

ACCOUNTING, CONTROL AND ANALYTICAL SUPPORT FOR PRODUCTION STRATEGIC MANAGEMENT

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ABSTRACT

The paper explores current concepts of accounting and analytical support with a focus on the possibility of revisiting their basic principles underlying the viability of the underlying elements and concepts, including the concept of a "system of accounting and analytical support of production strategic management". The authors propose a classification of factors to drive further improvements in the methodology behind the system of information support of business process management in the context of digitalization and virtualization of industry systems of corporate management.

Keywords: Accounting and Analytical Support, Strategic Management, Costs, Methods of Cost Management.

INTRODUCTION

Taking into account, the fact, that production management is one of the elements on which production strategic management is based, production management of certain resources used in the production of goods (works, services), business processes or production complexes as a whole require, first of all, the identification of weaknesses in the information support system of the respective process. An information support system for enterprise management is a complex concept. It refers to information flows from primary sources (accounting systems) up to the transformation of the data arrays into reports sought by users. All transformations of primary accounting information ending up in reporting make up the system of accounting, control and analytical support of enterprise management demands. Such a system requires a scientific foundation, i. e., in practice, its underlying principles should not only ensure progress on tactical problems but should also contribute to the attainment of strategic goals. Developing the principles and methods of their implementation makes ubiquitous adoption of digital technologies in manufacturing and other production areas a relevant objective in the dynamic external environment. Information that fails to capture the momentary ongoing developments in various areas of the enterprise's operation makes little difference in the way of efficient resource utilization. The paper addresses the aspects of adaptation to the external environment for some of the elements of the information support system (accounting, control, analysis).

In Bodiako (2018), the most urgent problems of accounting, analytical and control support for the management of innovative development of an economic entity are revealed and the possibilities of their solution are shown: the current issues of the transition of the economy to the innovative path of development are evaluated: innovative projects are characterized as objects of corporate governance; the current state of the information support system for the innovative development of corporate owners is revealed; the discussion about the content of the system of accounting, analytical and control information, its place and role in solving management tasks is shown; the controversial provisions of the methodological and law regulation of accounting, analytical and control information in the innovation management system are revealed; the positions of scientists and practitioners regarding the need and possibility of forming a single accounting, analytical and control space are considered. In the source (Bodiako et al., 2016), the research problem is presented in the context of considering the enterprise as an integral system, in which a number of lower-order subsystems can be distinguished. It should be noted that in Bodiako et al. (2016), the authors consider such subsystems as: activity management and people management, of which we, in particular are interested only in the first, but the integrity of the study can be achieved only if the first element is considered in the context of the second. The introduction to the practical activity of the *“concept of rational agents”* proposed in our study is based on the concept outlined in Kuvaldina & Lapin (2016). The source Lebedev (2015) examines the degree of influence of the quality of accounting and analytical support on the effectiveness of the company's management, so the use of the materials of this study can allow us to perform a quantitative assessment of the management efficiency of the production enterprises considered in our study. In the sources Nepeivoda et al. (2015); Oborin & Gudkov (2019) analyzes approaches to assessing the innovative potential of enterprises in the context of the impact of the accounting and analytical support system. A feature of the analyzed source, in this case, is the assessment of the effectiveness of management decisions on the implementation of industrial projects at the strategic, tactical and operational levels of planning, taking into account the organizational structures and features of business processes at industrial enterprises of the aviation industry. The source Troshin et al. (2016) consider the problems of internal corporate control in the context of the accounting and analytical support system, in particular, solving the problem of identifying the dependence of the dynamics of the planned financial potential of innovative projects on the degree of development of the accounting and analytical support system, subject to the rationalization of internal corporate control methods.

Objectives

The paper seeks to address the following objectives:

- 1) To describe concisely and practically the advantages and disadvantages of the main methods of development of accounting, control and analytical information for meaningful cost management at a production enterprise;
- 2) To describe the essence of cost management methods supporting the interests of process participants (strategic managers, stakeholders, etc.).

