The juxtaposition of enterprise architecting with a Business Process Management

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Abstract. Nowadays, with relatively mature but steadily increasing scope of the Enterprise Architecture (EA), many organizations struggle to deliver value when using EA in conjunction with Business Process Management (BPM) practices. The challenge is in particular linked to expectation organizations have about which approach is suitable for what when it comes to building the model how the organizations should perform their work. The digital industry has passed over past two decades through rapid evolution triggered both by availability of new technologies and business models. This trend in turn means that organizations have to remain flexible when executing their business by maintaining the business and infrastructure alignment in constantly changing ecosystem. It has been widely recognized that the EA as well as BPM provide an information asset used by organization to describe how business, infrastructure and human elements within the organization are related to each other in way organization do their work. In this paper, I discuss the role and associated value that an EA in comparison with BPM have when organizations model the way they should perform their work.

Keywords: Enterprise Architecture, Business Process Management, Business Architecture, MMABP, Business Process, Business Service

1   Introduction

Ability to express the way the enterprise elements are structured and orchestrated as well as how they are supposed to be organized to achieve business goals have been topic for scientists as well as organization managers all the time. The gradual convergence of information technology with daily business expresses the increasing challenge in orchestrating business processes under the growing complexity of organization's infrastructure such as IT, human and capital resources and so forth [1]. From practical point of view the key objective of organization's stakeholders seems to remain over the time the same. That is, under the support of rigorously grounded information asset, to enable rational decision making about enterprise elements such as processes, infrastructure and people [2]. Number of approaches and methodologies were elaborated over

time to address this issue [3]. Ross, Weill and Robertson address this topic by introducing "organizing logic" of the business processes and IT infrastructure that reflect requirements for integration and standardization based on chosen operating model of the organization [4]. In their view Enterprise Architecture in fact make up the organizing logic by providing view on business processes, resources, systems and underlying technologies in-line with long term objectives rather than addressing current needs of the organization only. From that perspective the value of organizing logic consists in its contribution to organization's business goals achievement [5], [6], [7].

This paper therefore focuses on way the Business Process Management principles can be leveraged in conjunction with Enterprise Architecting to address the problem of expressing how the enterprises do their work. It aims to identify the baseline for architecture of process elements of the enterprise as a dimension of the Enterprise architecture. The nature of the problem statement consists in understanding the foundation how to orchestrate the business processes and infrastructure of the organization towards the business objective with right essences from both approaches rather than detailed comparison of both approaches.

The paper is organized as follows. Further section provides information about research design. Third section is dedicated to literature review to provide grounded baseline for construction of the proposed model. Fourth section demonstrates the capabilities *Method of Modelling and Analysis of Business Processes* (MMABP) as the methodology representing core *Business Process Management* (BPM) principles. Fifth section is dedicated to present the solution for articulated problem by the model that federates both approaches and explains how enterprise architecting and business process management can be used altogether. Sixth section of the paper provides conclusion for the paper.

Research Design

The research presented in this paper focuses on scientific cognition at the intersection of Business Process Management and Enterprise Architecture approaches. Those, by definition, are large domains with number of overlaps. The objective of the research is to identify a federated model explaining how to produce and manage organization's business process model in-line with its business objectives when having both approaches in place. Also I have 15 years of practical experience with management both IT and business of the enterprise. Because of that I suggest to take forward the research methodology on a basis of Kolbe's experimental cycle that enable linking the qualitative heuristics with modelling of theoretical concepts [8], [9]. This experimental cycle uses qualitative research and it is used in way that firstly the relevance of principles, formulated on a basis of literature research and empirical observation and used to build the model, is tested with key stakeholders representing target enterprises. This phase is realized using structured interview with the stakeholders. Second, the principles and constructs are adjusted according to the findings of the research. Third, the formulated concept is being validated through experiment in form of a pilot project, within the area or multiple areas of the enterprise in terms of model content and method of its use.

The research methodology is explained on Figure 1. Therefore formulation of federated model is based on literature review reinforced by experience from the field.
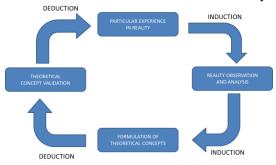

Fig. 1. Kolbe's experimental cycle [8]

In order to ground arguments in the course of the research goals I used two state-of-the-art frameworks both representing widely used and referred tools for enterprise architecting TOGAF [10] and FEAF [11] and baseline methodology MMABP [12] which expresses the fundamental principles of process-driven management of an organization.

