Chapter XI

Intangible Determinants in the Introduction and Development of Information Technology: Mediterranean Evidence

Ana R. del Águila
University of Málaga, Spain

Sebastián Bruque
University of Jaén, Spain

Antonio Padilla
University of Málaga, Spain

ABSTRACT

In a global and highly competitive context, the human-machine interaction re-emerges as an important topic of research among IS academics and practitioners. In this chapter, we propose an empirical analysis applied to the Pharmaceutical Distribution Industry in Spain, with the aim of detecting the influence that some human and managerial intangibles have on the level of effective implementation of IT in organizations. Finally, we present some theoretical and managerial implications that can be applied not only for the Spanish case, but also for the European Union and for a global environment.

INTRODUCTION

From the start of the computer age (Kaufman, 1966), it has been suggested that the development and introduction of information technology (IT) has positive effects on business (Cash & Konsynski, 1986; McFarlan, 1984; McLean & Soden, 1977; Parsons, 1983; Porter & Millar, 1985; Parsons, 1983). Information Technology could have a strategic effect, either affecting the conditions in which products are made available or manufactured, or affecting the actual market structure, the production economies, and the level of internationalization of the firm. IT could also modify each of Porter's competitive strategies (1980), that is to say, cost leadership, differentiation, or specialization in a market niche.

The revolutionary effect of information technology on economic and social structures has meant that an important number of researchers have tried to clarify the circumstances in which information technology acts as a driving force in business performance (Amit & Zott, 2001), in interorganizational relationships (Shapiro & Varian, 1999) or in organizational change (e.g., Kling & Lamb, 2000; Orlikowski & Iacono, 2000; among others). Given the relevance of the technological factor in organizations, in this chapter we consider if technology needs certain human or managerial conditions for its successful introduction and development. This question will be looked at in the first part of the chapter, and in the second part, we will go over theoretical background that links human and managerial intangibles to the introduction and development of new technology; this will allow us to formalize subsequent hypotheses. Later, we will develop some analyses that will prove the validity of the theoretical premises. Finally, we will discuss the results, taking into account the implications for IT global management.

BACKGROUND AND HYPOTHESES

Over the last few years, the question of interaction between human and managerial factors and information technology has been of interest to an increasing number of researchers. In some cases, the relationships linking certain human and managerial characteristics to the overall performance of the company have been studied (Bharadwaj, 2000; Byrd & Douglas, 2001; Clemons & Row, 1991; Duhan, Levy, & Powell, 2001; Hagmann & McCahon, 1993; Hitt & Brynjolfsson, 1995; Neo, 1988; Powell & Dent-Micallef, 1997; Ross, Beath, & Goodhue, 1996; Lee, 2001;), as have the processes in which information and communication technology is involved (Lee & Menon, 2000; McAffee, 2001; Mukhopadhyay, Rajiv, & Srinivasan, 1997). In other cases, the problems of management of the staff working in the field of Information Technology and Systems have been analyzed (Cheney, Hale, & Kasper, 1990; Gupta, Guimaraes, & Raghunathan, 1992; Martinsons & Cheung, 2001; Martinsons & Westwood, 1997; Woodruff, 1980; Yellen, Winniford, & Sanford, 1995), especially when *Business Process Re-engineering, BPR, outsourcing* and *downsizing* occur and when final users have access to key activities in IT areas, for example, the substitution of a system organized in central servers by a decentralized system using personal equipment (Martinsons & Cheung, 2001).

Surprisingly, little attention has been paid to the relationship existing between the presence of certain human and managerial intangibles and the actual introduction of computer and communication technology (Hassan & Ditsa, 1999). However, studies have been made on the combined positive effect of intangible resources together with IT and their

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