Chapter 11

Theoretical Classification of Technological Frames: A Diagnostic Tool to Incorporate Information Technology into Organizations

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Social construction of technological artifacts has been put forward by science sociologists as an alternative to understand how technology has been created and developed all along the human activities. Particularly, in the last decades, and given the exponential technology breakthroughs and the repercussion on business processes, it has been critical to understand how this technology has generated a differentiating factor to positioning a company in a market segment or in a particular context. In this sense, several researches (King and Teo, 1994; Lederer and Sethi, 1992; Lederer and Mendelow, 1988) have been addressed to review the possible ways to identify technology the influence and impact on contemporary businesses, many of them based on psychological, causal, and systematic effects, all of them offering fundamental findings. To date, however, there are few technology studies reviewing the individual relations context as a critical factor for technology understanding. For such a reason, this paper—supported by the foundation of systemic and cybernetic theories—(Flood, 1999; Flood and Carson, 1993; Beer, 1994; Espejo et al., 1996; Reyes, 1995; Mateus, 1996)—makes a structural analysis about relations
among individuals, technology, and organization, reviewing those implications of technological understanding; putting forward a technological frame classification establishing a practical knowledge base for both practitioners and academics about the analysis of individual relations and its way to understanding technology; looking for new alternatives to be integrated into business strategies supported by information technology; and technological understanding impact of organizational players.

INTRODUCTION

Information technology has turned, in last years, into the development drive of rising organizations, as well as operational or strategic support of long-standing business ones. Through technology, organizations discover its integration and skill-generate abilities allowing them to compete in an interconnected world, where customers become increasingly important in generating value added, for their needs want (Prahalad and Ramaswamy, 2000). In this line, information technology has turned into a key element to set the strategic bases of those companies wanting to reach an outstanding position around their business scope (Mata, Fuerst, and Barney, 1995; Benjamin, Rockart, Morton, and Wyman, 1984; Edwards, Ward, and Bitheway, 1995).

Therefore, technology incorporation processes in organizations arise as critical components for generating business strategies supported by information technology (Jarvenpaa and Ives, 1991), leading us to review its implications on the business communities last-keepers: The individuals.

Now then, should we accept technology as social process of reality construction through the participants’ relations as an answer to a structural condition modifying its way of doing things, so as to evolve and reconstruct its interpretation of how the things should be done (Cano, 2000b)? If so, understanding technology as a generating factor of competitive advantage invites us to identify and know the individual understanding in the light of people expectations, assumptions and knowledge, about purpose, context, importance, and technology role, as a complementary factor to business strategies supported by technology.

In this line, researches on social area have been addressed (Pinch and Bijker, 1987; Hughes, 1987) revealing the importance of how implications of human actions promote creation of technical artifacts, the expression of social creation within the context of its historic development. In this way and supported on social reflections about technology, Bijker (1987) introduces the technological frame concept incorporating those concepts and techniques used by a community to solve its problems, whereby interaction of several different social players is defined around an artifact, seeking to reach a shared meaning around the posed problematic. Such a concept was then taken and reviewed by Orlikowski and Gash (1994), in
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