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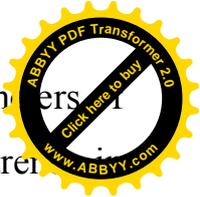
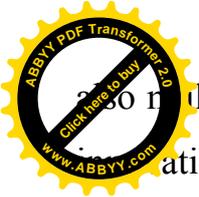
## THE ACCOUNTABILITY OF INNOVATION MANAGEMENT

Depth analysis of the results of innovation activities of companies in Ukraine allowed to detect difficulties in the implementation of traditional methods of consolidation accounting information caused by rapid changes and hardly forecasted results and expenses of R&D at the level of strategic management.

The system of accounting and analytical support of innovation activity like any open system has the features of unity and contradiction between its constituents and subsystems. In the plane of practical implementation processes of consolidation of accounting and analytical information these properties are manifested primarily in the approach to the choice of measuring media. The principle of the single currency meter, standard fixed system of accounting principles in Ukraine, on the one hand, provide the basis for mathematically correct from the standpoint of owners quantify the value of the business as a whole and individual component added value created as a result of the enterprise, on the other hand, have a significant impact on traditional approaches and management accounting methods used by project managers at various stages of innovations; financial estimates obtained during the project budgeting, payments current and future value, profitability, etc. often represent a key criterion for appropriate design solutions.

However, a new look at measuring social and economic performance forces evolution of methodological approaches to management accounting, the emergence and dissemination of progressive management practices to new methods of generation, processing and consolidation accounting and analytical information that gradually leads to a paradigm shift in management accounting towards combining financial and non-financial information sources to solve problems of information support of different parties during the innovation process.

Due to the specific nature of innovation activity [1], to ensure the effectiveness of the subsystem of identification, recognition and response to changes in the geopolitical, economic and social factors, the strategic management requires not only narrowing application of the single criteria analysis, mainly based on the monetary value of financial and property flows but



Multi-criteria analysis methods that allow to combine cost and non-financial parameters and take into account the expectations of the environment, development trends of the national economy and international market. It includes the expectations of stakeholders in the areas of analytical information and requires the strategic expansion of content accounting and analytical information to new forms that may describe the existing relationship between the subjects of internal and external environment, as well as clear rules for resolving conflicts during the implementation of innovations.

The proposed expansion of the scope of implementation of accounting functions is closely associated with the development of strategic calculation methods, that in recent years have steadily evolved from a set of processes of identification, measurement, accumulation and processing of information concerning factors that create competitive advantage to the enterprise subsystem accounting and analytical support for strategic management businesses.

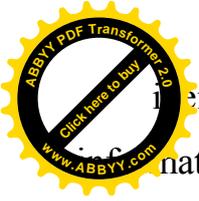
Resonance influence of the effectiveness of strategic accounting on overall innovation management, led an active scientific research that aimed to identify the economic substance of the underlying processes and allowed less than a decade to move scientific opinion on the interpretation of strategic accounting as a system of registration, synthesis and restore data necessary for strategic management decisions management system to identify its nature within the concepts of strategic measurement systems [4], allowing, as noted in [3] to collect strategic accounting and analytical information on the positions of key success factors for enterprises that may be defined as the set of available resources and opportunities for their commercial use.

Based on the progressive experience of strategic accounting for domestic enterprises and research results of quality assurance problems in functioning of accounting and analytical systems the strategic tasks of ensuring the accountability of innovation management may be defined:

- documentary identification and registration of facts, events and results of R&D that influence the company performance and further development of business activity;

- evaluation and synthesis of quantitative data and verbal information about the size of the actual and potential demand, identifying the factors that influence demand in general and demand for specific innovative products developed by the company;

- documentation, verbal and quantitative assessment of events in socio-economic and geopolitical sphere, the analysis of the actual long-term forecast of their impact on supply and demand for new products developed by the company;



identification, documentation, storage and synthesis of quantitative and qualitative information on the actual and prospective changes in the global market, trends in demand for products developed by the company, geopolitical factors, science phenomena and results of R&D in potential areas;

consolidation of accumulated quantitative and qualitative information, analysis and development of strategic alternatives for financial and economic activity, evaluation of the necessary financial, material, human and intellectual resources to implement strategic alternatives, identification of risks, strengths and weaknesses of certain strategic projects and their impact on competition the benefits of enterprise assessment and forecast results for each of the strategic alternatives;

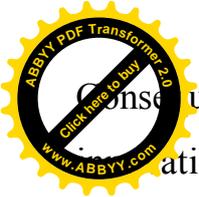
transmission of consolidated accounting and analytical information to the innovation managing subsystem of the company strategic management;

monitoring parameters of the internal environment in the implementation of the approved strategy for R&D, control deviation of absolute and relative indicators of the financial and economic operations of established standards and budgets of innovation activity;

storage of consolidated accounting and analytical information and ensuring its availability for use in substantiating the innovation management decisions in future periods.

