

METHODOLOGY OF CALCULATING BUDGETING AT INDUSTRIAL ENTERPRISES

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Abstract: *This article is devoted to the consideration of the issues related to budgeting at industrial enterprises. Based on the research results, the author has developed relevant proposals. In addition, the scheme of the budgeting for the enterprises of the ferrous metallurgical industry has been proposed.*

Key words: *Industrial enterprise, budgeting, financial budget, operating budget.*

Introduction

Rapid changes in the external and internal environment of the enterprise oblige the management of industrial enterprises to search for efficient ways of making decisions to achieve their strategic goals. One of the financial instruments for achieving the goals is budgeting which combines management and accounting and which enables to adequately utilize the company's resources.

The functions of enterprise management include planning of its activities in the form of budgeting with subsequent analysis of the budgets executed. The success of industrial enterprises is based not only on cost and income accounting, but also in adequate management. Planning promotes achieving the economic goals set forth for the company. Under conditions of the global economy, when competition plays a huge role, it is impossible to achieve an increase in profits without taking into account consumer-based approach. With the aim of using money of the company as efficiently as possible, it is required to use simple management accounting mechanisms. Budgeting is considered to be one of such mechanisms.

Literature review

Before launching the budgeting process, an industrial enterprise sets forth itself a specific mission. In order to fulfill this mission, the enterprise develops its strategic plans which constitute the strategy for achieving the company's goals (Karu, 2008).

The main business processes can include supply, production, sales, i.e. the creation and sale of services or products. These processes are provided through the available resources, employees of the company and financial opportunities.

In our opinion, budgeting is a process of coordinated planning and management the company's performance using the indicators that help to determine the contribution of each subdivision and each manager in achieving goals. As our research has demonstrated, more than half of the companies are not able to develop budgets that comply with the company's strategy. Accordingly, the achieved result on the basis of the adopted budget does not coincide with the goal determined for the company. The basis of budgeting is cost minimization, and not the search for how to increase the value of the company.

From the point of view of the author, budgeting can be determined as a continuous process of the efficient use of the company's resources to minimize costs for a certain period. The budgeting process is carried out through planned budgets determining the centers of responsibility for execution, accounting of the received data and analysis of their deviations in order to avoid the repetition of mistakes in the future.

Analysis and discussion

The main aim of the budgeting is to coordinate all aspects of the company. The objectives which must be solved by the budgeting can be formulated as follows (Shiborsh, 2003):

- budgeting is required for understanding where, when, how and for whom you are going to produce and sell products;
- budgeting is required for a certain volume and amount of resources needed to achieve the goals;
- budgeting is required for the efficient use of attracted resources.

In the opinion of the author, the main objectives and relevance of budgeting is associated with the elaboration of strategies and modernization of management development and planning processes, resource allocation, optimization and analysis. The role of budgeting also includes the delegation of tasks, transfer and development of information and rather significant for the staff motivation.

The main functions of compiling the budget are the following:

- developing and selecting the strategy;
- providing the information to be selected;
- making accountants and managers to plan;
- creating prerequisites for measuring, analyzing and evaluating performance;
- promoting coordination of actions, delegating powers and transferring the information from one subdivision to another one;
- developing and motivating employees.

The budget management cycle is a continuous process and a particular attention should be paid to each stage, and the continuity of the cycle can be demonstrated in Figure 1. This picture illustrates how the budgeting process should ideally happen, but often in practice not everything is so perfect as it seems.

As it is obvious from the Figure, budgeting is a constant cyclical process and each of its stages is a structural unit of the whole system.

At the planning stage, the number of available or borrowed resources is determined to achieve certain results in future. Theoretical knowledge, scientific findings, economic condition of the company in this market help to efficiently schedule the achievement of planning results. An assessment of the planning efficiency is provided by comparing planned and actual results.

Another significant objective of budgeting is coordination. The interconnection of individual units can be observed at this stage. Moreover, the whole budget system is consolidated into a single system of the company, which in turn, facilitates coordination of operational activities.

Further the determination of responsibility centers in structural divisions is identified. Furthermore, interrelations between different divisions are established, and the hierarchy in management is determined. Execution and control represent one more

significant objective. Execution is analyzed on the basis of the comparison of planned and actual while control ensures the smooth implementation of the planned budget.