METHODOLOGY

Following the logic of research, the development of this paper was preceded by a review of the literature and previous findings of researchers who addressed the concept of "information

management" and some narrower aspects of the development of the elements of an accounting, control and analytical system. The methods of analysis, classification and generalization were used to formulate the principles of development of an accounting, control and analytical system and to provide a classification of its elements and relations between them (Bodiako, 2018; Troshin et al., 2016; Bodiako et al., 2016; Burdina et al., 2017).

Table 1 TABLE OF COMPLIANCE OF SOURCES FOR ANALYSIS WITH THE SPECIFIED CRITERIA FOR COMPLIANCE WITH THE RESEARCH TOPIC										
№	Name of the criterion	Source number in the list of references								
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
1	The possibility of obtaining scientific novelty when considering a research problem in the context of a source for analysis	+	+	+	+	+	+	+	+	+
2	The source for analysis shows the current scientific discussion about the content of the system of accounting, analytical and control information	+	-	+	+	-	+	-	+	+
3	The source for analysis reveals the controversial provisions of the methodological and law regulation of accounting, analytical and control information in the innovation management system	-	+	+	-	+	+	-	+	-
4	The source for analysis considers the positions of scientists and practitioners regarding the need and possibility of forming a single accounting, analytical and control space	+	-	+	-	-	+	-	-	-
5	The source for analysis considers the transition of accounting to the state of positive-normative science	-	-	+	-	+	+	+	+	-
6	The source for analysis considers the problem of identifying structural shortcomings of the concept of accounting information in modern accounting	+	-	+	+	+	+	-	+	+
7	In the source for analysis, the development of the basics of the concept of management information is considered, the main shortcomings of this concept	+	+	-	+	-	-	-	-	+
8	The intersection of the methodological approaches	+	+	-	+	+	+	+	+	+
9	Intersection by the keywords	+	+	+	-	+	+	+	+	+

The main criterion that was used in the process of selecting sources for analysis was the degree of scientific novelty, in the case of considering the problem of our research in the context of previously performed research by various authors. The model criteria were then considered. The selection criterion for all the sources listed in the list of references is the intersection of the problems considered in them with the problem of our research. For example, the intersection with Burdina et al. (2017) is the task of improving the concept of accounting information as a subject of practical accounting in the context of the transition of accounting to the state of positive-normative science. Similar is the list of tasks that should be solved in the course of the study, namely: the tasks of identifying structural shortcomings of the concept of accounting information in modern accounting; development of the basics of the concept of management information that characterizes all types of useful information that practical accounting can supply to external and internal consumers; reflection of the substantive shortcomings of the concept of management information in modern science and practice; formation of the classification of management information according to the most important features in terms of overcoming the

shortcomings of its characteristics. In addition, the criterion for selecting sources for analysis is the intersection of the methodological approaches used, in particular: scientific abstraction, scientific deduction, comparison and grouping. Such criteria as keywords were also taken into account. Summary information on the “*criterion similarity*” of the analyzed sources is given in Table 1 and Figure 1.

