

UDC 657.05

T. V. BOCHULIA,
PhD (Economics), Assistant Professor,
PhD Student of Accounting and Audit Department,
Kharkiv State University of Food Technology and Trade

Modeling of Accounting and Analytical Support of Management: Innovative Implementation

Complication of business dealing conditions in burgeoning economy contributed to the appreciation of information as a result of its exclusive influence on decision making. Management system requires developed system of information support on the basis of accounting and analytical factors as base economically important data. Correspondingly, it remains a live issue in an integrated manner to update accounting system by means of its modeling on the basis of scientific, regulatory, and organizational and methodological innovations.

The aim of the research is to formulate proposals in the development of accounting and analytical support of management through behavioral integrated model of accounting in terms of new stage of economic advancement.

The article studies the innovations in modeling of accounting and analytical support of enterprise management. There is justified evolution of accounting model as art of organization of accounting process and preparation of accounting reporting under the influence of information system development. There is developed behavioral integrated model of accounting built on the basis of structure and relations of accounting system information complex.

The greatest value for enterprise in terms of assurance of competitive advantage was obtained by the development of accounting system as a model of information and analytical support of management and justification of decision making. Implementation of the proposed in this article behavioral integrated model of accounting and analytical support of enterprise management involves updating of organizational and technological, information and communication, philosopho-methodological, and cultural and business processes as individual complexes the basis of which shall be intellectual and technological foundation as base, but not add-ons.

Keywords: *accounting, management, information, reporting, model, innovations.*

Problem definition. At the stage of the postindustrial economy there are projects of key importance connected with modeling comprehensive information system that serves partnership financial and economic relations and coordinates business in its stable development. Accounting system is at the heart of the information support of enterprise management. Over recent years it has been significantly updated because of development of regulatory, theoretic-conceptual, and methodological actions as consequence of dominance of institutional theory. Accounting system became more flexible in support of various groups of users interested in advanced accounting reporting for justification of decisions being made. Interest in innovative aspects of modeling accounting and system of accounting and analytical management support increases according to deepening financial and economic, information and technological relations in business and reaching new frontiers of competition among entrepreneurs.

Analysis of the latest studies and publications. Accounting modeling was studied by scientist from different points of view of its development that jointly made up new conceptual line of research with basic concepts in theory and organization of accounting and analytical support of management. Among the scientists it deems appropriate to emphasize scientific works of O. Korzachenko, Yu. Krivets, T. Marenich, M. Shygun who proposed creative solution in development of accounting modeling issue. Conclusions and proposals of the leading scientists in the area of accounting,

© T. V. Bochulia, 2014

in particular, F. Butynets, N. Guri, S. Denga, M. Pushkar, M. Pyatov, V. Shevchuk, M. Shchyrba etc. were used as a base for innovative developments. In scientific proposals we should go beyond the traditional developments and work up new trend that has to guarantee increase of importance of accounting and analytical information as new kind of resources and capital.

The article **objective** is to formulate proposals in the development of accounting and analytical support of management through behavioral integrated model of accounting in terms of new stage of economic advancement.

Presentation of base material. The urgency of modeling consists in fundamental character of theoretical and practical studies involving not only technical aspect of task performance, but also development of organizational and methodological procedures expressed in terms of integrated model that supposes new concepts and, as consequence, practical solutions for enterprise and economy. Individual model of data connection is peculiar to each enterprise that, first of all, is demonstrated in the support of management subsystems with accounting ratio. Increased attention to the accounting in business idea performance evaluation is explained by that accounting as a unique model for enterprise with individual organizational and theoretical, philosophical, methodological aspects, the set of which creates dynamic knowledge using as resource for management system.

