

Budgeting automation in construction companies

Elena V. Kuznetsova

Associate Professor, Department of Business Analytics
National Research University Higher School of Economics
Address: 20, Myasnitskaya Street, Moscow, 101000, Russian Federation
E-mail: ev.kuznetsova@hse.ru

Abstract

The article focuses on corporate information systems intended for management accounting and budgeting (MAB) in project-oriented construction companies. The author argues that the successful implementation of such systems requires a comprehensive approach involving the development or the adaptation of MAB philosophy taking into account the software functionality and related business processes. The author demonstrates that ERP software is the most effective technological platform for corporate MAB systems of project-oriented companies. This is explained by the fact that the ERP systems have both sufficient functionality for project management automation and appropriate tools for management accounting and budgeting. Relying on this analysis, a comprehensive approach and appropriate solutions for developing corporate MAB systems in project-oriented construction companies are proposed. The methodological solutions proposed in the field of MAB design take into account the specific nature of a contractor who carries out construction projects for external customers.

In particular, the following methodological solutions are presented: establishing temporary project-based profit centers in the construction company's financial structure; using administrative quasi-projects and the "direct costing" method for fixed overheads costing in certain departments; establishing temporary profit centers related to production departments (internal subcontractors). This paper also shows how such a financial structure may be used in the SAP ERP system relying on the end-to-end "project" attribute.

A budgeting structure with two versions of the corporate master budget is proposed. The first version of the structure is based on the contracting plans and the second – on the last approved project budget versions. The paper shows that monitoring implementation is necessary for both master budget versions.

The main assertions and results of the paper are applied in the implementation of a corporate MAB information system based on SAP ERP in a construction company. The results of the system's implementation and operation have shown significant improvement in the key financial indicators of the company, including profits, rate of return and net cash flow.

Key words: information system, budgeting, management accounting, construction project management, project-oriented business.

Citation: Kuznetsova E.V. (2016) Budgeting automation in construction companies. *Business Informatics*, no. 3 (37), pp. 45–53. DOI: 10.17323/1998-0663.2016.3.45.53.

Introduction

In times of economic depression, the construction industry appears to be extremely sensitive to decreasing demand and economic activity. Some construction projects are discontinued, while other projects

face reduced investments. To survive in such conditions, construction contractors should curtail inefficient activities, avoid high-risk projects, and adjust their relationships with suppliers and customers. Inefficient construction contractors will have to withdraw from the market.

Management accounting and budgeting information systems (MAB systems) are a powerful tool for increasing efficiency of both individual construction projects and the construction companies in general. Such systems provide real competitive advantages, facilitating project implementation planning and analysis, as well as the appropriate decision-making. However, MAB automation projects in the construction industry are not always successful. One of the main reasons for such a problem is the lack of a comprehensive approach to creating the MAB systems. Such an approach should involve MAB philosophy design (or adaptation) while taking into account the capabilities and features of implemented software and organization of relevant business processes. At present the problem of automated MAB organization in construction contractor companies has no integrated solution.

The main methodological aspects of the MAB are sufficiently developed and presented in academic literature. However, the authors of such papers usually consider MAB problems only for operating the business, investment projects, programs and portfolios. The paper [1] is perhaps the only book written by a Russian author that is fully dedicated to the MAB specifics in project-oriented companies. It deals with creating a budgeting system using the example of a telecommunication company that provides production, maintenance and delivery services and applies an MAB system based on "Intalev: Corporate Finance 2005" software.

Certain aspects of project budgeting are presented in international, national and industry related project management standards. For construction companies, the PMI Institute (Project Management Institute, USA) issued a Construction Extension to the PMBoK Guide [2]. This guide has sections dedicated to project cost and funds management. There are also a significant number of publications (including in Russian) on project management processes in construction, as well as on construction company management as a whole [3, 4]. Using the best practices and availability of the corporate project management standards are one of the success factors in MAB systems development. However, the standards and the academic literature in the area of project management and construction management cannot become a methodological base for the MAB setting due to their content specificity.

Therefore, we may conclude that at present the methodology of MAB automation in project-oriented companies that carry out construction projects for external customers has not been studied enough. In addition, MAB methodology cannot be developed without considering the information system used for budgeting and

accounting processes. Practitioners have to solve these problems on their own or with the help of consulting company specialists. Moreover, the experience that has been gained in this area is not summarized and is not presented in publications.

