

# Methodology for budget projects monitoring

**M M Rosu, I C Tarba and P G Tiriplica**

University Politehnica of Bucharest, Manufacturing Department, Splaiul  
Independenței, No. 313, 060042, Bucharest, Romania

E-mail: magdalena.rosu@upb.ro

**Abstract.** The issue of monitoring project budgets is a major one when discussing about efficient project management. Thus, if the implementation of the project implies that the budget allocated to some activities has been underestimated or overestimated, then we have to deal with the question of a budgetary reallocation between the budget chapters of the project budget. Therefore, during the implementation of a project, project budget monitoring has to be made permanently through the project's cash-flow simulations and analyses. This paper has been developed within a project funded by the Sectoral Operational Program for Human Resources Development, a project implemented in partnership between two universities in Romania, over a period of 18 months. One of the major responsibilities of the project manager was the ongoing monitoring of the budget because the contractual clauses imposed major penalties if the percentage ratios between the main budget chapters of the project were not respected during the execution phase. The permanent monitoring of the project's cash flow resulted in a budget execution of approximately 96% and the percentage execution budgets of the project to be respected among the categories of budget expenditures were within the limits imposed by the financing contract.

## 1. Introduction

The management of projects funded by governmental, national or international organizations is based on the same principles that relate to the planning, organization and management of tasks and resources aimed at achieving a certain objective, subject to restrictions referring to time, resources and costs [1].

At present, there is a growing interest in funding human resources development projects through public programs, but at the same time, these projects are implemented in a highly regulated bureaucratic environment [2].

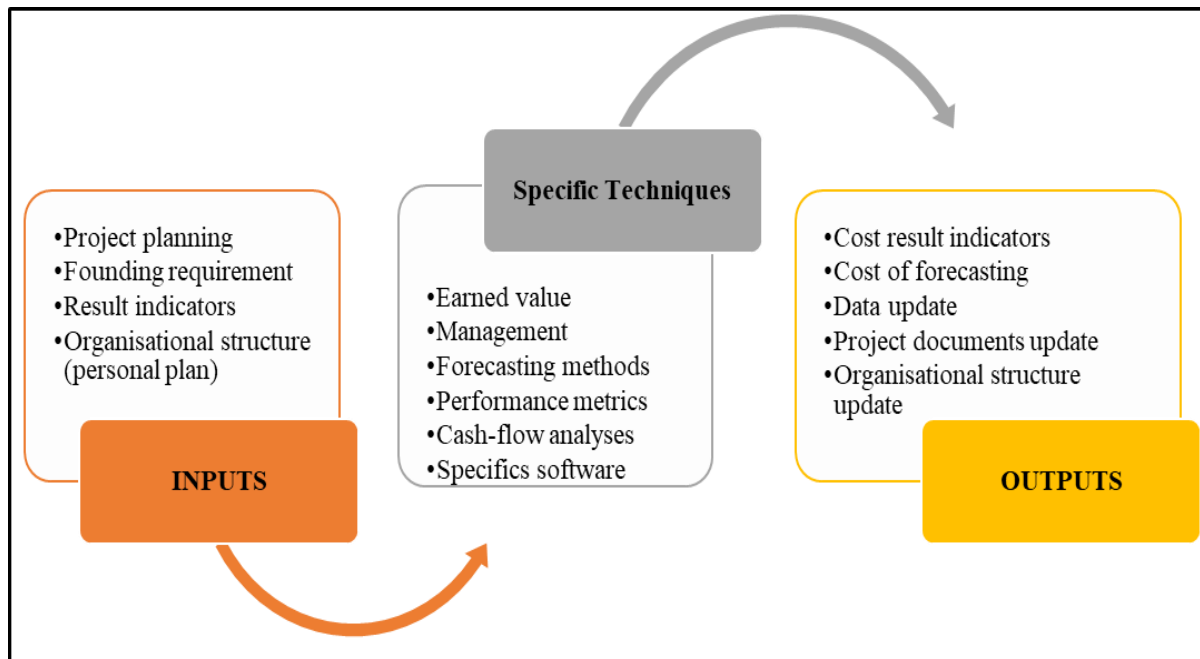
Monitoring the costs of a project is essential not only for the purpose of verifying permanently whether the expenditures are being made properly, but also for applying corrective measures if required. During the implementation of the project, these corrective measures are necessary if significant price fluctuations occur on the market, which may have the effect of increasing or decreasing certain expenditures foreseen in the project budget. When fluctuations in staff appear, when a key person leaves the project team or when certain risks have not been identified during the project initiation phase.