Accounting system shall correspond to the conditions and factors of society peculiar to the current time looking forward the future. Thus, we rephrased the statement of the famous Ukrainian scientists F. F. Butynets on the complicating accounting under the influence of the society development [1, p. 10]. According to the scientist-reformer who is the author of the innovative solutions in the area of accounting and auditing, V.A. Shevchuk: "Problem of interpretation of accounting objects, control, and analysis paradigmatically takes on new significance in accordance with the content of that variant of energy progress formula that describes the future of humanity" [2, p. 68]. Among the significant number of system interpretations there are five most important: procedural, macroscopic, hierarchical, functional, and microscopic. The mentioned interpretations exactly and fundamentally reflect the essence of functioning of accounting information environment, and we shall carry out modeling exactly on their basis [3]. Accounting besides process and system is defined as a model, in particular, "accounting is a model of enterprise business activity that reflects in quantitative terms all facts of business activity in their dynamic and situation with assets of enterprise; in its turn, as a complicated system, accounting also is studied by means of modeling method" [4, p. 13]. There is logic of management activity in the definition of accounting as a model, since due to the accounting and reporting information user obtains "image" of enterprise expressed in terms of figures. This image is a starting point for participation of enterprise in financial and economic relations at the macro level; it specifies their nature, ways, and means of support and expectations.

First model of accounting was formed as art of record maintenance, current statistics recording (inventory, receipts and payments sheet, contract account records) [5, p. 94]. Hereafter the accounting model was developed identically to the models of business, economy, and society providing for greater functionality in comparison with the previous stage (Fig. 1). The permanent element in the evolution of accounting model is art as skills to organize accounting process in such way in order to guarantee high level of quality of accounting information for management of entrepreneurial activity.

Nowadays accounting models go beyond the bounds of information system and professional activity (T-account, journalizing, turnover balance sheet, preliminary trial balance, forms of basic documents and accounting registers) [6; 7], having developed as key competence of provision and support of making managerial decisions at all levels and by all subjects of financial and economic relations. For enterprise accounting modeling shall be carried out at all levels – from algorithm of accounting documents handling to preparation of accounting reporting. Between these stages of accounting process the primary accounting information is transformed in accordance with the results of the previous activity, operating management policy, and priority of activity development

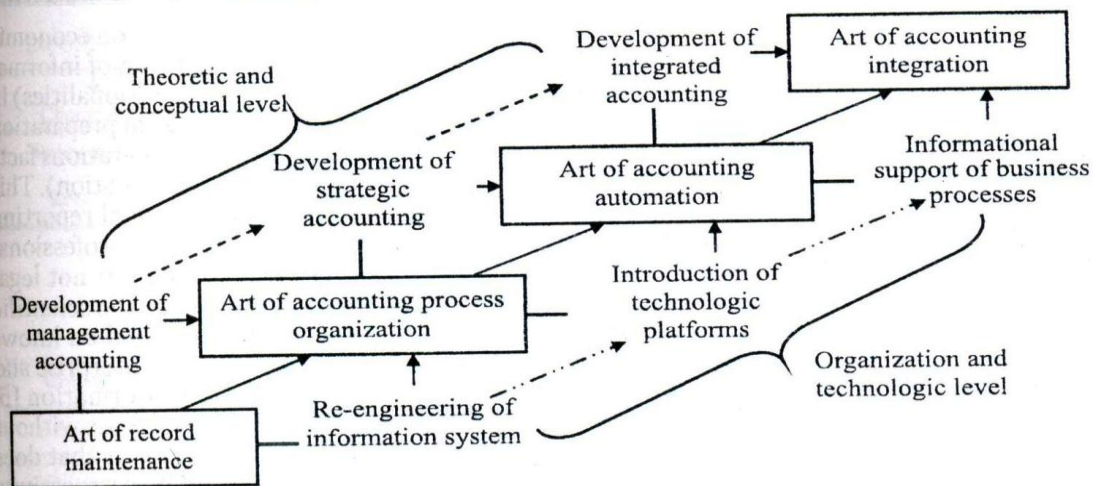


Fig. 1. Evolution of Accounting Common Model

towards the preservation and consolidation of financial and competitive positions of aggregate cost of business.

