Business Intelligence Capabilities and Implementation Strategies

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Abstract

In recent years, Business Intelligence (BI) has begun to play a critical role for businesses in terms of organizational development, helping them both to improve performance and to establish competitive advantages. However, there are many obstacles to the successful implementation of BI. This paper will discuss the challenges of BI, examining whether the reasons for failed implementation have been predominantly from BI capabilities or implementation strategy which is based on business-driven or technical. A suitable conceptual framework for the study of BI has been suggested according to set techniques and strategies which match the purpose of this research.

Key words: Business intelligence, Business Driven, Technical Driven, Implementation strategy

Background

Nowadays, the BI consider as the most important implementation that can help to gain competitive advantage (Reshi and Khan, 2014). The business intelligence (BI) is an umbrella that includes architecture, tools, applications, data bases and methodologies (Raisinghani, 2004). Furthermore, Negash (2004) stated that BI systems merge analytical tools with data storage, data gathering and knowledge management to provide end user with complex and competitive information to planners and decision makers. The main objectives of BI are to enable a) interactive access to data, b) manipulation of these data and c) allow business managers and analysts to conduct appropriate analyses (Turban et al, 2008). Furthermore, Negash (2004) stated that the main objective of BI systems is to get better using appropriate quality of input to the decision making process. Moreover and in accordance to Davenport (2008), the business intelligence should be divided into five parts; querying, reporting, OLAP, an "alerts" tool, and business analytics; however, Pirttimaki (2007) states that the business analytics is the subclass of BI that based on three factors; statistics, prediction, and optimization.

However, as has been seen in the past few years, most organizations have been impacted by the Business Intelligence revolution, and their strategies have changed in terms of delivering their important functions to enable them to make their business processes more efficient and to exploit the resulting many opportunities to create a new competitive advantage for these new business practices. Moreover,

the BI concept is becoming increasingly important and gaining in visibility within the business area (Gartner Group, 2006). At the same time as most organizations start their business intelligence (BI) plan with high expectations of success, many struggle to align their technology approach to BI with exact business objectives, and as a result, deliver solutions that fail to meet business needs (Panian, 2006). In addition, Olszak and Ziemba (2007) state that management information system, DSS, ES, and EIS have not always met decision makers' expectations and work needs, such as, making decisions under time pressure, monitoring competition, owning such information on their organizations that includes different points of view.
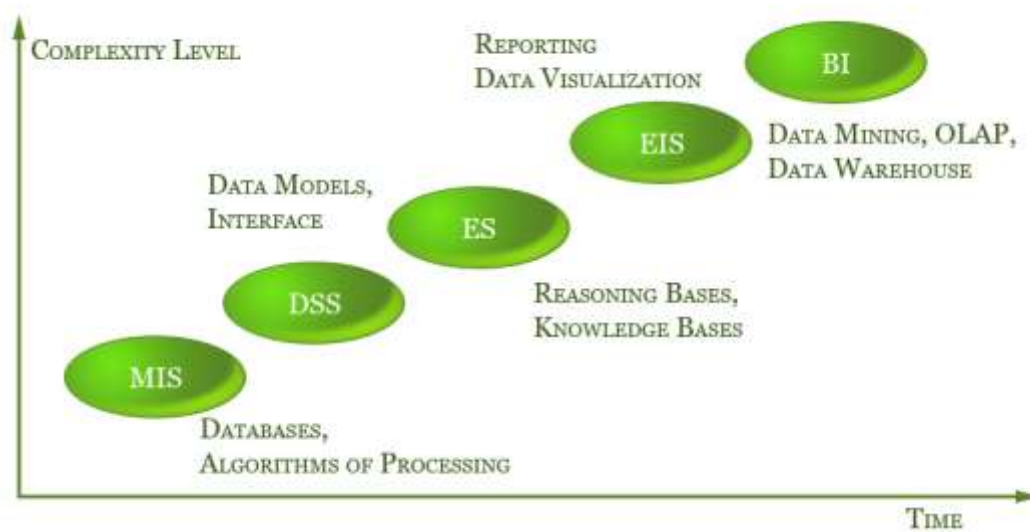

Figure 1: Management information systems Development.
Source: (Olszak, & Ziemba, 2007).

Most organizations either small or large create millions records of data on all aspects of their business, however, these data are locked and cannot be used easily and most of the time not fully accessible (Miller, 2006).