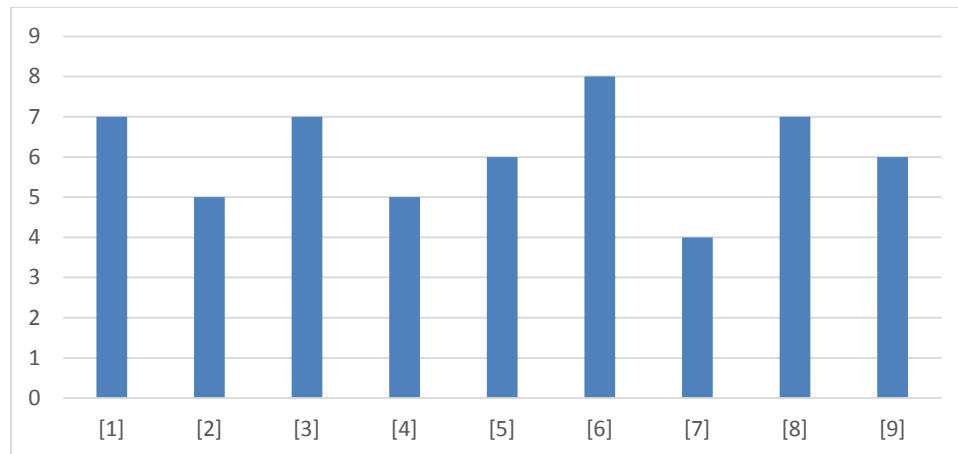


FIGURE 1
GRAPH OF COMPLIANCE OF SOURCES FOR ANALYSIS WITH THE SPECIFIED
CRITERIA FOR COMPLIANCE WITH THE RESEARCH TOPIC

Previous Research

A review of literature on information support of management showed that most authors and concepts of accounting and analytical support of enterprise business processes do not define the concept of "information." The digital information environment shapes new requirements to the content of information flows and changes the principles and methods of managing them.

Conceptual framework development for accounting information is addressed by many contemporary researchers (Lebedev, 2015). Professor K. N. Lebedev believes that the obstacle in adopting the concept of accounting information in the modern "accounting studies" is not only the spontaneous nature of its accumulation but also the official interpretation of "accounting studies" as a science of accounting rules, i.e., a normative science.

It is a justified assumption that *“accounting information is not exhaustive and principal but holds a primary and fundamental role as the basis of many secondary processes associated with assessments, problem-solving, forecasting and planning in the management system”* (Kuvaldina & Lapin, 2016). This is not to suppose, though, that *“one of the most proximate secondary processes is a system of analysis that builds a set of analytical data based on primary information with wide applications for assessments, comparisons, compliance, mapping trends, etc.”* (Oborin & Gudkov, 2019). This paper makes up for this deficiency.

Author contributions

The notion of a *“system of accounting and analytical support of production strategic management”* is specified with a description of its practical essence. The principles are described that make for the viability of the accounting and analytical support system of production strategic

management. Causal relations are shown between the elements of the accounting and analytical support system of management at an aircraft engine building enterprise and industry specifics, enterprise legal structure, form of ownership, scope of operations and aspects of the financial model of control.

Principles are proposed to improve accounting and analytical information support for managerial decision-making. The list of principles is provided below.

The conclusion is drawn that a revision of the principles and methods of accounting and analytical support of managerial decision-making would enable timely identification and optimization of resource requirements and uncovering potential reserves to support subsequent upside trends of margins for production enterprises.

RESULTS

In contrast to the analyzed scholarly and practical works on revising the principles of the accounting and control, or control and analytical systems (considered separately, as a rule), this paper proposes the principles of enhancing the information capacity of such systems as a single information complex. The principles are: external factors being the determinants of the developed management information input; a close bilateral relation between information from accounting records and reports and reports on control measures (marketing, stock-taking, etc.) expanded by analytical accounts and findings of the analysis of costs and economic process performance. The list and scope of principles adopted in the applicable legislation and recommended by researchers and the respective practical rules should be revised to meet the profile and development strategy of the economic entity.

The paper offers a specification of the concept of an “*accounting information cycle*” (AIC) as a complex of procedures accomplished in a set sequence in every period and accompanied by control and analytical activities of the accountant (analytical activities, stock-taking, reconciliation of account balances, control of records on accounts, etc.). The stages of AICs include obtaining, processing and booking primary records, recording transactions in accounting books based on the accepted documents and in accordance with the approved accounting policies (including elements of professional judgement), maintaining the digital accounting ledger, compiling a draft balance sheet, reconciling data in corresponding accounts, compiling financial reports (P&L and cash-flow statement), closing entries and compiling a draft balance sheet after closing entries. AICs are repeated in every reporting period in accordance with the resource cycle in monetary form.

