Business Intelligence Systems Adoption Model: An Empirical Investigation

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ABSTRACT

Decision support and business intelligence systems have been increasingly adopted in organizations, while understanding the nature of affecting factors on such adoption decisions need receiving much academic interest. This article attempts to provide an in-depth analysis toward understanding the critical factors which affect the decision to adopt business intelligence (BI) in the context of banking and financial industry. In this regard, it examines a conceptual model that shows the impacts of different technological, organizational, and environmental factors in the decision to adopt BI by a firm. Structural equation modeling (SEM) was used for data analysis and test the relevant hypothesis. The results of this article which are derived from theoretical discussion of hypothesizes show that from nine hypothesized relationships—perceived tangible and intangible benefits, firm size, organizational readiness, strategy, industry competition and competitors absorptive capacity—affect BIS adoption in the surveyed cases.

KEYWORDS
Adoption Model, Business Intelligence, Partial Least Squares (PLS), TOE Framework

1. INTRODUCTION

To compete in today’s volatile environment, firms are increasingly attempting to generate, collect and transform their data into actionable knowledge (Delen & Demirkan, 2013). In response, business intelligence (BI) is designed to resolve special problems business and managerial decision-making issues (Martins, Oliveira, & Popovič, 2013; Pettrini & Pozzebon, 2009). Put simply, Vukšić, Bach, and Popovič (2013) believed that BI is targeted to analyze the available information and turned them into valuable knowledge to abate informational needs. Previous studies have completely shown the importance of using BI as one of the main concerns of most chief information officers (CIO) (Howson, 2008; Işık, Jones, & Sidorova, 2012).

Alongside all benefits discussed in previous research, it should be noticed that BI implementation may impose significant costs (Rasmussen, Goldy, & Solli, 2002). The outcome of Ramamurthy, Sen, and Sinha (2008) study, also reveal the fact that attempting to adopt and implement BI within an organization environment require a tremendous cost which should be considered precisely. Thus,

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given to the remarkable costs, it is better for organizations to focus on different aspect of this issue, as well as consider influential factors associated with adoption process (Ravasan & Savoji, 2014).

Previously, several studies have been conducted to explore different factors which may affect the information systems adoption decision such as e-procurement (Teo, Lin, & Lai, 2009), e-commerce (Al-Qirim, 2008; Grandon & Pearson, 2004), e-business (Zhu & Kraemer, 2005), data warehouse (Hwang, Ku, Yen, & Cheng, 2004; Ramamurthy et al., 2008), customer relationship management (CRM) (Hung, Hung, Tsai, & Jiang, 2010), knowledge management (KM) (Xu & Quaddus, 2012), electronic data interchange (EDI) (Kuan & Chau, 2001). However, relatively few attempts have been conducted to determine the influencing factors associated with the adoption of BI systems. Thus, in considering the rapid increase in the amount of data throughout the organization and also with regard to the importance of managerial decision making, it is obvious that determining the most appropriate factors in terms of BI adoption have a deep impact on the decision to employ it (Hou, 2013, 2014). Further, it will be necessary for organizations as a strategic, broad map to take the proper action in the way of BI adoption.

As a result, the main objective of this study is to examine the adoption factors which affect on BI implementations in the financial industry in the context of Iran. Specifically, the paper seeks to address the following research question

**RQ1**: What are the key tailored factors related to the adoption of BI systems regarding technology, organization, and environment (TOE) framework?

**RQ2**: What are the major differences between adopters and non-adopters groups in the relationship with BI adoptive construct?

In response to the above research questions, this study attempts to identify the critical factors influencing the adoption of BI in the financial sector from the different perspective through survey data. Finally, there are several important contributions to IT adoption literature as follows:

- *It offers a model incorporating a set of technological, organizational, and environmental in BI adoption that is validated using partial least squares (PLS).*
- *It provides an insightful understanding for enterprises to the forefront importance of perceived tangible and intangible benefits in BI adoption.*
- *We target a large number of financial services include banking and insurance enterprises to validate the research model and hypotheses, which had been spotted not so obviously in the past.*

The rest of this paper is organized as follows. First, a literature review related to BI concept, the role of BI in particular in the financial services sector, and pertaining framework from an information systems adoption perspective is presented. Second, the proposed research model and hypotheses for investigating the adoption of BI is outlined, followed by the research method, data analysis, and results. For the next part, the discussion of main findings, limitations, and implications for both associated researchers and practitioners is provided. Finally, this paper concludes with a brief overview of the whole paper and proposes further possible directions for future research.

### 2. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

#### 2.1. Business Intelligence (BI)

According to prior literature, various definitions and approaches of BI have been appeared by Ghazanfari, Jafari, & Rouhani (2011). In managerial perspective, BI is introduced to prepare a decision support context for decision-makers to make better understanding and managing organizational processes. Bose (2009) believed that BI intends to prepare the right information to the right people
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