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Process Oriented Approaches in Enterprise Architecture for Business-IT Alignment

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Abstract

Business-IT Alignment (BITA) has been an issue for researchers of Information and Systems Technology (IST) area for the last three or four decades. Many authors refer to BITA as a concern subject of IST managers, in what regards its achievement, but also its maintenance. Nevertheless, all approaches seem to be time and resources consumers, contrary to what would be desirable nowadays: achieve and maintain BITA quickly, efficiently and sustainably.

Enterprise Architecture (EA) construction, as a way to BITA, especially when a Business Process Management (BPM) approach is used, a list of best practices should be obtained. Using Case Study methodology, with a data set content analysis, this paper intends to highlight benefits of using it, in process oriented approaches' to EA construction aiming BITA.

Besides contribute to EA construction using process oriented methodologies, it is also important to consider the contribution to the Academy, with the scientific knowledge' increase in this area. And also the contribution to both involved consultancy companies, as well as to the organizations, in this case Municipalities, deserves attention: organization's processes are improved and real problems can be solved.

Keywords: Business-IT alignment, enterprise architecture, business process management, case study, content analysis

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1. Introduction

Information Systems strategic alignment stands out among the most important concerns for Information Systems and Technology managers. This concern has been a subject of research under different approaches[1], based upon the Strategic Alignment Model, identified in the literature as "the" alignment model[2]. However, it remains an important research issue still calling for different ways of obtaining and keeping it.

The business environment in which organizations operate in today, demands agility and flexibility from organizations to meet stakeholders' expectations. It becomes important to achieve alignment quickly, efficiently and sustainably, but present approaches require too much time and resources. So it is important to find effective ways to achieve and maintain business-IT alignment building upon new theories and practices to deal with new challenges.

Successive studies of the Society for Information Management[3] show Business-IT Alignment in the top three priorities of Information Systems and Technology managers over the past decade, in fact, the first one in most years. So, how to achieve and maintain alignment between the Business and Information Technology is still a question without an adequate answer, specially, when agility and flexibility are required and misalignment becomes frequent. Will there be any mechanisms able to take advantage of theories and practices to increase the likelihood of more easily achieve and sustain business and IT alignment?[4, 5, 6]. Enterprise Architecture may be such one of those mechanisms.

2. Business-IT Alignment through Enterprise Architecture

Dealing with the essence of business-IT alignment is still a challenge[7,8]. Misalignment emerges at different levels, for different components[9] or in complex situations such as acquisitions of business units by multi-business organizations[10].

In this search of alignment, both types of managers must found, expeditiously, models that can be shared on each one perception and use. Select a framework or reference model, allowing quickly and properly articulation with performance indicators that provide a single view, shared by all stakeholders of the organization, may be a solution[11]. Zachman Framework[12] with recent focus on rationalization of concepts and specifications of the organizational architecture, especially given the need to clarify internal communication, improvement and integration of methods and tools used and with the evidence on the credibility and trust of the investment in SI features, is always a reference to both types of managers. Besides other frameworks, as for example the Government Information Factory[13], one widely used to design, evaluate, and build the right architecture, The Open Group Architecture Framework (TOGAF), seems to be a representative and standard framework in the industry[14]: it is focused in the needs of the business and in reducing planning, designing and implementation of architectures costs.

In this context, literature highlights the adoption of approaches such as those proposed by the BPM as a way to "look" the organization and rethink its objectives, in a fast and convergent manner[15]: the Process Architecture Model is essential to adopt a management philosophy which would provide a global view of the business, and above all, shared by the different stakeholders.

Looking to the previous exposed, it is useful to use a process oriented approach in EA construction: know how to build an AE seems essential, specifically in order to understand how to contribute to the alignment of strategies[16], agile and with less significant costs[17]. So, process oriented approaches used within TOGAF providing a good detail level of the organizational characteristics[18], will allow to reach a management philosophy able to build a global vision, shared by all stakeholders.

