Chapter 3.13
Motivators for IOS Adoption in Denmark

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EXECUTIVE SUMMARY

Organizational adoption of innovations does not always follow easily comprehendible patterns. This is often the case with interorganizational information systems (IOS), where adoption is dependent on attributes related both to the organization and to its environment. The present study operationalizes the Tornatzky and Fleischer (1990) model for organizational adoption in order to investigate reasons for adoption and non-adoption among businesses in the Danish steel and machinery industry. This particular industry segment had been subject to massive information campaigns focusing on the benefits of IOS in the form of EDI from business associations. The study suggests that environmental and organizational attributes rather than technological attributes are the main determining forces for adoption of EDI.

INTRODUCTION

Why do some organizations adopt a technological innovation that is announced to yield both operational and strategic benefits, while others hesitate or decide not to adopt? This question is highly relevant, especially in the case of interorganizational information systems (IOS), due to the great importance of IOS in transforming industries, value chains, and markets. Surprisingly, few Danish organizations have adopted IOS, in spite of their relevant technical capabilities and their high degree of IT usage. From this perspective, the reluctance to adopt IOS appears to be even more irrational and incomprehensible. The phenomenon of organizations lagging behind adoption of IT, regardless of their capabilities to do so, is well known (Harrison, Mykytyn, & Riemenschneider, 1997). What is missing are sensible explanations for this situation.

Small companies dominate the Danish business sectors. About two-thirds of the approximately 50,000 companies within the industrial sector has less than 10 employees. National and

international industry and trade associations have created a number of awareness campaigns and have focused on creating advantageous conditions for the SMEs (small and medium-sized enterprises) to enable them to adopt IT, especially IOS such as EDI. The aims of these campaigns were to assist the companies in reducing or eliminating work routines and to support them in a market characterized by increased competition. The technological development has led to an increase in quality and functionality and a decrease in cost of hardware and software (Harrison et al., 1997). The traditional technological barriers for organizational adoption of IOS, therefore, might not play the same dominant role as it did earlier. This new situation makes it highly relevant to examine explanatory factors for IOS adoption among SMEs, which traditionally have relatively fewer resources allocated to IS acquisitions than larger companies (Lai & Guynes, 1997).

In order to find an explanation for the puzzling situation of the limited IOS adoption and diffusion among Danish SMEs, a survey was conducted. The survey addressed SMEs in the Danish steel and machinery industry. The main reason for choosing this particular sector was the fact that business associations had targeted information campaigns toward this sector prior to the inception of the study.

ADOPTION OF INNOVATIONS

Adoption can be viewed as having or not having an innovation (Tornatzky & Fleischer, 1990), or it can be viewed as using the innovation vs. not having it (Rogers, 1995). Adoption, according to Rogers (1995), is "a decision to make full use of an innovation as the best course of action available and rejection is a decision not to adopt an innovation." Rogers' (1995) definition does not distinguish between adoption and use of the innovation. In this article, the core understanding of the term adoption is having vs. not having (Tornatzky & Fleischer, 1990) rather than not having vs. using (Rogers, 1995). Consequently, measures related to effects of adoption of the innovation are not considered. The important point relevant to this study is that some dividing line is crossed when the adopters decide to invest resources necessary to accommodate the effort to change (Kwon & Zmud, 1987).

Tornatzky and Fleischer (1990) suggested that three explanatory contexts influence the process by which innovations are adopted in organizations. These three contexts are the organizational context, the environmental context, and the technological context.

The three explanatory contexts depicted in Figure 1 were operationalized for this study of the Danish steel and machinery industry.

Figure 1. The Tornatzky and Fleischer (1990) model for adoption