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## Formation of an Integrated Accounting and Analytical Management System for Value Analysis Purposes

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**Abstract:**

*The article is devoted to the problems associated with the formation and the improvement of accounting and analytical support framework when establishing the business entities' integrated accounting and analytical managerial system for the value analysis purposes.*

*According to the authors' opinion, introducing the integrated accounting and analytical system is not only a certain way to improve the efficiency in the managerial decision-making sphere, but also an essential tool throughout the whole value analysis process as well as a tool to improve the qualitative measures of accounting and analytical data required for value analysis.*

*Establishing the integrated accounting and analytical managerial system is an intensive factor to improve the whole analysis process and is intended to optimize the data flows in business entities. It also increases the analyticity of non-engineering and engineering data, that are used in value analysis group' documents set.*

*Tools that optimizing and structuring the data flows in business entities are analyzed in this article. They are as follows: applying the managerial accounting based on financial responsibility centers and the ad hoc software – i.e., modular database that collects and processes all data from business entity's subdivisions and helps to create all types of value analysis' working papers. The pattern of managing value analysis' in- and out data flows within the integrated system is also revealed by the authors.*

**Keywords:** *Value analysis, financial responsibility centers, accounting and analytical support, accounting and analytical managerial system.*

**JEL Classification Codes:** *M41, M49.*

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## **1. Introduction**

Improvement of accounting and analytical support for managerial decision-making is one of the effective methods of creating information flows for the purposes of managing the organization. The improvement of the accounting, analytical, and information management system of an organization should be comprehensive and affects the accounting and analytical system as follows:

- Accounting and financial;
- Management;
- Tax;
- Technical and design.

One of the promising areas for improving the informational component of the company's management system is the development of the theory and the methodology of an integrated accounting and analysis system for the management of the organization. Integrational approach to the formation of an accounting and analytical system for management purposes is determined by the role of accounting and analytical information in the management and its integration capacity: information unit management, people, processes and technologies that are viewed as a single system and not only as separate elements (Kalnitskaya, 2014). An integrated accounting and analytical system is also preferable for the purposes of value analysis where the integrated accounting and analytical information system applies by analyzing data in a complex manner as a certain set of interconnected and interdependent system forming components with reference to specific structural segments of the organization.

## **2. Materials and Methods**

Applying the value analysis in the company's management framework opens wide opportunities to increase the competitiveness of the enterprises by addressing the fundamental tasks of effective cost management and improving the quality of products (works, services). Performing the value analysis (VA) is a complex and multi-stage process that involves the constant interaction of the analytical group with all structural subdivisions of the analyzed organization, with formed analytical accounting support as the output. VA is a powerful strategic tool that allows to increase the efficiency of company's economic activity through rationalizing the costs of manufactured products, the services offered, and also through labor and functional optimization of the organization's structures. The effectiveness of the application of this method directly depends on the quality of information generated by the accounting and analytical system of the organization (Bukhov, 2015a).

VA, like any other complex analytical study, utilizes data from all structural divisions of the organization and also relies on information provided by external

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sources. The information used in the functional-value analysis must meet the following criteria:

- Relevance;
- Availability;
- Analytics;
- Objectivity;
- Unity;
- Efficiency;
- Coherence.

Compliance with the above-mentioned criteria allows the analyst to create working documentation and draw the necessary conclusions that can be used at all stages of functional and cost analysis. The quality of the information support of the analysis determines the effectiveness of the FSA and the positive result of taking managerial decisions on its basis. The informational stage of the VA is one of the most labor-intensive and time-consuming one. The analytical group is not limited only to economic data but widely uses technical, technological, and other information, the rational combination of which provides the user with the opportunity to work on the basis of an integral picture of the economic activity of the analysis object. These information flows are formed in all structural divisions of the organization.