Literature Review

During the past two decades, enterprise architecting has become a well-recognized and matured discipline evolved to offer an in-depth view of the elements of the enterprise. Traditional taxonomic approach set by Zachman in 1997 describes EA as a logical concept mapping elements of the organization as well as relations between them and emphasizes "order and control mechanisms for the development of information systems" [13]. Later this definition was extended so that it has been EA objective to provide holistic concept enabling to describe how companies perform their work [4], [14]. EA has been a model-based methodology in meaning that schematic description makes up the core of its approach. On the other hand Lankhorst mentions that EA has been a concept and managerial discipline to provide multi-layered view on the organization through integrated view of business, applications, actors and underlying infrastructure [15]. According to Chiprianov the Enterprise Architecture approach consists of a set of models describing the structure and functions of an enterprise [16]. Lankhorst and Osterwalder express the positioning of EA within an organization in way that EA facilitates the one-way link between Business and IT strategy represented by particular goals on one hand and organization's daily operations on the other hand [15], [5]. Edhah and Zafar are more specific and mention that EA "translate the broader principles, capabilities, and the defined business objectives in the strategies into processes that allow the enterprise to realize the objectives" [17].

From the perspective of process based organization approach explained by Repa, Hammer and Davenport [18], [19], [20], business can be expressed as a way processes of money earning logic, in case of an enterprise [5] or value delivery in case of an organization in general [21], [22], are organized and executed to perform daily routine

tasks. As the organizing logic tends to be executed to reflect business objectives therefore it can be regarded as a major contributor to the overall business strategy [17]. Compared to Enterprise Architecture approach DeToro and McCabe foresee the Business Process Management as the new way of managing the enterprise [23], which is different when compared to traditional functional, hierarchical management. This standpoint is acknowledged by Pritchard and Armistead whose research expresses BPM "as a 'holistic' approach to the way in which organisations are managed" [24]. Scheer emphasizes the role of BPM as an information asset similarly to Van der Aalst who points out the descriptive capabilities of BPM to support lifecycle of the business processes [25], [26]. It is visible that both approaches address the same problem from different perspectives. Enterprise architecture by definition addresses the gap between "as-is" towards "to-be" state of the art architecture that is compliant with business objectives. BPM, in turn, aims to orchestrate the business processes and underlying infrastructure in way they support changes at any point of time.

At the high level the business architecture defines the value increments achieved through business processes. For instance, during the sales process adds value by converting an "opportunity" into a "deal". The Business Architecture in fact describes the business model of the enterprise. Osterwalder [5] sees business model as a key tool to demonstrate the linkage between business goals, business requirements and its return on investment for key stakeholders. Federal Enterprise Architecture Framework (FEAF) state that its Business Reference Model (BRM) and associated elements "form a key part in delivering expected outcomes and business value to an organization" [11]. According to the MMABP [6] the Business Architecture should conform to business strategy and reflect related challenges. In that respect EA as well as BPM federate methods and techniques used to produce architecture models representing different views on the enterprise.

MMABP

MMABP stands for a *Methodology for Modeling and Analysis of Business Processes* based on the crucial ideas of the process-driven management of an organization [6]. MMABP consists of basic principles of modeling crucial enterprise structures (including the definition and explanation of these structures), diagrammatic techniques on the basis of standard modeling languages BPMN and UML, and the set of rules and techniques for ensuring the consistency of models and their alignment to the above mentioned crucial ideas of the process-driven management, namely the Technique for creation of the process structure of an organization which main ideas are discussed in more detail in this section of the paper.

The first complete explanation of the idea of process management as a style of managing an organization was published in [19]. The major reason for the process-orientation in management is the vital need for the dynamics in the organization's behavior [18]. That means that any process in the organization should be linked to the customer needs as directly as possible [12]. Thus, the general classification of processes in the organization distinguishes mainly between:

- <u>Key processes</u>, i.e. those processes in the organization which are linked directly to the customer, covering the whole business cycle from expression of the customer need to its satisfaction with the product / service.
- <u>Supporting processes</u>, which are linked to the customer indirectly - by means of key processes which they are supporting with particular products / services.

