Examining the Practice of Enterprise Architecture in Universiti Utara Malaysia: A Case Study

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ABSTRACT

Knowledge on organization current and future capabilities is an important ingredient to enable organization to effectively implementing new technologies in response to changing mission needs. Enterprise Architecture (EA) is an area within Information Management that deals with the alignment of information technology and business in an organization. It provides a strategic approach for enabling better strategies for organization to be more effective with its processes and resources. This paper presents the findings on a study of the practice of EA in Universiti Utara Malaysia (UUM). The paper provides insights into EA activities in an organization. It embarks on the following objectives: (1) to assess EA activities in UUM; and (2) to evaluate the implementation of EA in UUM. In the study, we observed the following issues: (1) Business Architecture; (2) Information Architecture; (3) Application Architecture; and (4) Technology Architecture. The contribution of this paper is in the discovery of knowledge on EA activities in UUM which can be used by others in order to enable better implementations of EA.

Keywords
Enterprise Architecture, Information Management, Malaysia

1.0 INTRODUCTION

Knowledge on organization current and future capabilities is an important ingredient to enable organization to effectively implementing new technologies in response to its changing mission needs. As early as the 1990s King (1995) suggests that the guiding Enterprise Architecture (EA) of organization should be based on the strategic vision. According to Wegmann (2003) EA purpose is to align more effectively the strategies of organization together with their processes and their resources. Enterprise Architecture defines strategic information resources as strategic business assets, according to new technology and information in need of transition to adapt to changing requirements (Kim et al. 2005). Organizations can increase their business value by using EA to align IT with business strategy, communicate IT vision, guide IT investment and drive change in business (Wang & Zhao, 2009).

This paper presents the findings on a study of the practice of EA in Universiti Utara Malaysia (UUM). The structured of the paper is as the following. In the next section, the objectives of the paper are presented. Then we present a brief discussion on EA and EA in Malaysia. In section 4, the case background is presented. In section 5, EA activities in UUM are offered. In section 6, discussions on the EA implementation are offered. Finally, in the last section conclusions are drawn.

2.0 OBJECTIVES

The paper embarks on the following objectives: (1) to assess EA activities in UUM; and (2) to evaluate the implementation of EA in UUM.

3.0 ENTERPRISE ARCHITECTURE

Enterprise Architecture provides the framework for planning and implementing a rich, standards-based, digital information infrastructure with well-integrated services and activities (Watson, 2000). According to Pereira and Sousa (2005) EA is a blueprint for how an organization achieves the current and future business objectives using IT. In addition, the authors add, EA examines the key business, information, application, and technology strategies and their impact on business functions. Each of these strategies is a separate architectural discipline, and EA is the glue that integrates each of these disciplines into an interrelated framework (Pereira & Sousa, 2004).

Among the accomplishment of establishing an EA includes: (1) Facilitate change management by linking strategic requirements to systems that support them ; (2) Enable strategic information to be consistently and accurately derived from operational data; (3) Promote data sharing, thus reducing data redundancy and reducing maintenance costs; and (4)

Reduce software development cycle time and costs (Kaisler et al., 2005 & E. Niemi, 2007).

3.1 Enterprise Architecture in Malaysia

Enterprise architecture appears to be concentrated in developed countries. There are limited literature on EA in Malaysia and there has been very little reference to EA study in Malaysia, in fact, Malaysia was not ranked in the study on EA by the Institute for Enterprise Architecture Developments (IFEAD). EA was first observed by Seow (2000) to be popular among organizations in Malaysia. A recent survey conducted in Malaysia with key players in IS, found that EA activities are considered important and the respondents agreed that the most important role of EA as support for business and IT alignment as well as guiding change for future (Rafidah et. al, 2009). For these reasons, it would be meaningful to investigate into actual EA activities in Malaysian organization.

4.0 THE CASE

Universiti Utara Malaysia (UUM) is a public institute of higher learning in the state of Kedah, Malaysia. Surrounded by beautiful scenery and comprises of 15 residential colleges which can accommodate 22,000 students. Currently there are thirteen academic buildings, one library, a computer center, an administrative building, University Hotel, a mosque, a sports complex, one main hall, a mall and 600 units of various types of housing for its staff.

The university mission is to be a center of academic excellence that produces human resources who are competent and committed in developing the nation and humanity at large.

