

BUDGET METHODS SPECIFIC TO THE MAINTENANCE ACTIVITY

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Abstract. An essential aspect in the management of the maintenance activity is represented by the assurance of the financial autonomy and the allotment of a corresponding budget to this activity. The budget of the maintenance compartment is made of the financial resources granted by the company for sustaining its function. This paper presents the most common methods of drawing up the maintenance budget, with the role of assuring the minimum covering of all the categories of expenses.

1. INTRODUCTION

Industrial maintenance represents an ensemble of measures and actions permitting the prevention, the good-keeping or the reestablishment of an equipment in a foreseen state or capable to assure a determined service in the conditions of minimising the maintenance costs[1].

In the organization of the maintenance system we find a wide variety of forms and types, determined by a series of factors, such as: the economic branch, the territorial wideness, the scheduled labour regime, the qualification of the labour force and its organization form. The cost represents an economic category universally accepted; it is the number expression of all the production factors consumed for the production and distribution of material goods, the execution of works and services. We can state, hence, that the cost represents a correlation between the number expression of the expenses that a company performs, in a period of time, for the realization and the opening of its production and the amount of goods, works or services that form this production. Among these, the pre-established costs, also called provisional costs are calculated before the phenomenon of the pertaining process happened or effectively took place.

The budget of the maintenance compartment is made of the financial resources allocated by the company for sustaining the development of its function and it is used for assuring the spare parts, lubricants, fuels and other material expenses and also for covering the labour costs, including the writing off of the machinery specific to the maintenance activity etc. The maintenance budget has the role of assuring autonomy to the maintenance compartment in granting the resources and also for the responsabilization of the managers of the compartment in the justification of all the expenses [4].

The most common methods for drawing up the budget are: the drawing up of the budget with the help of the analytic accountancy fields, the drawing up of the budget with fields similar to the accountancy plan, drawing up the budget on types of machinery, maintenance types, functions and drawing up the budget based on the historical data regarding the expenses.

2. DRAWING UP THE BUDGET WITH THE ANALYTIC ACCOUNTANCY FIELDS

The method consists of the selecting in the analytic accountancy of the costs meant for the maintenance activity. Table 1 shows an example of drawing up the budget through this method [4]:

Table 1

Account symbol	Account name
111	Development fund
112	Fund for the participation to the profit
119	Allotments to the development fund
121	Profit and losses
1512	Provisions for warranties granted to the clients
201	Incorporation expenses
2123	Machinery, tools and work installations
2125	Transportation means
2801	The writing off of the incorporation means
2813	The writing off of the machinery, tools and work installations
2815	The writing off of the transportation means

According to the profile of the company's activity, some accounts can be added or eliminated, if need might be.

Advantages:

- The information exchange between the maintenance compartment and the accountancy service is realized easily;
- The financial analysis is drawn up by the accountancy service and it can be consulted by the maintenance managers.

Disadvantages:

- The budget is hard to follow because the number of fields can increase;
- The financial analysis resulted within the accountancy services is hard to understand by the maintenance managers.

3. DRAWING UP THE BUDGET WITH FIELDS SIMILAR TO THE ACCOUNTING PLAN

This method, as well as the previous one, implies the separation of certain categories of expenses, eliminating the pertaining codes. An example of drawing up the budget through this method is shown in table 2.

By analysing the data in the table, one can observe the following:

- The budget is divided in 7 big groups of expenses, with a number of sub-groups according to the needs;
- The monthly expenses are deducted from the fund allocated to that group;
- One can keep an evidence of the funds remained, easing the decision regarding the future expenses.

This method of drawing up the budget has the following advantages and disadvantages [4]:

Advantages:

- the information travels easily between the various services;
- future expenses can be easily foreseen;
- it directs the maintenance actions along the spending of the budget.

Disadvantages:

- it has a big number of fields and therefore it can be hard to follow;
- the analysis of the budget is hard to be performed by a non-specialist;
- the content and the structure of the fields can vary in time, in case there are essence modifications in the organization of the compartment (for example the inauguration of a new technological line).

Table 2. [4]

Categories of expenses	Total foreseen	Month			Total gained
		January	February	March	
1. Equipment maintenance	25000	2000	3000	1600	18400
1.1....					
2. Utilities management	20000	2900	2920	2100	12080
2.1. ...					
3. Valorification of the residues	-6000	-400		-1200	- 4400
3.1. ...					
4. Stocks	40000	2000	6000	2800	29200
4.1. ...					
5. Subcontracting	10000	1400	200	220	8180
5.1. ...					
6. Investments	80000			4000	76000
6.1. ...					
7. Other exterior services	6000	200	300	300	5200
7.1. ...					
Total (1+2+3+4+5+6+7)	175000	8100	12420	9820	144660

4. DRAWING UP THE BUDGET ON TYPES OF EQUIPMENTS

This way of drawing up the budget consists of allotting some amounts of money each month for each type of equipments separately, highlighting the annual global costs as well.