The most well known approach for monitoring projects budgets is the systemic approach [1], [6], in which the system inputs are the activity plan, the project financing requirements, the outcome indicators data, and the organizational structure. These system inputs are treated by means of specific project management techniques such as Earned Value Management, forecasting methods, performance



indicators, specific software and cash-flow analysis. The outputs of the system are the cost of the outcome indicators, the cost of forecasts, the necessity data updating, the project documents updating, the organizational structure updating (staff plan).

The budget monitoring process is shown in figure 1, adapted [1].



**Figure 1.** Process for budget monitoring, adapted [1].

The organizations that implement public funded projects have to permanently keep in touch with the organizations that manage the funds allocated to these types of projects and have to keep permanent updates on all the necessary tools, which can be used to implement these projects.

## 2. Methods

The purpose of this paper is to present a methodology for the process of monitoring the expenditures that are executed during the implementation of a project financed by public funds.

This methodology was developed by the authors within a project implemented in partnership with two universities in Romania, financed under the Sectoral Operational Program for Human Resources Development.

As we said earlier, the implementation of such projects funded by the European Union and the Government of Romania is quite difficult because of the bureaucratic process of the two government entities. This is due, on one hand, to the aspects related to the achievement of the indicators proposed by the grant application, which, if they are not achieved in 100%, lead to the percentage reduction of the project budget. In addition, on the other hand, through the project's financing contract, depending on the type of project, a certain proportion needs to be maintained between the budget chapters of the project [3].

Thus, for the project under consideration, the main budget chapters discussed and the percentage shares for each category of expenditures are presented in table 1. Also, the values of each budget chapter and the total value of the project are presented.

The key issue, which needs to be monitored permanently during the project implementation, is that the percentage shares, per budget execution, have to be permanently monitored between the budget

chapters of the project. Thus, on a quarterly basis, the cash flow of the project was analysed, both regarding the execution of the project budget and the forecast of the remaining expenditures.

**Table 1.** Initial budget of project.

Costs types	Monetary units
1. Human resource	1.316.795
of which:	
1.1 Costs for the team management (max. 15% of the total budget of the project)	419.542
2. Participants	140.600
3. Other types of costs	482.330
of which:	
3.1 Costs for the equipment (max. 10% of the total budget of the project)	215.160
3.2 Value of the subcontracted activities	0
Direct costs (1+2+3)	1.939.725
Indirect costs (max. 15% of the direct costs without the equipment costs)	226.247
<b>TOTAL VALUE of the PROJECT</b>	<b>2.165.972</b>
of which:	
The applicant's contribution (2% of the total budget of the project)	43.319,44
Total financed budget	<b>2.122.652.56</b>

Table 2 shows the quarterly evolution of the project's cash flow over the 19 months of its implementation.

In addition, figure 2 presents the percentage evolution of the two budget chapters of the project: the direct costs and the indirect costs, out of the total budget approved for each budget chapter.

From the cash-flow analysis six months after the implementation, we found that some expenditures were overestimated in the project initiation phase, and that some expenditures were no longer required.

This is highlighted in figure 3, where the quarterly percentage shares per budget execution are represented. For example, from the budget subchapter "Other Types of Costs", after six months of implementation, approximately 17.75% of the allocated budget had been spent.

Also, for the implementation of the project, we set to acquire specific equipment without which the indicators proposed in the application for funding would not have been achieved and their procurement procedure was in full swing.

Thus, the issue of budget non-execution was first raised.

