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Improving Managerial Accounting and Calculation of Labor Costs in the Context of Using Standard Cost

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Abstract: *Economic development and strong competition that manifests in the global economy require management companies to find solutions to identifycation and proper use of their resources. Managerial Accounting provides the information necessary for the adoption of measures relating to planning and cost control. Standard cost calculation method enables managers to streamline activity by setting standards and formulating cost plans. One of the most important components of cost in the industry is related to labour costs. For this reason it is important that they be planned and analyzed to determine deviations recorded and the causes that have generated them.*
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Introduction

The standard cost method is considered in the literature as a modern method of determining the cost of production, as a method to forecast and tracking operative production process. This method enables the production costs in advance by using standard costs, and perform budgetary control by identifying the types and causes of deviations. For this reason the standard cost method offers several advantages in terms of production efficiency analysis, because it can perform the function of investigation and forecasting tool.

Using of the standard cost calculation methods in industrial enterprises leads to increasing the utility of information on activities contributing to the development of a new international management concepts, i.e. based management objectives.

1. Calculation of Standard Costs For Direct Labour

The costs of direct labour and cost of mandatory contributions paid by the employer company own a significant weight of the production cost.

Standard costs for direct labour is determined by time standards and standard wage rates used in the company. Standard cost of labour is determined by the time norms for the operations contained in the technical documentation, so the standard operating hours of all the process, and standard rates of remuneration for each phase of the process or operation.
For these costs, the relationship that can be used to calculate them is:

$$C_{sr} = \sum_{i=1}^{n} Ts_i * rs_i$$

where:

C_{sr} – *standard cost of labour;*
Ts_i – *standard operating hours;*
rs_i – *standard rates of remuneration.*

Standard time, in minutes or hours, is contained in the schedule for execution of a technological product. Standard wage rates shall be based on standard classification of workers, data on wages paid in prior periods and working conditions for the next period is calculated standards. Determining standard costs with direct salaries and expenses of the Social security contribution depends on the salary used: directing individual agreement, collective agreement, etc.

To outline how to determine standard costs for direct labour we will consider a product that is obtain through the deployment of seven manufacturing operations, as follows:

Table no.1 List of direct labor costs

No.	Operation name	Standard time (hours)	Unit wage rate (lei)	Standard cost of labor (lei)
1	Operation 1	0,110	28	3,080
2	Operation 2	0,150	28	4,200
3	Operation 3	0,050	28	1,400
4	Operation 4	0,040	28	1,120
5	Operation 5	0,040	28	1,120
6	Operation 6	0,030	28	0,840
7	Operation 7	0,020	28	0,560
	Total cost of labor			**12,320**

Standard cost for direct labour for each operation will be introduced in the product standard cost sheet.This cost sheet will contain besides direct labour cost another cost categories also such as: standard cost raw materials and standard indirect costs.

2. Calculation, Tracking, Analysis and Reporting Deviantions From Standard Cost of Labour

The calculation of these deviations is similar to the deviations from standard costs for materials, but computational elements are replaced with time and salary.

Thus, for the standard costs for direct labour, the deviations are of two types:

- quantitative deviations;
- value deviations.

Deviations expressed in hours, for direct labor, provides more useful information for management than value deviations because they reflect the reality of standards and the use of production capacity.

$$A_w = (t_e - t_s) * Q * T_{ss}$$

where:

A_w – *deviation from the work efficiency;*
t_e – *effective work time;*
t_s – *standard work time;*
Q – *quantity of products;*
T_{ss} – *standard rate of wage.*

The causes of these deviations from the standard cost of labour may be: unexpected extra operations, improper use of equipment, manufacturing faults etc.

After fabrication process we can collect operative data about effective work time for the manufacture of analyzed product. The order analyzed consists of a total of 5,000 pieces. Thus, we assume that for this product was found the following deviations regarding working time:

Table no. 2 Deviations of direct labour time

No.	Operation name	Standard time (hours)	Effective time (hours)
1	Operation 1	0,110	0,120
2	Operation 2	0,150	0,175
3	Operation 3	0,050	0,040
4	Operation 4	0,040	0,040
5	Operation 5	0,040	0,050
6	Operation 6	0,030	0,040
7	Operation 7	0,020	0,030

Looking at the data in the table above, the management company can achieve a number of interpretations, calculations and analyses:

- for operation 1 is an increase of effective time, thus value deviation is: A_w = (0.120-0.110)*5.000*28=1.400 lei (over the cost of production);
- for operation 2 is an increase of effective time, thus value deviation is: A_w = (0.175-0.150)*5.000*28=3.500 lei (over the cost of production);
- for operation 3 is a decrease of effective time, thus value deviation is: A_w = (0.040-0.050)*5.000*28= - 1.400 lei (reduction of production cost);
- for operation 4 there is no deviantion between effective time and standard time;
- for operation 5 is an increase of effective time, thus value deviation is: A_w = (0.050-0.040)*5.000*28= 1.400 lei (over the cost of production);
- for operation 6 is an increase of effective time, thus value deviation is: A_w = (0.040-0.030)*5.000*28=1.400 lei (over the cost of production);
- for operation 7 is an increase of effective time, thus value deviation is: A_w = (0.030-0.020)*5.000*28= 1.400 lei (over the cost of production).