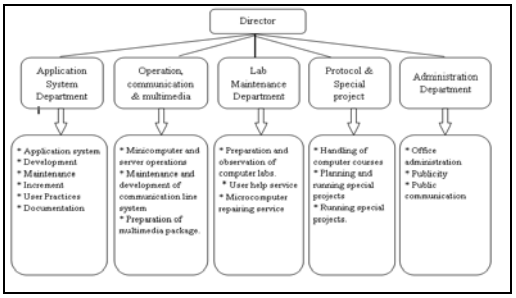

Figure 1: Computer Center Operating Functions

Computer Center (CC) is heart of UUM's IT related services. The center is headed by a director with less than 100 people working in this center. It provides a comprehensive computing and networking infrastructure to support the teaching, learning, and research activities in the university. In addition, the center also supports the administration in the implementation and maintenance of its computer-based information systems. The mission is to manage campus-wide IT infrastructure, provide and support high quality ICT system and services to all campus community.

5.0 EA ACTIVITIES IN UUM

This paper presents the finding based on interviewed with IS personnel in UUM. In addition to the interviews; documents; web-site and survey were also used as the reference sources of the study.

Enterprise architecture activities and importance of EA in UUM, the following issues are observed: (1) Business Architecture Issues; (2) Information Architecture Issues; (3) Application Architecture Issues; and (4) Technology Architecture Issues.

5.1 Business Architecture

Business architecture is a complete architectural specification of an information technology (IT) system includes information about how it is partitioned and how the parts are interrelated. In addition, it also must contain information about what it should do and the purpose it must serve in the business (McDavid, 1999).

The following reasons were reported on why EA is important in UUM. Managing IT portfolio is one of the important reasons for EA activities. Other reasons are for supporting decision making, supporting system development, reducing the cost of IT adoption, and delivers insight and overview of business and IT. In addition, EA is considered important to manage road maps for change.

5.2 Information Architecture

Information architecture is commonly describes as the structure of organization's logical and physical data assets and data management resources (Banerjee & Aziz, 2007). Currently there are no specific policies or guidelines related to this issue in UUM.

5.3 Application Architecture

Application architecture stands for the applications in use in an organization and the interconnections between the applications (Leppanen et al., 2007).

Teaching, learning, and research activities in the university are supported with computer-based information systems applications. In addition, the administration is also supported with information systems applications.

5.4 Technology Architecture

Technology architecture consists of technologies including software, hardware and data communication connections (Leppanen et al., 2007).

The campus provides a comprehensive computing and networking infrastructure to its staff and students. In addition, it also provides and supports high quality ICT system and services to all campus community.

6.0 EA IMPLEMENTATION IN UUM

The role of enterprise architecture is viewed as important in UUM. Managing IT portfolio is one of the important reasons for EA activities. Other reasons are for supporting decision making, supporting system development, reducing the cost of IT adoption, and delivers insight and overview of business and IT. In addition, EA is considered important to manage road maps for change. Changes in enterprises are becoming fundamentally important because of the growing uncertainty in the global business environment today, therefore EA is important to manage these changes (Matthee et al., 2007). The respondents in UUM indicated their awareness of the importance of EA.

Although EA is considered important in UUM, EA is still the responsibility of IT managers instead of top management. This indicates a lower maturity index profile of EA governance. This is not surprising, since EA is considered relatively new phenomena in Malaysia (Rafidah et al., 2007). When we compare this study to other study (Schekkerman 2005; Matthee et al., 2007), both study show a higher level of maturity with respect to EA implementations. These studies show a shift of responsibility for EA from IT managers to CEO and business managers. In addition, most international organizations have enterprise architects.

Another fact noted, although UUM acknowledge the importance of EA currently there is no plan to invite architect from outside to couch their IT personnel. However, the IT staffs have the opportunity to attend short courses and training related to EA.

7.0 CONCLUSIONS

The contribution of this paper is in the discovery of knowledge on EA activities in UUM which can be used by others for better EA implementation. The purpose was to address the following objectives: (1) to assess EA activities in UUM and (2) to evaluate the implementation of EA in UUM.

In response to the study objective one, we found that in UUM EA activities is considered important; however EA is still the responsibility of IT managers which indicates a lower maturity index profile in EA governance. EA is closely linked with business development; therefore it requires top management commitment (Wang et al., 2008).

As for objective two, we found that in UUM the most important role of EA is to support business and IT alignment as well as guiding change for future. However, it should be acknowledge that aligning business and IT strategies using EA tools is really a challenge to many organizations (Wang et al., 2008). There are many concerned to be addressed and considered.

The case presented here gave us some insights of the EA activities in an organization. This study raises some interesting questions for further study. It has observed the actual practice of EA; however the findings are preliminary and subject of the future research.

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