However, BI can provide managers and knowledge workers with new tools allowing them to observe data in new ways empowers them to make faster and better decisions (Nadeem and Jaffri, 2004). Furthermore according to Gartner (2009), the business intelligence market predicted to develop because of lack of information, processes, and tools; by 2012, more than 35 % of the top 5,000 global companies will regularly fail to make insightful decisions about significant changes in their business and markets. As a result, for the purposes of this paper attention has been focused on literature dealing with business intelligence (BI) in terms of strategies that can be used in successful implementation. However, the topic of business

intelligence implementation (BI) has raised diverse opinions from several different perspectives. In addition, many theories and models have been discussed in relation to BI or have indirectly looked at this concept or correlated trend; such as, factory and warehouse theory which was initiated by Inmon, and Teradata advance analytics methodology which was created by NCR corp. (Turban et al, 2007).

Moreover, IT decides which technology to implement without paying due attention to input; however, the main reason for such poor attitudes, is that the technology projects are usually driven by IT departments as a substitute of being driven by business departments (Laube et al., 2003)

However, despite a huge investment in supply chain management (SCM), customer relationship management (CRM), and enterprise resource planning (ERP) over the last decade, the competitive advantages have not been achieved at their work, and that is due to the limited amount of information that has been captured by these systems (Sahay et al, 2008)

BI implementation and Challenges.2
According to Ericson (2003), not all of BI solutions succeed in all organizations, and, there are signs, before a project begins, that could indicate whether the project will succeed, struggle, or fail and it is important that organizations understand the key indicators of success, so as to overcome the challenges that are associated with the BI project during its implementation. Ponniah (2001) stated that data quality is the most important sign; he said that the large volumes of scatter transactional data could lead to increased difficulties in analyzing, summarizing and extracting reliable information. Moreover and in accordance to Devlin (2010), a set of information are required by the most of current business than ever, and the nature of today's business processes says that this information must be extremely consistent and well integrated. In addition, Kimball et al. (2008) also states that the data quality is the most important factor, he said that the massive data from many different sources of a large enterprise can be integrated into a coherent body to provide a clear view of its business, therefore, meaningful information can be delivered at the right time, in the right location, and in the right form to assist individuals, departments, divisions or even larger units to facilitate improved decision making. According to Kimball et al. (2008), there are three critical areas that can be used as key indicators for internal assessment within the organization before starting a BI project and those are; the level of commitment and

sponsorship of the project from managerial level, b) the level of business need for creating a BI implementation, and c) the amount and quality of the business data available which is considered to be the most important indicator. Moreover and in accordance to Olszak and Ziemba (2007), it is important and also difficult to select appropriate BI tool, moreover, it may play critical role to build successful BI; however, consideration of functionality, complexity of solutions, and compatibility are all important factors while chosen product from wide range products that exist in the market, as a result, BI tools must be up-to-date and chosen with IS help to meet enterprise's expectations in the future. In addition, Butler Group (2006) mentioned that there are four main problem sources that could affect BI implementation and those are 1) poor quality of data entry, 2) poor customer records management, 3) inconsistently held source data across multiple feeder system, and 4) inadequate source extract , transformation , and load (ETL system) like calculation and derived field.

Business Driven and Symptoms of technical driven 2.1
Some of the BI specialists consider the business driven strategy as the most important factor in BI implementation, not data quality as other specialists have said. However, a study by Watson et al (2001) show that the perfect BI sponsor should come from a business function. According to Lube et al. (2003), IT decides which technology to implement without paying due attention to input; however, the main reason for such poor attitudes, is that the technological projects are usually driven by IT departments as a substitute for being driven by business departments. However and in accordance to Laube et al. (2005), there are many symptoms that derive from a technological strategy that is purely driven by the IT department which are as follows:
A technological strategy independently created by the IT department, and / or by -1 employees in other departments do always intimately relate to the project due to the separate .actions of the participants in its creation