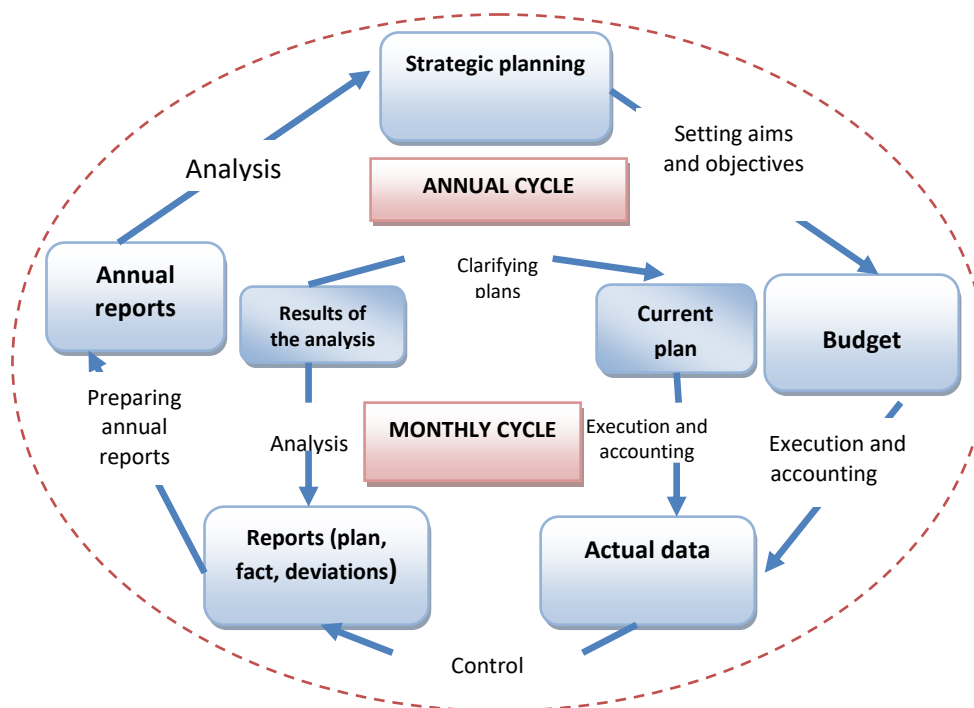


Figure 1. Budgeting cycle at industrial enterprises¹

The basis of budgeting is constituted by a common (master) budget which is represented by a working schedule for the company as a whole, coordinated across all departments or functions. It consists of operational and financial budgets. Budgets are developed both for structural units and for the company as a whole. Budgets of the structural units are consolidated a single budget of the company called the master budget.

1. *Operational budget* includes: sales budget; industrial budget; budget of inventory; procurement budget (use of materials or direct material costs); budget of overhead costs; labor cost budget; budget of commercial expenses; budget of total and administrative expenses.

2. *Financial budget* includes: pro forma income statement (profit and loss account); cash flow budget (cash budget); forecast balance; capital expenditure budget (investment budget).

In the structure of the master budget *the investment budget* has recently been separated from the financial budget to the third component of the master budget.

The operational budget illustrates planned operations for the upcoming year for a segment or a separate function of the company. In the process of its preparation, the projected volumes of sales and production are transformed into quantitative estimates of income and expenses for each of the operating subdivisions of the company.

A *financial budget* is a budget that reflects expected sources of funds and the possible areas for their use in a future period.

¹ Developed by the author on the basis of the research results.

The budget for the purchase of raw materials and consumables represents a plan for the equipment and material procurement unit. This plan for the equipment and material procurement unit is developed with the account of the following factors:

- production program;
- standards of reserves of material resources;
- rates of consumption of raw materials and consumables, semi-finished products, fuel, spare parts;
- plans for capital construction, reconstruction, pre-production of new goods, repair and maintenance of equipment, buildings, structures, household objects, etc.;
- balances of material resources at the beginning and end of the planned period;
- established and newly opened relationships with suppliers;
- prices for all types of material and technical resources.

The basic stage of budget planning is to determine the need for materials for the core business. This term refers to the part of the company's variable costs, related to the costs of tangible floating assets (raw materials, consumables, spare parts, etc.).

In terms of the stages of the financial cycle direct materials are divided into:

- related to the production stage;
- related to the sales stage.

The need for materials for the core business activities at industrial enterprises ($G_{m.c.b.ac.}$) is determined by the formula:

$$G_{m.c.b.ac.} = \sum_{i=1}^m Q_i n_i \quad (1)^2$$

where Q_i – production volume on each item (units);
 n_i – material consumption rate for one product with the into account process losses (physical units); m – number of product names.

