Model and Application Architecture Indicators of Evaluation the Enterprise Architecture

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Abstract. Enterprise Architecture (EA) provides a “knowledge base and support for decision making within the enterprise and it serves as the blueprint of current situation and strategy for future directions of the enterprise”. The planning and modeling aspect of EA is already fairly well covered in the literature, while the evaluation and the attributes of EA quality have attracted less interest and yet enterprise architecture quality has been perceived as a prerequisite for realizing its benefits [6]. The principle goals of EA evaluation are to document the significance of the EA to decision makers, and to identify the development needs of the EA. However it is very difficult to find a complete method of evaluation in term of indicators of evaluation and which ensures the follow-up of all the stages of development of the architecture of company. This article presents a generic model of evaluation enterprise architecture. We do not want to use attributes directly because the model definition could vary in different organizations. Therefore, we introduce this artifact as an intermediate layer as not to limit the flexibility of evaluation.

Keywords: Enterprise Architecture, EA, Evaluation, Assessment, Quality indicators of evaluation.

1 Introduction

Nowadays, enterprise architecture (EA) has garnered considerable attention from both practitioners and academics in the fields of information systems and business management [1]. Enterprise architecture (EA) is an approach to managing the complexity of an organization’s structures, information technology (IT) and business environment, and facilitating the integration of strategy, personnel, business and IT towards a common goal through the production and use of structural models providing a holistic view of the organization [8,9,6].

The end product is a set of artifacts that describe in varying degrees of detail what a business does, how it operates and what resources it requires. These artifacts are often graphic models [10]. To complete the implementation process of the EA, we proceed to an evaluation regarding to the needs. The results of this evaluation will be
a useful basis for improving the system in terms to achieve the goal and vision of the organization. This is important because they help to show the strengths and weaknesses of the company and led to the capture and recognition of gaps. This can be used to guide business strategies. This document aims at presenting the possibility to evaluate EA.

The paper is structured as follows: the second section describes the existing evaluation methods of enterprise architecture, the third section presents an evaluation model of the enterprise architecture, the fourth section presents the indicators of EA, and finally the last section is to conclude and propose the perspectives.

2 Background Literature

In the following section, we present our literature review related to our research. It covers existing evaluation methods of enterprise architecture. We can classify the methods of evaluation into 3 categories according to Razavi, M [2].

2.1 Analysis Methods and Tools for Software Quality

These methods are focused on evaluating single software architecture to verify if and where there may be problems in it [2]. We can take as examples of these methods the Software Architecture Analysis Method (SAAM) [4] and the Architecture Tradeoff Analysis Method (ATAM) [5].

2.2 Software Quality Attribute Measurement Methods Based on the Multi Criterion Decision-Making (MCDM) Methods

The Multi criterion Decision-Making (MCDM) are gaining importance as potential tools for analyzing complex real problems due to their inherent ability to judge different alternatives (Choice, strategy, policy, scenario can also be used synonymously) on various criteria for possible selection of the best/suitable alternative(s). These alternatives may be further explored in-depth for their final implementation. We can take as an example of these approaches the article [6]. In this paper, we extended the idea of these methods in the EA domain.

2.3 Evaluation Methods of Enterprise Architecture

Property or quality attribute evaluation of software models is different from quality attribute evaluation of EA models. Software application is one of the four fundamental layers of EA therefore assessing an attribute in enterprise architectures includes evaluating the attributes from different points of view whereas assessing quality attributes in software is from one of these points of view [2]. Despite the importance of this evaluation domain, there is a lack on research on this domain, except some works, that we will detail below, and are divided into two categories: maturity methods and evaluation methods.