

# Improving the Relevance of the Budgeting System in the Transition to the Digital Economy Model

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**Abstract – Digitalization of management processes makes any industrial enterprise think about improving the relevance of the management system. A fundamental aspect of the transition to a digital economy model is digitalization of the budgeting system. The article discusses the main ways to increase the relevance of the budgeting system of industrial enterprises.**

**Keywords – digitalization, budgeting, enterprise management, costs, budget.**

In the transition to the digital economic model, enterprises are forced to seek more effective ways of planning, accounting, controlling and analysing financial and economic activities results to improve the relevance of management. That requires to scientifically transform the control system [1–3, 8]. Achieving a qualitative leap in the management relevance is possible by using a tool such as budgeting in the management accounting system. Despite the significant amount of Russian scientific researches in the field of the budgeting organization and development, the problem of increasing its effectiveness remains relevant.

Budgeting is a holistic system of development and scientifically sound selection of tactical business objectives at the enterprise level and its structural subdivisions, within the approval strategy, budgeting the future actions and monitoring the implementation of these budgets, i.e. budgeting functions and targets is identical to the internal management system.

The main objective of budgeting is to increase the relevance of all enterprise activities and the management system, in particular, by systematically targeting and coordinating all operations, identifying internal and external risks to reduce their impact, as well as creating flexible links between all aspects of the economic entity.

Budget development and modelling of configured information system is the main tool for the current business planning that evaluates the effectiveness of financial resources use.

Increased the need for prospective and operational planning, as well as the need for accumulation of relevant information in budgeting subsystems, during the transition to a digital economy model, requires industrial enterprises to digitalize the entire budgeting system. At the same time, the search, evaluation and selection of the most cost-effective option for managerial decisions using the budgeting system during digitalization become faster, more flexible and economically feasible [5].

All planning types of the production and financial component of the enterprise activities and subsequent control over the execution of budget tasks are impossible without budgeting, an effective adaptive management tool that provides the administrative apparatus with analytical, complete and relevant information on all stages of the implementation towards the development objectives of the business entity.

A formalized budget planning process is carried out regularly to ensure a coordinated approach to budget planning. In this process management, accounting specialists play the role of consultants, accounting employees and operational coordinators between the business units of the enterprise.

We highlight the most significant stages of budgeting [4]:

1. Informing all responsible persons with the details of the budget policy for each business unit.
2. Determining the factor limiting production and output.

If the budget factor is incorrectly selected or not targeted, all budgeting becomes ineffective and acts negatively on the performance of the enterprise.

3. Preparing budget-oriented production and sales programs.

The volume and range of product sales determine the level of product sales, as consumer demand is a fundamental factor limiting the achievement of planned sales figures. This forms the sales program as the basis of all budgeting.

#### 4. Forming a rough draft of forms and budgets indicators.

Responsible for achieving budget figures the managerial staff draw up budgets for business units for which they are financially responsible. Preparation of development programs and budgets is advisable with a bottom-up approach. With this approach, the lowest level of the managerial staff forms the business unit budget which passes approval coordinating the activities of other business units at higher management levels. This allows the management staff to participate in the preparation of the budgets and increases their motivation.

#### 5. Discussing all performance budgets with senior management.

The heads of business units draw up private budgets oriented to their business activity and present them for consideration and approval to higher authorities, who interconnect all budget indicators, grouping them by function. Responsibility for budget indicators at its level is assigned precisely to this leader [5].

Options to provide a budgeting system depend on the functioning features of the industrial enterprise and the objectives for its business units.

Considering the target-related analysis of deviations and formation method, we can distinguish two approaches to budgeting: static and flexible.

A static (rigid, fixed) budget is a budget calculated on a predetermined indicator of business activity of an enterprise. These budgets reflect the costs and revenues of the enterprise based on specific sales figures by type of product. Most often, the budgets included in the main budget are static, because revenues and expenses of the enterprise are forecasted in the components of the general budget, based on budgetary indicators of sales.

In the operational comparison of the static budget indicators with the actual data of the industrial enterprise, they often do not consider the real level of their activity. This stage analyzing variances with the plan is basic or zero [6].

Comparing the static budget with actually achieved results does not consider the real level of the organization's activity, i.e. all actual results are compared with the predicted ones regardless of the achieved sales volume. This stage of operational analysis of deviations is basic.

The following types of fixed budgets are distinguished [2]:

1. Incremental budgets formed from the achieved. They come from statistics over the past year adjusted for the actual conditions of the enterprise business-units;
2. Budgets with the elaboration of additional options differ in the analysis of various options;
3. Zero-based budgets are formed assuming that no budget was drawn up earlier for a business unit, cost centre or structural unit, for example, budgets for marketing, R&D, repair work, etc. This eliminates past mistakes.

