Chapter 2
How Can Success of IT Implementations Be Measured? The Case of Business Intelligence Systems

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ABSTRACT
The number of applied Business Intelligence (BI) systems is rapidly increasing worldwide, serving a broad range of sectors and business applications. BI systems serve a broad range of sectors and business applications by performing functions that consist of managing clients, resources, and employees through the collection and analysis of data that assist in describing these business entities and the various attributes of these objectives. Even though BI solutions have been implemented worldwide and the experience gained in implementation projects has largely enriched the academic research in this field, IT literature still lacks a uniform methodology for assessing the effects that BI systems have on business processes and organizations. Additionally, should any part of the BI implementation project fail to satisfy user needs or achieve the benefits expected from them, it is important to identify the failure’s extent and sources in order to avoid financial and operational losses in similar projects. This chapter presents an analytical framework to help measure the success of implementations of various types of Business Intelligence systems, including Online Analytical Processing, Knowledge Management, and Decision Supporting tools. The framework and methodology presented here serve as a basis for evaluating the possible effects of technical, organizational, and personal factors on the success, partial success, or failure of BI system implementations. The framework is demonstrated via a case study analysis of a BI system implementation in an energy firm.

INTRODUCTION
Firms and organizations are experiencing increasing interest in and placing greater importance on collecting data from their operational and business activities and subsequently processing and interpreting it to measure and to regulate operations and performance. These data, when catalogued, indicate the breadth and quality of operations, and assist managers in forming visions, strategies, and new business activities.

As a part of their daily tasks, managers are required to make reliable and well-informed decisions that effectively react to the changing business
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reality and the processes of their firms. These decisions are usually based on data augmented throughout the firm’s operation. However, these data can become overwhelming in volume, or be stored in multiple locations (King & Marks, 2008; Spaeth et al., 2008). By implementing business intelligence (BI) technologies, data gathered on clients, operations, and rivals can be processed into useful information, offering firms insights to positively impact their operations and decision-making through the analysis of changes and trends in their business environment (Buchanan & O’Connell, 2006; Hou & Papamichail, 2010).

BI technologies were developed to provide solutions for the organization, analysis and presentation of large and diverse collections of business data (Philips & Vriens, 1999). Since the very first stages of their development and introduction to the market, BI systems have played a major role in assisting strategic processes in a wide spectrum of firms and operations.

Graves (2005) and Lönnqvist & Pirttimäki (2006) suggest that to provide useful inputs for managerial decision-making, BI systems should be defined as tools that gather, process, produce, and present information on a business’ environment and internal operations. Because the manner in which most BI suites integrate all or some of these tools is ultimately invisible to the final user (despite the existence of distinctions between various BI tools and applications), they are able to generate multi-angle perspectives of an organization and market trends both current and anticipated. The strategies and mission of a firm are therefore formed from real-world data gathered and presented through queries, graphic presentations and prediction models.

Many firms fail to recognize the benefits provided to their operations’ structures and potential by BI systems, as these classifications organize a wide scope of confusing data. Because of this, a firm may implement only one portion of the system and achieve only partial success. Occasionally, a BI system cannot be installed at all, leaving a firm without new sources of income or return on its investment.

The goal of this study is the identification of critical success factors (CSF), which measure the successes, partial successes and failures of BI system implementation projects. Firms can use the methods presented in this study to assess the level to which their BI systems have improved their commercial value and implement changes accordingly.

The chapter is structured thus: Section 2 gives an overview of the various factors known to affect BI systems in their implementation both before and after being installed in an organization. Section 3 provides an example from a real-world case study from a Dutch energy company that exemplifies the model’s application and CSF measurement. Section 4 expands upon these results and concludes the chapter.

WHAT CAN AFFECT THE IMPLEMENTATION OF BI SYSTEMS?

The success (or failure) of BI system implementation is influenced by a wide variety of factors, both technical and operational, which can include the following: interfaces, legacy systems, data access, proper training and computer literacy of employees. Many different applications and systems can be covered by the scope of the issues known to influence a firm’s success or failure, so this chapter elaborates upon those within the specific perimeters of BI systems.

There are many different ways the success of BI systems implementation can be measured (DeLone & McLean, 1992; DeLone & McLean, 2003; Petter et al., 2008; Tesch et al., 2009) and, likewise, many different factors that can either positively or adversely affect how BI systems perform in organizations. This section examines those factors and offers a set of criteria that, when