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Some aspects of the control and analysis of costs in the steel industry

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Abstract. *This article aims to describe the control and cost analysis in actual conditions. There are described the types of analysis and cost control in the enterprise from steel industry of Romania, the stages which an enterprise should follow to take its control and cost analysis.*

Key words: *estimated costs, effective costs, control, cost analysis, deviation.*

Control and controlling. Cost control

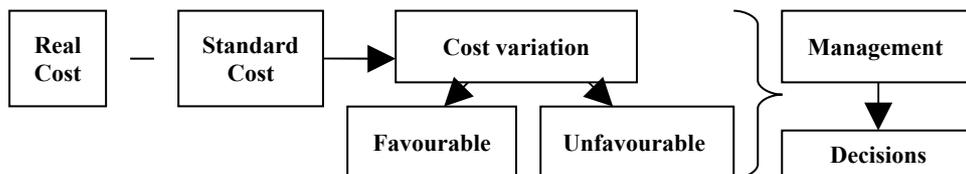
To control means to verify if the set objectives are carried out as established or in other words to monitor whether the facts or events are conducted as laid down in advance by those responsible. *To control* means to rule, to have power over the development of some production processes in some departments etc. In other words, through control it can be determined the deviations which appears between what was proposed to achieve and what was done, identifying its causes, eventually hold liable persons who are found guilty of failing targets.

Controlling is used into the Anglo-Saxon acceptance of the administrative control and includes into its sphere of action both the control and the administration of the enterprise. In other words, controlling means a profitable management and represents a system of rules which helps an enterprise to achieve a desired profit. Unlike the control analysis area, controlling deals with deviations from three points of view:

1. The use of deviations in order to identify the causes of deviations, to find the persons guilty of not fulfilling the established objectives and to support the consequences of their actions;
2. The use of deviations with the purpose of pointing out the irregularities and intervention to eliminate them by taking appropriate decisions;
3. The use of deviations as informative elements to avoid recording bigger deviations in the future. This point of view defines controlling as the “radiography” that helps us to identify the negative symptoms and our orientation to gradually eliminate them to ensure a health continuity of enterprise activity and its existence.

What does represent the cost control and what is its purpose into an enterprise?

The cost control represents all the decision taken for periodically providing the managers and other responsible (department’s managers) data regarding deviations identified through comparison between effective costs (realized) with the planned (standard), having as purpose to take some corrective measures necessary to take the appropriate decisions for the management of a company. In other words, the cost control is realized through variation analysis whose scheme can be made like this:



According to the definition given by the French General Accounting Plan, “*administrative control* represents the ensemble of dispositions taken for periodically providing to managers and other responsible numerical data that characterizing the enterprise direction, its comparison with the past or future data, maybe if it is the case, to incite managers to set off necessarily corrective measures”. Making a comparison between administrative control and cost control we can observe that the last one includes a more restrained area then the administrative control.

The modern approach of control and cost analysis is based on approaches of specialists in the field of cost management which are not only to bring a breath new concept and to contribute to improving existing processes and methods in the enterprises of metallurgical industry in Romania.

Types of analysis and cost control

Included in the category of economical-financial control, according to the specialists cost control involves more combined types. Depending on the content and performance stages, on characteristics and forms of control, cost control knows two types of processes:

1. Processes and methods of operational control (current operative control, posterior operative control etc.);
2. Processes and periodical control methods (posterior periodical control, preventive periodical control etc.).

Stages of control and cost analysis

According to specialists in the management accounting area, the phases of control and cost analysis can be grouped in five major stages:

1. *Establishing of estimated values (planned)*. This stage itself involves the development of two works namely:

- 1.1. Planning the cost of production on primary calculation elements, also on calculation articles;
- 1.2. Determination and calculation of estimated costs (planned) of the production.

2. *Establishing estimated values (planned) as consequence of its re-actualization*. Here interfere the following works to be made:

2.1. Establishing and communicating on time the modification of the standards, prices, tariffs etc. as consequence of monetary fluctuations during the administrative period, or as consequence of technical-scientific progress recorded during the development of the activity.

2.2. Re-actualization and presentation of new changes of norms, tariffs, standards, prices etc. and their recording into the management accounting, presentation of the recorded deviations as consequence of this stage.

