Examining the Moderating Effects of Time-Since-Adoption on the Nexus Between Business Intelligence Systems and Organisational Performance: The Ghanaian Banks Perspectives

Acheampong Owusu, University of Ghana Business School, Accra, Ghana

https://orcid.org/0000-0001-7789-5162

ABSTRACT

This article investigates the post-adoption impacts of business intelligence (BI) systems on organisational performance of Ghanaian banks through the lens of the balanced scorecard. It also examines if time-since-adoption moderates the hypothesized relationship between BI systems adoption and the banks’ organizational performance. A survey data of 130 Ghanaian bank officials was analysed through a partial least square structural equation modelling (PLS-SEM) approach to examine the relationship among the study constructs. The results indicated that BI Systems indeed impacted significantly on Ghanaian banks’ organisational performance by improving employee learning and growth, enhancing their internal business processes and improving their customer management performances. Nonetheless, BI Systems did not have a direct significant effect on the banks financial performance. Moreover, the findings show that there is no significant difference between early-adopters and late-adopters in terms of BI Systems impacts on the banks’ organisational performance. Other implications are also discussed.

KEYWORDS
Balanced Scorecard, Banks, BI Systems Adoption, Ghana, Organizational Performance, PLS-SEM, Sub-Saharan Africa

INTRODUCTION

Generally, it is believed that organizational performance of firms is influenced by the successful adoption and efficient use of information technology (IT) innovations. This is so as organizational processes, routines and management controls are generally potentially affected by IT innovations (Mishra & Agarwal, 2010). In like manner, novel IT innovations such as Business Intelligence (BI) Systems have been claimed to have many benefits on organizational performance mostly when it comes
to efficient decision making (Wieder & Ossimitz, 2015). Watson & Wixom (2007) and Işik et al. (2013) emphasized this assertion and noted that those firms that invest in BI Systems and implement best practices usually see a significant cost savings and increased revenues. In addition, Rubin & Rubin (2013) affirmed that firms of these nature also see reduction in stock return volatility. Taking today’s changing business environment into consideration, BI Systems play a vital role in organizations that help in improving decision-making and performance (Arefin et al., 2015; Ramakrishnan et al., 2012). BI systems enable organisations to retrieve, store, and analyse colossal data involving operations which enhances strategic management and thereby help them gain competitive advantage of the industry (Jones, 2005).

Due to the perceived benefits of BI Systems on organizational performance, many corporations across different industry sectors continue to spend on upgrading or purchasing new BI tools to enhance their operations. Hence it was forecasted that before 2017, the universal revenue of analytics and BI software market would amount to $18.3 billion (Gartner, 2017). This was a rise of 7.3 percent since 2016, grounded on the recent projection from Gartner, Inc. Gartner (2016) predicted further that the market will see a growth of $22.8 billion by the end of 2020. However, despite the widespread reports of BI Systems importance for managerial decision making especially at the strategic level and corporate performance, the effect of BI Systems on organizational performance is still unclear as reported by (Gessner & Volonino, 2005) and empirical findings have been inconsistent (Brands, 2014; Chaudhuri et al., 2011; Elbashir et al., 2013; Jourdan et al., 2008; Rubin & Rubin, 2013).

BI Systems are still emerging in developing countries context especially sub-Saharan Africa, therefore, very few sectors of the economy have currently adopted it. These include sectors such as banking (Acheampong & Moyaid, 2016; Owusu, 2017; Owusu et al., 2017) and telecommunications (O’Brien & Kok, 2006). Many other sectors such as education, health, manufacturing, and so on are still not mentioned in the literature concerning the adoption of BI Systems in SSA countries. Yet, BI Systems have been implemented in various sectors in the developed world such as academic administration (Owusu et al., 2017; Sujitparapitaya et al., 2012), manufacturing (Hou, 2015; Hou, 2014), and healthcare (Ali et al., 2013; Ashrafi et al., 2014). Thus, the need to create awareness for BI Systems adoption in many organizations across different sectors in SSA countries is crucial for them not to be left out in the current global digitization with its pressing competitions. Consequently, the purpose of this paper is to empirically investigate the impact of BI Systems post adoption effects on organizational performance of Ghanaian banks, and also determines if time-since-adoption moderates between adoption of BI Systems and performance of the organization. Empirical evidence ensuing from this study aims to create awareness about BI Systems to boost the diffusion of it across many organizations in different industries in Ghana and other SSA countries.

The rest of the paper is organized as follows: readers are introduced to the literature review in the next section specifically on related studies, underpinning theory and the conceptualization of the constructs. The methodology used, data analysis techniques, and findings discussed follows. The study was concluded indicating the implications and suggestions for future study and limitations.

**LITERATURE REVIEW**

**Related Studies on Organizational Performance and BI Systems**

Evaluating the effects of BI Systems on firm’s performance have received a lot of attention lately in the IS literature (Trieu, 2017). This is so, due to the huge capital intensive for BI Systems implementation (Olszak & Ziemb, 2007) and results about its impact on organizational performance being inconclusive (Elbashir et al., 2013; Rubin & Rubin, 2013). According to Elbashir et al. (2008), BI has a great impact on organizational performance improvement. Trieu (2017) stated that BI impact refers to a situation where an organization improves on efficiency of operational processes, strengthened organizational intelligence, products or services, and dynamic organizational structure (Soh & Markus, 1995).
Economic Development of a Selected Region: Mathematical Modeling
[www.igi-global.com/article/economic-development-of-a-selected-region/108672?camid=4v1a](www.igi-global.com/article/economic-development-of-a-selected-region/108672?camid=4v1a)

Digital Divide and Disadvantaged Populations in E-Tourism
[www.igi-global.com/chapter/digital-divide-disadvantaged-populations-tourism/65924?camid=4v1a](www.igi-global.com/chapter/digital-divide-disadvantaged-populations-tourism/65924?camid=4v1a)