An Effectiveness Model for Enterprise Architecture Methodologies

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ABSTRACT

Enterprise Architecture (EA) is employed by enterprises for providing integrated environment to support the alignment of enterprise’s business and Information Technology (IT). EA Implementation Methodology (EAIM) provides methods for managing, developing, and maintaining EA implementation. Several EAIMs have been proposed in literature; however, effectiveness of EAIM has mostly been anecdotal, and research on this subject is still scant in the academic circles. This research is a survey study on the factors that affect the effectiveness of EAIM using quantitative approach. This study aims to explore the factors that affect the effectiveness of EAIM and proposed the effectiveness model for EAIMs. The exploratory factor analysis highlights a specific set of five factors: alignment, adaptiveness, support, binding, and innovation. The regression analysis shows that there is a statistically significant and positive relationship between each of the five factors and the effectiveness of EAIM. The findings contribute to the measurement of the EA implementation’s effectiveness by providing an indication of the measurement implementation approaches which is used by the EA practitioners. Moreover, the proposed model can be used on developing an effective EAIM.

Keywords: Effectiveness Model, Enterprise Architecture Implementation, Enterprise Architecture Methodology, Information Systems, Survey Study

DOI: 10.4018/IJEIS.2015040103
INTRODUCTION

Enterprise Architecture (EA) is employed by enterprises for providing integrated environment (Grant & Tu, 2005; Pereira & da Silva, 2012) in order to support the alignment of enterprise’s business and Information Technology (IT) (’Sa’sa & Krisper, 2011; Clark, Barn, & Oussena, 2012). In EA, the framework represents the structure to model enterprise’s business and IT entities. There are different models for various perspectives in EA Framework (EAF), each with different scope and activities. The outputs of EAF are EA’s artefacts that consist of models, diagrams, documents and reports (Goethals, Lemahieu, Snoeck, & Vandenbulcke, 2006; Winter & Fischer, 2007). Since EA artefacts are not sufficient for enterprises by their own, enterprises are looking to find a method to address theirs challenges on competiveness by implementing those artefacts (Aier & Saat, 2011). In addition, enterprises implement the EA in order to find appropriate answers for their business’s demands (Bente, Bombosch, & Langade, 2013).

EA Implementation Methodology (EAIM) can describe the structured approach in order to solve some (Kandjani, Mohtarami, Taghva, & Andargoli, 2014) or all of the problems related to EA implementation (Chung & McLeod, 2002; Medini & Bourey, 2012). EAIM covers all aspects of the EA lifecycle - the planning for enterprise understanding projects, the analysis of business requirements, the design of systems, the evolution of systems, and the ongoing enhancements of all of the aforementioned aspects (Aier & Saat, 2011). The methodology is both complete and concise, serving as a coherent guide for practitioner professionals (Duarte & Vasconcelos, 2010). It allows paths and pieces of content to be selected and extracted for application on specific projects (Ahlemann, 2012).

The methodology is the generic reference procedure that represents (Bajgoric, 2005) (1) the structure and condition of existing systems, (2) the practices and descriptions that lead to manage the step by step guidelines from current architecture to desired one, (3) the practices and descriptions that lead to maintain and keep the enterprise update in order to cope with upcoming changes, (4) the practices and descriptions that lead to supervise and govern the systems and artefacts (Leist & Zellner, 2006; Ortiz, Lario, & Ros, 1999; Babak Darvish Rouhani, Mahrin, Nikpay, & Nikfard, 2013).

In EA implementation the effectiveness refers to outputs of implementation that completely meet the defined goals of EA project (Darvish Rouhani, Nazri Mahrin, Nikpay, & Darvish Rouhani, 2014). One of the main challenges of Enterprise Architects is to determine the effectiveness of EA implementation (Babak Darvish; Rouhani, Mahrin, Nikpay, Nikfard, & Rouhani, 2015). Since the effectiveness directly affect the consent of EA stakeholders, Enterprise Architects are looking for the way that helps them increase the effectiveness of EAIM (Aier & Saat, 2011; Saat, Aier, & Gleichauf, 2009). This paper aims to identify the factors that affect the effectiveness of EAIM.

In this study the word factor refers to the item or quality attribute that affect the effectiveness of architecture implementation. The aim of this research is to represent the effectiveness model for EAIMs.

The reminder of this paper is divided into six sections. Next section provides an overview of related work. The following sections represent the research model and hypothesis. Next, the research methodology and results of this study represented, and finally the discussion and conclusion of this study express.

RELATED WORK

The effectiveness is determined by the degree in which the outputs of EA implementation help the enterprise attain its intended goals (van der Raadt, Bonnet, Schouten, & van Vliet, 2010). If the intended goals of the enterprise regarding EA coincide with the individual goals of stakeholders, then EAIM effectiveness determines. Moreover, EA function effectiveness is: “The degree in which organizational objectives are attained through the outputs of the EA func-
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