The Impact of Enterprise Systems on Organizational Control and Drift: A Human-Machine Agency Perspective

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ABSTRACT

Enterprise systems (ES) are widespread in current organizations, and seen as integrating organizational procedures across functional divisions. An enterprise system (also known as enterprise resource planning – ERP system), once installed, seems to enable or constrain certain actions by managers and users, which have an impact on organizational operations. Those actions may result in increased organizational control, or may lead to organizational drift. The processes that give rise to such outcomes are investigated in this paper, which is based on a field study of five companies. By drawing on the theoretical concepts of human and machine agencies, as well as the embedding and disembedding of managerial and user actions in the system, this paper argues that control and drift arising from the use of an enterprise system are outcomes of the processes of embedding and disembedding human actions, which are afforded (enabled or constrained) by the enterprise system.

Keywords: agency; drift; enterprise IS; IS control issues; IS impacts; IS use

INTRODUCTION

Implementation of an enterprise system in an organization may have profound impact on organizational processes (Boudreau & Robey, 1999; Koch, 2001; Martin & Cheung, 2000; Schmiderjans & Kim, 2003; Sirigindhi, 2000), as well as on information flow and transparency (Bernroder & Koch, 1999; Besson & Rowe, 2001; Gattiuck & Goodhue, 2004; Legare, 2002; Markus & Tanis, 2000; Newell et al., 2003; Shang & Seddon, 2000). Much of the research on enterprise systems, however, is concerned with the implementation process and provides insights into success factors of enterprise systems implementation (e.g., Akkermans & van Helden, 2002; Al-Mashari & Al-Mudimigh, 2003; Bingi et al., 1999; Holland & Light, 1999; Hong & Kim, 2002; Nah et al., 2001; Shanks, et al., 2000; Somers & Nelson, 2001). Only a few studies investigate issues relating to the post implementation of ES (e.g.,...
Elmes et al., 2005). The actual use of enterprise systems as a topic of research is in fact characteristically absent from a survey of the trends of the research literature on ERPs carried out by Botta-Genoulaz et al. (2005). Hence, we have limited understanding of issues affecting the use of enterprise systems in organizations and their potential for organizational impact.

This article therefore concentrates on the actual use of an enterprise system, post-implementation. It examines the impact of actions performed by humans (managers or users), or a machine (the enterprise system), on control and drift within an organization. We propose a theoretical conceptualisation to describe the impact of those actions by drawing on a field study of five companies that have an enterprise resource planning system installed. The significance of this research is twofold. First, our conceptualisation developed in this paper enhances the understanding of the processes that result in organizational control (or drift) through the use of an enterprise system. Second, our results also pinpoint issues of practical interest to companies that are using (or thinking of installing) an enterprise system.

The rest of the article is structured as follows: In the following section, we review some relevant literature on information systems, control, and drift, which is central to our research. We then present our theoretical foundations, in which we frame our analysis and discussion. Our research approach is then outlined, followed by a description of the companies that participated in this research. We follow this with an analysis of the data gathered from the companies, across the dimensions of control and drift. We then discuss our findings and conclude with some theoretical and practical implications of our research.

**INFORMATION SYSTEMS, CONTROL, AND DRIFT**

The link of information systems with organizational control has been investigated by a variety of scholars in the field (e.g., Coombs et al., 1992; Duane & Finnegan, 2003; Malone, 1997; Tang et al., 2000). Many point to the paradox that while information systems can empower employees with increased decision-making capabilities, at the same time they can serve to increase control within the organization (e.g., Bloomfield & Coombs, 1992; Bloomfield et al., 1994; Orlikowski, 1991).

Although control in a general information systems setting has been examined to a large extent, the number of studies in an Enterprise Systems setting in particular is still quite limited. What distinguishes enterprise systems from other information systems is their scale, complexity, and potential for organizational impact. Because of this, enterprise systems deserve special attention with regards to the issue of control.

Hanseth et al. (2001) claim that ERP systems, with their emphasis on standardization, streamlining, and integrating business processes, are an ideal control technology. However, they point to a surprising result: That implementing an ERP system over a global organization in order to enhance control may as well have the opposite effect, i.e., reduced control. This can be explained with the ubiquitous nature of side effects. In that sense, the more integrated the system is, the faster and farther side effects have an impact, and the bigger their consequences.

Sia et al. (2002) have examined the issues of empowerment and panoptic control of ERP systems. They summarize the panoptic control aspect of ERPs in three dimensions: comprehensive system tracking capability, enhanced visibility to management, and enhanced visibility to peers (through workflow dependency and data interdependency). The findings by Sia et al. (2002) indicate that although an ERP implementation has the potential for both employee empowerment and managerial control, managerial power seems to be perpetuated through an ERP implementation.

Elmes et al. (2005) have identified two seemingly contradictory theoretical concepts in an enterprise system: reflective conformity and panoptic empowerment. Reflective conformity refers to the way that the integrated nature of the enterprise system leads to greater employee
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