Modeling in accounting does not go beyond the bounds of existing concepts of its organization and preparation of accounting reporting that provides for reflecting "regulatory and organizational" scheme for formation of the relevant accounting and analytical support for managerial decision making system. Organization of accounting and analytical support is a process being significantly different from traditional provision with accounting data in accordance with the requirements of government institution and obligations of business institution. This individual approach to the managerial activity where system of accounting acts as a model with distinguishing characteristics on the basis of which accounting processes are being analyzed and information content of accounting reporting is being qualitatively developed.

Enterprise activity is generalized numerically specified in accounting reporting as an informational version of financial standing of enterprise generated as a result of the synthesis of performance and professional competencies developing assumptions in interpreting the results of business processes. Initially, in accounting reporting there is a sample of integration and data presentation under the predetermined form that makes figures imputed in accordance to which business system is identified with its assets, obligations, property capital, risks, and perspectives. Accounting reporting is an answer to the stated issue included into the accounting policy combining foreign and domestic rules of accounting organization and generalization of accounting figures. As a result of series of experiments D. Kahneman and A. Tversky illustrated dramatically that an answer (solution) depends on how we bring a question (issue) [8]. Accounting system inherited this thesis through the generation of accounting policy that contains solution of problem of preparation of accounting statements for enterprise management. The issue concerning the need to generate information in accounting ratio shall be brought and decided. Generalizing all tasks of accounting, its destination is stated in the "benefit" category through which enterprise justifies existence, realizes potential, and ensures stable development of economy. According to the study of S. N. Denga accounting models of economic benefit producing in compliance with the standards of accounting and financial reporting are divided into models as follows: movement of funds of enterprise; net assets increase; aggregate income determination that covers obtained financial results and other aggregate income [9, p. 47–48]. The scientist output the economy benefit outside the bounds of enterprise having noted that accounting shall be supported by information on economic benefits obtained and expected by inner and outer groups of users (interested parties). Financial and economic aspect of relations is initiated the regulation of which covers mutual benefit in form of material benefits for company and interested parties related to it.

For present-day enterprise methodology of accounting shall be based on economic sense of business processes since legal content causes legal interpretation of informational paradoxes that supposes presence of particular hypotheses (conventionalities) in reflection of facts of finances and business operations [10]. Disadvantage of preparation of financial reporting is reflection of evaluation of finances and business operations facts (numerical information), but not professional judgments (qualitative information). This can be called thirteenth paradox of accounting, more specifically: financial reporting is made up relying on accounting policy being developed on the basis of professional judgment that is why in financial reporting there shall be professional but not legal evaluation of business operations. M. S. Pushkar and M. T. Shchirba in the scientific study pointed to the fact that professional judgment of accountant based on knowledge, experience, and competency largely defined accounting policy of enterprise and was one of the means of delivery of complete, true, and accounting information [5, p. 82]. Financial reporting includes narrow data on facts of business processes without advantage of economically important data from the external environment that does not allow to the full extent evaluating results of enterprise activity and its perspectives. However, providing the decision making system with authentic information, accounting is a system of comprehensive deep relations disclosing succession of formal institutions in accordance with informal factors of accounting.

Accounting and analytical support of management is the result of development not only of theoretic and methodological base of accounting, but also logic and ideology of business as motive force of social and economic processes. While developing entrepreneurship and accounting it is necessary to achieve consensus providing definition of "accounting – business" or "business – accounting" dependency during the modeling. In first case it is reasonable to form reference (sample, ideal) model under which the business processes are adapted that is efficient in management, but it is ineffective in accounting. Organization and management of business processes, formation of adequate corporative culture, involvement of the required resources, activation of business-to-business relations in management, provision of motivation and people development are implemented through the reference models that in general make hierarchically structured business processes related to financial, information, and material flows [11, p. 249–250]. In accounting system it is reasonable to deviate from reference modeling since it does not correspond to the reality of accounting practice. Formation of behavioral integrated model built on the basis of the structure and relations of the accounting system informational complex that guarantees the parallel performing functions (services) information system, accounting and management system is suitable for accounting and analytical support of management in accordance with individualized characteristics of business (Fig. 2).