.Projects and priorities are owned by the IT and not by the business side-2

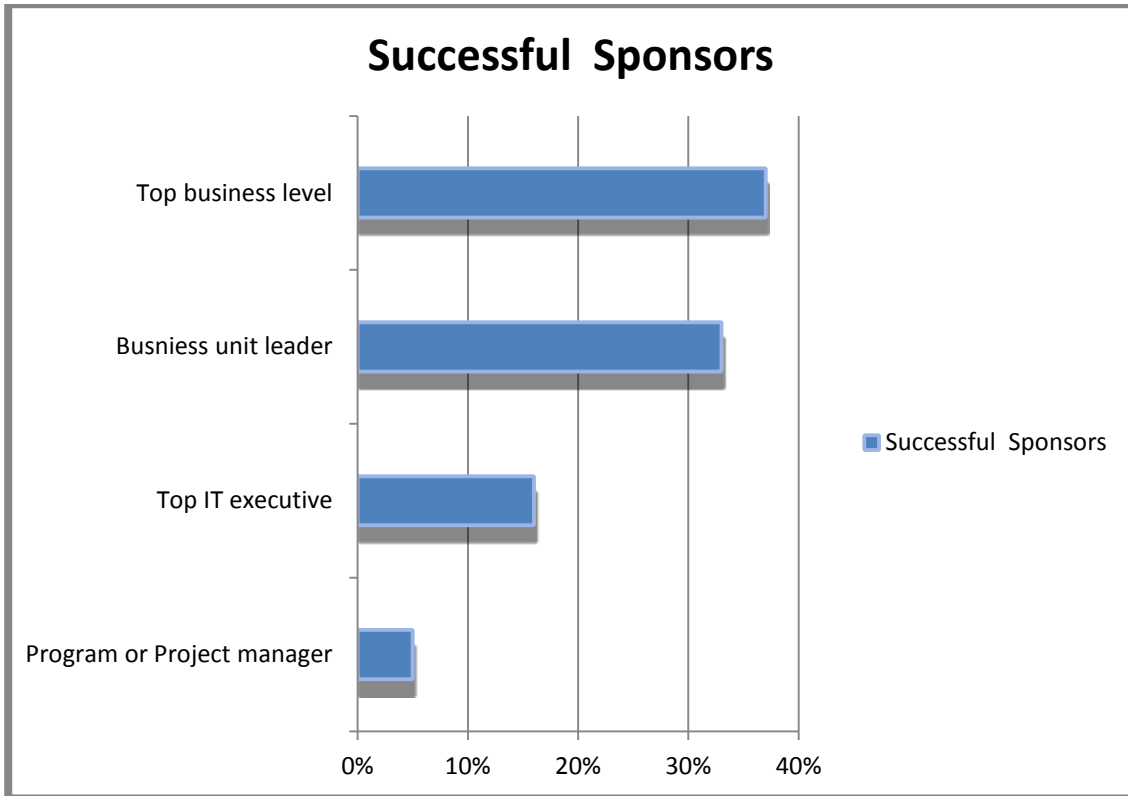Successes of the IT project are usually described in IT terms rather than by their effect on -3 .business

Successful Sponsors

(Bar chart — horizontal bars labeled "Successful Sponsors")

- Top business level: ~37%
- Busniess unit leader: ~33%
- Top IT executive: ~16%
- Program or Project manager: ~5%

X-axis: 0%, 10%, 20%, 30%, 40%

Figure 2.2: To illustrate the most successful sponsors of a business driven model compared to an IT driven model (Eckerson, 2003).

(Bar chart with "Succeeding" (red) and "Struggling" (blue) bars)

- Business Driven: Succeeding ~78%, Struggling ~58%
- Technical Driven: Succeeding ~15%, Struggling ~27%
- Not sure: Succeeding ~5%, Struggling ~14%