Total need for certain materials (G_m) is determined by the formula:

$$G_m = G_{m.c.b.p} + Z_{n.m} - Z_{a.m} \pm G_{m.n.e} + G_{m.r.m} \quad (2)^3$$

where $G_{m.c.b.p}$ – necessity for materials for the core business production, $Z_{n.m}$ – norm for materials inventory; $Z_{a.m}$ – actual availability of materials at the enterprise; $G_{m.n.e}$ – necessary amount of materials to modify uncompleted production; $G_{m.r.m}$ – necessity in materials for repairing and maintenance activities.

Necessity for material resources is determined by:

- core business production, including production of components and spare parts;
- production of machinery and tools;
- production of non-standard equipment and equipment modernization;
- reconstruction of production workshops and sites;
- repairing and maintenance needs;
- major construction;
- activities of social, cultural and household spheres;
- stockpiling.

² Developed by the author on the basis of the research results.

³ Developed by the author on the basis of the research results.

The development stage of the budgeting system is the most complicated and time consuming. Before starting to create this system, it is necessary to determine how the organization will plan its activities: targeted planning (or “top-down” planning) and “bottom-up” planning (Savchuk, 2005).

When the budget is developed in “bottom-up” way based on the activity plans of certain subdivision which are further submitted upward to determine the indicators for the entire company. A particular plan aimed at achieving certain economic indicators is compiled on the basis of economic indicators. This kind of approach is carried out in “top-down” way. This process can be long, since the movement of information “bottom-up” and “top-down” occurs several times to clarify and select the strategy and other aspects that are important in budgeting.

The considered budgets are static or fixed as they are calculated at one specific level of expected sales or production. A total budget that includes all periodic budgets is usually developed for a fixed, projected or regulatory level of output. Prior to analyzing deviations from the budget data, with the aim control, the whole set of the budget data should be adjusted for the corresponding actual release. A flexible budget is used for these purposes. It should be noted that a flexible budget provides forecast data for different levels of output within the usual levels of activity. With a flexible budget, the link between a static budget and actual results is clearly indicated.

A flexible budget (or variable budget) is designed to take into consideration alterations at the level of activity, for example, production volume. Within the period over which the budget is compiled, items of fixed costs such as rent, for example, are not modified with changes in the production volume. Other costs will vary in proportion to the level of the output or sales.

With a flexible budget, the production cost per each item of production is determined by reconsidering budget indicators in terms of the actually achieved level of production. With the aim of cost management it is possible to analytically compare actual costs and the amount of funds allocated by the budget, since planned and actual costs are calculated for the same production level.

The use of a flexible budget in practice represents the process of preparing a number of budgets that determine profits and costs for different levels of activity, for example, for production. As an alternative option to several budgets it is possible simply to reconsider the budget figures at the end of the budget oversight period when the production level becomes available.

The table below considers the use of a flexible budget for analysis and oversight by case-study of “ABC Metkombinat” industrial enterprise. Thus Table 1 presents the actual and budget data for “ABC Metkombinat” over a year.

As the Table illustrates, the actual costs exceeded the targeted costs by 14 300 or 7,2%. Thus it is possible to calculate that this excess is very significant and unfavorable. However, it should be noted that the actual output (19100 tons) was higher than the planned one (17500 tons), and thus comparing the results of the performance with the static budget data is not adequate for assessing implementation of the cost budget.

Table 1

Comparison of actual and budget data⁴

(thousand UZS)

Items of expenditures	Budget	Actual	Deviation
Direct materials	42,000	46,000	(4,000)
Direct labor costs	68,250	75,000	(6,750)
General production expenses	10,500	11,500	(1,000)
Variable			
Indirect materials			
Indirect labor costs	14,000	15,250	(1,250)
Utility costs	7,000	7,600	(600)
Others	8,750	9,750	(1,000)
Fixed	19,000	18,500	500
Salary of inspector			
Amortization	15,000	15,000	-
Utility costs	4,500	4,500	-
Others	10,900	11,100	(200)
TOTAL	199,900	214,200	14,300
Budget output constituted 17500 tons.			
Actual costs on the actual production volume constituted 19100 tons.			

