ELSEVIER

From means to ends: The transformation of ERP in a manufacturing company

Kees Boersma*, Sytze Kingma[1]

Department of Culture, Organization and Management, Faculty of Social Sciences, Vrije Universiteit Amsterdam, De Boelelaan 1081 c, 1081 HV Amsterdam, The Netherlands

Abstract

In this paper, we present a case study of the restructuring of an Enterprise Resource Planning (ERP) system within a manufacturing company, in particular the combination of Material Requirement Planning (MRP) with a Just In Time (JIT) material management procedure at the assembly lines. We focus in this study upon the mutual shaping of technology and organizational culture, in particular the virtualization of the organization. It is argued that the implementation of ERP in this specific context was more than an adaptation of a standardized information system relative to organizational requirements, and that the organizational adaptations were more than a re-engineering of business processes relative to ERP. Instead, we suggest that in this case the ERP system itself has been transformed, including a change in the signification of ERP within the company.
© 2005 Elsevier B.V. All rights reserved.

Keywords: ERP; MRP; Organizational culture; Sense-making; Management; Information technology; Virtual Organization; Case study

1. Introduction

During the 1990s, the market for standardized ERP systems grew enormously. Many organizations have implemented ERP, in most cases with the aid of specialized business consultants. ERP systems reflect a new phase in the informatization of organizations, integrating various business processes within and between organizations. With this

* Corresponding author. Tel.: +31 20 444 6769.
E-mail addresses: fk.boersma@fsw.vu.nl (K. Boersma), sf.kingma@fsw.vu.nl (S. Kingma).
[1] Tel.: +31 20 444 6802.

organizations usually seek to improve management control over complex business processes, an increasing efficiency and effectiveness and a reduction of production and transaction costs (Davenport, 1998; Dong, 2001; Holland and Light, 2001). In this respect, ERP was advocated and welcomed as highly promising. However, after this initial and very promising phase, since the end of the 1990s the enthusiasm over ERP was seriously tempered, due to the substantial exceeding of time-and money budgets, technical failures, the loss of control over business processes and organizational side effects (Hanseth et al., 2001; Trott and Hoecht, 2004). Instead of a highly promising technology, ERP appears to be a highly demanding technology. Problems associated with ERP are, at least in part, attributed to an underestimation of the social and cultural side of ERP (Alvarez and Urla, 2002; Fui-Hoon Nah et al., 2001; Kawalek and Wood-Harper, 2002; Soh et al., 2002).

In this paper, we focus upon the mutual shaping of ERP and organizational culture in the case of a complex B2B (business-to-business) vehicle manufacturing company.[2] We address, in particular, the quite dramatic management decision, made in early 2001, to exclude the entire Material Requirement Planning (MRP) module from the ERP system, and the impact the new Just In Time (JIT) management procedures had on the working routines of the teams operating at the assembly lines. This remarkable development indicated a serious misfit between the organization and its Enterprise System and suggests that the role of technology can be inverted from leading to following organizational change.

First, we sketch the theoretical background to this case study. In this part of the paper, we will address the interplay of organizational culture with ERP as a process of sensemaking. We further specify this process of sensemaking in reference to the virtualization of the organization driven by ERP. In our focus upon the mutual shaping of technology and organizational culture, we combine a body of literature referring to the 'Social Shaping of Technology' (MacKenzie and Wajcman, 1999; Orlikowski, 2000) with theories of organizational culture (Alvesson, 2002; Czarniawska, 1998; Martin, 2002; Weick, 1995).

In the second part, we move to the organizational context of the manufacturing company and the management of the organizational changes following the decision to work around MRP. After that we analyse the implications for the teams working at the assembly lines. In the conclusion of this paper, we discuss (in line with our theoretical framework) how in this case the transformation of ERP can be seen as process of sensemaking and how it added up to a virtualization of the organization. We will argue why the process in which the ERP system was amended entailed in our view a serious transformation in the signification of the ERP system itself.

2. A cultural approach to ERP

In an earlier discussion of the literature on ERP, we started from the observation that ERP-systems are not easy to define, certainly not if we want to take the actors point of

---

[2] The firm has been anonymized but it could for example manufacture aircraft, military vehicles, fire wagons, trains and the like.