3. *Establishing the effective costs and evaluation of the cost production*. Same as in the first stage there are two works performed, namely:

3.1. Delimitation and primary determination of effective costs on primary costs elements, also on calculation articles;

3.2. Determination and evaluation of effective costs (current) of production.

4. *Exercise control and cost analysis* through the comparison between estimated costs (planned) and effective costs (current). No matter if control and cost analysis will be effectuate on primary costs elements or calculation articles, the works that will be developed involves generally the same things, namely:

4.1. Comparison of planned costs (estimated) with the effective costs (current) and establishing of favourable or unfavourable differences (deviations). For deviations determination from the estimated costs, in practice there are used many procedures such as the production organization manner, particularities of the manufacturing process, specific of the departments (responsibility centres, processes, activities etc.), type of costs and products etc.

4.2. Analysis of negative deviations (differences);

4.3. Grouping, systematization and centralization of data obtained as consequence of making the control and deviations analysis on management hierarchical levels, necessary for taking the right decisions by the enterprise management.

5. *Providing informational data and certain conclusions* as a result of finalization of the control and cost analysis by the department's managers and sending it to the enterprise management. There are making out reports that can take different forms, function of the reporting way of the information. The managers need this information for three reasons¹:

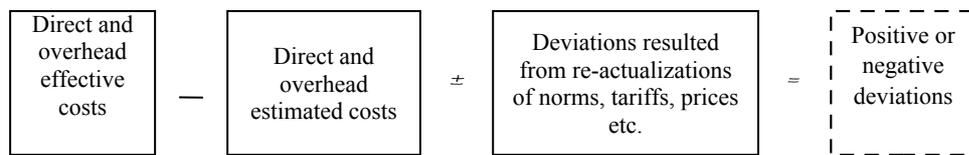
- The costs represent the fundament base of the selling prices of the products, works, services etc;
- Based on costs it is decided if they will produce or abandon one product or it influenced the customer's relations nature;
- By cost analysis is identified the opportunities to improve the products, design manner, production process, quality.

Deviations of the estimated costs (planned)

Control and analysis of the periodical deviations

The periodical deviations are determined only at the end of the administrative period through comparison between the direct and overhead effective costs with the direct and overhead estimated costs (planned), including deviations resulted as consequence of the re-actualization of norms, tariffs, prices etc.

on enterprise level. This analysis provides only synthetic data on enterprise level (and not through complete distribution on departments or cost carriers) and a few significant data from the point of view of informational degree for enterprise management. The scheme below shows precisely their determination way and analysis:



Deviations from estimated direct costs are focused on direct raw materials costs, direct wages, including direct manual labour accessories (social assurance contribution, health social assurance contribution, unemployment contribution fund etc.) as well as other direct costs categories. For deviations determination from direct costs there are used the following processes:

1. *The process based on documents of raw materials outlet from the enterprise's warehouses for developing production process;*
2. *The process based on retailing or cutting raw materials;*
3. *The process based on operative inventory of unused raw materials quantities remained after the end of the production process;*
4. *The accounting process based on using data from accounting evidence.*

Deviations from estimated overhead are determining based on comparative situations which is made by the analogy between effective costs during the administrative period and estimated costs (planned) established at the beginning of the administrative period. This comparison can be made on overhead costs categories, according to the specific components (process, activities etc.).

Control and analysis of operative deviations

The control and analysis methodology will be pursued depending on the procedures used in determining deviations from cost planned

The control and operative analysis of deviations from direct raw materials

A. The process based on releasing the documents for raw materials from the enterprise's warehouses for production process

The operative control is carried out by verifying either *special consume checks* or *material consume limit cards*. Phases that involve the preparation of those two documents are:

1. Once with launching the manufacturing of different products series is released the *special consume checks* or *consume limit cards* making out for direct raw materials designated for productive consume in the current norms.
2. Establishment of separate bills for consumption (special) in those cases in which the use of consumption of raw materials and direct materials over the current rules allowed for the replacement of others found similar or missing, while preserving the original destination fixed.
3. To simplify the business of collecting data on the consumption of raw materials and materials is recommended to use a single document named *material consume limit card* that concentrating the data included in the special consume checks.

Based on primary releasing documents from warehouses of the raw materials for production consume, the deviations from the estimated costs of it is determined as difference between effective consumes and estimated consumes specific to them. So, we meet two deviations categories: quantity and price. The calculation relations of deviations are presenting like this:

$$\text{Quantity deviations: } \Delta Q = (Q_E - Q_P) \times P_P$$

$$\text{Price deviations: } \Delta P = (P_E - P_P) \times Q_E$$

where: ΔQ = quantity deviation;

ΔP = price deviation;

Q_E = effective consume;

Q_P = estimated consume;

P_E = effective unitary price;

P_P = estimated unitary price.