Accounting model is corrected in accordance with the internal environment through the essence and business system state in different periods of time according to logical meaning of business relations included into strategy, policy, and business objectives. That defines many business tasks the description of which requires informational preparation through figures of accounting reporting. In behavioral integrated model features of accounting process are defined by the integration of essence and form of business processes determined and supported by the intellectual and structural capital as a result of which "processing line" of reporting preparation is developed. In the behavioral integrated model of accounting system process of information initial registration, accounting data processing and preparation of reporting is organized not as a sequence of operations with formal description repeating at every cycle, but being managed in accordance with the state of information system (sensitive to business processes) that is updated through the standards of regulatory control and business development. Integrated behavioral model is built on complex informational relations in space of business development states, national public economic policy, and integration with related branches of learning that together provides formation of data groups able objectively to render business system state in three periods of time in accordance with the previous reaction of environment to the indicators of economic development.

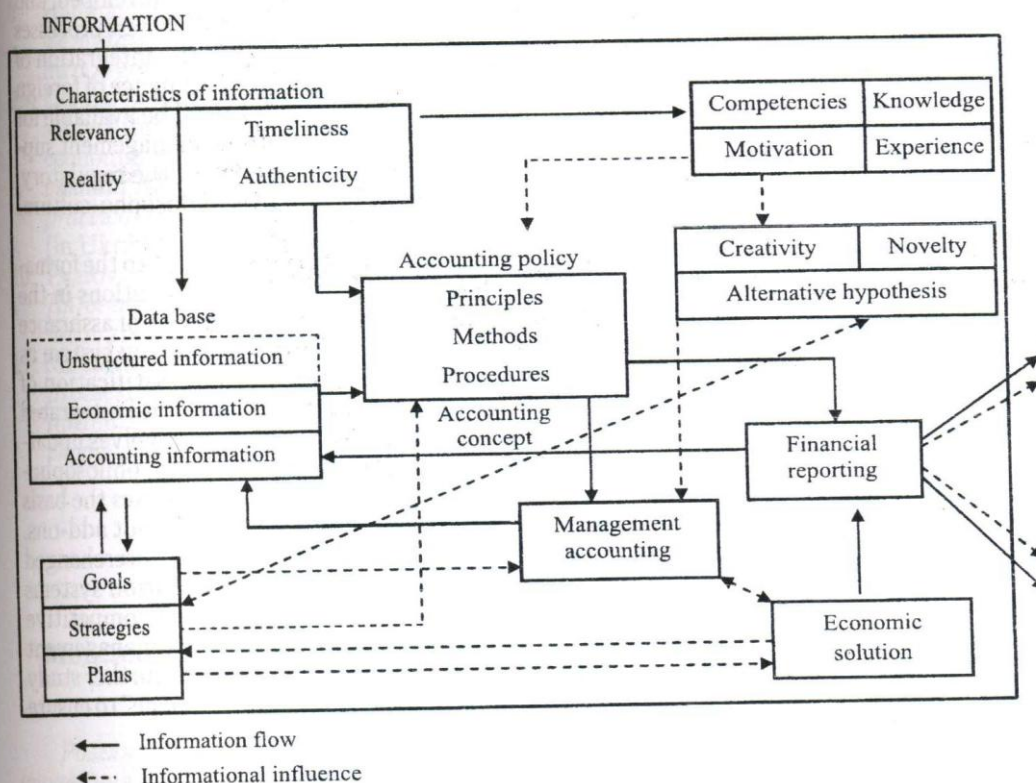


Fig. 2. Behavioral Integrated Model of Accounting System

Behavioral integrated model of accounting and analytical support of enterprise management is implemented through the information and accounting process consisting of three interdependent sub-processes: processing, generalizing, and integrated data transfer. Processing procedure is the result of previously defined algorithm of initial registration, fixation, collection, filtration, and processing of economically important data. It was developed thanks to combination of innovative technology capabilities, ideology of business processes, requirements of legal and technical authorities, key competencies in form of group of principles, methods, and procedures of accounting organization and reporting preparation (accounting policy) updated with services of organizational culture to assure individual trajectory of initial data transformation. In modeling of accounting technologies are the tools providing working processes with data, technically servicing set of methods, principles, and procedures taken as a basis of accounting reporting preparation. Intellectual aspects of technologies are demonstrated in analytical function of accounting and implemented by means of software algorithm allowing analyzing indexes and comparing their level with the previous and expected result finding out deviations and determining their.

In the proposed model there is a balanced system of control of accounting and analytical support of management since the effect level makes up a point of control at each stage of information movement – from entry of initial data to performance of accounting reporting of various kind. Also this forms particular areas of responsibility that together supports information monitoring system and corrects management with data without loss of information on business, its results, current state, and perspectives. Accounting and analytical support of management is formed on the basis of complex data connection, accounting organization and methodology and behavior of formal institutions: state legal and technical authorities, professional and executive agencies, business organizations, public organization. Accounting and analytical support of management at the macro level is related to social and economic policy in accordance

