

Architecture Board Practices in Adaptive Enterprise Architecture with Digital Platform: A Case of Global Healthcare Enterprise

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ABSTRACT

This article aims to investigate solutions incorporated by a group called an Architecture Board in the global healthcare enterprises (GHE) for solving issues and mitigating related architecture risks while implementing “Adaptive Integrated EA framework,” which can be applied in companies promoting IT strategy using Cloud/Mobile IT. The distribution of solutions is to mitigate risks from different categories across the architecture domains in enterprise architecture (EA) is revealed, thereby covering applications, involving ERP, and technologies using the Cloud/Mobile IT/Digital IT. An in-depth analysis of this distribution can act as practical guidance for companies that consider starting up an Architecture Board, by utilizing digital platforms, while moving toward a digital transformation in an adaptive EA aligned with an IT strategy, encompassing digital IT-related elements.

KEYWORDS

Architecture Board, Cloud Computing, CRM, Digital Platforms, Digital Transformation, Enterprise Architecture, ERP, Solutions

1. INTRODUCTION

Many global corporations have encountered various changes, such as the progress of new technologies, globalization, shifts in customer needs, and new business models. Significant changes in cutting-edge IT technology, owing to recent developments in Cloud computing and Mobile IT (such as progress in big data technology) have emerged as new trends in information technology. Furthermore, major advances in the abovementioned technologies and processes have created a “Digital IT economy,” causing both business opportunities and business risks, forcing enterprises to innovate or face the consequences (Boardman and KPN, 2015). Enterprise systems (ESs) are complex application software packages that contain mechanisms supporting the management of the entire enterprise and integrate all areas of its functioning (Davenport, 1998, p. 121). Enterprise architecture (EA) is effective because it contributes to the design of large integrated systems, which face a major technical challenge toward the era of Cloud/Mobile IT/Digital IT. From a comprehensive perspective, EA encompasses all enterprise artifacts, such as business, organization, applications, data, and infrastructure, for establishing current architecture visibility and future architecture/roadmap; EA frameworks should accept change in the

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methods that adequately consider the emerging new paradigms and requirements that affect EA such as enterprise Mobile IT/Cloud computing (Buckl et al., 2010; Alwadain et al., 2014). However, the TOGAF is criticized for its size, lack of agility, and complexity (Gill et al. 2014). The existing EA frameworks are not appropriate for digital transformation (Masuda et al., 2016).

In EA, the Architecture Board has an important role in reviewing the architecture in each new IS/IT project in alignment with IT strategy. The purpose of this paper is to propose an assessment and social collaboration model for architecture review in the Architecture Board, which can cope with digital transformation and an adaptive EA to meet the IT strategy promoting Cloud, mobile, and digital IT. Another purpose is to investigate solutions for architecture risks raised in Architecture Board Review in the GHE, where the abovementioned EA framework was built and practiced as the only case study of related up-to-date EA toward the era of Digital IT.

This paper is organized as follows: in the following section, the research background is provided, followed by a description of research methodology and the Architecture Board in the adaptive EA and proposed models for architecture review on digital platforms. Furthermore, the results and data analysis in the case study are presented while the proposed models are verified. Subsequently, the elements of Risk Mitigation Strategy are formulated. Finally, the limitations of the current research and directions for future research are outlined.

2. DIRECTION OF EA

In the past 10 years, EA has become an important method for modeling the relationship between the overall image of corporate and individual systems. In ISO/IEC/IEEE42010:2011, an architecture framework is defined as “conventions, principles, and practices for the description of architecture established within a specific domain of application and/or community of stakeholders.” In addition, EA visualizes the current corporate IT environment and business landscape to promote a desirable future IT model (Buckl et al., 2010). EA is an essential element of corporate IT planning and offers benefits to companies, such as coordination between business and IT, enhancement in organizational communication, and reduction in the complexity of IT (Tamm et al., 2011).

In general, Mobile IT computing is an emerging concept that uses Cloud services provided over mobile devices (Muhammad and Khan, 2015). Mobile IT applications are composed of Web services. Few studies discussed EA integration with Mobile IT, however, integration with service-oriented architecture (SOA) has been discussed, that several organizations have invested in as a crucial approach to manage rapid change (Chen et al., 2010). Meanwhile, attention has been focused on microservice architecture recently, which allows rapid adoption of new technologies such as Mobile IT applications and Cloud computing (Newman, 2015).

In terms of Cloud Computing, many Mobile IT applications also operate with SaaS Cloud-based software (Muhammad and Khan, 2015). Although Cloud computing formats consist of three general services—SaaS, PaaS, and IaaS—under the current EA framework, only a modeling of this computing format with business components exists. Considering recent dynamic moves in business and the characteristics of Cloud computing, it is necessary for companies to link the service characteristics of EA and Cloud computing (Khan & Gangavarapu, 2009). Traditional EA approaches require months to develop an EA to achieve a Cloud adoption strategy, and organizations will demand adaptive EA to iteratively develop and manage an EA for Cloud technologies (Gill et al., 2014).

Moreover, according to the previous survey research (Masuda, Shirasaka, Yamamoto, 2016), when promoting Cloud/Mobile IT in a strategic manner, a company that has applied TOGAF or FEAF can adopt the integrated framework using the Adaptive EA framework supporting elements of Cloud computing. Henceforth, this research (Masuda, Shirasaka, & Yamamoto, 2016) is referred to as “the preliminary research” of this paper. Further, there are descriptions regarding Architecture Board in TOGAF (The Open Group (2011)); however, there are few briefings for the concrete process and on how to proceed with these tasks in Architecture Board concretely in the previous research.

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