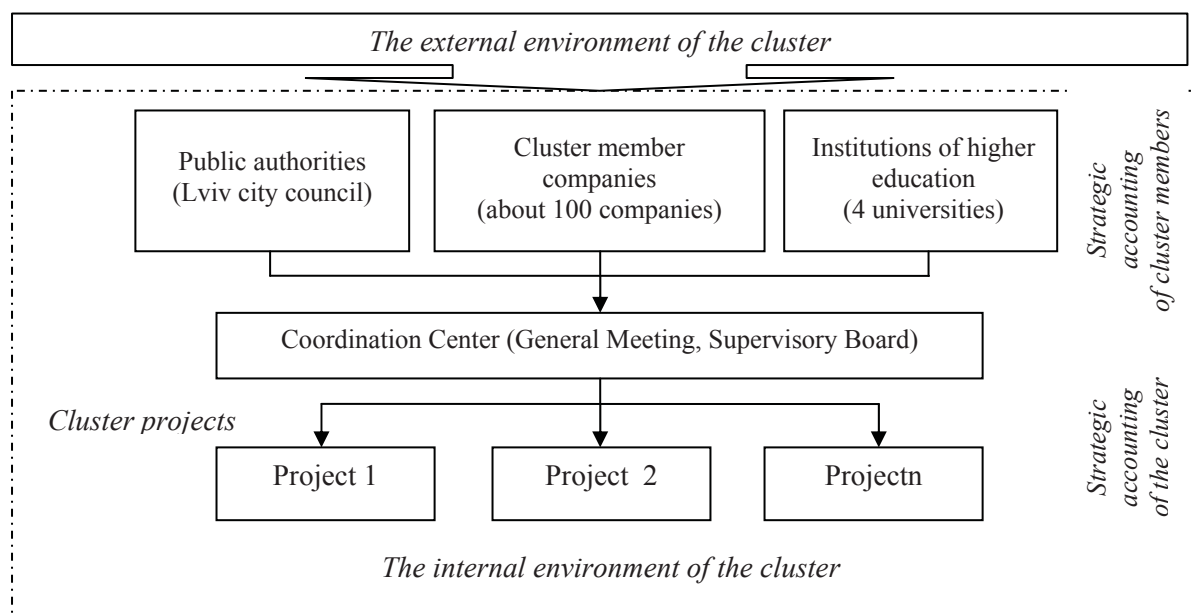


Fig. 2. General management structure of Lviv IT-cluster

Source: developed by the authors.

An important feature of strategic management in the IT-cluster is that the object of management is the joint activities of independent interacting economic entities, each of which in an integrated structure performs its functions. Therefore, management accounting in the cluster should facilitate the coordination of relationships between participants and should be an information basis for developing tactics and strategies for the development of the association. The tactical level of cluster management is a set of management structures of individual participants, each of which independently chooses solutions and methods of their implementation from alternatives. The strategic level of management should be a structure in which the cluster acts as an object of management as a holistic organizational system.

Management accounting data as a component of information support is necessary for management to plan and forecast the financial condition of individual participants and the entire integrated structure. It should be noted that the management accounting system of an individual cluster member is an integrator of information flows and a key component of a comprehensive accounting system.

The strategic management of the Lviv IT-cluster is aimed at the implementation of projects of socially important areas for the IT industry: education, law, infrastructure, promotion. Such projects of the Lviv IT-cluster are: United for health [an emergency project aimed at helping to combat the spread of coronavirus (COVID-19) in the Lviv region], IT-Arena, IT-Park, Lviv Tech Angels, IT Jazz, IT industry monitoring, IT Expert, IT Village and others.

An important requirement for the compliance of the management accounting system in the cluster with modern principles of management is the formation of methods and tools. The use of management accounting tools is designed to provide users with the necessary information for management decisions.