Organizational structure of strategic accounting should ensure effective implementation of the tasks that are typical for innovative companies, but the mechanism for implementing the strategic functions of accounting must be unique for each individual business entity, using the process of forming common conceptual framework of the organization of R&D process. This is another difference between strategic accounting and the traditional accounting that provides standard accounting procedures regarding the presence and movement of assets and their sources, calculation of costs and benefits, a standard internal document flow using typical forms of primary documents and reporting regulations established or recommended sector interval data processing and reporting.

The requirement for unique features of accounting mechanism for innovation activity is evoked by, firstly, the formation of different packages of statements containing relevant consolidated information to meet the information needs of different user groups, and secondly, using various sources of input data, as the plural of the environment, socio-economic and geopolitical factors influencing the innovation process that each company establishes individually as a limited list of subjects on which data signals are recorded and processed.



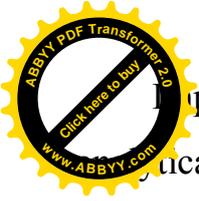
Consequently, the accounting and analytical procedures at the strategic accounting information systems should have a custom character, but for every company be formalized systematically repeated.

To achieve the objectives of financial and economic development management systems should provide opportunities for effective use of methods of strategic calculation that includes the calculation for the lifecycle of innovative products, Target costing, calculation for the chain of value, etc., as well as the concept of Balanced Scorecard . Advantages of these methods are based on the strategic approach to reform the structure of the array of accounting and analytical information through its amendments no financial parameters that are able to take into account the expectations and trends of R&D process.

Organization of strategic calculation based on the concept of Balanced Scorecard allows to realize in practice project-oriented organizations performance evaluation tools in the meter that meet the information needs of a wide range of internal and external users. In the modern sense [2] Balanced Scorecard (BSC) platform is the use of complex valuation tools which are formed in accordance with the mission and strategy of the company, meet the requirements of different users reporting and provides a balance between the objective and the subjective perception of reality between quantitative and qualitative indicators and data between blocks with different time intervals relevant for decision-making.

Based on analysis of the results of modern domestic and foreign research on the nature and specifics of the concept of BSC, with some simplification we may conclude that the concept involves the implementation of a set of measures aimed at achieving the company's strategic goals set out in four vectors: financial, market, organizational and social. This vector combining financial objectives described quantitative ostentatious financial-economic activity (absolute amount of profit, profitability, etc.); market vector summarizes the goals associated with the position on the domestic and foreign markets (market share, changes in the competitive position, customer loyalty index, the index of awareness of potential consumers, sustainability communications code delivery process, etc.); organizational vector sets strategic options of internal business processes; social vector constitutes goals of company human development, harmonizing relations with entities that have an indirect impact on its performance.

Thus, in the information objects first two vectors can be characterized by equal quantitative and qualitative indicators, the components of market and social vectors usually require the implementation methods of collection, storage and processing verbal information.



Implementation of strategic objectives on accounting in market and social vector. Analytical information flow is possible through the systematic use verbal methods of analysis as a cyclic process of consolidating information SSAASA [2], with following generalized stages:

C<sub>1</sub> - collecting data on actual and expected parameters of innovation;

C<sub>2</sub> - the accumulation of verbal information;

A<sub>1</sub> - verbal ordering of information, its processing and the formation of its array-based knowledge;

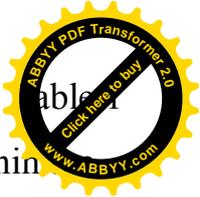
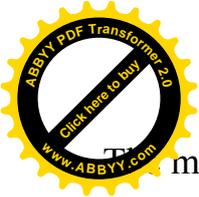
C<sub>3</sub> - transmission to block of control subsystem strategic innovation management, accumulation of experience and development of the basis of human potential of the enterprise;

A<sub>2</sub> - usage of the experience in decision-making with management influence on the formation, development of strategic competitive advantage;

A<sub>3</sub> - implementation of measures adopted on the basis of strategic innovation management decisions.

At the each stage of cyclic process of consolidation accounting and analytical information within the strategic account of the relevant methods of verbal analysis (Table 1). The concept BSC should be considered not only as a set of specific tools developed implementation strategies entrepreneurship, but also as a permanent platform for analysis of the results achieved during innovation process and adjusting the strategic goals of the enterprise in response to changes in behavior parameters of the internal environment and the external space. Last one can be quite efficiently implemented through the application of strategic maps that reveal, demonstrate, and consider multiple links between basic assumptions and expectations about the innovations and key subjects involved in the company financial and business development.