Is therefore a strategic connection between EA and a BPM approach that appears to contribute to the alignment challenge? Vaidyanathan[17] states that EA is an essential strategic organizational element and regarding the organization processes[19] relates the importance of knowing all the processes that belong to the scope of the project and even the location of these processes in an EA[20]. It seems important then, to identify ways we can reach a representative EA of the organization, when using process oriented approaches[21].

3. Study Description

3.1. Research methodology

Defining an approach to a research question requires understanding the meaning of a phenomenon (ontology), how it is known (epistemology) and how to study it (methodology)[22]. So, with focus in establish the meaning of the research phenomenon from the existing theory and considering the views of the participants involved, either consultants or employees of organizations under study, with researcher participation, this research followed the chain of constructivism[22, 23]: looking to real aspects in organizations and rely as much as possible on the participants views of the situation being studied – the interventions.

Furthermore, to define the conceptualization structure of the research and further understanding of the phenomenon[24], a qualitative investigation approach was used, as it is a constructivist perspective. Creswell[22] arguments with "…the multiple meanings of individual experiences meanings socially and historically constructed, with an intent of developing a theory or pattern …", in this work a list of recommendations, to the choice of a qualitative approach.

To complete research strategy, a methodology should be applied. Among qualitative approaches' methodologies, the Case Study was chosen as the way to interpret the phenomenon of the BITA, by AE construction. Case Study allows data collection using different means to analyze a concrete set of organizations, where it is useful to study the "why" and "how" questions that deal with operating factors to be studied to over time[25].

Additionally, it is a facilitator research approach exploiting a phenomenon, in context, using a variety of data sources, by ensuring that the issue is explored by a lens, which allows to reveal and understanding of phenomenon' under study many facets[26]. In recent submitted research works, qualitative research has had enough consistency, including work with involvement in the real world[27].

In this sense, the real world should provide a good unit of analysis so it is possible to implement Case Study methodology. Delimit the case to control the scope of the study, also determine the type and set the characteristics to consider, will then refer propositions of research, the framework (lent) to consider, the logic linking from the data to the propositions and criteria for the interpretation of results study.

Using propositional discourse analysis, a Content Analysis technique[28], propositions reflect data collected explaining "Business-IT Alignment"[29] and "Enterprise Architecture"[30, 31] dimensions: they were built based on different sources of information used, namely the data from interviews: they are a useful means of collecting stories on the issues that the questionnaires have, specifically in this type of approach[22].

Interviews were supported with a set of two questionnaires to facilitate dialogue between the interviewed and the interviewer, the researcher. Due to this set of cases were data could be collected, analysis should be robust and reliable, despite the time consuming (and the inherent cost)[32]. The two questionnaires have different objectives: one with basic questions to interview the consultants, in order to ascertain the suitability to TOGAF of the method to implement in organizations; the other with questions to use in interviews with organizations involved in consultancies' interventions in order to identify what really happened.

Propositions were distributed is six categories: Characterization of reality (CR); Approaches in the construction of an EA (AD); Components of an AE (CP); Critical factors in building an AE (FC); Impacts / Benefits / Effective Ways (BN); Other Projects (OP). This categories, have focus into identify efficiencies, so goals and satisfactions, and efficacies, so resources involved.

3.2. Data collection and analysis

The research occurred within two consulting companies' interventions in Municipalities. Data collection had first a reading phase of supporting manuals and documentation produced from previous interventions in organizations of various sectors, complemented with researcher participation on some already planned.

After the researcher participated on one set of them, where notes taken from interventions' observation, were analyzed and followed by interviews, each one summarized, to complete analysis also made to documents provided by the organizations involved; in the other set of interventions, the researcher made the interviews, also summarized and analyzed and completed with analysis to some documents supplied.

Analysis made exposes both practices within TOGAF, referring points of contact with this Framework. The use of both methods within Municipalities also highlights key aspects in the construction of an EA, which allow assumptions about the impact on the BIA, namely with AD 02 and BN 02 propositions, the ones with a higher number of mentions from the persons involved:

- AD 02 - Process oriented approaches align Business and IT metrics;
- BN 02 - The organization of organizational processes promotes the interrelationship between people and leads to behavioral changes.