A.Mazaraki and O. Fomina [10, p. 49] note that the tools of management accounting does not have a clear unambiguous concept of its components and is formed under the influence of individual perception of the role and expected results of management accounting by the management of each individual enterprise.

In our opinion, the set of methods and tools of the management accounting system in the IT-cluster depends on the set management goals and may include the following list (*Table*).

Table

Basic methods and tools of management accounting in the IT-cluster

Group of methods and tools	Name of method and tool	Characteristics for cluster management purposes
Strategic forecasting:	SWOT analysis	Tools for strategic cluster management, which is to identify factors influencing the internal and external environment. Factors of the internal environment of the object of analysis are strengths (S) and weaknesses (W), and factors of the external environment are opportunities (O) and threats (T)
	PEST analysis (STEP)	A tool designed to identify political (P-political), economic (E-economic), social (S-social) and technological (T-technological) aspects of the external environment that affect the activities of the cluster
	Balanced Scorecard (BSC)	Cluster evaluation and strategic development tool based on a system of indicators that characterize its activities in four areas: finance, customers, internal business processes, training and staff development
Marketing:	Marketing researches	Systematic collection and analysis of data on the marketing activities of the cluster. The main directions of marketing research of the cluster are not so much factors of the macroenvironment as microenvironment (efficiency of organizational structure, professional qualification of employees, etc.)
	Communication policy	The sequence of actions aimed at ensuring information interaction with all members of the cluster
	Benchmarking	The process of comparing services, methods, processes, technologies and other parameters with similar objects of other cluster members
Project:	Project management	The process of managing the resources of the cluster project using special methods and techniques to achieve this goal
	Network modeling	Economic and mathematical model that reflects a set of works (operations) related to the implementation of the cluster project
	Gantt chart	The type of bar chart used to implement the plan, work schedule for the cluster project
Financial:	Budgeting	Technology of budgeting, current control over their implementation, establishment of deviations of actual indicators from planned and analysis of the reasons for the purpose of maintenance of a steady financial condition and development of a cluster
	Functional cost analysis	A method of systematic study of the functions of the object in order to find a balance between costs and benefits
Information and reporting:	Formation of management reporting	A set of interconnected data that reflect the functioning of the cluster as a subject of financial and economic activities

Source: developed by the authors.

At the strategic level of IT-cluster management, it is important to use matrix tools, mainly SWOT analysis, PEST analysis (STEP) and Balanced scorecard (BSC), which determine the impact of the external and internal environment. At the tactical level, budgeting and benchmarking tools should be used.

From the standpoint of potential opportunities, the key tools can be considered SWOT-analysis, a system of balanced scores and budgeting, which permeate all levels of management — from strategic to operational and tactical, solve most management tasks, provide system characteristics of the cluster and are closed-loop techniques. communication (accounting and analytical support of the management process at all stages). The combination of these tools in a single information model to support the adoption and implementation of management decisions allows you to calculate the synergistic effect of their interaction, increasing the ability to achieve goals.

Conclusions. Strategic perception is not based on retrospective, but on long-term assessment and forecasting, so the importance of management accounting information is becoming more meaningful and in-depth. As a result, it leads to the emergence of technologies and procedures that are not used in accounting, but are needed in strategic management. Strategic management accounting in the IT-cluster can be considered as an organizational and information system to support management decisions, which has a strategic focus. The concept proposed by the authors is a theoretical and methodological basis, is the basis for building a system of strategic management accounting in the IT-cluster and should provide interested users with information about general approaches to its organization and management.

A feature of management accounting in the IT-cluster is the possibility of systematic information support for strategic-oriented decisions. The essence of accounting data in the strategic management of the IT-cluster can be given in the following three aspects: 1) management accounting should be considered as a system for collecting the necessary (relevant) information; 2) Accounting information should reflect both financial and non-financial parameters, and its formation can be carried out in different ways; 3) The creation and use of accounting information for management purposes should be based on the utilitarian positions of the need to achieve certain strategic goals.

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