In large and medium-sized enterprises, as well as enterprises with a wide range of products, the issue of collection, processing, systematization of the information support of the FSA is becoming quite relevant. Information about costs, product structure, its consumer characteristics is rather heterogeneous and is formed in various divisions and structures of the enterprise. Therefore, conducting the VA in organizations involves certain difficulties associated with the nature of the information received, its transparency, analyticity, as well as the difficulties in its comparison. Creating the integrated accounting and analytical system is intended to optimize and clearly arrange information flows in certain business entities. In order to achieve the objectives, the authors suggest the following:

- Introduction of management accounting at the enterprise and formation of accounting and analytical support in the context of Financial Responsibility Centers (FRC);
- Applying the custom software, the Integrated Value Analysis Information System.

### **3. Results**

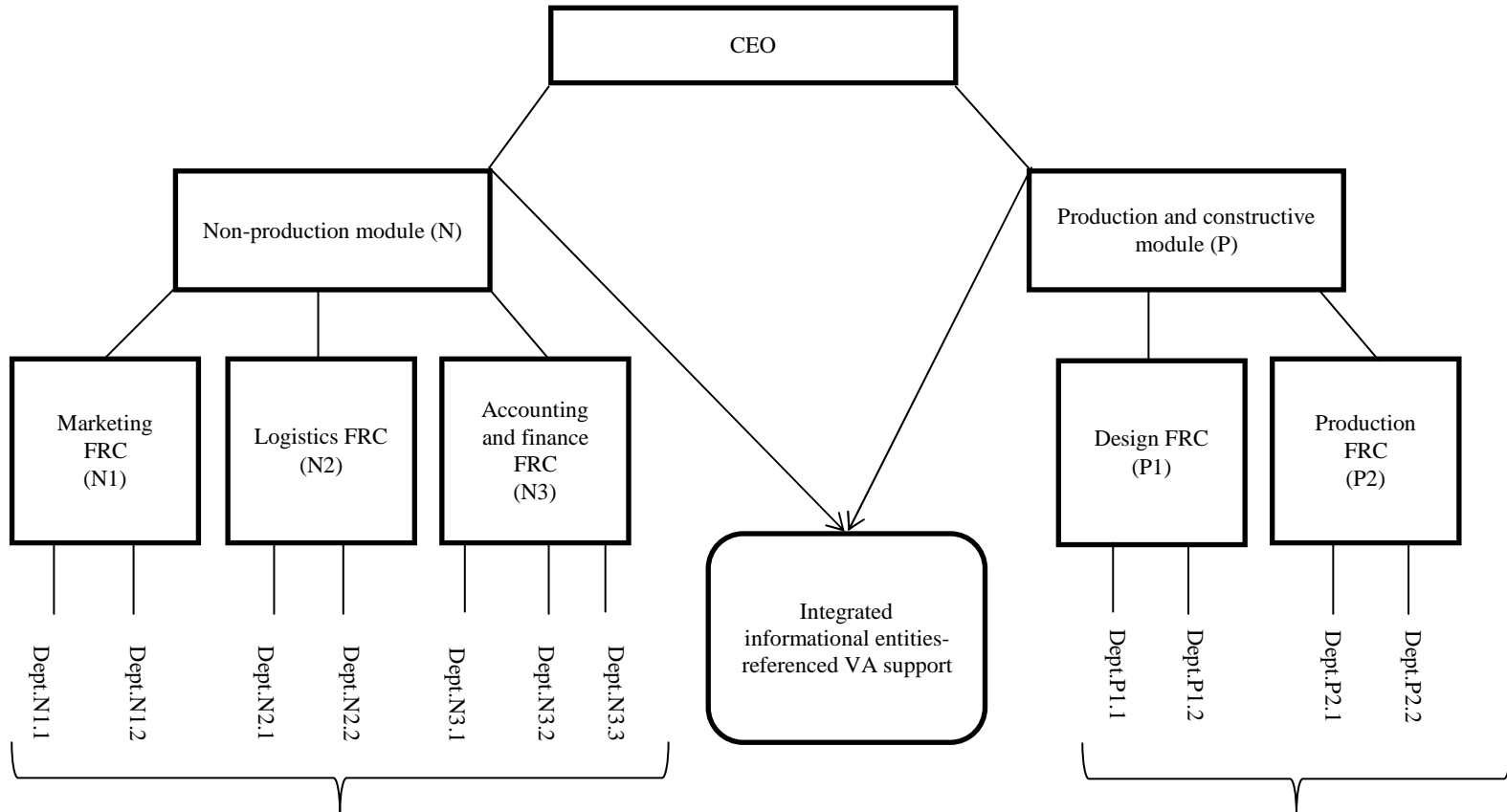
Let's take a closer look to the application of FRC concept in accounting and analytical system of the organization. The financial responsibility centers for the accounting and analytical purpose are formed as a result of the implementation of the principle of decentralization of management and the delegation of responsibility from the higher levels of management to the lower. Costs are incurred and products

