Chapter 3

Use of Systems Theory to Deal with Industrial Companies

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ABSTRACT

The use of the systems theory in dealing with the industrial companies enables the use of cybernetics to this effect. This leads to considering the company as a cybernetic system, highlighting all the company’s characteristics. This chapter is an application of the systems theory in the study of industrial companies. This chapter addresses issues such as the analysis of a company as “cybernetic system,” production system—“the company” cybernetic system relation, applying the systemic theory to analyse a company’s functions, contemporary theories on a company’s structure, and the full cycle of a company’s operation. The chapter analyses how a company’s activity can be controlled.

ANALYSIS OF COMPANY AS “CYBERNETIC SYSTEM”

In essence, by company (organisation), we define a group of people, organised according to certain legal, economical, technological requirements, which frame and develop a complex of working processes, by using certain means of labour, ultimately resulting in obtaining products and services in order to make an income or a profit as high as possible.

The company must be analysed as a whole consisting in several parts, meaning this will be systemically approached, which provides the following features to it:

• Socio-economic system, as it reunites manufacturing factors and labour force, by means of which it accomplishes its functionality according to the set aims, which result from the social need. The employees’ action onto the production means has as...
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basic component, their potential of knowing and volume of knowledge, which determines their motivated behaviour in the process of accomplishing the economical and social aims set forth for the company;

- Dynamic system, meaning that the changes made within the company or in its relations with the environment determine a certain track in the company’s evolution, which defines the company’s viability or non-viability;
- Complex system, as the company represents a reunion of elements, labour force and production factors, and multiple and deep links are set forth in between them, allowing the action of the “company” system. These elements are not simple passive components, as some of them act in adequate ways for achieving certain aimed objectives;
- Probability system, meaning that the company’s action as a whole is subject to the influence of some random factors which permanently tend to disturb its balance;
- Open system, as any company is a component of the bigger systems represented by economy and society;
- Self-adjustable and self-organising system, as the company performs its activity as link of the national economy, in order to accomplish certain aims converging the national interests.

Deemed as a system characterised by the aforementioned features, the company has an operating mechanism defined by the following features:

- The company has the specific input parameters, which correspond to its profile and which it transforms within the processing procedure into outputs necessary to the environment where the company operates;
- The company is able to self-adjust its activity by its own management, which based on the information gathered from the company’s operating environment, properly processed and capitalised are used in taking the needed managerial decisions.

In this context, any company approached through the theory of the systems includes two categories of functions and namely: Random functions, which reunite the basic elements of the production and form the physical process of transforming the inputs into outputs; directing functions, which consist in fixing the action programs of the random functions, when trying to accomplish these programs and fixing the correlations necessary to the permanent orientation of its activity towards accomplishing the set objectives.

**PRODUCTION SYSTEM: “THE COMPANY” CYBERNETIC SYSTEM RELATION**

The production system, through its characteristics can be placed in the category of opened systems. This is the result of its behaviour, characterized through receiving the material, financial and labour resources from the outside environment (thus inputs). These ones are then transformed in finished products and services (thus outputs) and they are transmitted to the external environment.

The essence of the definition of the cybernetic system is that this one is a reunion of systems aiming at the achievement of a mutual transfer of information between the component subsystems and between these ones and the environment so that on a certain period of time the self-adjustment process of the whole reunion to be ensured. If we take into account this definition, the production