To achieve accuracy and legitimacy of the analysis we must adjust the budget data for the actual output of 19100 tons. Unlike a static budget, a flexible budget provides forecast data automatically adjusted to changes in the output level. The budget consolidates the account data by the selected direction or business object. The budget is planned on the basis of the norms adopted in this direction or the object with the account of their previous functioning.

The budget is a management tool based on the analysis of the reasons of deviations of the actual indicators from the planned ones (Figure 2).

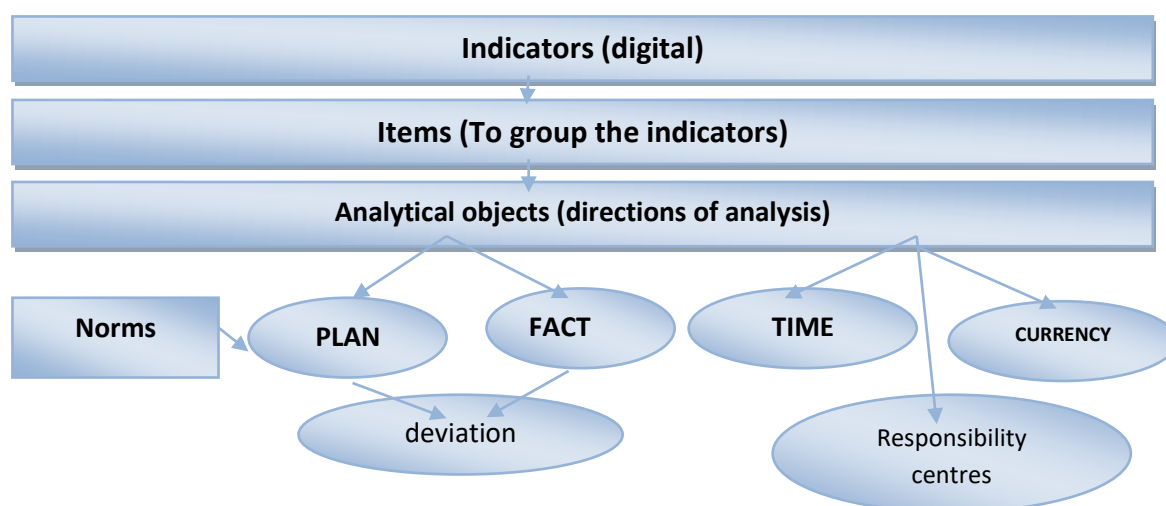


Figure 2. Management scheme on the basis of the analysis of reasons of deviations of actual budget indicators from the planned indicators⁵

⁴ Developed by the author on the basis of the research results.

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The budget has a hierarchical structure of the items where the most complicated item has one or more numerical indicators. The system of indicators is created within the framework of the concept of BIS (Balanced Indicators System). We must determine the basic leading indicators to evaluate the analyzed business processes and business objects, as well as to group these indicators into appropriate items articles and then into budgets (Figure3).