Selection of an MAB information system is also related to specific practical problems. Special-purpose information project management systems that are well-known in Russia such as Microsoft Project, Oracle Primavera, CA Clarity PPM and Spider Project, have comprehensive functional capabilities for resource planning and project budgeting, scheduling and costing. However, such systems do not support corporate-wide budgeting, do not provide a common information workspace of an enterprise, have insufficient functionality in the field of management accounting and therefore require additional expenditures for integration. In the author's opinion (confirmed by practice) ERP systems [5, 6] have comprehensive functionality for automating project management processes, as well as advanced tools for management accounting and budgeting. That is why such systems represent the most appropriate basis for implementation of corporate MAB systems in construction companies. SAP-based industry oriented solutions for construction companies are already available in the market [7, 8]. This paper proposes to take a comprehensive approach to MAB automation based on SAP ERP software. The solution is illustrated by the example of a contractor company that deals with engineering systems construction. The original methodological and software solutions proposed by the author may be applied in project-oriented construction companies which have implemented (or are planning to implement) SAP ERP system (or other ERP system with similar functionality).

1. The main stages of creating an MAB system

Implementation of an MAB system usually includes the following stages.

1. Preliminary stages:

- a. The financial structure design – identification and classification of responsibility centers (RCs), determining relationships between them, assigning the RCs to the corporate management structure;
- b. The budget model design – defining the budgets' content and the budgets' interrelationship;
- c. The analytical items identification for the MAB detailing including the creation of the budgeting classifier – a set of budgeting accounts for income, expenses and cash flows;

- d. The planning, consolidation and selection of analysis procedures for monitoring budget performance;
 - e. The internal corporate standards design for budgeting processes.
2. Implementation of an information system, which usually includes the system selection, design, development, testing, training and trial operation;
 3. Adjustment of the procedures and standards according to the results of implementing the information system.

The preliminary stages are required during both spreadsheets-based budgeting set-up and budgeting automation based on ERP systems or on special solutions. In the latter case, the requirements related to formalization of the MAB processes and to designing the budgeting model are rising, because this directly affects the time and the cost of implementation. MAB methodology detailing at the preliminary stages allows us to generate the IT system functional requirements and to make the right choice of the technological platform. Inadequate attention to the issues of interrelations between the methodology and the technologies can lead to two undesirable extremes – either the functionality of the selected system will be insufficient or some part of its functionality appears to be unused [9].

Let us consider the most significant methodological solutions relating to a construction contractor which should be considered at the preliminary stage, and how these solutions can be implemented in practice using the selected information system.

2. Design of the company financial structure

The following features seem to be most important for designing the financial structure of a construction contractor company:

1. Projects are carried out by commercial departments (profit centers). The commercial departments can be divided by customer categories (e.g. state-owned companies, the banking sector, development business, etc.) or by project types and project specifics. Project managers and project supervisors (directors) are normally employees of the departments;
2. Projects are temporary profit centers subordinated according to the management hierarchy to the appropriate commercial department;
3. The profit of a commercial department is calculated as the sum of marginal contributions of all the projects after deducting the department’s administrative overheads over a relevant period;

4. Both external and internal subcontractors – production departments are involved in execution of project works;

5. The cost center includes service and administrative departments, such as procurement, warehousing, book-keeping, etc.

It is reasonable to use transfer prices in order to determine the cost of works performed by internal construction subcontractors. The main theoretical approaches to using transfer pricing in production companies are presented in paper [10]; their advantages and practical application in project-oriented companies – in papers [1, 11]. While using transfer pricing, managers of production departments are responsible not only for costs, but also for revenues of their departments. Therefore, production departments are considered as virtual profit centers.

The financial structure of the company under consideration is shown in *Figure 1*. It is typical for companies that implement projects under contracts with external customers. Such a financial structure makes it possible to distribute the responsibility for the financial results of the company between its structural divisions.

The availability of temporary RC-projects and the internal subcontractors’ participation in projects make the task of designing the financial structure for the MAB system rather significant. Further on, it will be shown how this task may be solved in an SAP ERP system using a minimal number of analytical points of view (POV).

3. Budget model design

There are the following basic budgeting business processes that are to be automated (*Table 1*). These processes are typical for project-oriented companies which execute projects under contracts with external customers.