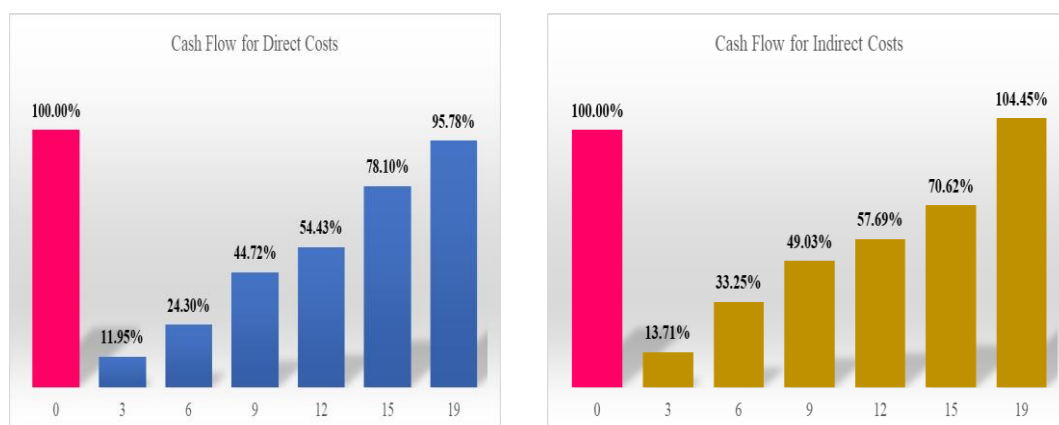
From the analysis carried out at the end of the third quarter, table 2, we can see that the budget execution of the budget subchapter "3.1 Costs for the Equipment", which had to be of max. 10% out of the total budget of the project was executed in a proportion of 99.89%.

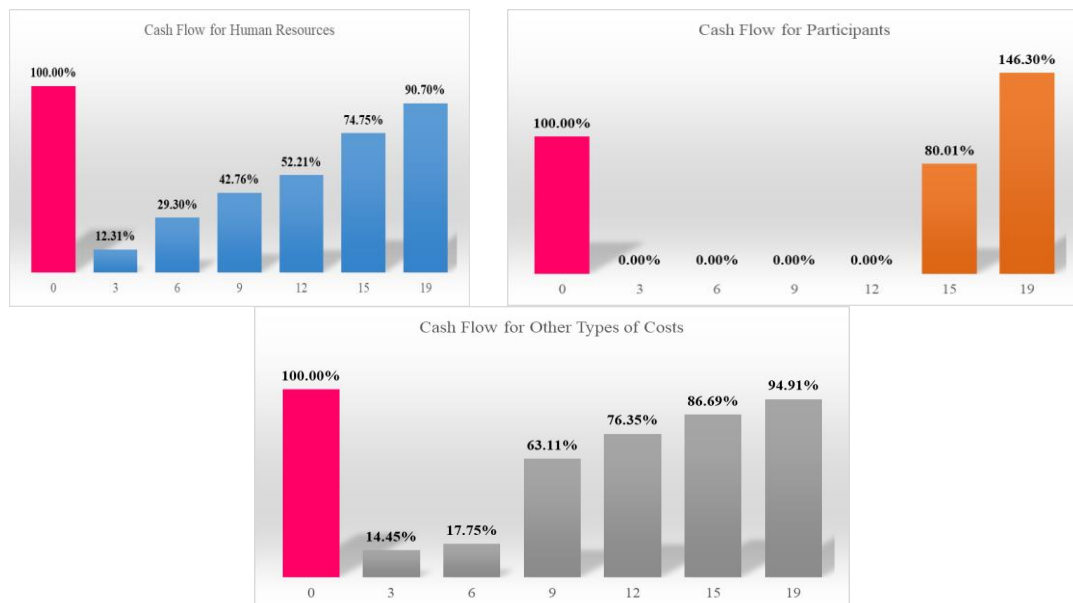
At this point, a serious analysis of the expenditures to be achieved by the end of the project and a budget reallocation between the main chapters of the project was imposed in order to execute the project budget as close as 100%.

Thus, various scenarios were drafted on the expenditures to be incurred before the project was finalized and a decision was made on a budgetary reallocation between the main budget chapters of the project.