Implementing the concept of BSC for accountability of innovation management should create a flexible and capable for self-development system of strategic calculation that lets management to create and use rationally structured information on the results of financial and economic activity in general and individual projects of R&D, as well as knowledge on actual and potential changes in the parameters of the internal environment and the external space, the relationships between these parameters and expectations related subjects on the activities of the company or changing its characteristics. Under these conditions, the use of strategy maps is one of the effective strategic accounting methods that fully meets the relevant accumulated information for innovation process.



The main stages of consolidation of accounting and analytical information system within concept of BSC

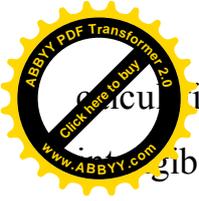
The stages of the information consolidation process		The purpose of implementing the methods of verbal information analysis
C <sub>1</sub>	collection of accounting and analytical data	identify options of accounting and analytical information systems, establishing multi-parameter estimation
C <sub>2</sub>	accumulation of numerical and verbal information	evaluation scales construction of the system of values for different criteria
A <sub>1</sub>	forming a structured array of information in numerical and verbal meters	classifying option characters of information objects
C <sub>3</sub>	transmission to the unit control subsystem of strategic innovation management	ordering optional parameters of the objects
A <sub>2</sub>	decisions on the strategic competitive advantage	selection of the best alternative
A <sub>3</sub>	implementation of management measures	revealing of changes in parameters of innovations evoked by undertaken administrative measures

The effective information flow in the accounting system based on strategic BSC concept allows to expand evaluation of innovation activity results and creates opportunities to identify synergy effects of business projects and decomposition descriptive causal relationships between individual elements of value added chain.

Despite all the benefits of BSC, the transition of innovation companies to this concept is not sustainable and can be effectively complemented via embodiment other innovations in the organization of strategic management and accounting in particular.

The high sensitivity of Ukraine market to the expected changes in geopolitical and socio-economic factors proved that among mentioned above the method of calculation of the cost for the life cycle of innovation products is progressive method for strategic accounting.

Calculation of the cost per life cycle (LCC) is one of the modern methods of management accounting, which mainly relate to the products, but can easily be adapted for the purpose of



Calculation of the costs of enterprises-producers of projects, technologies, services and other intangibles. As part of the cost of this method takes into account not only the costs directly incurred during receiving new proceeds from the sale of innovation products, but all resources consumed throughout the life cycle of innovation products.

Overview, costing on life cycle of innovation products can be completed in three aspects:  
in the term of innovation product costs - by analyzing and adding the direct product costs  
in the term of innovation process costs - by taking into account expenditure on R&D, market analysis, preparation and organization of production, the development of distribution routes, etc.

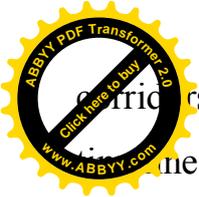
in the term of innovation activity costs - by taking into account the costs of R&D projects implemented by the company

The method of calculation of the cost per life cycle is a part of a measurement value in the strategic calculation, because it creates the basis for further consolidation of management information useful for analysis and measurement of costs outside the single innovation product and even individual business units.

Target Costing is also one of the progressive methods of calculation, which meets the information needs of business owners and focuses on the expectations of consumers of innovation products. The overall purpose and result of the application procedures Target-Costing is determining the amount of cost and expenditure of financial and economic activities, which both reached the planned owned or higher management company the efficiency of financial and economic activity and expectations usefulness of Costing products introduced by producer.

The beginning of the accounting and analytical procedures in Target Costing is determination of target price of innovation product that satisfies new needs. The target cost of the innovation product, measured as the difference between the target price and margin income that owners consider sufficient financial and material resources of the company, is the starting point for finding specific innovation producers with the appropriate amount of production costs. In applying the procedures Target Costing a innovative company product should also consider quantitative and qualitative information on related products and services.

An important part of accounting and analytical procedures when using Target Costing is consideration changes of demand and supply characteristics in time. Construction of time series for the target price and margin income for innovation product provides the basis for identifying



Criteria of its cost, and in the compilation of information on innovation products on the line - the possibility of balancing incoming and outgoing financial flows, optimizing the structure of borrowed material and manpower of innovative company.

Value Chain Costing as a method of strategic accounting, that may be successfully applied by innovative companies and contains evaluating the share value of each component of innovation process in total expenditures on R&D. Moreover, the method creates a knowledge base for analyzing the structure of the total cost of innovation products, identifying the least profitable stages of innovation process and development alternative innovation products or services.