(work, services) are produced in each responsibility center. FRC includes the accounting, analytical, and technical information for making managerial decisions as well. This information can also be used for the VA process just because the future data received is linked to a certain subdivision (group of units) and can be used to identify efficient and inefficient segments. In Figure 1, each FRC is associated with the performance of certain functions and represents key organizational entities that provide data for VA process.

Since the major VA information support requires a combination of accounting, statistical, technical, and design data, it is advisable to arrange the identified FRC into modules (Informational entities) - production and non-production ones. Arranging the technical, accounting, and analytical information allows the VA group to distinguish clearly the in- and out- data flows and enables proper comparison and parallel analysis at the analytical stage. In the conditions of conducting VA by external specialists, the designing of the FRC-referenced management structure provides full and structured information on the sources of accounting and analytical support and further investigate the functional component of the analyzed object, make its valuation, and identify the most significant entities in the formation of the consumer value of the final product.

With the functioning of all control subsystems i.e., general and linear management, target, basic, and auxiliary systems, the general functions of the management cycle are performed: rationing, planning, organization, coordination, regulation, activation, stimulation, control, accounting, and analysis. Each subsystem, every single element performs the inherent functions aimed at achieving the core goal: the functioning and development of the company. No functions without their carriers - systems, subsystems, elements (Usenko *et al.*, 2014). The next stage is the comparison of the identified functions of each link with the goals and objectives of the company. Unnecessary functions are identified, missing elements in the structure are revealed, the functions performed are systematized and a new management system is developed that meets the strategy and objectives of the firm. On the other hand, it is important to know for the VA group the significance of a certain segment of accounting and analytical system in the formation of analysis' support. Therefore, all functional and structural links of the accounting and analytical system's elements, the information flows of analysis are properly indexed.

Figure 1. FRC- and informational entities-referenced functional framework of the company (fragment)



The implementation of costs at each stage of the product lifecycle leads to the formation of total costs for the lifecycle at the end of it. The resulting costs should be differentiated according to the FRC, accumulating them in accordance with the stage of the life cycle of the analyzed object, the entity whose financial and managerial responsibility directly or indirectly affects the total amount of costs. FRC unite all accounting and analytical information that is processed and used by the analytical group. Thus, VA is not only an instrument of "functional and cost diagnostics" but also a regulator of total costs for the analyzed object, taking into account the specifics of all stages of its lifecycle and the FRC of the organization involved in the production and promotion of the object of analysis at certain stages of its lifecycle. Another important tool for creating an integrated accounting and analysis system for the VA purposes is utilization of special software. The advantage of VA integrated information system is the formation of a unified (shared) database and the possibility of using them in various combinations by the VA group.

The working procedures of VA are carried out in a certain logical sequence. Figure 2 shows the possibilities of applying an integrated information system at primary stages of the VA.

