CREATING A MODEL OF BUSINESS ARCHITECTURE

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Abstract

The paper is designed to display the essence of the business architecture. On the basis of the various definitions of business architecture, it can be defined as a guide for software professionals. The other objective of the report is to present a reference model, which is a step towards removing the obstacles between business architecture and software architecture.

Keywords: Business architecture, enterprise architecture, software architecture, reference model

INTRODUCTION

Business modeling is a fast growing discipline that is focused on analyzing the business with the purpose of obtaining different ideas about particular enterprise. These concepts are created using models describing the processes and services implemented in a company. Combination of all models describing different views of a change in the organization from one (current) state to another (desired) state is a subject of business architecture study.

BUSINESS ARCHITECTURE

The concept of business architecture comes on the scene when many organizations are trying to optimize their activities.

This is because the business architecture is a part of an organizational framework related to corporate business, and the documents and diagrams that describe the architectural structure of that business. The Object Management Group defines business architecture as: “A blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demands” [6].

Business architecture is the bridge between the enterprise business model and enterprise strategy on one side, and the business functionality of the enterprise on the other side. Business architecture articulates the functional structure of an enterprise in terms of its business services and business information.

On the basis of various business architecture definitions, it can be defined as a guide for software professionals. In this guide the route that should move the team developing software architecture must be described in details.

The development a model of business architecture is directly associated with subsequent software architecture designing. Most likely, it is one of the reasons many experts to affirm that business architecture is an element of software architecture, or even consider them identical. The Figure 1. represents the architectures participating in each organization building. They are divided into three groups depending on the scope and relationships with other elements: enterprise architecture, business architecture and software architecture. For developing enterprise architecture, it is necessary to adhere to a definite hierarchical coherence within the different types of architectures, the coherence aiming to show their strategically optimal relationships [8].
In order to build an integrated model of an organization it is necessary to follow a definite process sequence. The latter includes the enterprise architecture, business architecture and software architecture [2]. In fact, the sequence of designing an organizational architecture is reciprocal to the portion of creating the above-mentioned architectures for the needs of a concrete organization.

Enterprise architecture is developed after a process of modeling and documenting all specific views for a given organization. Large companies may have an enterprise architecture model developed in different sites by different architects’ teams. However, if the designing teams do not follow a common framework, the worked out products shall satisfy relevant requirements but would be inapplicable at other sites in case that a number of modifications are not made.

When a company is willing to standardize and synchronize the worked out products of all the teams involved in developing definite views of its organization architecture, it should firstly provide a common framework. The proposed herein study examines a generalized model capturing all views of the reference organization.

DESIGN A MODEL OF BUSINESS ARCHITECTURE

In order to design a business architecture, it is necessary to thoroughly scrutinize the organization, and after that to proceed with a detailed examination of the separate stages of its activities. The business architecture should be created in such a way that:

- the model or the set of models describe thoroughly and in details the activities, goals and stages for development of the concrete enterprise;
- each model contains maximum information about the set up target, which in turn will have a favorable effect on designing the software architecture.

When designing the business architecture the architects split up the enterprise into separate parts each representing a concrete model. Each unit might be further split up into smaller parts or can be directly designed. Separate units’ models are not intended to exist independently; having in mind that a thorough concept of the organization based on the designed models can be built only if they are integrated.

The models of business architecture should be created so that they can “speak” to the teams of experts who develop the software architecture. To implement the “dialogue” it is needed to apply generalized standards and effective design methods. This kind of “dialogue” is quite difficult but it can be implemented with the help of modeling standards like the Unified Modeling Language (UML) and the Service Oriented Architecture (SOA). The proposed herein study steps on UML diagrams for system documenting, as well as the SOA information-technological style for maintaining the business architecture through related services [4].

Actually, the main task is to compile a set of models for the business architecture elements. These elements have to be modeled aiming to obtain a thorough notion of the enterprise. Since each model describes a concrete element of the business architecture, it can be stated that each model describes a separate layer of the business architecture. Prior to building the set of models, it is necessary to determine the basic elements of the business architecture. These elements are universal for all types of organizations (Figure 2). This figure shows the basic elements and their interrelationships using the UML tools [5].

In order to get a true notion about the nature and relationships between the elements, the architect should take into consideration the basic components, which participate in the designing of each element. The Figure 3. represents a finished model including
the infrastructure between the business architecture elements. The proposed model describes the components participating in the business architecture design and their interrelationships. This is a reference model composed of thirteen underlying components. Every component with its inherent elements is shown in distinctive color.

The difference between this model and the existing corporate frameworks is in the number of models, which are created in the process of business architecture designing. It has been established that when a business architecture of a concrete organization is designed stepping on definite corporate frameworks (e.g. TOGAF [7], FEAF [3], Zachman Framework [9]), plenty of models are created, part of the constituent building blocks being overlapped [1]. To avoid the latter disadvantage a reference model is built, where:

- all underlying components of the focused corporate frameworks are captured;
- all doubling components are removed;
- new components are added aiming to improve the communication between the underlying components.

The reference model represents a minimum functional set of models as it includes all the underlying components of corporate frameworks needed for the business architecture design.

In the process of building the described reference model, the architects observed the main principles of designing: investigation and determination of the problem and its decomposition into sub-problems, each step being with a repeated sequence of actions:

- determination of the problem and its subsequent decomposition into sub-problems;
- compiling a set of the possible solutions and their comparison;
- choosing the optimal solution.

Figure-2. Basic elements of the business architecture and their relationships
Figure-3 Components that build the business architecture of organizations of different types
The decomposition is essential as it provides an effective way for coping with the problem complexity. It is considered theoretically proven that if a complex problem is decomposed into two sub-problems, then the efforts needed for solving the whole problem are greater than the summed up efforts for solving each sub-problem. By analogy, if a business architecture design is examined as a complex problem, then it is relevant to decompose it into several sub-problems. The Figure 4. represents the sub-problems as relevant phases of the business architecture designing process, applicable for different types of organizations. A set of possible solutions is compiled for each stage, then the solutions are compared and analyzed, and if necessary, two or more solutions are united for finding the optimal solution. The latter is presented as a model or a set of models, describing the concrete phase of the business architecture design.

**CONCLUSIONS AND FUTURE WORK**

The proposed reference model describes the basic components, which participate in the business architecture design, as well as the business processes and services elements design, carried out for each organization. The main goal of the created model is to draw up the strategy of the organization development and to reduce the enterprise’s risks.

**REFERENCES**


5. Kaloyanova K., Design from data: how to use requirements for better information system analysis and design, Proc. of the Int. Conference Informatics in Scientific Knowledge, Varna, June, 26-29, 2012, pp. 189-197


