The More, the Merrier?  
The Interaction of Critical Success Factors in Business Intelligence Implementations

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ABSTRACT

Business intelligence (BI) is a term that refers to a variety of techniques and software applications used to analyze an organization’s raw data. Companies use BI to improve decision-making, identify opportunities, and cut cost. However, implementing a BI system is challenging. Critical success factors (CSFs) are necessary elements for a project to succeed. The aim of this article is to identify critical CSFs and find possible interrelationships. Using a framework of CSF constructs, the authors conducted a qualitative case study at Norway Post, a large company that successfully implemented a BI system. This research offers three contributions. The first is identifying ten CSFs for a BI implementation, and the second is a ranked list of these CSFs. The third is the CSFs interrelationship model, which may be the most exciting result for BI practitioners. Knowing which factors to fulfill and how they interrelate will increase the chances of achieving a successful BI implementation.

Keywords: Business Intelligence, Case Study, Critical Success Factors

INTRODUCTION

How will companies compete in a constantly changing world of customer preferences, new products, the suppliers setting terms and the entrance of existing and new competitors? Michael Porter (1980) spoke of these five driving forces some thirty years ago, even before the Internet made its mark on virtually every business. During the 1990s, organizations around the globe focused on the adoption of enterprise resource planning (ERP) systems to solve integration problems and to be competitive. Those ERP systems stored large volumes of transactional data, but lead to difficulties in analyzing, reporting, and extracting reliable information. If one also adds the increased regulatory compliance and governance requirements, the outcome is that many companies are compelled to improve their decisions through the implementation of a business intelligence (BI) system (Davenport & Harris, 2007; Friedman, 2007; Yeoh, Gao, & Koronios, 2007).

The implementation of BI systems is, however, a time-consuming, expensive, and arduous task. In the United Kingdom 87%
of BI projects did not live up to expectations (Sheina, 2007); moreover, in a study of Gartner’s, it was revealed that more than half of all implementations experienced limited acceptance (Friedman, 2007). Despite this fact, over the past years thousands of companies have implemented BI systems, because BI is a key ingredient for gaining competitive advantage (Gartner, 2007). Many factors can influence a BI implementation; thus, it is important to study and find these factors so that managers and BI practitioners can use them when implementing a BI solution.

Critical Success Factors (CSFs) are defined by Rockart (1979) as activities which are necessary to ensure successful competitive performance. There have been a number of studies proposing CSFs, largely for the longer-established ERP, customer relationship management (CRM), and lately for the newer BI too (Yeoh et al., 2007). Unfortunately, CSFs from ERP cannot directly be used in BI. ERP systems are concerned with arranging large amount of data, while BI is about transforming data to information. This transformation of data into information requires more human involvement in BI than in ERP. The research question for this paper is therefore: *Which factors are critical to the implementation of a business intelligence system and how do these factors interact?*

This article begins with reviewing relevant literature, and presenting the case company and framework. We then present our findings and discuss them, and point to some limitations, before we propose the conclusion.

**BUSINESS INTELLIGENCE**

In the business environment, several factors put pressure on organizations. Examples are globalization, consumer demands, legislation and regulation, and markets and competition. This also gives opportunities for companies such as new strategies, collaboration, agility, increased productivity, new vendors, and new business models. Nevertheless, managers need the right information at the right time and in the right place (Turban, Sharda, Aronson, & King, 2008). To this end, BI can provide analysis, decision support and predictions.

**Concept and Objectives**

The concept of BI appeared for the first time in Hans Peter Luhn’s article “A Business Intelligence System” from 1958, where it was initially a term for data analysis tools. Today, BI is a broad category of applications and technologies for gathering, storing, analyzing, sharing and providing access to data to help enterprise users make better decisions. The major objectives of BI target the transformation of data into information, then into knowledge, and finally to decisions. Knowledge is typically obtained about customer needs, customer decision-making processes, the competition, conditions in the industry, and general economic, technological, and cultural trends (Turban et al., 2008).

According to Wixom and Watson (2007), there are two main processes: the first is getting data in (data warehousing), and the second is getting data out (Business Intelligence). Furthermore, this can be separated into key components such as technologies for getting data in (extract, transform, and load tools), storing data (data warehouses and data marts) and getting data out (ad-hoc queries, reporting), as well as analytics tools (online analytical processing and data mining).

A BI system can help users to make better decisions and organizations to identify threats and opportunities, decrease reaction time, increased business performance, cut cost and out-think the competition (Turban et al., 2008). For example, the company studied in this article, Norway Post, achieved an incredible performance boost. Their revenue increased 73% from 2000 to 2006. Profitability went from about -142 million USD in 2000 to +219 million USD in 2006. In addition, customer and employee satisfaction improved substantially (Howson, 2008).
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