The information system has a modular structure and allows applying third-party software modules to improve the quality of VA process. The initial system includes:

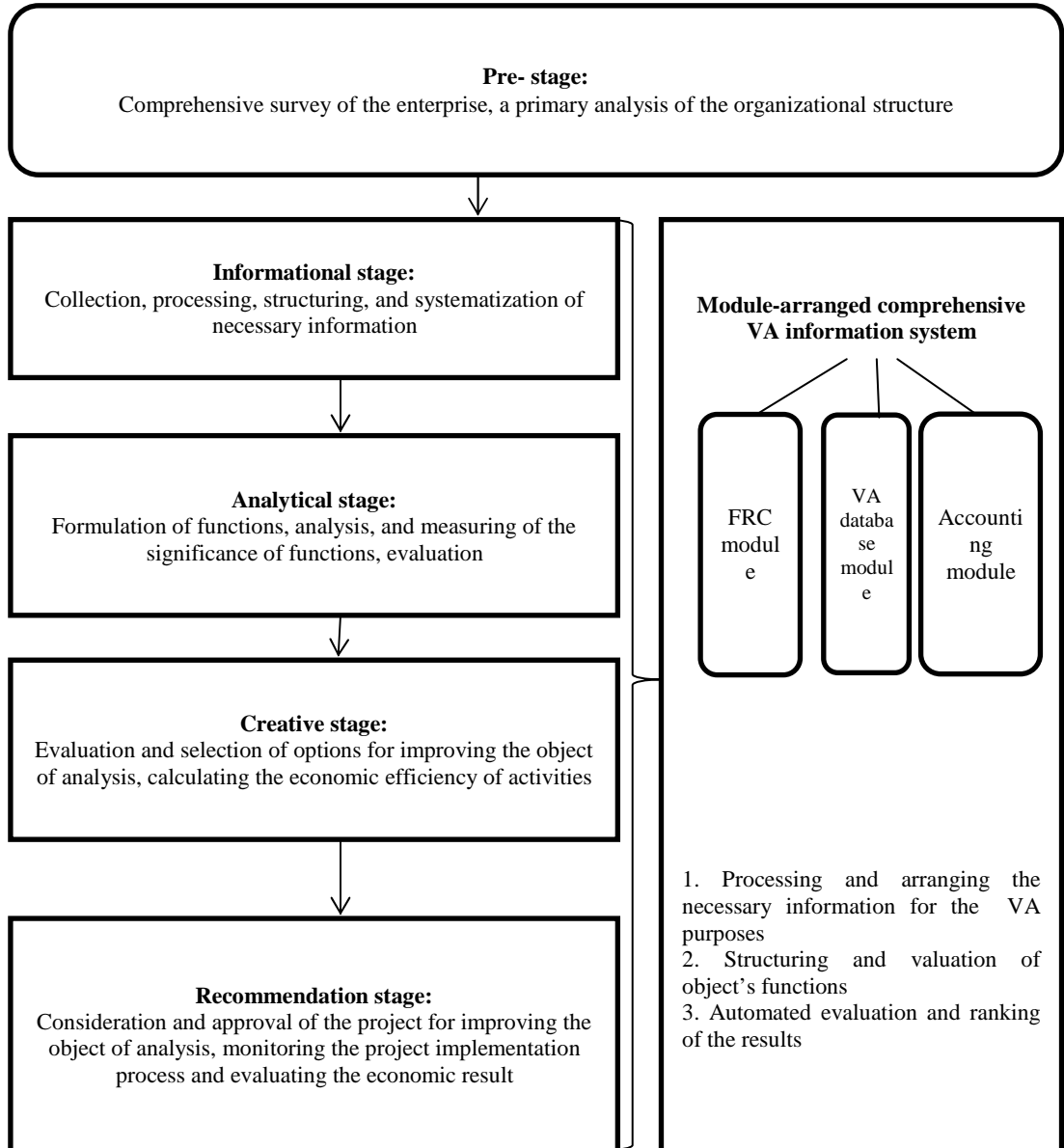
- 1) Information module of FRC (data on structural subdivisions in the context of financial responsibility centers, their role in the formation of the functional component of the analysis object);
- 2) The database of the VA (information on the functions of the object, the design and technical data about the object);
- 3) Accounting and analysis module (financial and management accounting information, costing, statistical information).