Usually, the budget planning uses incremental principle, this approach is based on budgeting for the coming period by

adjusting the budget figures for the past period by a percentage of inflation or some other coefficient reflecting a change in the external economic conditions of the enterprise.

In the recent practice of Western business, the principle of zero-based budgeting has become widespread [7].

Zero-based budgeting arose in contrast to the traditional approach to budget planning. The meaning of the approach is that a new budget is developed every time anew without using information from past periods. The initial budget formed with this assumption is always zero.

The zero-based budgeting stimulates the consideration of alternative options for implementing objectives and conducting a thorough operational analysis at the end of an operation or event that entailed the costs of their implementation.

The approach requires that all planned activities be considered separately with the aim of prioritization before deciding on the direction of spending existing resources.

The use of zero-based budgeting in their entirety in all areas is rare practically. The main reason for this is the high complexity of the method, leading to high costs for its use. This approach is applied only some departments or units of the organization, along with the traditional approach in other units.

Currently, budgeting is digitalized with computer programs designed for the needs of the enterprise, or large commercial information tables such as Lotus 1-2-3, Symphony or Visicalk [8].

When digitalizing budget implementation, management analyzes it with minimal time and effort, but the main advantage of digitalization is the opportunity to evaluate a larger number of relevant budget options before their final adoption. The use of relevant models allows the application of factorial and other types of budget scenario analysis. Computerized models accumulate information on strategically important indicators, automatically performing operational calculations, generating analytical reports on the implementation of multilevel budgets, as well as adjusting budgets for the remainder of the reporting year with changing factors.

Using a flexible budget, the second-level analysis, the manager creates a clear correlation between the static budget indicators and the actual results of the enterprise.

A budget is flexible, with fluctuations in the budget figures of industrial enterprises business. It provides a range of sales, services, work, by correlating cost behaviour with sales volumes: dividing them into constant and variable [3, 12, 14].

The process-oriented approach involves the synthesis of two strategies: industrial enterprise performance management and cost behaviour management using innovative approaches.

Strategic performance management is based on the application of a balanced scorecard system (BSC). The BSC creation consists of the formation of meaningful strategic objectives based on the study of customers, buyers and the

market as a whole. These objectives orient the entire movement of the enterprise towards achieving the desired results, in performance indicators of business units.

The second strategy consists of the phased implementation of Activity-Based Costing (ABC), Activity-Based Management (ABM), followed by the transition to Activity-Based Budgeting (ABB) [2, 5, 15]. Such tools for operational controlling or management accounting as ABC, ABM, BSC will help the enterprise to effectively structure budget items that will be relevant for the selected estimated indicators of business activity with profitability, cost allocation by functions and product profitability groups.

Implementation of the ABB method begins with the formation of a customers catalogue and the aggregate of their needs, followed by a marketing analysis of competitors: direct and producing substitute goods. Budget tables should build on a forecast of possible revenues and expenses.

The ABM approach is effective only in strict compliance with the established principles of budgeting by all business units of the enterprise, which must be notified to each manager and each performer. The principles of budgeting should orient the management staff to the development of promising business trends, reduction of works, activities that incur overhead costs. The authority to ensure the achievement of the business objectives should be delegated to the management staff of different levels.

Digitalizing the budgeting system at industrial enterprises, as an operational and strategic management tool, eliminates many of the shortcomings of the planning system, but it also has some problems when implementing it in an existing system.

Many of the economists involved in the practical implementation of short-term integrated budgeting in industrial enterprises noted an increase in the main indicators of business activity after the transition to an automated budgeting system. Modernization of methods and the transition to digitalization helps to increase revenue and profits, increase the efficiency of production resources and equipment loading while reducing the receivables and borrowings required by industrial enterprises [2, 9, 10].

Using budgets with digitalization tools will give industrial enterprises many significant advantages [10]:

1. A weekly breakdown of the budgets of the business units will provide more analytical indicators of the amount and structure of all costs types for the formation of relevant internal reporting that reflects the variable values of cost and profit indicators for the business units;
2. As part of adopting weekly and monthly budgets, business units at industrial enterprises will also receive the authority part in the areas of funds expenditure received through savings: favourable deviations in private spending budgets;
3. Automating the analysis of controlled limit values of budgets will allow employees of the economic departments to switch to more important areas of work, reducing overhead costs of working time and effort;

4. Digitalization of budgeting will make it possible to automate the search and analysis of reserves for reducing costs, revenue growth and efficiency of resources management;

5. it has a positive impact on the motivation and mood of the team. Communication processes are developing;

6. the budgeting system is a tool for comparing the achieved and planned performance indicators of the enterprise.