Figure 2 shows different problem areas connected with the process based organization. All three viewpoints at the figure together address all substantial parts of the organization's life: content, technology, and people. Each particular point of view is characterized by typical questions which should be answered by the methodology in that field.
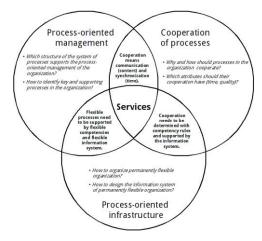

Fig. 2. Service as a common denominator of content, technical, and human aspects of the orgaization management.

Proposed model

The above described research enabled discovery of principles expressed by process based organizations as well as fundamentals of the Enterprise Architecture. This section aims to put together the identified findings as a grounded baseline for creation of federated model that explains how Business Process Management can be used in conjunction with Enterprise Architecture. I demonstrated that MMABP can provide methodology for production and management of organizing logic composed of business processes and supporting infrastructure. Enterprise architecting as per principles of TOGAF and FEAF sets the artefacts and life cycle for management of the enterprise's architectures representing holistic view on the organization. MMABP establish set of best practices for an organization that help with identification of key business and operational support processes and resource facing services as well as customer facing services.

Figure 3 represents the conceptual synthesis of findings into the result model. Objects depicted on the left hand side explain key elements (though not all elements) of the

Enterprise Architecture development process as derived from TOGAF and FEAF. Since both frameworks provide number of EA capabilities such Repository, Tools, Continuum and Reference models I included them into vertical box to indicate that capability is interlinked with elements of the architecture development process. Objects shown on right hand side illustrate the building blocks of Business Process Management derived from MMABP. Since rigorous description of individual elements exceeds the scope of this paper I put into the brackets the baseline approach as a reference. Similar to EA also BPM include capabilities and artefacts such as Maturity model, Notation and Life Cycle to name a few. Therefore I placed vertical box representing these capabilities into the diagram, too. Suggested desirable output creating value for the organization is shown within bottom box. Based on process classification as expressed by MMABP its core consists of Business and Operations support processes of the organization followed by services interfacing to underlying infrastructure (Resource facing services) and services delivering value (customer facing services). Infrastructure in the sense of MMABP consists of number of sub elements such as IT, capital, human resources, material, and production line. Governance box express the way business processes are managed within the organization.

In that respect MMABP expresses the link between Enterprise Architecting and Business Process Management by explaining the contribution of individual element toward the creation of organization's business process and service model.

First, the relation between enterprise architecting and Business Process Management is explained. In context of enterprise architecting lifecycle I position MMABP to facilitate linkage between EA and BPM for domains of business and information architecture modelling. The rationale behind it is that MMABP by definition focuses on modelling how the enterprise's business works, represented by Business architecture, and how the information infrastructure supports it, expressed by Information architecture. At the same time MMABP is not only used to model the business processes but also the way they are orchestrated in way they comply with organization's business objectives.

Second, I demonstrated that the organization's business process and service model belongs to key outputs produced during the enterprise architecting process and I also explained its value for process driven organizations. In that respect, MMABP provide a tool for assurance of holistic model of enterprise's organizing logic that can be compliant with an enterprise architecting methodology.
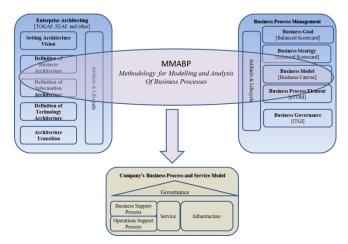
Fig. 3. Federated model explaining use of Business Process Management approach in conjunction with enterprise architecting (source: author)

Conclusion

Availability and capability of new technologies, rapidly evolving business models and dynamically changing enterprise environment are factors that motivate organizations to constantly innovate their business processes while keeping them aligned with their business objectives. Consequently, the Enterprise Architecture as well as BPM are expected by the company executives to become the highly valuable information assets used for business process innovation and to master the content that fits proven practices of the industry and be reflective of its changes. In this paper, I described the problem statement leading to identification of key constructs and rationale behind the presented concept. It is my conviction that the principles of process driven organization as expressed in MMABP methodology help to bridge the gap between the BPM and enterprise architecting approaches by focusing on expression of the way organizations are doing their business. I demonstrated that the organizing logic of the enterprise consists of business processes that, according to BPM principles and expressed by Enterprise Architecture, serve two purposes:

- To add value through products and services and monetize it by business model (key processes) and
- to provide support for key processes for organization's operations (support processes).

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