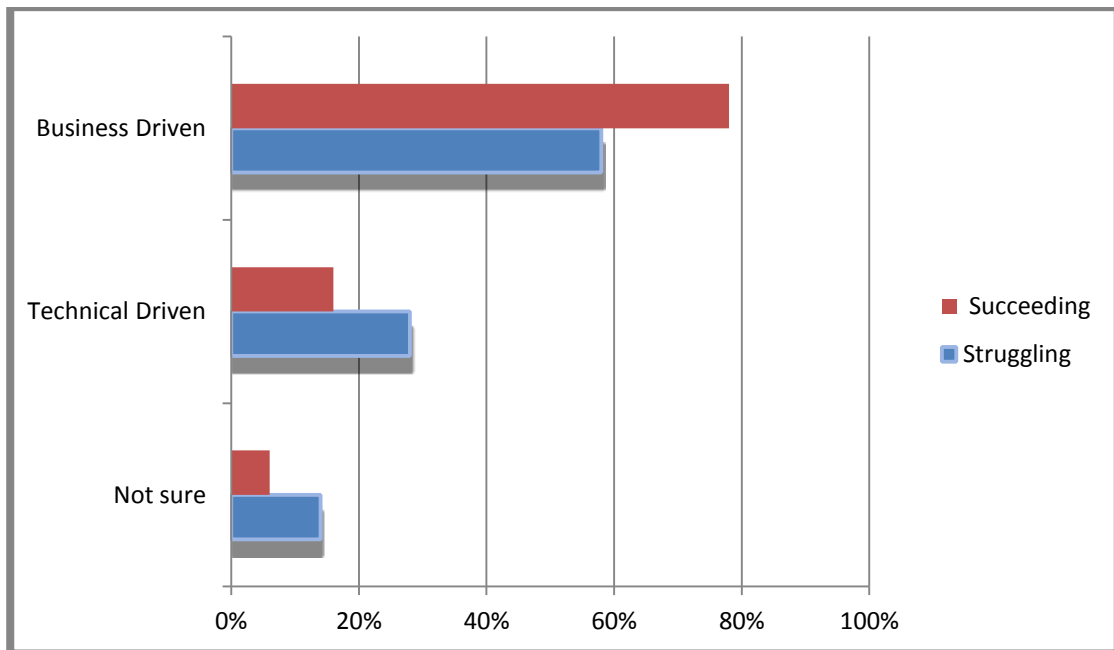X-axis: 0%, 20%, 40%, 60%, 80%, 100%

Figure 3: Illustrating the success rate for BI implementation when driven by business rather than technical driven (Eckerson, 2003).

Best practice for implementing BI 2.2

According to Atre (2003), there are ten major reasons that could lead to BI failure; however, most of those reasons are not due to being business driven, such as, non- involvement of or weak business sponsors, and unwillingness of business representatives from key functional areas, who know the business processes. Moreover according to Olszak and Ziemba (2007), top-down approach is a development strategy use for majority of BI; That is, the decision making starts at the board and top management and then lower levels of management are involved to complete the process.

According to Weir (2002), there are important guidelines for best practice for implementing the data ware house in BI, and these guidelines are:

1- Corporate strategy and business objectives must fit into the project.

2-Executives, managers, and users must all have a buy-in to the project

3- User expectation about the completed project must be agreed and managed

4-The data ware house should be built incrementally.

5-IT and business professionals must both manage each project.

6-A relationship should be built between the business and IT developer's side

7- Only clean data of high quality should be loaded that can be understood by the organization.

However, most of Weir (2002) guidelines for best practice for implementing the data ware house in BI refer to the importance of a business driven strategy such as, a corporate strategy and business objectives should integrally fit into the project guideline.

BI implementation and Strategic alignment 3

Writing on strategic alignment, Avison et al (2004) states that, in order to be successful and competitive, all information systems projects should be aligned with organizational strategy. This means that all BI plans need to be aligned in a way that supports an organization's overall strategy. However, as Miller et al point out (2006), it is incredibly difficult to align all BI projects under a common BI strategy; this is due to the competing requirements of management and operational levels. However, a business-driven strategy can help in this matter by allowing business user to define their needs according to their business goals.

In relation to the field of BI use in strategic management, Teece et al's dynamic capabilities concept (1997) recognizes the agents of change which allow organizations to develop their capabilities by making dynamic and market-oriented decisions. They also discuss how changes in external environments can provoke a renewal of capabilities in which BI acts as a dynamic enabler. Furthermore, they point out that BI should be implemented through business-driven strategies in order to ensure that the information required for decision making can be identified by users who know which resources and capabilities are most important.

As Raman (2011) states, there are a variety of threats and opportunities associated with BI. These include losses in newly-launched products, the opportunity afforded by data mining to identify new markers, and the enablement of dynamic capability. Moreover, strong commitment on the part of senior management, powerful incentives for analytical staff, and a company-wide attitude towards analytics-based competition are all required if an organization is to be differentiated from its competitors. Akwei et al (2006) remarks that the strategies which emerge are used to develop dynamic capabilities during a process in which people work while undertaking generative, adaptive learning and conducting business intelligence. Meanwhile, Katsoulakos et al (2006) insists that business intelligence is a crucial part in the implementation of a dynamic capabilities strategy. On other side and due to the high cost of creating BI, organizations need to consider the needs of BI and a business justification for a comparison between cost and benefits gained from BI, moreover, it should be business driven, not technology driven for BI decision-support justification, so as to reduce business problems such as profitability or efficiency (Moss and Atre, 2003).