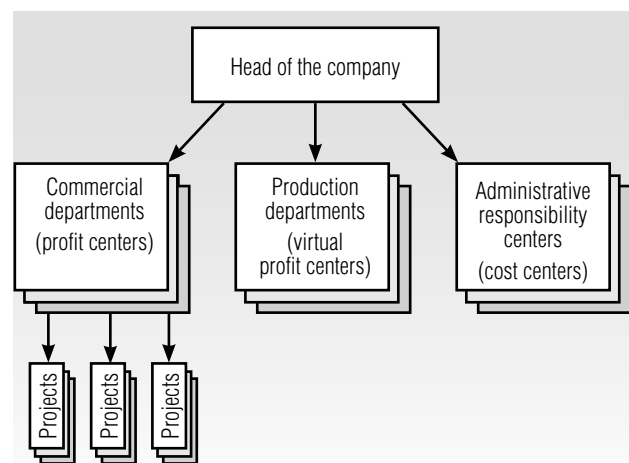


Fig. 1. Example of a project-oriented company's financial structure

Table 1.

Basic budgeting business processes

Process	Comment
Drawing up, coordinating and approving contracting plans for the next budgetary year	Revenue and expenditure budgets (REB) and cash flows budgets (CFB) are drawn up by commercial departments for the next budgetary year without breakdown into individual projects. The contracting plan may be considered as comparable to the sales budget used in operating businesses
Drawing up, coordinating and approving overheads budgets for the next budgetary year	REB and CFB are drawn up by cost centers, commercial profit centers and virtual profit centers for the next budgetary year. Project overheads are taken into account in the project budgets
Drawing up, coordinating and approving project budgets for their execution period	REB and CFB are drawn up by project managers before signing contracts with the contractors. Availability of agreed project budget makes it possible to start the project
Drawing up, coordinating and approving corporate master budgets	REB and CFB for the company as a whole based on contracting plans
Drawing up budgets of commercial departments and master budgets based on project budgets	REB and CFB of commercial departments and company as a whole based on the most recent approved versions of the project budgets. These budgets show the current contracting status; they are neither coordinated nor approved
Adjusting project budgets	Can be performed many times during project implementation, at the discretion of the project manager or project supervisor (director)
Adjusting contracting plans	Performed from time to time as directed by the company, for example, every three or six months
Adjusting corporate master budgets based on contracting plans	Performed from time to time as directed by the company, for example, every three or six months. Includes adjustment of the overheads budgets
Preparing reports about execution of the budgets	At any time when it is necessary to obtain information

Therefore, the company budget structure consists of the following budgets:

- ◆ corporate master budget (REB and CFB) drawn up based on contracting plans or most recent approved versions of project budgets;
- ◆ contracting plans of departments and of the company as a whole (REB and CFB);
- ◆ commercial departments' budgets (REB and CFB);
- ◆ overheads budgets (REB and CFB);
- ◆ project budgets (REB and CFB).

In accordance with SAP terminology, the project REB is usually called a “costs forecast” despite the fact that it also covers revenues. Below, for simplicity, the author will use the term REF. The interrelationship of the budgets listed above is presented in Fig. 2 (shaded rectangles show the differences between the two diagrams). REBs and CFBs are presented here by one block – “budgets”.

The company budget structure does not include an investment budget. This is due to the fact that the issues of investment budgeting are addressed in full and detail in academic literature. In addition, the investment activities and investment projects budgeting have no specific features for construction companies.

The following essential features of the budget model should be mentioned:

1. Two versions of the master budget exist simultane-

ously: based on contracting plans and based on the most recent approved versions of the project budgets;

2. Planning horizon and adjustment frequency of project budgets do not coincide with the planning horizon and adjustment frequency of the master budgets;
3. The project budgets “fill” the contracting plans. Therefore, it is necessary to monitor the performance of contracting plans (not only to monitor the project budgets).

Next, we will show how the tasks of the above budget model design can be performed using appropriate methodology and software.

