Chapter 12
Managerial Systems, Methods, and Techniques Used in Scheduling Industrial Production

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ABSTRACT

The management of the industrial production implies the use of some management systems and methods that take into account the nature of production, production type, production volume, the way of organising its performance, etc. Normally, the following can be used: cost objective management system; managerial cost management system; target cost management system; expert systems used in industrial production management. Within these systems and methods of management, the main issue is to compare the estimated costs with the target costs. The process of implementing the management system based on the costs is complex and implies: establishing the objectives, breaking down the objectives set by responsibilities, regularly analysing the results obtained, changing the objectives regarding the level of costs should it be needed, etc. The costs corresponding to the last batch, margins of production added or subtracted from the previous volume of costs are the marginal costs that differ from the average costs which concern the entire production of the industrial company. The size of the marginal cost may be established as a total differential cost or as a unitary differential cost, both being in mutual inter-conditioning relation. The expert system in the operational management of production can be used with good results, which is based on comparing some specific facts to those in the databases. Any expert system takes into account the existence of several modules, such as the knowledge base, rule base, knowledge purchase module, inference engine, inference mechanism, etc.

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COST OBJECTIVE MANAGEMENT SYSTEM

Taking into account the production particularities of various types of industries, the management based on cost-objectives (target costs), which is in fact a complex system for managing the costs, consisting in an assembly of methods and techniques by means of which the management functions are carried out in industry and available resources are judiciously managed for each branch of industrial activity.

In essence, it is a matter of comparing the estimated costs to the cost-objectives (target costs) (Bicheno & Elliott, 1997).

Taking into account the specific situation of each industrial branch and especially the manner of forming the costs and unit price which the production is delivered at to the beneficiary, a special problem managers should solve is to bring the estimated unit production costs close to the objective unit costs for each product.

Because the cost-objective is calculated based on some sufficiently accurate mathematical formulae and the estimated cost is set based on the accounting information regarding the cost achieved during the period prior to the management through cost-objectives, the level of the two categories of costs must be brought close so that the deviation of the estimated cost in relation to the cost-objective would register negative values or it should at least be equal to zero.

The structure of this management system by stages is shown in Figure 1.

The management based on the cost-objective basically consists in assessing the objective unit cost, before starting the financial exercise, starting from the requirements of restructuring and modernising the production activity, as well as from the policy to follow for achieving a certain level of the profit achieved from selling the finished products to the beneficiary.

The system of management through cost-objectives may be applied by covering four stages, and namely: establishing the managerial objectives; determining the objectives by responsibility centres; regularly analysing the results obtained; changing the objectives when the actual situation requires it. All these stages depend on one another through decisions, communications, actions and programs of measures (Figure 2).

In order to apply this management, it is necessary to perform several activities, such as: organising the activity of the responsibility centres...