Self-Service Business Intelligence Adoption in Business Enterprises:
The Effects of Information Quality, System Quality, and Analysis Quality

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ABSTRACT

Despite the growing popularity of self-service business intelligence (SSBI) tools, empirical research that investigates their acceptance by business professionals is still scarce. This paper presents and tests an integrated model of the antecedents of users' acceptance of SSBI tools in business enterprises. The proposed model is developed based on the technology acceptance model (TAM) and incorporating information and system quality from DeLone and McLean IS success model. It also includes an important factor from the business intelligence literature called analysis quality. To test the model, data were collected through a questionnaire survey from 331 business users working in a variety of industries in Jordan. Data were analysed using structural equation modeling (SEM) techniques. The results demonstrated that the three quality factors– information quality, system quality and analysis quality – are key antecedents of perceived usefulness and ease of use, which in turn were found to be strong predictors of users' intention to use SSBI tools. The findings of this study provide several implications for research and practice, and thus should help in the design and deployment of more user-accepted SSBI tools.

KEYWORDS

INTRODUCTION

In today's analytics-driven business milieu, organizations must use business intelligence (BI) technologies to improve their business processes and support their decision-making activities. Yet, decisions in most organizations are still not based on BI because of the inability to keep up with the fast-growing demand for information and analytics (Imhoff & White, 2011). This demand, combined with the inability of IT department to meet the analytical needs of business professionals, has resulted in shifting the BI from highly governed and IT-centric platforms to more decentralized BI deployments empowering business users with self-service analytical and data discovery capabilities (Meulen & Rivera, 2015; Stodder, 2015).

Self-service business intelligence (SSBI) has emerged as a technological innovation providing an environment that enables business users to become more self-reliant and less dependent on the IT

organization (Imhoff & White, 2011). This environment is intended to extend the reach and scope of BI applications to address a wider range of business needs and problems. Such extension must support the needs of business users for personalized and collaborative decision-making environment (Alpar, Engler, & Schulz, 2015; Imhoff & White, 2011; Logi Analytics, 2015). At the same time, the IT department will be freed from the burden of satisfying users' requests of routine reports and analysis, so that it can focus its efforts on developing more advanced analytics capabilities and strategic initiatives (Schlesinger & Rahman, 2016). Logi Analytics (2015) found that establishing a SSBI environment in an organization can reduce IT requests by 47% when business users are empowered to accomplish tasks autonomously.

Over the last years, SSBI has received considerable attention from both business communities and academia. Major research companies such as Gartner, Logi Analysis, and The Data Warehousing Institute (TDWI) have focused much of their recent research on SSBI and data analytics capabilities (Imhoff & White, 2011; Logi Analytics, 2015; Meulen & Rivera, 2015; Stodder, 2015). Gartner predicted that by 2018, most business users in organizations will have access to SSBI tools to fulfill their information and analytics needs. Already business owners are focusing their BI investments into decentralized, self-serviced analytical tools with the intention to expand the reach and scope of BI within organizations to broader range of consumers and non-traditional BI users (Meulen & Rivera, 2015). According to a recent survey by Logi Analytics (2015), 95% of business organizations plan to invest in SSBI in the very near future. The key business drivers influencing companies to adopt and invest into SSBI are:

1. Constantly changing business needs
2. IT's inability to satisfy new requirements in timely manner
3. The need for more analytical-driven organizations
4. Slow information access (Imhoff & White, 2011; Logi Analytics, 2015)

While today's business organizations are clearly motivated to deploy SSBI environment, what is less clear, and also of central importance, for an organization planning to invest in SSBI is to understand the salient determinants of users' acceptance and intention to use SSBI tools. In spite of potential benefits of using SSBI tools, such as time savings, individual control, and high level of customization (Abelló, Darmont, Etcheverry, Golfarelli, Mazón, Naumann, Pedersen, Rizzi, Trujillo, Vassiliadis, & Vossen, 2013), some evidence suggests that many business users are still reluctant to utilize SSBI tools to fulfill their analytics and decision-making activities (Alpar & Schulz, 2016; Jooste, Van Biljon, & Mentz, 2014). A recent survey by Stodder (2015) revealed that only 12% of business users are very satisfied with their ability to use SSBI tools to access, interact with, and share insights effectively to support business decision-making. Conversely, almost 25% indicated that they are not satisfied, and about 51% each are somewhat satisfied or somewhat dissatisfied. These findings suggest that most business users are still in low maturity levels with business analytics and data discovery activities, and that the heavy utilization of spreadsheet may be holding back their satisfaction with SSBI tools (Stodder, 2015). Therefore, it is definitely in the interest of an organization seeking to deploy and implement a SSBI environment to be cognizant of the factors that derive users to accept and adopt SSBI tools.

This paper presents and tests an integrated model that attempts to investigate the factors influencing the acceptance and intention of business users to use SSBI tools in a business environment. The research model is developed by integrating the technology acceptance model (TAM) (Davis, 1989), with the information quality and system quality from DeLone and McLean IS success model (DeLone & McLean, 1992). It also incorporates an important, yet not well explored, factor adapted from BI literature called analysis quality. The research model of this study proposes that the three quality factors– information quality, system quality and analysis quality – are key antecedents affecting the beliefs related to users' intention to use SSBI tools; i.e., perceived usefulness and perceived ease

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