Table 3.[4]

Type of equipments	011	012	...
Month			
January	30	43	...
February	12	30	
	
...			
Total			

Drawing up the budget using this method, has the following **advantages**:

- one can keep track of the maintenance costs for each type of equipment in part;
- one can ease the attribution of the maintenance costs;

➤ one can perform a background of the maintenance activities for each type of equipment in part.

Disadvantages:

- one cannot keep track of the costs according to the maintenance method adopted;
- it is difficult to perform an accountancy analysis as long as the costs cannot be followed but on types of machinery;
- one must apply a registration system of the work based on employments.

5. DRAWING UP OF THE BUDGET ON TYPES OF MAINTENANCE

This method consists of the allotment of a number of hours according to the maintenance system chosen that permits the making of a comparison between the various methods of maintenance (table 4).

Table 4 (hours man) [4]

Type of maintenance	Month			Monthly average	
	January	February	March	Foreseen	Achieved
Curative	44	72	52	62	58,6
Systematic	63	33	71	103	55,6
Conditional	6	21	8	21	11,6
Subcontracting	17	39	19	19	25,6
Instruction	12	7	-	12	7,0
Total(hours)	142	172	150	217	158,4

By analysing the maintenance budget, one can observe that:

- it is possible to calculate the amounts of money allocated to each system of maintenance according to the hourly tariff at that moment;
- it is possible to determine the labour volume necessary according to the chosen maintenance method;
- following the maintenance tasks is made according to the consumed time.

This method of drawing up the budget presents the following advantages and disadvantages:

Advantages:

- It allows a quantitative assessment of the chosen maintenance methods;
- It allows the calculation of the real costs of the maintenance activities;
- It allows the determination of the labour time for each maintenance method.

Disadvantages:

- It necessitates labour coupons;
- It does not imply the creation of a background of the damages of each type of tool.

6. DRAWING UP THE BUDGET ON FUNCTIONS

This method implies the allotment of some amounts of money according to the costs necessary to perform the functions of the maintenance compartment.

By analysing the table, one can observe that [4]:

- The amounts of money are allocated according to the volume of labour;
- The expenses are made according to the necessities;
- It is possible to compare the amounts of money foreseen to be spent with those really performed.

This way of drawing up and highlighting the budget allocated for the maintenance activities has the following advantages and disadvantages:

Advantages:

- ✓ It offers a greater autonomy to the maintenance compartment;
- ✓ The budget can be analyzed by non-specialists;
- ✓ It is possible to keep an evidence of the costs on categories.

Disadvantages:

- ✓ It cannot be used but within the maintenance compartment;
- ✓ There are difficulties in the transmission of data to the accountancy service.

Table 5.[4]

	Budget 2008			Achievements 2008		
	Volume of activity (hours / man)	Salaries	Social expenses	Volume of activity (hours / man)	Salaries	Social expenses
I. Personnel	27560	202800	51000	29700	200800	50500
...						
...						
Total I:		253800			251300	
II. spare parts		270000			272500	
III. machineries		500000			400000	
IV. various:		255000			200000	
- rentals		130000			100000	
- insurances		40000			30000	
- management expenses		80000			70000	
V. residues		150000			25000	
VI. subcontracting		80000			90000	
VII. Instruction		250000			200000	
Total (1-7)		FORESEEN;1758800			ACHIEVED: 1438800	

Difference (FORENSEN-ACHIEVED) = 320000

7. DRAWING UP THE BUDGET BASED ON THE HISTORICAL DATA REGARDING EXPENSES

This method implies the analysis of the evolution of the maintenance expenses from the past in order to estimate them for a future budget.

Advantages:

- easy to realize and analyse;
- analysis can be made in what regards the maintenance compartment.

Disadvantages:

- difficulties in what regards the satisfaction of the data requests of the other services;
- it can become unrealistic if the right prognosis method is applied;
- the accuracy of the data regarding the estimated costs depends on the prognosis method used.[4]

8. CONCLUSIONS

The budget of the maintenance compartment is represented by the financial resources allocated by the company for sustaining the development of its function. In the situation in which the payment of the maintenance activities is performed centralized, unjustified expenses can appear in the assurance of the necessary resources. This disadvantage can be avoided by making up a maintenance budget, which leads to the financial autonomy of this service.

BIBLIOGRAPHY

1. Deac Vasile Managementul mentenanței industriale. Editura Eficient, București, 2000
2. Narayan, V. Effective Maintenance Management. Risk and Reliability Strategies for Optimizing Performance. Industrial Press, New York, 2004
3. Palmer, Doc Maintenance Planning and Scheduling Handbook,. McGraw-Hill, New-York, 2006
4. Verzea, Ion. ș.a. Managementul activității de mentenanță. Editura Polirom, Iași, 1999