Critical Success Factors for the Implementation of Business Intelligence Systems

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ABSTRACT

This article focuses on critical success factors during the implementation of a business intelligence system. The existing literature was reviewed, and critical success factors were extracted. Subsequently, the critical success factors that occur in practice were collected through qualitative expert interviews that are analysed through a qualitative content analysis. The critical success factors found in literature are afterwards compared with those that have been collected during the expert interviews. It was found that many of the critical success factors were mentioned in the literature and in the expert interviews as well, such as a strong management support, a light-weight approach, user acceptance, the project team and data quality. In addition, the performance of the business intelligence system, the definition of standards, terminology and key performance indicators as well as an institutionalization and integration of business intelligence were mentioned in the expert interviews.

KEYWORDS

Business Intelligence, Business Intelligence System, Critical Success Factors, Project Management

1. INTRODUCTION

Today, data is collected everywhere, and is rapidly increasing. It is or will be collected on websites, intelligent linked devices, also called Internet of Things, or from social networks, for instance Facebook or Twitter. In addition, communication independent of time and place is possible, thus, employees can query organisational or private data at anytime and anywhere. Furthermore, the time for decisions and planning is shortened due to intense competition and customer demands. Hawking and Sellitto (2010, p. 1) argue that more and more companies are focusing on business intelligence systems and thus implement them in their organisation.

The term business intelligence (BI) was first mentioned by Luhn (1958, pp. 314-319) in 1958. Later, Morton (1983, p. 5) defined this term as “the use of computers and related information technologies to assist managers”. This already highlights that a management support system (MSS) is not restricted to one system, but can be seen as an entire environment. Although the term MSS still can be found today, it has been mostly replaced by the newer term business intelligence. This year, Gartner Group (2017) defines the term BI as “an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information performance.” With a suitable business intelligence system, the data of a company can be analysed and can add significant value. However, the implementation of a business intelligence system is not a trivial task.

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The success of an implementation depends on many different factors. It is also important to note that such a system has to be constantly maintained and adapted to the current company’s situation. This paper focuses on the issue of which critical success factors affect the implementation of business intelligence systems, and answers the following research question: “What are the critical success factors for the implementation of business intelligence systems in an organisation?” Through ensuring all these critical success factors, there is a good chance to finish an implementation project successfully according to costs, time, budget and quality. This paper focuses on this topic to provide an update of the existing literature and should validate, if the critical success factors for business intelligence implementation projects have changed over the time, because the requirements on the systems also evolve, e.g. velocity, availability, security or flexibility. We will address the research question through a comprehensive literature review and complementing as well as extending through an empirical investigation based on expert interviews. The structure of the paper follows this approach and first details the methodology and results of the literature review, and then the methodology for the empirical study and the respectively resulting critical success factors.

2. CRITICAL SUCCESS FACTORS FOR THE IMPLEMENTATION OF BI SYSTEMS

In order to answer the research question, this paper is built on first performing a comprehensive literature review followed by an empirical investigation through expert interviews. For the review, various databases have been used, but also websites of business intelligence providers or known computer magazines. As search strategy, individual terms such as “business intelligence”, “success factors”, “business intelligence project”, “critical success factors” or “business intelligence implementation”, as well as combinations of them were used, and backward literature search was performed from relevant results. Also, the term “business intelligence” combined with already found critical success factors were used.

Rockart (1978, p. 85) defines critical success factors (CSFs) as “a limited set of areas where suitable results provide a competitive advantage. Critical success factors are the few key areas in which the actions and intentions must be correct so that the business runs successfully, and the goals of the manager can be achieved”. Additionally, Yeoh and Koronios (2010, pp. 26-28) classify critical success factors into three perspectives: organisational, process and technology. This categorisation was adopted in the rest of the paper to see the main focus of each critical success factor and at the same time the role that could be seen as responsible to counteract any problems for a CSF. Additionally, the categorisation highlights that critical success factors for business intelligence implementation projects are not only technical ones, and was able incorporate all factors found in literature.

Following this concept, the critical success factors for the implementation of a business intelligence system identified through the literature review are discussed here, and summarised in Table 1.

The most often cited critical success factor is management support. Adamala and Cidrin (2011, pp. 18-19) describe management support as a major CSF for BI and categorise to the organisational perspective. Hawking and Sellitto (2010, pp. 6-8) examined 69 events with a total number of 9,868 lectures and identified some CSFs for business intelligence systems: Most frequently, strong management support is mentioned here. Little and Gibson (2003, p. 292-295) underline with the argument that strong management support is the major critical success factor. Olszak and Ziemba (2012, p. 140) surveyed 20 small and medium-sized enterprises and identified several critical success factors, one of them is strong management support. Sammon and Finnegan (2000, p. 88). Yeoh and Popović (2016, p. 12) as well as Salmeron and Herrero (2005, p. 20) also argue with strong management support as an essential CSF. Scholz, Schieder, Kurze, Gluchowski and Bühringer (2010, p. 3) sees above all a strong management support as the critical success factor per se for business intelligence projects. Watson and Haley (1998, pp. 35-36) had interviewed 111 organisations that had implemented a data warehouse and found that the principal critical success factors were organisational such as strong management support. Also, Wixom and Watson (2001, p. 17) mention strong management as
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