with which through the groups of factors the strategy of enterprise is developed, and its paragraphs make up business tasks assured by business processes. Business processes are supported by information the attributes of which proceed from the integration of management subsystems which properties are updated by means of influence of foreign social and economic policy. If all components are integrated, there will be available for enterprise optimum system of accounting and analytical support of management supported by internal base and relevant to the environment in respect of the regulatory, organizational and technological, financial and economic as well as philosopho-cultural aspect.

Conclusions. Managerial decisions making requires special approach to the formation of economically important information that makes actual transformations in the system of information support. The greatest value for enterprise in terms of assurance of competitive advantage was obtained by the development of accounting system as a model of information and analytical support of management and justification of decision making. Implementation of the proposed in this article behavioral integrated model of accounting and analytical support of enterprise management involves updating of organizational and technological, information and communication, philosopho-methodological, and cultural and business processes as individual complexes the basis of which shall be intellectual and technological foundation as base, but not add-ons. Levels of designing of accounting and analytical support system shall be interchanged that corresponds to logic of modern trends in improvement of information systems projects as flexible tool for achieving stable financial, corporative, and competitive positions. Issue concerning the modeling of accounting as subsystem of management in information support of decision making will not lose its edge since the further study is planning to be developed in the area of optimization of accounting "image" to ensure absolute benefits for entrepreneurs.

References

1. Butynets, F. F. (2001). Bukhalterski oblik: problemy vyznachennya [Accounting: problems of definition]. *Visnyk ZhITI. Seriya: Ekonomichni nauky – Bulletin ZhITI. Series: Economics*, No 17, 3–14 [in Ukrainian].
2. Shevchuk, V. O. (2013). Aktyvy yak obyekty obliku, kontrolyu ta analizu: problemy ekoloho-ekonomichnoi identyfikatsii ta interpretatsii [Assets as objects of accounting, control and analysis: problems of ecological and economic identification and interpretation]. *Oblik i finansy – Accounting and finance*, No 1 (59), 66–73 [in Ukrainian].
3. Kryvets, Yu. M. (2012). Modelyuvannya informatsiynoho seredovyscha bukhalterskoho obliku na osnovi systemnykh uyavlen [Modeling of information medium of accounting on the basis of system conceptions]. *Elektronne naukove fakhove vydannya "Efektyvna ekonomika" – On-line specialized publication "Effective economy"*. Retrieved from <http://goo.gl/ExM9fo> [in Ukrainian].
4. Hura, N. (2011). Bukhalterski oblik yak skladna informatsiyna systema [Accounting as a complex information system]. *Visnyk Kyivskoho natsionalnoho universytetu imeni Tarasa Shevchenka. Seriya: Ekonomika – Bulletin of Kyiv Taras Shevchenko National University. Series: Economics*, No 130, 12–15. Retrieved from <http://goo.gl/HeZxUB> [in Ukrainian].
5. Pushkar, M. S. & Schyrba, M. T. (2010). *Teoriya i praktyka formuvannya oblikovoi polityky [Theory and practice of accounting policy building]*. Ternopil: Kart-blanche [in Ukrainian].
6. Marenych, T. H. *Modelyuvannya systemy bukhalterskoho obliku [Modeling of accounting system]*. Retrieved from http://khntusg.com.ua/files/sbornik/vestnik_137/04.pdf [in Ukrainian].
7. Shyhun, M. M. *Modelyuvannya v naukovykh publikatsiyakh z bukhalterskoho obliku [Modeling in scientific publications on accounting]*. Retrieved from <http://dspace.uabs.edu.ua/jspui/bitstream/123456789/1581/1/32.pdf> [in Ukrainian].

