Chapter 13

Business Innovation and Service Oriented Architecture: An Empirical Investigation

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ABSTRACT

Recent research suggests that a strong link exists between business innovation and service oriented IT architectures: modern IT architecture enables business to quickly create new services. However, the relationship between IT capabilities and business performance is not always straightforward. How does SOA support fast innovation in practice, and under which conditions is it effective? In this paper, the authors investigate these issues and ask: How can a SOA architecture like the Enterprise Service Bus support business innovation? This paper investigates this question through a case study at an airline company. Analyzing the relationship between innovation and IT architecture in the company over time, the authors offer the following conclusion: ESB gives strong support to business innovation, under two conditions. First, the implementation of ESB has to be comprehensive, that is, it should include the core processes of the business. Second, the top management (and partners) need to understand the principles of ESB.

1. INTRODUCTION

Recent research suggests that there is a link between business innovation and service oriented IT architectures (SOA). It is assumed (and promised) that modern IT architectures have the capability to provide businesses with a real-time flexibility in a turbulent and competitive environment (Taylor et al., 2009). The key to this promise is that IT should not only align with business to support existing processes, but also contribute to a business transformation. In practice this implies that the SOA architecture enables new business services at a speed that matches the needs of the fast-changing corporation.
From past experiences both IS researchers and IT practitioners have learned to be wary regarding such grand promises. In particular, we have learned that the relationship between IT capabilities and business performance is not always straightforward. Although it has been shown that IT capabilities tend to increase business performance (Bharadway, 2000), it is also well documented that exploiting these capabilities depend on a number of factors, and that bandwagon behaviour often leads to mindless innovation (Swanson & Ramiller, 2004). We have also learnt that context plays a larger role in IS innovations than often assumed (Sharma & Yetton, 2003); what works in for example the retail may not work in education, and what works in a start-up company may not work in a mature organisation. The basic idea of SOA supporting business innovation, however, is attractive and exciting, and deserves to be investigated empirically.

But in order to so it is necessary to narrow down the scope of investigation. SOA is a relatively broad concept, and the same applies to business innovation. In this paper we have chosen to focus on a particular implementation of SOA called the Enterprise Service Bus architecture, and its practical use in a company. The ESB concept was introduced in 2002 (Chappell, 2004) as a part of the Service Oriented Architecture (SOA) paradigm. The ESB is an IT architecture that aims at being able to support two seemingly contradictory features: it integrates a network of business partners at a transactional level, enabling real-time systems to communicate seamlessly. At the same time the components are loosely coupled; it is possible to add or subtract business partners at short notice, without affecting the daily running of operations. In principle, this is indeed an architecture to support business innovation.

The bus architecture is an attractive idea, which has received much attention over the past few years. However, the ESB concept is primarily a technical architecture, and many issues remain much less known. In particular, the more direct relationship between IT infrastructure and innovative capability is not described in the ESB literature.

How should a company organize this in practice? The purpose of this research is to undertake an exploratory, but in-depth investigation of this issue, where we go beyond the promises of technology, and assess the practical implementation and use of SOA, and assess the interplay of technology and business innovation in practical setting. Our research question, then, is how can a SOA architecture such as the ESB support business innovation?

We proceed by reviewing the concepts and practices of business innovation, SOA and ESB. Then we present our method, and our case company. We describe the technical solution in some detail, before analyzing how this solution enabled the company to introduce a number of innovative services in very short time, and to exploit them successfully in a turbulent competitive environment. Finally we discuss the conditions for our approach to be viable.

2. REVIEW

In this section we offer a brief review of business innovation, service oriented architecture and the enterprise service bus.

2.1 Business Innovation and Agility

The innovation of new services has transformed several industries over the past decade, for example travel services, banking, gaming and the music industry (Tidd & Hull, 2003). This development has been heavily dependent on IT, in particular Internet technology, to such a degree that we should conceptualise these innovations not as “business/IT alignment”, but as the results of a mutual reinforcement process: technology opens a space of possibilities, which spurs the creation of new services. The new services increase the space
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