

Chapter 18

The Distribution of a Management Control System in an Organization

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ABSTRACT

This chapter is concerned with methodological issues. In particular, it addresses the question of how is it possible to align the design of management information systems with the structure of an organization. The method proposed is built upon the Cybersin method developed by Stafford Beer (1975) and Raul Espejo (1992). The chapter shows a way to intersect three complementary organizational fields: management information systems, management control systems, and organizational learning when studied from a systemic perspective; in this case from the point of view of management cybernetics (Beer 1959, 1979, 1981, 1985).

UNDERSTANDING CONTROL IN AN ORGANIZATIONAL CONTEXT

When Norbert Wiener defined cybernetics as the science of control and communication in the animal and the machine (Wiener 1948) he was using the Greek word *κυβερνητής*, or steersman, as his main inspiration. Indeed, he was recalling the ancient practice of steering a ship towards a previously agreed destination regardless of changing conditions of currents and winds. This

simple idea of connecting communication (at that time used as a synonymous of information flow) and control by a continuous feedback process opened up a huge space of possibilities to explain physical, biological and social phenomena related to self-regulation (Heims 1991). This is the case, for instance, of a heater in a physical domain, or the homeostatic mechanism to regulate body temperature in mammals (Ashby 1956). In all these cases, however, it is important to notice that control is far from its naïve interpretation as

a crude process of coercion, but instead it refers to self-regulation. This is the meaning of control used in this chapter.

Cybernetics has evolved in many branches since its early years (Espejo & Reyes 2000). One of these variations has focused on the study of communication and control processes in organizations; this is the topic of management cybernetics (Beer 1959, 1966, 1979) and is the conceptual underpinning of this chapter.

Given the close relation between information and control in self-regulating systems (as organizations) this chapter addresses the question of how information should be distributed across the structure of an organization in order to allow self-regulation to be effective. In order to achieve this, we would like to show a way of relating three organizational fields: management information systems, management control systems and organizational learning. This is done from a methodological point of view by describing a step-by-step method (although it is not intended to be linear) to build a network of homeostatic mechanisms. But before describing the method, it is important to clarify with more detail the meaning of control used herein.

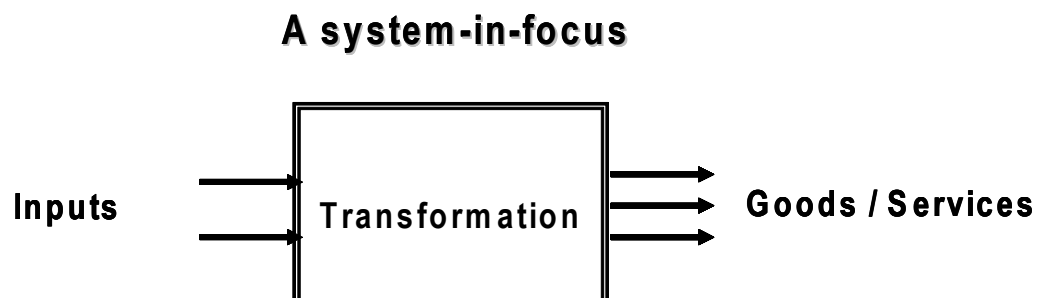
In an organizational context controlling a system is a process intended to close the gap between the observed outcomes produced by the organization and the expectations previously agreed among relevant stakeholders. It is, therefore, a self-regulating process.

An organization, on the other hand, is understood in this context as a closed network of relationships constituted by the recurrent interplay of roles and resources in a daily basis. In other words, people in organizations play formally defined roles that underpin the working relations they carry out with other organizational members. When these relations allow them to create, regulate and produce the goods and services they want to offer, an organization with a particular identity emerges; a *human interaction system* (Espejo 1994). This is an operational way to distinguish between a group of people that meets regularly to do something (as fans that used to meet at football matches) and an organization (when those fans constitute a club).

There are different ways to describe what an organization is doing; one way is to make explicit the transformation process by which this organization is producing the goods or services it is offering. Figure 1 shows a simple representation of such description. Notice that this description is suitable not only for an organization as a whole (like an insurance company that transforms information into specific products) but also to any other organizational processes like those carry out by the human resource department of a bank or those constituting the quality system of a company.

Our concern is to model the self-regulating (or control) process of any organizational system that could be described as a transformation process.

Figure 1. A representation of a system-in-focus as a transformation process



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