

## Chapter 2

# The Paradox of Complex ERP Systems used in Simplified Organisations such as Small and Medium Enterprises

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### ABSTRACT

*This chapter further develops and generalises findings from the authors' July 2008 paper in the International Journal of Enterprise Information Systems (IJEIS) by adding organisational issues such as business process reengineering (BPR). The authors argue that enterprise resource planning (ERP) systems are complex management tools that impose standard business processes from larger manufacturing firms. The authors test whether these systems can be adapted effectively to more simplified organisations such as small and medium enterprises (SMEs). The authors found that SMEs tend to have a high perceived level of satisfaction when using these complex tools, independent of size or sector. However, they cannot clearly establish that SMEs having applied BPR while implementing an ERP system are more satisfied than those that did not.*

### INTRODUCTION

Since the late 1990s, vendors of integrated management tools called ERPs (enterprise resource planning) have found their primary market, mainly large companies, is saturated. To find new customers, they have begun to market these products to small and medium enterprises (SMEs) (generally with about

100 to 500 employees) (Deep, Guttridge, Dani & Burns, 2007; Muscatello, Small & Chen, 2003).

However, it seems few SMEs have actually implemented an ERP (a fact this survey confirms). But is this due to the rigid framework of ERP systems, which were initially created for larger manufacturing firms (Basoglu, Daim & Kerimoglu, 2007; Botta-Genoulaz & Millet, 2006)? We aim to determine whether ERP systems can be fitted ef-

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fectively to more simplified organisations such as SMEs, and how the organisational constraints of ERP systems affect SME user satisfaction.

Research has found that ERP systems implementation and IT issues can differ vastly depending on industry sector, business type or country (i.e., culture), and company size (Velcu, 2007; Snider, Silveira & Balakrishnan, 2009; Raymond, Uwizymungu & Bergeron, 2005). Thus, we cannot really apply the extant academic research on ERP system implementation directly to SMEs without further research (Snider et al., 2009).

We aim to enhance the research on ERP implementation in SMEs, as well as to obtain more generalizable results. To that end, we conducted a questionnaire-based survey about the level of implementation and use of ERP systems in Swiss SMEs. Our main findings were published in the *International Journal of Enterprise Information Systems (IJEIS)* in July 2008, in a paper called “Elements of Perception Regarding the Implementation of ERP Systems in Swiss SMEs.” We extend here the work done for that paper by adding new descriptive statistics about business process reengineering (BPR) used by SMEs during ERP systems implementation.

To our knowledge, this is the first study of its kind to have been conducted in Switzerland. The work further adds to the literature by the qualitative aspects addressed in the questionnaire, such as the value-added provided by ERP systems in terms of satisfaction, as well as the managerial and organizational difficulties encountered when implementing and using these systems.

For example, we found that the main difficulties cited during the implementation phase were related to “complexity.” In terms of difficulty of use, companies listed primarily “resistance to change” followed by “lack of training.” We found that ERP satisfaction did not differ significantly among small and medium-sized companies, or among industry types.

On the other hand, however, we found that many companies were required by their parent

company to adopt ERPs. Furthermore, the decision to implement an ERP system in an SME is clearly linked to firm size or sector.

We provide our findings in the form of summarized descriptive statistics and hypothesis testing. For the latter, we focus on ERP user satisfaction regarding implementation in SMEs. The chapter is organized as follows. The first section presents a literature review of the organizational implications of ERP systems in companies, and specifically in SMEs. In the second section, we briefly present the questionnaire and the sampling strategy. The third section presents the main descriptive statistics obtained from our survey, as well as results related to the topic of organizational complexity. We formulate and test hypotheses in the fourth section. We also confirm the need for specific research involving SMEs. Finally, in the fifth section, we conclude by discussing the limitations of this study, and providing directions for future research.

## **LITERATURE REVIEW**

The first part of this literature review focuses on academic findings regarding business process reengineering and organizational change due to ERP systems implementation and use. The second part summarises the main subjects developed specifically for SMEs in order to examine BPR and SME satisfaction with ERP implementation. We find that the paradox of using complex ERP systems in simplified organisations has not been addressed sufficiently thus far in the literature. There is a critical need to bridge this research gap.

### **ERP and Organizational and Structural Changes**

The main advantage of an ERP system is clearly the improved organization wide spread of information, which should enhance management decision-making (Davenport, 1998; Scapens &

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