

Chapter 9

The Diffusion and Adoption of a Cloud-Based Enterprise System in Danish Municipalities

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ABSTRACT

This chapter addresses how Opus, a modified SAP solution delivered as a cloud solution, is interpreted, diffused, and adopted by Danish municipalities. The chapter is based on a theoretical framework using the organizing vision and diffusion of innovation theories. The authors study four Danish municipalities and the vendor of the Opus solution. They tell the history of Opus and analyze how it has diffused into Danish municipalities. The findings are that the diffusion is strongly influenced by regulative, normative, and cultural-cognitive pressures. Institutional processes play an essential part in the early and late diffusion of IS innovations and in the creation and evolution of an organizing vision such as Opus for Danish municipalities. The authors conclude the chapter with a discussion of how Opus as a technology could be categorized and follow this with future research directions.

INTRODUCTION

For quite some time cloud computing has been a major trend in the IT business (Fenn, 2010; Wohl, 2010). Cloud computing is essentially a collection of deployment and service delivery models that use the internet as an infrastructure. Cloud computing

is often explained using the National Institute of Science and Technology reference architecture, according to which it consists of Cloud Software as a Service (SaaS), Cloud Platform as a Service (PaaS), and Cloud Infrastructure as a Service (IaaS) (Mell & Grance, 2009). In this paper we focus specifically on SaaS as the primary mode.

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It has previously been argued that there could potentially be an SaaS subcategory called Enterprise Software as a Service (ESaaS) (Svejvig, Storgaard, & Møller, 2013). ESaaS encompasses enterprise systems such as ERP, CRM, and BI systems. From a pure cloud computing perspective, the delivery of such services is not significantly different from the SaaS model, but from a practical perspective the difference may be significant. Enterprise systems have generally been delivered by on-premises models, i.e. companies have owned and hosted the enterprise systems themselves. This model seems to be being challenged, and in this paper we will explore a case of ESaaS and its diffusion in practice.

The case study is based on a modified SAP solution delivered by the vendor KMD to the Danish municipalities. KMD is an IT company that was formerly owned by the Danish municipalities. KMD has been responsible for the delivery of most IT systems for the Danish municipalities. After liberalization, KMD competes in the free market, but still runs and maintains the old mainframe systems. Several years back KMD was in the process of modernizing its offering to the municipalities and decided to build its next generation systems for the municipalities on the SAP Business Suite platform. This basically means that KMD has developed an industry version of the SAP software, called Opus, to offer to the municipalities in the public sector. Many of the adaptations refer to the specific Danish legislation for the municipalities, and there are only minor local differences. The situation also means that all the customers run on the same instance of the SAP system, and the question we will address here is whether it really matters which delivery model is used to deliver the enterprise system exemplified by the municipality ERP. In this context we attempt to answer the following research question: *“How is Opus interpreted, diffused and adopted in Danish municipalities?”*

The paper will be based on the theoretical framework of Swanson and Ramiller (1997),

complemented with Rogers' theory on the diffusion of innovation (Rogers, 2003). The theoretical framework is described in the next section, which is followed by the research methodology. The case, analysis and findings are then described, and finally there is a discussion and concluding remarks.

MODELS OF TECHNOLOGICAL DIFFUSION

There are various theories and models that relate to the diffusion of technological innovation. Baskerville and Pries-Heje (2001) define complementary models, with an ecological view that centers on conflict and competition in the diffusion setting and a genealogical view that centers on consensus and regulation. Beynon-Davies and Williams (2003) define two alternative viewpoints, called rational and interpretive models. Rational models focus on vendors and consumers, and seek to trace and explain the acceptance of an innovation over time. Interpretive models include other actors such as the computer industry and the media.

Our model of technological diffusion combines the ecological and the genealogical viewpoints by focusing on a single innovation in an organizational field. We focus on the organizations surrounding this innovation (i.e. the industry, consisting of suppliers, consumers and regulatory agencies), and the history of the innovation. To do this we use the Diffusion of Innovations theory of Rogers (2003) and the Organizing Vision theory of Swanson and Ramiller (1997); these provide theoretical lenses for our research. Furthermore we introduce regulative, normative and cultural-cognitive processes as considered by Scott (2008).

Diffusion of Innovations

Diffusion of innovations can be characterized as “a process by which an innovation is communicated through certain channels over time among the

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