4. Determination of MAB analytical points of view

The “Controlling” (CO) component of the SAP ERP system allows us to arrange the management accounting for cost and revenue elements, cost centers, business processes, internal orders, products, performance in separate market segments and profit centers (hereinafter the information presented in SAP Help Portal, <http://help.sap.com> is used for description of the functionality of SAP ERP system). Business transactions in ERP systems of construction companies are normally performed by many employees who have different levels of competence and often – the lack automated accounting skills. Therefore, it is reasonable to use only the projects

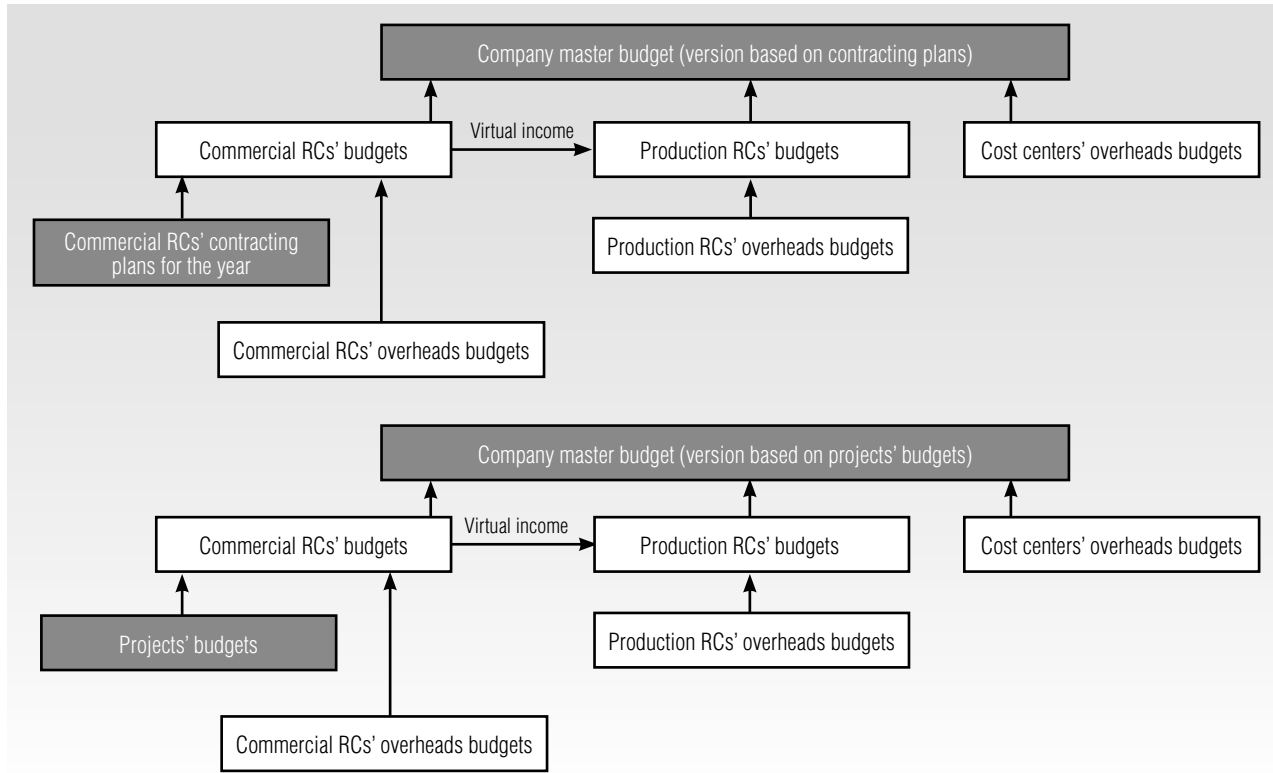


Fig. 2. The interrelationship of elements of the company budget model

and the cost and revenue elements as the main analytical items in income and expenses accounting. This significantly reduces the risk of data entry errors and data quality loss. To improve the budgeting and further ‘plan-fact’ control accuracy, it is reasonable to create budgets for the project as a whole, as well as for certain elements of the work breakdown structure (WBS). Under such an approach, WBS elements can be created for the project overheads accounting (such as mobilization costs).

Within the general approach to overheads accounting in the departments and the service and administrative units, it is proposed to use so-called “administrative projects”. They are not consistent with the main criteria by which any activity may be considered as a project. However, the availability of such administrative projects enables us to solve the task of financial structuring of the company based on an end-to-end analytical item – “project”. The administrative project manager should be the head of the appropriate RC.

The costs and revenues classifier in SAP ERP is created using the management chart of accounts. It is necessary to use the cost and revenue elements “Revenues of internal divisions’ services” and “Expenditures for internal divisions” respectively for internal subcontractors’ works accounting. When preparing reports

for the whole company, these account turnovers are eliminated.