8. Hallinan, D. (2013) *Pochemu my oshibayemsiya: lovushki myshleniya v deystvii* [Why we mistake: traps of thought at work], June, 25. Retrieved from <http://goo.gl/h1ZkR1>. [in Russian]
9. Denha, S. M. (2014). Klasyfikatsiya ekonomichnykh vyhod, yaki produkuyutsya subiyektom hospodaryuvannya [Classification of economic benefits produced by an economic entity]. *XIV Mizhnarodna naukovo-praktychna konferentsiya "Rozvytok bukhalterskoho obliku i kontrolyu yak nauky" – XIV International scientific and practical conference "Development of accounting as a scientific field"*, 47–49 [in Ukrainian].
10. Pyatov, M. L. *Informatsionnyie paradoksy bukhalterskogo uchota i ikh interpretatsyya* [Information paradoxes of accounting and their interpretation]. Retrieved from <http://buh.ru/articles/documents/13925/?tpl=print>. [in Russian].
11. Korzachenko, O. V. (2013). Kontseptsiya modelyuvannya i optymizatsii biznes-protseviv telekomunikatsiynych pidpryyemstv [Conception of modeling and optimization of business processes at telecommunication enterprises]. *Nauka i ekonomika – Science and Economy*, No 4 (32), Vol. 2, 247–253 [in Ukrainian].

Т. В. БОЧУЛЯ,
кандидат економічних наук, доцент,
докторант кафедри бухгалтерського обліку та аудиту,
Харківський державний університет харчування та торгівлі

Моделювання обліково-аналітичного забезпечення управління: інноваційна реалізація

Розглянуто інновації в моделюванні обліково-аналітичного забезпечення управління підприємством. Обґрунтовано еволюцію моделі бухгалтерського обліку як організацію облікового процесу та складання бухгалтерської звітності під впливом інформатизації. Розроблено комплексну модель бухгалтерського обліку, сформовану на базі структури і взаємозв'язків інформаційного комплексу облікової системи.

Ключові слова: бухгалтерський облік, управління, інформація, звітність, модель, інновації.

Т. В. БОЧУЛЯ,
кандидат экономических наук, доцент,
докторант кафедры бухгалтерского учета и аудита,
Харьковский государственный университет питания и торговли

Моделирование учетно-аналитического обеспечения управления: инновационная реализация

Рассмотрены инновации в моделировании учетно-аналитического обеспечения управления предприятием. Обоснована эволюция модели бухгалтерского учета как организация учетного процесса и составления бухгалтерской отчетности под влиянием информатизации. Разработана комплексная модель бухгалтерского учета, сформированная на базе структуры и взаимосвязей информационного комплекса учетной системы.

Ключевые слова: бухгалтерский учет, управление, информация, отчетность, модель, инновации.

