SOA Adoption Factors in E-Banking: An Empirical Analysis from the Practical Perspective

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ABSTRACT

Nowadays a lack of integration among software services and databases has become a major IT problem in many organizations including banking industries. Service oriented architecture (SOA) is the most recent and comprehensive method among the different methods and technologies proposed for integrity implementation. One of the main reasons for banks' failure in achieving the benefits of SOA is lack of a framework that includes all critical factors in SOA adoption. The aim of this article is to identify and analyze the influential factors (organizational, technical, environmental and human) on SOA adoption in e-banking and providing a comprehensive framework that explains these factors. Such a framework enhances the decision-making and enables banks to achieve the benefits of SOA. In order to gather operational data, questionnaire and interview had been used. The conceptual framework was investigated using Smart PLS and SPSS software. The empirical data investigation and interpretation shows that: organizational, technical, human and environmental factors are crucial for SOA adoption.

KEYWORDS

Electronic Banking, Integration, Service Oriented Architecture, SOA Adoption

INTRODUCTION

Emergence of internet and growth of electronic business along with technology and security improvements are the main reasons for E-Banking penetration among the users. Evolution of information technology has enabled banks to improve their services through creation of new communicational channels with customers (Basias et al., 2015). Integration of systems is a typical problem in E-Banking success, while banks make significant investments for overcoming this problem (Alghatani, 2015). By integrating system, whole operations of a site will be performed by a specific expert human workforce and by its centralization, whole banking data can be accessible and the reports in different levels, including branch, central office and banks can be made and transactions will be performed immediately. Moreover, maintenance and supporting systems will have efficient costs (Lee et al., 2010).

During the last decades, for solving the technical problems, banks have moved to Service Oriented Architecture (SOA) adoption (Hu, 2011). Service-Oriented Architecture is increasingly adopted by many sectors (Koumaditis et al., 2013). It is an architectural style in building Web applications based on services (Aljazzaf et al., 2016). Banks are required to analyze the benefits of SOA in E-Banking before adopting the architecture (Lawler et al., 2009). Process agility and systems integration is the most important goal that should be achieved through E-Banking systems development. Agility is essential in order to immediately and efficiently respond to market needs, which SOA has provided a solution for it (Riad et al., 2008; Perin & Rabelo, 2015).

Several studies have expressed that SOA adoption growth in E-Banking is small (Alghatani, 2015). Investigations of available resources indicate that influential factors in SOA adoption in E-Banking have not been fully discussed in previous works and literature (Siadat et al., 2016). Moreover, there is no comprehensive framework providing help in understanding these issues. One of the goals of this article is to help banks that are thinking to adopt SOA and need to recognize the aspects of organization influenced more during SOA adoption. This research aims to investigate the impact of identified factors on SOA and determine the relation between these influential factors (Organizational, Technical, Human and Environmental), so the research question that this study tries to answer is: what is the impact of identified factors on SOA adoption in E-Banking?

The rest of the paper is organized as follows. Next is a brief theoretical foundation and proposed research model. Then, the research methodology is described and followed by presenting the results. In the last three sections, the results of the study are discussed, conclusions and limitations of the research study are presented, and future research directions are suggested.

LITERATURE REVIEW

Today, organizations face with unsteady competition environment, which fluctuates rapidly. These fluctuations are due to different factors such as technological changes, shortening of products life-cycle and globalization of economy (Siadat et al., 2014; Nakamur et al., 2011). The underlying information technology systems should be able to support the integration of the new and old processes (Aulkemeier et al., 2016; Shahsavarani & Ji, 2014). Banks are not immune from these changes in addition their efforts for improving services through information technology have led to the development of various incompatible systems and customers attitude towards various bank technologies is not the same, and is influenced by different factors (Mansour et al., 2013). This condition causes different system integration problems that banks faced with (Alghatani, 2015).

Undoubtedly, establishment of a comprehensive banking system an organizing data are among the main factors in improving risks management, fight against money laundering, quality control, establishment of an integrated marketing system and other management issues (Siadat et al., 2015). Electronic Banking (E-Banking) means creating capabilities for speed enhancement and banks efficiency in providing banking services to customers in every place and any time. E-Banking services provide customer access to accounts, the ability to move their money between different accounts or making payments via E-channels (Singh, 2016). E-Service quality has a strong influence on customer satisfaction and use of E-Banking, which means that greater quality of E-Service has the potential to increase satisfaction and consequently result in greater use of E-Banking (Ayo et al., 2016).

Thus, integration is important for the success of E-Banking and in order to achieve security, banks are required to integrate IT infrastructures for providing suitable E-Banking services (Niknejad et al., 2014). The integrated data can be used by a Decision Support System (DSS), which will be able to analyze it in order to suggest how the production planning and control parameters can balance production productivity goals (Angulo et al., 2017).

Service-Orientation is a concept that has been constructed based on older concepts such as Object–Orientation and component-based software development (Lee et al., 2010). The new element of this concept is the capability of implantation and realization facilitated through related protocols and tools

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