As a result of these calculations, it can be seen that, for the most of the operations, these is an increase of effective time compared to standard time, which can lead to the idea that there were additional operations, or the production capacity was not used properly. In such a situation management will need to identify the exact causes of these deviations and decide ways to eliminate them.
Deviations from wage rates are calculated using the following mathematical formula:

$$A_{Ts} = (T_{se} - T_{ss}) * Q * t_e$$

where:
A_{Ts} – *deviations from wage rates;*
T_{se} – *effective wage rate;*
T_{ss} – *standard wage rate;*
Q – *quantity of products;*
t_e – *effective time.*

The main causes of these deviations may be: changing rates of wage, using other categories of workers, use of night shifts without them to be laid down in standards etc.

We suppose that for the analyzed product were found following deviations regarding the direct labor wage rate:

Tabel nr.3 Deviations from wage rate for direct labor

No.	Operation name	Standard wage rate (lei)	Effective wage rate (lei)
1	Operation 1	28	32
2	Operation 2	28	28
3	Operation 3	28	28
4	Operation 4	28	29
5	Operation 5	28	28
6	Operation 6	28	25
7	Operation 7	28	26

Looking at the data in the table above can be achieved a number of interpretations, calculations and analyzes:

- for operation 1 is an increase of effective wage rate, thus value deviation is: A_{Ts} = (32-28)*5.000*0.120=2.400 lei (over the cost of production);
- for operation 4 is an increase of effective wage rate, thus value deviation is: A_{Ts} = (29-28)*5.000*0.175= 875 lei (over the cost of production);
- for operation 6 is a decrease of effective wage rate, thus value deviation is: A_{Ts} = (25-28)*5.000*0.040= - 600 lei (reduction of production cost);

- for operation 7 is a decrease of effective wage rate, thus value deviation is: A_{Ts} = (26-28)*5.000*0.030= - 300 lei (reduction of production cost);
- for operation 2, 3 and 5 there is no deviation between effective wage rate and standard wage rate.

Based on these deviation values found, the management of company will have to analyze the reasons for which certain operations because there was a salary increase for two operations.

Based on the two types of deviations previously calculated, the total deviation can be calculated as the sum of them, or using the following relationship:

$$A_{TW} = (t_e * Q * T_{se}) - (t_s * Q * T_{ss})$$

where:
A_{TW} – total deviation for labor cost;
Q – quantity of products;
t_e – effective time;
t_s – standard time;
T_{se} – effective wage rate;
T_{ss} – standard wage rate.

Table no. 4 Total deviation for labor cost

No.	Operation name	Standard time	Effective time	Standard wage rate (lei)	Effective wage rate (lei)	Total deviation (lei)
1	Operation 1	0,110	0,120	28	32	3800
2	Operation 2	0,150	0,175	28	28	3500
3	Operation 3	0,050	0,040	28	28	-1400
4	Operation 4	0,040	0,040	28	29	200
5	Operation 5	0,040	0,050	28	28	1400
6	Operation 6	0,030	0,040	28	25	800
7	Operation 7	0,020	0,030	28	26	1100

Total deviations from standard costs for labor will be used by the management company in order to analyze the causes that led to deviations and for taking decisions for their removal. Thus, we can produce a "report on deviations from standard costs of labor."

Table no. 5 Report on deviations from standard costs of labor

Operation name	Qt	Unit processing time		Total processing time		Unit wage rate		Labor costs		Deviation
		E	S	E	S	E	S	E	S	total
Operation 1	5.000	0,120	0,110	600	550	32	28	19200	15400	3800
Operation 2	5.000	0,175	0,150	875	750	28	28	24500	21000	3500
Operation 3	5.000	0,040	0,050	200	250	28	28	5600	7000	-1400
Operation 4	5.000	0,040	0,040	200	200	29	28	5800	5600	200
Operation 5	5.000	0,050	0,040	250	200	28	28	7000	5600	1400
Operation 6	5.000	0,040	0,030	200	150	25	28	5000	4200	800
Operation 7	5.000	0,030	0,020	150	100	26	28	3900	2800	1100
TOTAL	-	-	-	-	-	-	-	**71000**	**61600**	**9400**

The same way to analyze can be used also for the mandatory contributions paid by the employer company. These costs shall be determined by applying the percentage rates in effect at that time.

For example, if you wish to analyze social health insurance contributions paid by the employer will apply effective rate 5.2% (valid for 2013). It will get a report on deviations from standard costs in terms of direct labor related contributions.

Table no. 6 Report on deviations for health contributions

Operation name	Qt.	Labor costs		Deviation	Health contributions		Deviations for health contribution
		E	S	total	E	S	
Operation 1	5.000	19200	15400	3800	998,4	800,8	197,6
Operation 2	5.000	24500	21000	3500	1274	1092	182
Operation 3	5.000	5600	7000	-1400	291,2	364	-72,8
Operation 4	5.000	5800	5600	200	301,6	291,2	10,4
Operation 5	5.000	7000	5600	1400	364	291,2	72,8
Operation 6	5.000	5000	4200	800	260	218,4	41,6
Operation 7	5.000	3900	2800	1100	202,8	145,6	57,2
TOTAL	-	**71000**	**61600**	**9400**	**3692**	**3203,2**	**488,8**

Conclusions

Activity of tracking and knowledge of costs in real time during the activity and not at the end of the technological process is very important because it allows management to analyze situations arise and make timely decisions for the improvement of activities. Thus, management may perform work only if there is a cost information system very well done.

When company management must assess the quality and importance of information provided by different methods of calculation, they have to start the analysis from the two basic functions of cost:

- measuring function;
- control production processes function.

The fulfillment of these two functions basically assume that the information provided is relevant, accurate and current, and of course it have an acceptable cost in terms of efficiency.

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