In the context of the transition to digitalization, improving the relevance of enterprise management system needs to transform the process of budgeting the financial and production activities in the following areas [7, 12, 13]:

1. Transformation of internal documentation with digitalization of accounting and analysis of all resource and cash flows types.

2. Reasonable distribution of the functions of the budgeting system by responsibility centres in the organization of financial and managerial accounting.

3. Formation of the system to stimulate the implementation of business-units budgeting by creating centers of financial responsibility.

In the transition to a digital economy model, the budgeting system of an industrial enterprise should work according to previously approved regulations and limits. It is necessary to consider the impact on the whole process and the formation of budget indicators of the human factor.

It is advisable to organize the budgeting process at industrial enterprises so that the last stage of planning offers the management the following budget forms [12, 14]:

1. The operating budget of income and expenses, disclosing them for certain periods;
2. Operating cash flow budget;
3. Strategic and operational balances.

In the context of the transition to digitalization, improving the relevance of operational budgeting and control of an industrial enterprise needs to determine all the trends of the business units work and to form a distribution scheme of financial resources between them. Creating a cross-functional specialists` team of financial services and various departments, business units, allows the managerial staff to fill the gaps in the information base for limiting and budgeting.

The second stage is evaluating the existing planning system, accounting and controlling the enterprise, considering its operational and strategic objectives. It is necessary to determine the main business tasks, on which then Balanced Scorecard is developed.

An enterprise functions efficiently only with the accumulation of analytical, complete and timely information. In this case, the business units of the enterprise will receive relevant information on tactical and strategic tasks and objectives. Both the manager and the executor must fully assume their role in the implementation of the private budget within the framework of the general. This will help

consolidate the responsibility of individuals for the execution of private budgets.

Digitalization of the budgeting process is the implementation of specialized IT technologies for the operational and systematic formation of all budgets types, planned indicators, limits, operational monitoring of their compliance, as well as conducting a retrospective analysis.

The development of the enterprise dictates the need to transform the information system and apply new methods for its processing, the most flexible when using digital technologies. With the growth of volumes, the need for creating an automated relevant budgeting system increases.

Integrated digitalization of the entire management system based on budgeting will allow any services to reduce the time of searching, processing data, as well as generating analytical reports to a minimum. The relevance and efficiency of all financial information received by the management staff and senior management of the enterprise in order to make informed decisions depend on the effectiveness of the created system.

Budgeting automation at industrial enterprises can be implemented using 1C software products. There are two models for implementing an automated budgeting system using programs, "1C: Enterprise" presented in Figure 1.

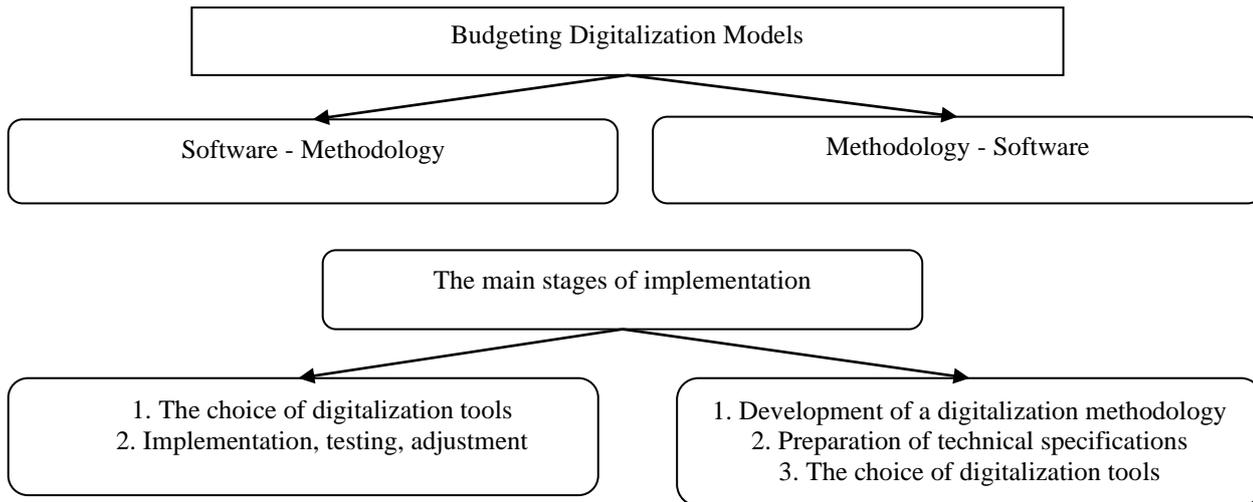


Fig. 1. Models of budgeting automation [5, 7, 11]

One of them suggests starting the formation of a budgeting system with automation, i.e. the enterprise initially selects the software product that is most suitable for its specifics.