To create and monitor CFB in an SAP system, the “Fund Management” (FM) component is used. Its main analytic items are funds centers (FC) and commitment items (CI), which are considered as cash flow accounts. CFB spending is represented by the accounting entries related with FC and CI. For description of FC, elements of the financial structure are used. In the example under consideration, after the creation of a new commercial or administrative project in the SAP system, a user creates the relevant FC. For this element, the corresponding project and its parent item in the FC structure are indicated. If necessary, for more detailed cash flow planning and accounting it is possible to create FCs not only for the whole project, but for certain WBS elements.

FCs are arranged hierarchically. The project FCs are “descendants” of the parent FCs associated with the appropriate departments. An example of FC hierarchy corresponding to the corporate financial structure is shown in Table 2. This table provides a three-level hierarchy FC structure where hypothetical alphanumeric symbols are used. As noted above, additional lower hierarchical levels can be created to improve the accuracy of planning and accounting.

Table 2.

Example of FC guide hierarchy structure corresponding to the financial structure of the project-oriented construction company

FC			Name of FC	Comment
Level 1	Level 2	Level 3		
COMP			Company	Company as a whole
	ADCOMP15		Company administrative project 2015	Administrative project for company overheads accounting for 2015 (cost center)
	ADSTOR15		Storage area administrative project 2015	Administrative project for storage area expenditure accounting for 2015 (cost center)
	Administrative projects for other administrative and managerial departments expenditure accounting for 2015 (cost center)
	ADCOMP16		Company administrative project 2016	Administrative project for company overheads accounting for 2016 (cost center)
	ADSTOR16		Storage area administrative project 2016	Administrative project for storage area expenditures accounting for 2016 (cost center)
	Administrative projects for other administrative and managerial departments expenditure accounting for 2016 (cost center)
	DEP1		Department 1	Commercial department 1 (profit center)
		ADDP115	Department 1 administrative project 2015	Quasiproject for department overheads accounting for 2015 (cost center)
		ADDP116	Department 1 administrative project 2016	Quasiproject for department overheads accounting for 2016 (cost center)
		PR10115	Project 1 Dep 1 2015	Commercial project 1 (department 1) opened for 2015 (temporary profit center)
		PR10116	Project 1 Dep 1 2016	Commercial project 1 (department 1) opened for 2016 (temporary profit center).
		PR10216	Project 2 Dep 1 2016	Commercial project 2 (department 1) opened for 2016 (temporary profit center).
	DEP2		Department 2	Commercial department 2 (profit center)
		Administrative and commercial projects of department 2 (cost centers and temporary profit centers, respectively)
	PROD1		Production department 1	Production department 1. Internal subcontractor (virtual profit center)
		RVPR115	Production department 1 revenue project 2015	Project for department virtual income accounting for 2015 (virtual profit center)
		ADPR115	Production department 1 administrative project 2015	Quasiproject for department overheads accounting for 2015 (cost center)
		RVPR116	Production department 1 revenue project 2016	Project for department virtual income accounting for 2016 (virtual profit center)
		ADPR116	Production department 1 administrative project 2016	Quasiproject for department overheads accounting for 2016 (cost center)
		PROD2	Production department 2	Production department 2. Internal subcontractor (virtual profit center)
		Administrative projects and virtual income projects of Production department 2 (cost centers and virtual profit centers, respectively)
			...	Other production departments (virtual profit centers)

Cash flow planning is done in SAP ERP by CIs. While creating the CI guide, it is necessary to take into consideration the possible adjustments of its elements derivation with cost and revenue elements for which cash flows are possible. Setting up such correspondence considerably simplifies the preparation of the CFBs based on the REBs.

For management accounting, short-term planning of works and materials (apart from those listed above), many other analytical items are used; for example, counterparts, contracts, materials, storage areas and some other items of the SAP system.

5. Selecting planning, consolidation and analysis procedures for actual budget execution and their implementation in the SAP ERP System

The Project Passport is the document describing the basic project parameters. It contains the basic information about works in progress, customer, contract with the customer, project team, monthly project REB and CFB, as well as the calculation of absolute and relative marginal profit.