Conceptual Framework

This paper has presented new model which addresses BI capabilities and BI implementation strategy. Figure 4 below represents the themes and factors found in the literature to be implicated in the implementation of a BI.
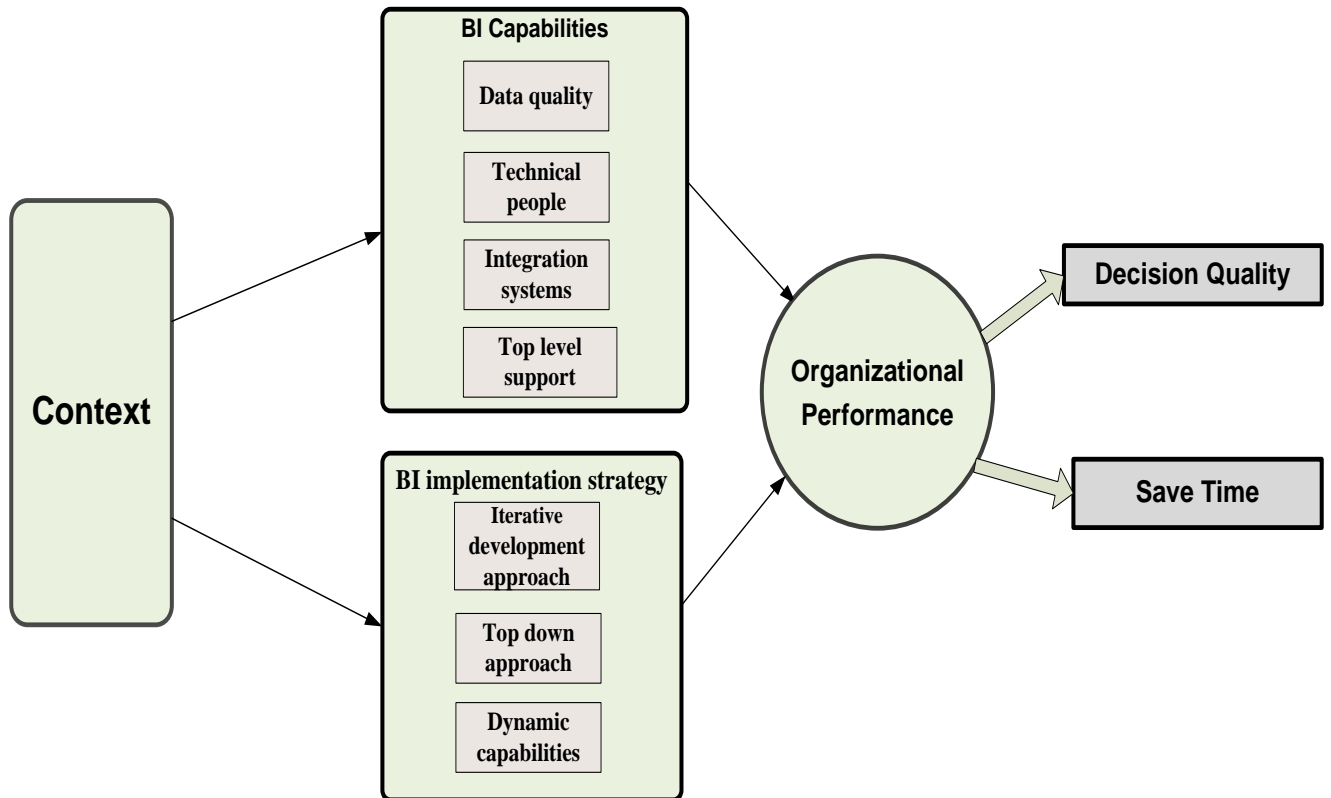
Figure 4: Conceptual Framework of BI Implementation.

Conclusions

In conclusion, this paper has contributed to the existing knowledge that defined certain critical factors of successful BI systems by conducting research on BI. However, and in accordance with the results of the research, four main points seem to be important when taking into account the factors which influence successful BI implementation. First, all levels of management from both the technical and the business side must be involved in BI implementation; if not, they can be considered a challenge to implementation. Second, data quality must be improved on the technical side and the business side must determine which dashboards and reports are most important to their business needs. Third, BI uses and challenges vary from one organization to another, so an understanding of organizational culture is vital for successful BI. Finally, effective use of BI requires the development of a clear implementation strategy which involves both the business and the technical side. Moreover, apply excellent BI implementation strategy such as MDBIA seems to be vital for successful BI implementation.

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