The simplicity of this model predetermined its frequent use in practice, however, it is not always possible to adapt a finished program – the costs of its implementation may not pay off.

To improve the efficiency of budgeting for industrial enterprises, it is necessary to create a methodological basis for digitalizing this process. It must include the following local documents:

1. The concept of budgeting with a detailed description of the rules for the functioning of the management accounting and budgeting system.
2. Regulation on responsibility centres for the financial structure of the enterprise with a list of the main lines of activity of the enterprise and types of costs, the structure of responsibility centres of the industrial enterprise and their scope of authority, etc.
3. The budgeting regulation includes:
4. The budgeting methodology, namely, the rules for the formation of planned figures in budget articles of all budget forms;

5. Budget forms, namely, templates for presenting enterprise budgets by cost items, revenue structure, or other analytical breakdowns;

6. The plan-fact analysis sets the boundaries for favourable, permissible and unfavourable deviations for different budget items. For example, a favourable deviation is 0–3 %, an acceptable deviation is 4–7 %, an unfavourable deviation is more than 8 %.

7. Budget regulations, routes of action for the development, coordination, adjustment, analysis and approval of budgets.

Thus, the introduction of a budgeting system at an enterprise touches upon many issues related to the management of the entire company, so they should not be overlooked. In the future, the automated budgeting process will contribute to the development of the company as a whole, increase labour productivity and management efficiency, streamline budget discipline, which, in turn, will help the company achieve strategic objectives and bring it to a new level.

## References

- [1] I.L. Avdeeva, "Digitalization for inclusive economic growth", Materials of the scientific-practical conference with international participation, ed. A.V. Babkin. St. Petersburg: Peter the Great St. Petersburg Polytechnic University, 2017, pp. 16–22.
- [2] S.G. Bazileva, A.A. Shirokova, "Digitalization as a factor in the development of the Russian economy" In the collection: Science Week SPbPU materials of a scientific conference with international participation, pp. 6–9, 2017.
- [3] A.E. Boreyko, "Digitalization of logistics and intellectual mobility", Telecommunications, no. 10, pp. 93–96, 2017.
- [4] E. Voskanyan, I. Krivoshapka, "Digitalization of the economy: influence on management", Effective Crisis Management, vol. 6, no. 99, pp. 6–11, 2016.
- [5] E.E. Esakova, "Automation of operational reporting in the cost accounting system", Bulletin of the University, no. 17, pp. 140–141, 2011.
- [6] D.M. Zozulya, "Digitalization of the Russian economy and industry 4.0: Challenges and Prospects", Issues of the Innovation Economy, vol. 8, no. 1, pp. 1–14, 2018
- [7] S.A. Inozemtseva, V.S. Feofilaktova, "Digitalization in Russia", Actual problems of economics, sociology and law, no. 4, pp. 28–30, 2017.
- [8] I.A. Kvasov, Digitalization and integration of technology and management as a mechanism for increasing efficiency. Moscow: Scientific technology, 2017, 303 p.
- [9] A. Korobnikov, "The digital production management system is an important step to "Industry 4.0"", Technologies in the Electronic Industry, no. 7, 2016.
- [10] O.S. Litvinenko, "Digitalization of industrial enterprises: problems and prospects", Russian economy in modern conditions: ways of innovative development and competitiveness. Ed. E.A. Gorbashko. St. Petersburg: St. Petersburg State University of Economics, 2017, pp. 27–30.
- [11] M. Naumkin, Five Trends in the Digital Economy of Russia in 2018. Retrieved from: <https://rb.ru/opinion/ekonomika-rossii/>
- [12] M. Naumkin, Technologies that determine the transition to a digital economy. Retrieved from: <https://idexpert.ru/reviews/14105/>
- [13] K. Teryokhin, Digital Economy of the Russian Federation, the technology of the digital economy. Retrieved from: <https://ruscoins.info/faq/cifrovaya-ekonomika-v-rossii/>
- [14] A.S. Sagynbekova, "Digital Economy: concept, perspectives, development trends in Russia", Theory. Practice. Innovation, April 2018. Retrieved from: <http://www.tpinauka.ru/2018/04/Sagynbekova.pdf>
- [15] V.V. Shmelev, "Digitalization as one of the conflicting areas of the global monetary system development", Financial life, no. 1, pp. 104–107, 2018.