Following five years of advances in digital technology, data centers have been increasingly transferred to the cloud¹. Virtualization takes over corporate management systems, only leaving out of the cloud the data of current accounting records, immediate analytical summaries on inventory releases to production and financial results of the reporting period, records of stock-taking, expertise and other proof of current enterprise operations. Such information will partially and gradually be moved to cloud storage. These trends have generated stronger theoretical and practical interest in studying the newly emerging problems of information support of management demands. One of the most important problems of this kind is the now clearly visible need to improve the methodology of development of accounting, control and analytical information and integrating it into a single organic support flow (Figure 2).

The logic of research findings is laid out in Figure 2.

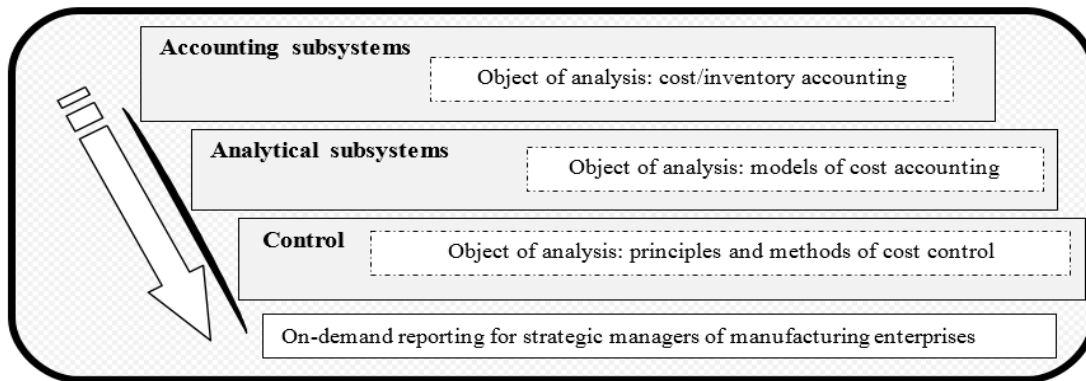


FIGURE 2
THE MOST PROBLEM-RIDDEN OBJECTS IDENTIFIED IN THE STUDY IN EACH ELEMENT OF THE INFORMATION SUPPORT SYSTEM

A special object of management is production inventory, which transforms in the accounting system as capitalized (assets) category and expenditure influencing financial results. Managing costs is arguably the most complex task in terms of precise and forward-looking information support.

As they approach information theory, researchers focus on individual objects of management, such as the movement of material, labor or other resources and the accompanying settlements. The work Volkova & Rogulenko (2017) makes a point that human resources are a principal strategic enterprise resource and an ultimate value irrespective of the object and form of ownership.

