Chapter 12

Empirical Investigation on the Evolution of BI Maturity in Malaysian Organizations

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ABSTRACT

Many organizations have recognized the importance of increasing commitment towards delivering long-term success of Business Intelligence (BI). However, effective BI strategies and governance to accommodate the rapid growth of data volumes are still scarce. Furthermore, there appears to be low usage rates of BI and analytics among business users. Consequently, many organizations are still positioned at either low or moderate levels in the BI maturity chart. In view of these issues, this chapter explores and develops a multi-dimensional BI maturity model that serves as a guideline to lift the BI capabilities of an organization for effectively planning, assessing, and managing BI initiatives. The focus of this research is to assess the current BI maturity level in Malaysian organizations and identify factors that affect the BI maturity. It also examines the effect of organization’s demographic variables (i.e., types of industry, organizational size, and age of BI initiatives) on the BI maturity.

INTRODUCTION

In today’s rapidly changing business environment, maintaining a competitive advantage and moving toward a higher level of maturity are recognized as essential for an organization to maximize business value from business intelligence (BI) investments. However, such movement is constrained by the availability of resources in their organizations. A survey of 392 BI professionals conducted in 2008 reported that only 28 percent of respondents described their BI implementation as being in advanced stages (TDWI, 2008). According to another 2010 survey of 308 individuals (involving executives, management, and users), many organizations are still at the lower levels of a maturity chart in their use of BI due to poor usage of advanced BI capabilities (Wailgum, 2010).

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Despite an increased interest in BI, it is surprising that little empirical study has actually been conducted on BI maturity assessment through the extensive studies on BI maturity, especially in Malaysian context. The review of extant literature also shows that there is a lack of academic research in providing systematic guidelines for this evolutionary transformation path. Thus, this research gives emphasis to the development and examination of a BI maturity model with the goal of eventually using the model to guide organizations in their effort to move toward a higher maturity level in their BI initiatives. It synthesizes different viewpoints of BI into a comprehensive model that takes into account critical dimensions, commonly mentioned in the literature. It also aims to study the effect of demographic variables (in terms of types of industry, organizational size, and age of BI initiatives) on BI maturity in an organization.

**BUSINESS INTELLIGENCE**

From a historical standpoint, the underlying concept of BI is not a new one. It has existed over the last 50 years in the area of information systems (IS). According to Wixom et al. (2011), the origins of BI can be traced back to the early 1970s when decision support systems (DSS) were first introduced. Over the years, numerous applications such as executive information systems (EIS), online analytical processing (OLAP), data mining, predictive analytics, and dashboards have emerged and added to the domain of decision support applications (Watson and Wixom, 2007).

The term “business intelligence” was first used by Hans Peter Luhn in 1958 in an IBM journal article. However, BI became widely recognized in the 1990s only after it was used by Howard Dresner, a research analyst of Gartner Group in 1989 (Shollo and Kautz, 2010). According to Power (2002), Howard Dresner explained BI as “a set of concepts and methods to improve business decision making by using fact-based support systems” (p. 128).

Even though there has been a growing interest in BI area, there is no commonly accepted definition of BI. The literature shows that the definition of BI has evolved from a one-dimensional view to a multi-dimensional view (Vitt et al., 2010). Drawing upon extant literature, it was found that the scope and definition of BI have been extended to include the idea that it is product, not just a process. As noted in the study of Jourdan et al. (2008), BI is viewed as both a process and a product. Petrini and Pozzebon (2009) provided a similar distinction of perspectives to BI in terms of technical and managerial perspectives. Shariat and Hightower (2007) characterized BI as a composition of process, technology, and product. Based on the definitions from various sources, four main focus of BI were identified for this research, namely organizational management, process, technology, and outcome as summarized in Table 1.

**PROPOSED BI MATURITY MODEL**

The review of the extant literature on BI maturity models reveals that capability maturity model (CMM) and TDWI’s BI maturity model are considered as the most suitable reference model for BI implementation. It is evident that CMM was being widely accepted and used to shape various maturity studies in IS research (Sen et al., 2006; Russell et al., 2010). TDWI’s BI maturity model can be applied to organizations in different industries and it outlines the path that majority of organizations undertake when evolving their BI infrastructure. However, CMM does not take into account the issues in determining the success of BI systems implementation among their quality goals.