Value Chain Costing has for a particular scope for partnerships university-business, as it allows to generate information on the stages of the accumulation value of innovation products. By such decomposition the contribution cost of each partner may be estimated, providing further information basis for a reasonable distribution of financial, human and intellectual resources, evaluation the effectiveness of managing company and business unit, monitoring innovation activeness, established rates of marginal income, profitability of operations, and so on.

Thus, depending on the degree of integration of business enterprises in the R&D the calculation methods of internal and external value chain can be applied (for individual enterprises and their partnerships respectively). In any case, this method in the strategic calculation involves determining the early stages of a list of cost elements, units of measurement, evaluation parameters and indicators of criterion analysis; using verbal terms in the analysis of the cost of the external value chain is particularly important justification intervals quantitative indicators compiled and formalizing procedures for collecting, recording and documenting information on various external sources.

The increased management efficiency of partnerships university-business may be supported by strategic use of such accounting methodical approach as Open-Book Accounting. Open-Book Accounting is based on principle of consolidated information dissemination to interested users, that does not mean the availability of full information on the cost structure and other objects of management accounting of all union members, and provides lists of items harmonization of management reporting that spreads, scope, goals, processing facilities and limiting the use of consolidated information.



In many cases, the most appropriate information for distribution is non financial data. The activities of innovation partnerships members, objective information about the changes in the external environment, the implementation of socio-economic and geopolitical factors particularly threatening, the emergence of additional risks and information on estimated trends in supply and demand, expectations of consumers, producers and government agencies. As the cost of development and consolidation of such information is material, decisions upon using the principle of "open reporting" among the members of association can be made regarding access to information on the terms of compensation by equivalent financial or information resources.

Different qualifications of accounting and analytical services of participating businesses necessities harmonization of standards for registration events, measuring their impact, evaluation expectations of changes, etc., and thus embodies harmonization of accounting and analytical procedures in strategic management within innovative business associations.

The specific methods of modeling business processes, financial and business development play important role in the strategic accounting. The task of collection, storage and processing of events of innovation processes must have proper methodological support through the use of strategic accounting cyber, econometric, stochastic modeling techniques, valuation multiple consequences of decisions and other methods of modeling reality of inputs, outputs and functions of variables that allow to perform information and analytical support for decisions upon strategic innovation alternatives taking into account the variability of the environment and the probabilistic nature of results of innovation activity.

Overall, ensuring accountability of innovation management may be based on progressive experience of conceptual and methodological approaches to consolidation accounting and analytical information.

#### References:

1. Ілляшенко С.М. Інноваційний розвиток: маркетинг і менеджмент знань: монографія / С.М. Ілляшенко. – Суми: ТОВ «Діса плюс», 2016. – 192 с.
2. Kozarkiewicz A., Lada M. Strategic Management Accounting as a Source of Information for Value-Driven Project Management / A. Kozarkiewicz, M. Lada // Journal of Economics, Business and Management. – 2014.- Vol. 2, No. 3. – P. 186 – 190



Labunska S., Prokopishyna O. Crisis of Innovation Activity in Ukraine: Tendencies, Challenges and Management Decisions / S. Labunska, O. Prokopishyna // Systemic Economic Crisis: Current Issues and Perspectives: Proceedings of the 9th international conference of ASECU Skopje, May -2013-SS. Cyril and Methodius University, Faculty of Economics, 2013. – P. 74 – 90

4. Labunska S., Prokopishyna O. Innovation as driver for conflict and harmony in social and economic interests / S. Labunska, O. Prokopishyna // Economics of development. – 2016. – № 4. - P.103-110.

#### References:

1. Illiashenko S. M. (2016). *Innovatsiyni rozvytok: marketyng i menedzhment znan [Innovative development: marketing and management of knowledge]*. Sumy: TOV «Disa plius» [in Ukrainian].
2. Kozarkiewicz A., & Lada M. (2014). Strategic Management Accounting as a Source of Information for Value-Driven Project Management. *Journal of Economics, Business and Management*, 3, 186 – 190
3. Labunska S., & Prokopishyna O. (2013). Crisis of Innovation Activity in Ukraine: Tendencies, Challenges and Management Decisions. Proceedings from *The 9th International Conference of ASECU “Systemic Economic Crisis: Current Issues and Perspectives”*. (pp. 74 – 90). Skopje: Cyril and Methodius University, Faculty of Economics.
4. Labunska S., & Prokopishyna O. (2016) Innovation as driver for conflict and harmony in social and economic interests. *Economics of development*, 4, 103-110.