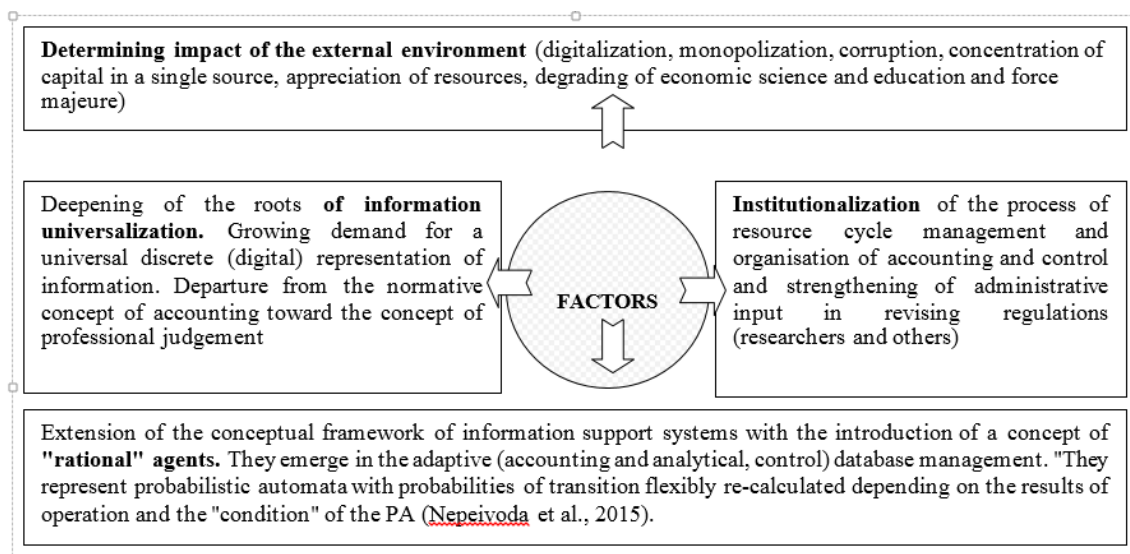


FIGURE 3
FUNDAMENTAL FACTORS OF FURTHER IMPROVEMENT OF THE METHODOLOGY BEHIND THE INFORMATION SUPPORT SYSTEM OF BUSINESS PROCESS MANAGEMENT (ACCOUNTING ↔ ANALYSIS ↔ CONTROL ↔ REPORTING) IN THE DIGITAL ECONOMY

Presumably, reliable information on the state of the enterprise's labor potential primarily involves determining the cost intensity (or financial capacity) of recruiting, payroll development and accounting and other settlements. Another very important object of management relates to costs required to build and maintain production capacities, which also integrates the enterprise's production talent. Therefore, the whole complex of elements of the enterprise resource potential, with an assigned monetary equivalent, appears as a single management object, i.e., costs/resources of expanded reproduction. Accumulating and processing information on costs characterizing specific resource cycles is arguably the most complex part of the information support system (accounting ↔ analysis ↔ control ↔ reporting) (Figure 3).

With the intact foundation of the traditional accounting model based on normative instructions and recommendations of the financial authority, questions remain concerning information support behind the main objective of modern management, i.e., obtaining momentary on-demand information of the required scope and quality.

The current information system ↔ accounting ↔ generates proof of accomplished facts of economic operations. Such information is suitable for assessing the attainment of business objectives but insufficient for mapping out economic and financial performance potential.

One can sum up that the competitive business environment and transformation processes (monopolization of ownership, digitalization of the economy across the range, tougher administrative patterns, etc.) add significantly to the complexity of all elements in the management of the economic and financial operation. These trends bring about the need to improve the informational value of the accounting, control and analytical support system serving all users of reporting, primarily, investors.

Such an enhancement of the informational value of the accounting, control and analytical support system could be driven through the improvement of intra-corporate strategic management methods in an optimized interaction of all enterprise functions. This involves the development of a new concept of financial and economic relations and digital workflow between responsibility centers and the managing center.

Proper information support of enterprise managers contributes to a better quality of business strategies and improved financial and economic performance. That requires close control of the whole scope of criteria and success indicators of economic tactics.

CONCLUSIONS

We find it relevant to:

1. The methods of accounting, analysis and control of the life cycle costs of the enterprise's products (goods, works, services) should in essence target a maximum alignment with the algorithms capturing market environment conditions (demand and supply position, competition, etc.). Among the common cost management models, analysts point at the model of target costing in which the basis of calculations is not the level of costs but market indicators (the price range for a similar product).
2. Control procedures for measuring target costs vs. actual costs can specifically start with market analysis. This means marketing studies combined with the applicable control analysis techniques would draw an objective picture of the relevance of the enterprise's product range. In turn, this information will help to prevent overstocking and other irrational waste of resources.

The content of reporting is subject to strict requirements put forth by both official authorities and shareholders or management of the enterprise. There is no way to ensure proper quality of reporting without improvements in the methodology of accounting, analysis and

control. Accordingly, an information support system serving management demands (accounting ↔ analysis ↔ control ↔ reporting) makes a crucial institute of strategic development for economic entities at the corporate and national level. Developing the methodology for this institute is an important task for researchers and practitioners, as factors guiding research focus on solutions in this direction are clear now.

ACKNOWLEDGEMENTS

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ENDNOTES

1. Before the 2010s, the problem of information storage was addressed by buying more and more servers, stacking them over and stocking information. Today, a provider buys the required equipment and installs a reliable data storage system in their data centre.

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