B. The proceeding based on retailing or cutting raw materials

The operative control is unrolling through verification of the *material consume limit cards*. The stages that suppose the making out of the document is unrolling like this:

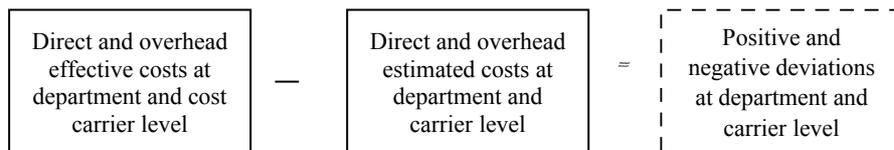
1. After releasing from warehouses of the raw materials quantities necessary for the production process is proceeding to cut or retail raw materials by bringing to requested dimensions or characteristics required by the manufacturing process related commands.
2. Record shall be made for material consumption based on data provided in the first stage, the document will be recorded and deviations between the actual and planned consumption of raw materials and direct materials.

C. The proceeding based on operative inventory of unused raw materials quantities remained after finalization of the production process

As with the previous process, operational control is carried out through checking the records for consumption of materials. Steps involving document preparation takes place as follows:

1. After completion of the manufacturing process (end of working day) shall proceed to the inventory quantities of consumer data (according to warrants consumption) and quantity remaining unused at the job. This inventory is made at very short periods of time.
2. Record shall be made for material consumption based on data provided in the first stage, the document will be recorded and deviations of actual consumption (from the job) and the planned resources of raw materials and direct materials (consumer warehouse).

The operative deviations are determined at very short period of time (twice a week) through comparison the level of effective costs with the estimated costs (planned), at department's level (centers or departments detailed on processes and activities) and on costs carriers (products, works, services etc.). This analysis provides concrete data on cost level and on cost carrier and more significant from point of view of the informational degree for enterprise's management. The below scheme shows exactly their manner of determination and analysis:



Control and operative analysis of the deviations from the estimated direct manual labour and manual labour accessories (planned)

In the case of the direct manual labour and manual labour accessories, the operative control is done over one single summary document named *work accord card* that concentrates itself informational data from other two documents, as: *technical documentation* and *work accord card*. The stages that involve these two documents are:

1. The associate card contains data about the work time, standard technological operations and determined by known processes as: timing, estimation etc. The obtained information and expressed in hours contributes to facilitating determination of work time affected on operations and are included in the *technical documentation*. The salary tariffs will be established considering certain factors as: qualification degree of the employees, anterior employment salary and work conditions, accumulated experience, salary legislation etc.
2. Salary costs are determined according to the used salary form: individual accord, collective accord, administration etc. Not all named documents offer detailed information about deviations. For example, the *correction notice* offers only information about time norms deviations, but not about salary tariffs deviations. For increasing the informational degree regarding control and analysis of the deviations of time and tariff they proposed to use the document named *work accord card*.

Based on previous mentioned documents, the deviations are determined as difference between effective salary costs and estimated salary costs, including direct salary accessories. So, we meet two categories of deviations: time and tariff. The calculation relations of the deviations are presenting like this:

$$\begin{aligned} \text{Time déviation: } \Delta t &= (t_E - t_P) \times T_P \\ \text{Tarif déviation: } \Delta T &= (T_E - T_P) \times t_E \end{aligned}$$

$$\begin{aligned} \text{where: } \Delta t &= \text{time deviation;} \\ \Delta T &= \text{tariff deviation;} \\ t_E &= \text{effective time (hours);} \\ t_P &= \text{estimated time (hours);} \\ T_E &= \text{effective salary tariff;} \end{aligned}$$

T_p = estimated salary tariff.

Control and operative analysis of deviations from estimated overhead (planned)

In the case of overhead separated on categories and calculation articles, the operative control is done on summary documents, called *overhead comparative situations*. In these situations, we are facing the effective and estimated overhead with delimitation on departments (centers, areas, processes, activities etc.) and in its interior on calculation articles (maintaining equipment costs, general department costs, administrative costs, sale costs) and so the deviations are determined.

Overhead deviations analysis is realized through positions research from overhead categories which resulted as registration based on primary documents from analytical accounting. In order to take decisions by the management company, processing information takes place in two steps:

First step (or base) - here is the centralization of data and knowledge according at planned costs and actual data recorded in the accounts;

Second step (advanced step) – here is knowledge, clustering, data systematization and centralization of information periods of discharge.

The modern approach of control and cost analysis is based on approaches of specialists in the field of cost management which are not only to bring new concepts but to contribute to improve existing processes and methods in the enterprises of metallurgical industry in Romania.

Notes:

¹ Kaplan R.S., Atkinson, A.A., *Advanced Management Accounting*, third edition, Prentice Hall International, 1998, p. 222.

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