The Fundamentals of Business Intelligence

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ABSTRACT

This article analyzes the recent literature in the search for the fundamentals of business intelligence (BI). The literature review covers the overview of BI; BI and technology acceptance model (TAM); BI, Big Data, and social media; the elements of BI; the characteristics of BI; enterprise information system (EIS) and cloud computing; the importance of BI; and the implementation of BI. BI involves creating any type of data visualization that provides insight into a business for the purpose of making a decision or taking an action. BI can assist organizations by facilitating better decisions in all facets of operations. The ideal BI system gives the organizations easy access to the information and the ability to analyze and share this information with other business enterprises. The findings present valuable insights and further understanding of the way in which BI perspectives should be emphasized.

KEYWORDS

Big Data, Business Intelligence, Data Mining, Data Warehouse, Enterprise Information System, ERP, OLAP, TAM

INTRODUCTION

Business intelligence (BI) has been an object of study for many researchers around the world (Ishikiriyama, Miro, & Gomes, 2015) and has become the top priority for many organizations who have implemented BI solutions to improve their decision-making process (Isik, Jones, & Sidorova, 2011). BI is a broad category of applications and technologies for gathering, storing, analyzing, and providing the access to data to help enterprise users make better business decisions (Mohan, Harun, Srividya, & Verma, 2010). Important concepts (e.g., BI, business analytics, Big Data, data governance, and data visualization) have become the intrinsic terms of the support activities for decision making (Tutunea, 2015). BI enables companies to analyze the generated amount of available data that are available to managers and business analysts in an effective manner (Kubina, Koman, & Kubinova, 2015).

BI is the process of gathering correct information in the correct format at the correct time, thus delivering the results for decision-making purposes, and providing a positive impact on business operations, tactics, and strategy in the enterprises (Zeng, Li, & Duan, 2012). BI is a powerful tool to conduct causality analysis and corporate diagnoses since it provides the data-driven approach to linking firms’ strategic goals into tactical policies and operational actions (Wang, 2016). Rapid advances in
information technology (IT), such as data warehousing and data mining, embark the popularity of BI (Chen, Chiang, & Storey, 2012). In the last years, the scope of BI systems has been extended from strategic to operational decision support (Schulz, Winter, & Choi, 2015). The definition for BI has broadened to include not only technology, but also organizational and business processes (Brooks, El-Gayar, & Sarnikar, 2015).

BI is not only about technology, but also about organizational decisions, analytics, information and knowledge management, decision flows and processes, and human interaction. The need to adopt the enterprise resource planning (ERP) results from business process reengineering (BPR) while the main reason to implement BI originates from the concept of decision support systems (Wang, 2015). The business process provision of the technical business infrastructure and the redesign of local business processes in using business process modeling (BPM) and BPR have been identified as the major elements determining the success of business process (Kasemsap, 2016).

The advantages generated by the implementation of the BI systems and ERP come from the integration between the modules in order to achieve operational and organizational goals, such as improved productivity, reduced costs, reliable performance, and reductions in paperwork (Dekoulou & Trivellas, 2014). High levels of the perceived advantages of using ERP systems should be positively correlated with BI capabilities (Antoniadis, Tsiakiris, & Tsopogloy, 2015). Due to huge investment on ERP, supply chain management (SCM), customer relationship management (CRM), and product lifecycle management (PLM), enterprise software selection has become much more important than before (Turban, Sharda, & Delen, 2011).

This article aims to bridge the gap in the literature on the thorough literature consolidation of BI. The extant literature of BI provides a contribution to practitioners and researchers by describing the fundamentals of BI in order to maximize the business impact of BI in modern business.

THEORETICAL AND PRACTICAL REVIEW OF THE LITERATURE

The literature review describes the overview of BI; BI and technology acceptance model (TAM); BI, Big Data, and social media; the elements of BI; the characteristics of BI; enterprise information system (EIS) and cloud computing; the importance of BI; and the implementation of BI.

Overview of Business Intelligence

The term “business intelligence” is originally coined by business consultants of Gartner Group since 1996 (Anandarajan, Srinivasan, & Anandarajan, 2003). BI is an umbrella term that includes architectures, tools, databases, applications, and methodologies with the goal of analyzing data in order to support the business managers’ decision making (Turban et al., 2011). Many stakeholders (e.g., consultancies, software vendors, practitioners, and scientific communities) have used the term BI to describe business processes and systems concerning a structural analysis of organizations in a competitive environment (Bucher, Gericke, & Sigg, 2009).

BI is described as a process of transforming data into information and knowledge (Green, 2006). BI is an emerging technology that helps executives and managers manage information and data in an efficient way (Kasemsap, 2015a). BI is used to manage the organizational capabilities (Negash, 2004). BI describes the result of in-depth analysis of detailed business data, database, and application technologies (Gangadharan & Swamy, 2004). BI solutions benefit from the new ways of data interrogation and information delivery (Wieder & Ossimitz, 2015). Khan et al. (2014) stated that the cost of BI solutions is very high and has restricted small and medium-sized enterprises (SMEs) to utilize BI solutions.
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Social Media Intelligence for Business
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