Chapter I

Managing Knowledge in the Cognitive Organization

We have wheels in our knees, funnels as ears and discs impressed in our brains. Pliers as hands, pivot in our elbows and shoulders; muscles & nerves are tiny and intertwined chains; pulleys and transmission shafts driven by two interconnected engines, the heart and the brain.

~ Fortunato Depero, W la macchina e lo stile d’acciao

Abstract

Digital technologies have played an important role in the diffusion of knowledge management (KM). The distinction between hardware and software, between platform and logical layer has revolutionized the concept of the machine. Machines become intelligent, while knowledge becomes an independent virtual object. An analogous revolution has occurred in organizations: the metaphor of the organi-
The organization as a machine is replaced by that of the organization as a computer. In this type of organization there is a need to manage a critical new resource: knowledge. Organizations are different from machines and computers in one fundamental way: They are able to generate new knowledge through learning. After giving a brief history of the birth and evolution of KM, in this chapter, we will show how the main criticism of modern approaches to KM are due to the inadequacy of the metaphor of the computer. Finally, we show that in order to overcome such limits, KM needs to be framed within an organizational learning theory and the metaphor of computer organizations substituted with the paradigm of the learning organization.

The Digital Revolution and the Cognitive Machine

In 1996, the governor of the Federal Reserve, Alan Greenspan, declared that a radical change had come about in the American and world economy: the progressive loss of volume. In particular, he observed that:

"Accordingly, while the weight of current economic output is probably only modestly higher than it was a half century ago, value added, adjusted for price change, is well over threefold."\(^1\)

This paradox questions a basic rule of economic exchange. This rule says that the value of wealth produced in a market correlates to the mass of products which are produced and exchanged.

Dematerialization is a phenomenon that concerns not only the final products, but also the processes of production, and is due to a series of technological innovations, which have played a major role in miniaturizing electronic circuits and information technology (IT) in general.

Underlying all of the relevant innovations produced by the advent of new technologies is probably the intuition of Claude Shannon. In the 1930s, as a doctoral student at MIT in Boston, he understood that an electronic circuit could be used to implement the capacity to do logical operations, such as those used in the logic of propositions, onto a device.\(^2\)

In many ways, everything that is considered IT, and in particular all types of software, can be traced back to this invention. Circuits that are no different than those invented by Shannon are now the fundamental components of the architecture of all the electronic processors and all the existing machines that process digital information.
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