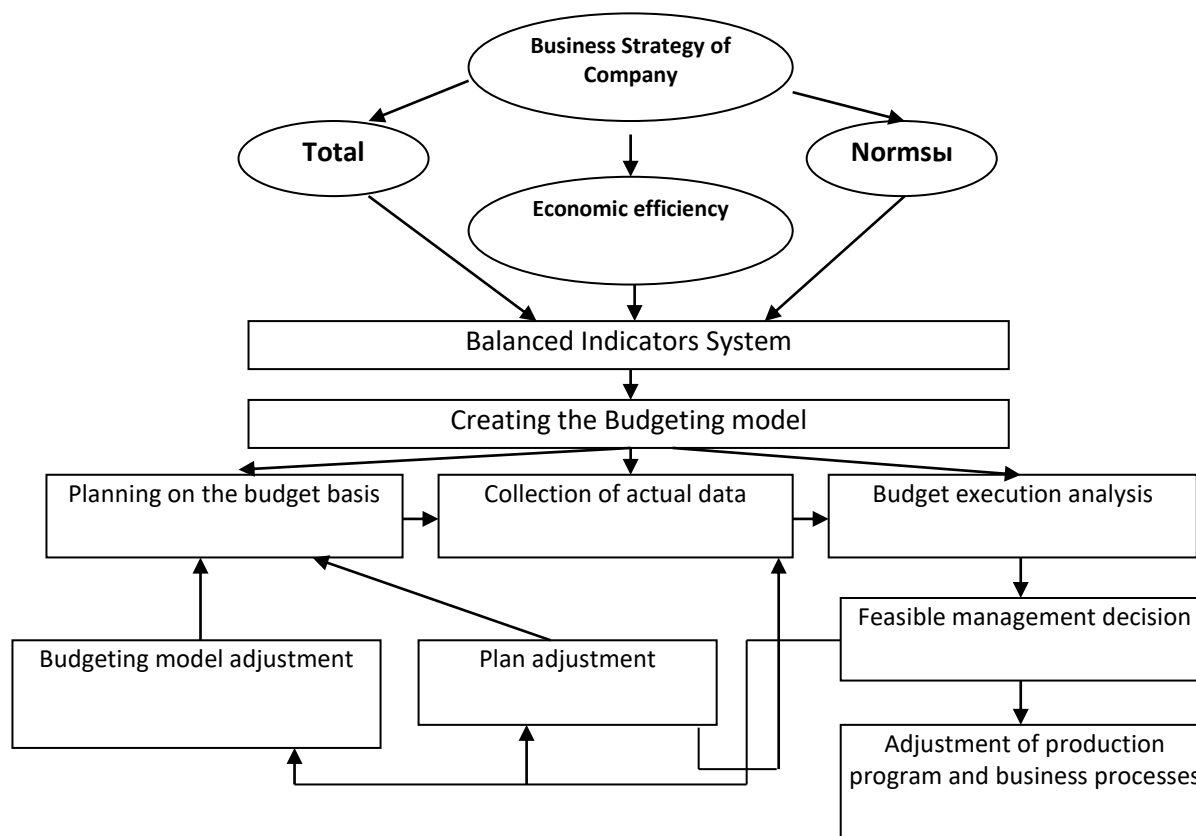


Figure 3. Budgeting process at industrial enterprises⁶

The main aims of improving the budgeting system include the relationship of unity of plans and strategic management in the efficient management of the enterprise. As it has been previously noted, reporting should be available and understandable to the person whom this information is addressed. In addition, promptness and reliability of the necessary information are also very important. Maintaining a unified system of accounting and management accounting will promote rapid processing of the required information.

The selection of responsibility centers will assist in finding a person responsible for the implementation of the plan and for analyzing deviations of performance at any time. Coordination of responsibility of the structural units for the budget execution facilitates making timely adjustments to the budget. Data for the future period should be analyzed and appropriate adjustments should be made to avoid previous mistakes and omissions.

It will be inefficient to develop a completely new budgeting system, as the company has already developed a certain system. It is necessary to comprehensively

⁶ Developed by the author on the basis of the research results.

analyze all stages of the budgeting process, as well as evaluate each process and find a more efficient solution.

It should be noted that when preparing the expenditure budget, the company naturally aspires to reduce costs which can also affect the product quality. Prime-cost reduction and, as a consequence, a decline in the sale price cannot be a guarantee that the goods will be in demand by the consumer. The consumer is willing to pay for quality, so it is required to use a careful and reasonable approach to the preparation of the expenditure part of the master budget having selected choosing the most appropriate option between reducing production costs or choosing suppliers or competitiveness.

On the basis of the studied theory and analysis of the state of the budgeting system, the author has developed relevant recommendations to be implemented at the industrial enterprises.

Conclusion

An efficient budgeting system will promote elimination of problems even before they occur taking into consideration ongoing monitoring and analysis of deviations. Furthermore, it will enable to visually observe the connection between different structural subdivisions by identifying responsibility centers in budgeting and motivating staff to achieve a single goal for an industrial enterprise.

The problem of budgeting is basically challenged by an accountant when it is necessary to compile an annual report and provide data on budget execution and future plans. Often budgets are transferred from the head office which can be located abroad as it happens at the enterprise selected as a case-study. The received budget remains as just a plan on paper without bringing any benefit. To achieve benefits provided by the compiled budget it is necessary to implement a number of measures. In this regard each employee of the company must be familiarized with the aim and objectives of the company for future.

Each of the process participants should be interested in achieving the aims set forth. Aims and objectives should be clear to everyone, they should be neither easy nor difficult to achieve otherwise the employees disappear.

In connection with the rapidly changing economic conditions, budgets compiled for a year and split by months with the aim of making necessary adjustments are recommended to be reconsidered at least a quarter. New technologies and competition are forcing company executives to rapidly respond the changes in the external environment and wherein budgeting will help with a constant analysis of the fact and the plan.

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