For automating **project budgeting processes** within the proposed approach, the following methodological and program solutions are proposed and implemented:

- ◆ transaction for the Project Passport creation. This enables us to generate the project REB and the project CFB, as well as to print out the Project Passport. The budgeting data is entered by period, by cost and revenue elements and related Cis, by WBS elements and corresponding FCs. To increase planning quality, it is also necessary to provide the possibility to enter budgeting data in different currencies converted into rubles according to the corporate exchange rates. This transaction is also used for budgeting administrative projects;
- ◆ user-specific project status profile, and also the automated Project Passport coordination (this process comprises sequential changes of users' statuses performed by authorized employees and top managers);
- ◆ storage of Project Passport versions in the SAP system. A Project Passport version is a fixed version of the REB, the CFB and appropriate saved information about the WBS and project schedule, as well as saved information entered directly in the project fields;
- ◆ reports for monitoring the project REB and CFB. At that any approved version of the Passport can be used as a plan, at the user's discretion. Reports for comparing the Passport versions with each other are also used;
- ◆ automated process of project close-out.

More detailed project planning is performed using standard functionality of the "Project system" (PS) module. This module enables us to create the WBS and project schedule, to assign contractors to certain schedule tasks, as well as to plan the need for materials for the project works.

For the **overheads accounting** of commercial and production departments, as well as of company overheads, it is reasonable to apply the "direct-costing" method. Advantages of this method are discussed in the paper [12]. Its applicability in our case is due to the following reasons. Firstly, the project managers are responsible only for project marginal profit and have no means to manage overheads. The project teams' motivation system applied is also based on the project marginal profit figures. Therefore, from the managerial point of view, it does not make any sense to calculate total project cost including the distributed fixed overheads. Secondly, analysis of the company's accounting data over the previous years has shown that overheads of departments and service, administrative and managerial units are conditionally fixed.

For **cost accounting** using the "direct costing" method, appropriate administrative projects are used. At the

end of each year, these projects in the SAP ERP system are closed, and costs allocated to these projects reduce the financial results of either appropriate departments (for profit centers and virtual profit centers) or the whole company (for cost centers).

Consolidation of budgeting data is provided by summarizing planning and actual data according to the FC hierarchy from the project budget level to the company level. Therefore, the actual REB and CFB represent the sums of budgeting figures of recent approved versions of commercial and administrative projects related to the appropriate parent RC and the time period. Standard SAP ERP reports are inconvenient for users; that is why more descriptive report forms are proposed for comparing the plan and actual data for departments and the whole company. At the end of the year, the last approved REB and CFB for all projects are copied as so-called "archive versions". If it is necessary to draw up a report on the budget execution for the previous years, the project budget archive versions of a relevant year are used. When drawing up reports for the current year, the last approved project versions are applied.

Contracting plans are implemented as the REB and CFB separate versions of commercial RCs. The contracting plan adjustment is performed by creating a new version of the REB and CFB. Contracting plans are approved outside the SAP system. In the SAP system the reports for comparing the contracting plan data with the last approved REB and CFB of relevant RC and with the actual data on its budget performance are implemented. For example, the RC head can get the following information on revenues:

- ◆ Planned revenue according to the contracting plan for a year: 50 million rubles;
- ◆ Planned total revenue for a year under signed contracts: 30 million rubles;
- ◆ Actual revenue for a year: 18 million rubles.

6. Regulating business processes

All proposed methodological solutions should be set down in internal regulatory documents of the company. Therefore, when creating the MAB system in a certain company such documents as "Regulations on project activity" and "Regulations on project budgeting", as well as about fifty standards for individual business processes (including MAB) should be issued. For suitable operation of the system, we recommend establishing a special department for methodological and functional

system user support, as well as for the further regulation and to provide development and updates.

Conclusion

In this paper, the author proposes a comprehensive approach to creating corporate MAB information systems for the construction industry. The approach includes the basic solutions for methodological, technological and organizational components of such systems. On its basis, the corporate MAB system was developed, tested and implemented in a construction contractor company.

Within the comprehensive approach to creating the MAB system, original methodological solutions are developed and tested, relying on SAP software. These solutions include:

◆ financial structure design based on “project” end-to-end analytical items for such a company;

◆ using administrative projects for the overheads MAB;
◆ setting up and monitoring actual execution of master budgets based on both contracting plans and last approved project budgets;

◆ using transfer pricing for settlements with internal subcontractors and cost budgeting of their works based on transfer prices.