At various stages of analysis, the information system allows:

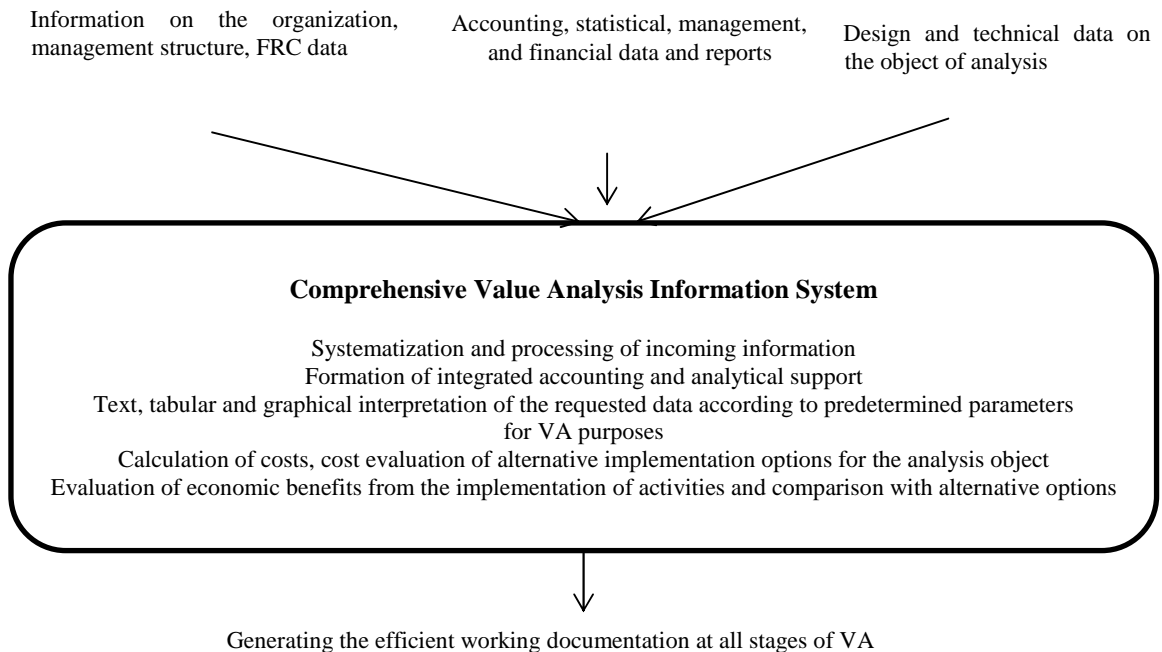
- Arranging the information provided by users on the object and the organization;
- Generating the working documentation of the analytical group of VA on the basis of data array;
- Making necessary calculations and display them in text and graphical form.

Figure 3 presents the working principle of VA Integrated Information System with data flows. Incoming information flows are formed at the enterprise and are entered into the System both in the original form and in the VA group pre-optimized forms.

**Figure 2.** Applying the Comprehensive Integrated Value Analysis Information System at all stages of analysis



**Figure 3.** Operational scheme of VA information system and data flows



#### 4. Conclusion

Using the input data array, processed and optimized for certain algorithms, the VA information system performs the necessary calculations and the users of the System receive the generated working documentation including not only the working forms with the parameters processed by the System, but also fundamentally new matrices, indicators necessary for conducting VA. The advantages of such an automated way of processing information support for the VA purposes are:

- Comprehensive and systematic nature of data, as VA implies creative approach and the need to use various data;
- Accumulation of various information in a common database;
- Saving the working time of VA group, as there is no need for constant contact with structural units of the analyzed organization and constant data processing;
- Ability to flexibly adjust the calculation algorithms for the individual features of the organization and the conditions for performing the analysis;
- Integration with the automated systems of financial and management accounting, analysis, controlling, design, and technical development used at the enterprise. Thus, FRC-referenced accounting and the use of specialized software are convenient and effective tools that form a transparent accounting and analysis system of the organization, providing data for management purposes (to make effective decisions and determine the way of organization's development) and apply qualitative, structured, and systematized information for VA purposes.



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