**Table 2.** Cash-flow evolution of the project.

Types of costs	Cash Flow Analysis after 3 months	Cash Flow Analysis after 6 months	Cash Flow Analysis after 9 months	Cash Flow Analysis after 12 months	Cash Flow Analysis after 15 months	Cash Flow Analysis after 19 months
<b>1. Human resource</b>	162,069.08	385,812.41	563,051.62	687,512.12	984,310.45	1,194,396.70
of which:						
1.1 Costs for the team management (max. 15% of the total budget of the project)	46,051.08	106,792.35	162,340.38	197,416.76	251,697.39	315,330.38
<b>2. Participants</b>	0.00	0.00	0.00	0.00	112,500.00	205,700.00
<b>3. Other type of costs</b>	69,678.08	85,604.71	304,414.36	368,246.91	418,140.22	457,767.00
of which:						
3.1 Costs for the equipment (max. 10% of the total budget of the project)	34,928.75	34,928.75	214,922.19	214,922.19	214,922.19	214,922.19
3.2 Value of the subcontracted activities	0.00	0.00	0.00	0.00	0.00	0.00
<b>Direct costs (1+2+3)</b>	231,747.16	471,417.12	867,465.98	1,055,759.03	1,514,950.67	1,857,863.70
<b>Indirect costs</b> (max. 15% of the direct costs without the equipment costs)	31,022.15	75,216.24	110,928.62	130,512.62	159,786.52	236,320.32
<b>Total value of the project</b>	262,769.31	546,633.36	978,394.60	1,186,271.65	1,674,737.19	2,094,184.02

**Figure 2.** Percentage evolution of main budget chapters.



**Figure 3.** Percentage evolution of budget lines in budget chapter Direct costs.

### 3. Results

The permanent monitoring of the project's cash flow resulted in a budget execution of approximately 96,69% and the percentage execution budgets of the project to be respected among the categories of budget expenditures were approximately within the limits imposed by the financing contract (of 15.06% of the total budget for the team management costs, of 10.26% of the total budget for the equipment costs and of 14.38% for the indirect costs), table 3.

**Table 3. Budget execution analysis**

Types of costs	Initial budget of the project	Budget project	Budget reallocation	Costs rates
1. Human resource, of which:	1,316,795.00	1,194,396.70	90.70%	
1.1 Costs for the team management (max. 15% of the total budget of the project)	319,542.00	315,330.38	98.68%	15.06%
2. Participants	140,600.00	205,700.00	<b>146.30%</b>	
3. Other type of costs, of which:	482,330.00	457,767.00	94.91%	
3.1 Costs for the equipment (max. 10% of the total budget of the project)	215,160.00	214,922.19	99.89%	10.26%
3.2 Value of the subcontracted activities	0.00	0.00		
Direct costs (1+2+3)	1,939,725.00	1,857,863.70	95.78%	
Indirect costs (max. 15% of the direct costs without equipment costs)	226,247.00	236,320.32	<b>104.45%</b>	14.38%
<b>Total value of project</b>	<b>2,165,972.00</b>	<b>2,094,184.02</b>		<b>96.69%</b>

This methodology for the project budget analysis can be adapted to any type of project in any field. Thus, the budget monitoring has to be done through the implementation of a project by summarizing the executed budget, the budget remaining to be executed and by forecasting all the expenditures that can be executed to achieve the project objective.

#### 4. Conclusions

The principles developed in this paper can be applied to any type of project that requires budget analysis at regular time intervals.

As Krezner says in his paper [5], a project includes a set of specific activities and tasks that have as their sole purpose the achievement of the proposed objective.

Achieving the proposed objective, in the case of the projects funded by governmental bodies, requires compliance with certain rules imposed by them.

Thus, an efficient management of the projects funded by governmental bodies involves knowledge, application and observance of all the restrictions imposed by the actual legislation.

Project budget monitoring is one of the most important tasks of the project manager in such cases. This has to be done permanently or on a regular basis and the identification of any deviation from the initial planning should be carefully managed by taking all the necessary measures.

Also, during the implementation of the project, we have to deal with the question of a permanent monitoring of the risks associated with some factors related to the financial and economic side of any project, such as, the prices increase.

#### 5. References

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