Implementation of the SAP-based integrated MAB system in a certain company has demonstrated that about in a year's time of system operation almost all the financial indicators (incl. profit, profit margin and net cash flow) were substantially improved. In addition, the application of transfer pricing made it possible to increase the overall performance of internal subcontractors.

The proposed comprehensive approach to creation of MAB systems in construction companies can significantly improve the majority of their financial indicators and increase their competitiveness. ■

References

1. Kubareva E.Yu. (2011) *Byudzhetirovanie na proektno-orientirovan—nom predpriyatii s matrichnoy strukturoy upravleniya: organizatsionno-metodicheskie osnovy* [Budgeting in a project-oriented enterprise with matrix management structure: organizational and methodological fundamentals]. Moscow: DPK Press (in Russian).
2. PMBOK (2015) *Rasshirenie dlya stroitel'noy otrasli k tret'emu izdaniyu Rukovodstva k svodu znaniy po upravleniyu proektami (Rukovodstvo PMBOK)* [Construction Extension to the PMBoK Guide]. Moscow: Olymp-Business (in Russian).
3. Tsvetkov A.V., Shapiro V.D., eds. (2013) *Upravlenie konkurentosposobnost'yu v investitsionno-stroitel'nom biznese* [Competitiveness management in investment and construction business]. Moscow: Omega-L (in Russian).
4. Kaplan E.L. (2009) *Upravlenie stroitel'noy kompaniy* [Construction company management]. Saint Petersburg: Giord (in Russian).
5. *ERP dlya stroitel'stva: obzor* [ERP for construction: an overview]. Available at: http://www.livepress.ru/tags/ERP_dlya_stroitel'stva (accessed 01 June 2016) (in Russian).
6. *SAP ERP vnedrena v stroitel'noy kompanii "MonArkh"* [SAP ERP is implemented in MonArkh construction company]. Available at: http://www.tadviser.ru/index.php/Проект:SAP_ERP_внедрена_в_строительной_компании_«МонАрх» (accessed 01 June 2016) (in Russian).
7. *Otraslevoe reshenie LANIT na baze SAP ERP* [LANIT industry solution based on SAP ERP]. Available at: http://www.lanit-consulting.ru/_files/texts/92/SAP_building.pdf (accessed 01 June 2016) (in Russian).
8. *Korporativnaya sistema upravleniya na baze SAP (stroitel'stvo) kompanii Novacom* [Corporate management system based on SAP (construction) of Novacom company]. Available at: http://nvcn.net/resheniya/korporativnaya_sistema_upravleniya_na_baze_sap/stroitel'stvo/ (accessed 01 June 2016) (in Russian).
9. Isaev D.V. (2008) Byudzhetirovanie s primeneniem informatsionnykh system [Budgeting using information systems]. *Management Accounting*, no. 7, pp. 99–106 (in Russian).
10. Vakhrushina M.A. (2000) *Vnutriproizvodstvennyy uchet i otchetnost'*. *Rossiyskaya praktika: problemy i perspektivy* [Internal production accounting and reporting. Russian practice: problems and perspectives]. Moscow: Economics and Life (in Russian).
11. Kuznetsova E.V., Voronkova N.Yu. (2014) *Transfertnoe tsenoobrazovanie kak instrument povysheniya rentabel'nosti proektnoy deyatel'nosti* [Transfer pricing as a tool for increasing of project activities profitability]. *Audit and Financial Analysis*, no. 1, pp. 339–345 (in Russian).
12. Rasskazova-Nikolaeva S.A. (2009) *Direkt-kosting. Pravdivaya sebestoimost'* [Direct costing. Faithful cost]. Moscow: Knizhny Mir (in Russian).

Автоматизация бюджетирования в строительных компаниях

Е.В. Кузнецова

кандидат экономических наук, доцент кафедры бизнес-аналитики
Национальный исследовательский университет «Высшая школа экономики»
Адрес: 101000, г. Москва, ул. Мясницкая, д. 20
E-mail: ev.kuznetsova@hse.ru

Аннотация

В статье рассматриваются особенности построения корпоративных информационных систем управленческого учета и бюджетирования (ИС УУиБ) для проектно-ориентированных строительных компаний. Показано, что для успешной реализации подобных систем необходим комплексный подход, предполагающий разработку или адаптацию методологии УУиБ с учетом возможностей и особенностей внедряемого программного обеспечения, а также соответствующую регламентацию бизнес-процессов. Также показано, что наиболее перспективной технологической основой корпоративных ИС УУиБ проектно-ориентированных компаний являются информационные системы класса ERP, обладающие как функциональностью для автоматизации процессов управления проектами, так и развитыми средствами ведения управленческого учета и формирования бюджетов. На основании результатов анализа предложен комплексный подход и основные решения для создания корпоративных ИС УУиБ проектно-ориентированных строительных компаний. Предложены оригинальные методологические решения в области организации УУиБ, учитывающие специфику деятельности строительного подрядчика, выполняющей проекты для внешних заказчиков.

В частности, к числу предлагаемых методологических решений относятся выделение в финансовой структуре строительных компаний временных центров финансовой ответственности (ЦФО прибыли), соответствующих выполняемым проектам, использование административных квазипроектов для учета условно-постоянных накладных расходов отдельных подразделений в сочетании с применением метода «директ-костинг», а также выделение временных ЦФО прибыли, соответствующих производственным департаментам – внутренним субподрядчикам. Показано, как данная финансовая структура может быть реализована в системе SAP ERP на основе сквозной аналитики «проект».

Предложена бюджетная структура, включающая в себя две плановые версии мастер-бюджетов компании: на основе планов контрактования и на основе последних по времени утвержденных версий бюджетов проектов. Показано, что необходимо организовать план-факт контроль выполнения обеих версий мастер-бюджетов.

Основные положения и результаты работы апробированы при внедрении корпоративной ИС УУиБ строительного предприятия ERP-класса на базе системы SAP ERP. Результаты внедрения и эксплуатации системы показали существенное улучшение основных финансовых показателей компании, в том числе прибыли, рентабельности и чистого денежного потока.

Ключевые слова: информационные системы, бюджетирование, управленческий учет, управление строительными проектами, проектно-ориентированный бизнес.

Цитирование: Kuznetsova E.V. Budgeting automation in construction companies // Business Informatics. 2016. No. 3 (37). P. 45–53. DOI: 10.17323/1998-0663.2016.3.45.53.

Литература

1. Кубарева Е.Ю. Бюджетирование на проектно-ориентированном предприятии с матричной структурой управления: организационно-методические основы. М.: ДПК Пресс, 2011. 248 с.
2. Расширение для строительной отрасли к третьему изданию Руководства к своду знаний по управлению проектами (Руководство РМВОК) / Пер. с англ. М.: Олимп-Бизнес, 2015. 232 с.
3. Управление конкурентоспособностью в инвестиционно-строительном бизнесе: Справ. пособие / Под ред. А.В. Цветкова, В.Д. Шапиро. М.: Омега-Л, 2013. 486 с.
4. Каплан Е.Л. Управление строительной компанией. СПб: Гиорд, 2009. 144 с.
5. ERP для строительства: обзор. [Электронный ресурс]: http://www.livepress.ru/tags/ERP_dlja_stroitel'stva (дата обращения 01.06.2016).
6. SAP ERP внедрена в строительной компании «МонАрх» [Электронный ресурс]: http://www.tadviser.ru/index.php/Проект:SAP_ERP_внедрена_в_строительной_компании_«МонАрх» (дата обращения 01.06.2016).
7. Отраслевое решение ЛАНИТ на базе SAP ERP. [Электронный ресурс]: http://www.lanit-consulting.ru/_files/texts/92/SAP_building.pdf (дата обращения 01.06.2016).
8. Корпоративная система управления на базе SAP (строительство) компании Novacom [Электронный ресурс]: http://nvcm.net/resheniya/korporativnaya_sistema_upravleniya_na_baze_sap/stroitel'stvo/ (дата обращения 01.06.2016).
9. Исаев Д.В. Бюджетирование с применением информационных систем // Управленческий учет. 2008. № 7. С. 99–106.
10. Вахрушина М.А. Внутрипроизводственный учет и отчетность. Российская практика: проблемы и перспективы. М.: Экономика и жизнь, 2000. 192 с.
11. Кузнецова Е.В., Воронкова Н.Ю. Трансфертное ценообразование как инструмент повышения рентабельности проектной деятельности // Аудит и финансовый анализ. 2014. № 1. С. 339–345.
12. Рассказова-Николаева С.А. Директ-костинг. Правдивая себестоимость. М.: Книжный мир, 2009. 256 с.