Propositions analysis reveal processes oriented approaches' promotion on the interrelationship between those involved, contribute to the characterization of the organization itself specifically aligning different views and contribute to the maturity of the organization's skills, allow you to build different architectures of an AE and holds the line views of different human resources of an organization.

Also reveal, benefits in construction of an EA with a process approach, as the key role in the involvement of the different human resources in the consensus on the process itself, the leading role in Corporate Strategy for improvements identified in each process and contributes to the sharing of visions and organizational valences with the successive application of a practice.

At the end, processes oriented approaches' exalts factors to be taken into account for BITA: i. it is important to define concepts inherent to the Organization; ii. are user's promoters of a representative Framework as a starting point to EA construction; iii. uses architectures, existing components and artifacts in the Organization, necessary in a EA; iv. Help to get organized / integrate Organization' existing applications and other software; v. encourage integration of existing hardware with the organization's technological networks; vi. and consider new projects arising from these approaches towards improving organizational performance.

3.3. Assumptions

The research made, within the use of process approaches in EA construction promotes BITA: a qualitative approach, in a Case Study methodology, within a set of cases analyzed, by a content analysis' technique, seems to identify the highlights to consider to BITA.

Nevertheless, it was possible to identify a list of counsels when a process approaches in EA construction is used:

- Before any intervention with this scope, it should proceed to the characterization of the sector / intervention target market in order to better achieve the start of the method;
- should intervention then begin with the identification of business drivers, to then articulate the processes to identify, with respective create implementation schedule;
- being EA a strategic element and BPM approaches the key to rethink goals consensually and quick-oriented processes, models to use towards BITA should follow these concepts;
- BPM approaches, on the other hand, reduce deadlines, human errors and give greater flexibility in changing the organizational structure supported business processes, so they are to follow;
- suggest the use of TOGAF in parallel with other models towards the BITA for the construction of an EA;
- Concepts such as Organizational Competence (capability from the English language) are useful either as a definition of support models oriented processes, either as a way to guide the discussion of the various stakeholders to define each competence that the organization must be able to perform.

Also from the methodology' consequences referred, organizations object of a process approach in EA construction aiming BITA should be aware of:

- the necessary insurance of the existing organization information availability, whether in respect of the powers it has, either on the concepts, processes, architectures that characterize it;
- the importance of involving human resources on sharing and consensus meeting each process definition;

- the guarantee to ensure the identification during the intervention of additional improvements to contribute to organizational performance, so they can be the object of attention in a future interaction.

The consequences listed, as well as the counsels before identified, were validated by the companies owners of both practices used, by answers to a questionnaire with them listed, followed by an interview with the different consultancies. This step produced an additional set of suggestions:

- it is necessary to explain the type of intervention, since it can claim to a specific time and organizational characteristics, as an organization, or detailing the organization itself, as in the characterization of different existing processes;
- an intervention in this area of the orientation process may lead to build reference models by market sector;
- the agenda of intervention must be designed and organized in stages, so that there is continuous adaptation to organizational change of the organization;
- implementation of the methodology involved are concepts that have to be explicit in the sense of being used in the desired order.

4. Conclusion and Further Work

This research work is a challenge, because you need an innovative response. How to achieve and maintain alignment between the Business and Technology and Information Systems effectively? Or if we want practices increase the probability of finding an easier way to achieve alignment between the Business and Technology and Information Systems? Or how to develop an AE in an effective way?

Some final assumptions can be made:

- Although studied for decades, the BITA remains a present concern, whether managers or researchers, primarily because delays in obtaining it is great, and that the question of what can keep is little discussed;
- The practices, Mlearn and aSir are really efficient ways to involvement of stakeholders, facilitating the exchange of ideas, consensus decisions and building a process model where the organization sees itself;
- It is effective to process-oriented approach to implementing these practices, because they promote the achievement of concrete results, such as for example the Training Plan, referred to as a result of both practices.

Even though, some limitations of this research work, can be observed: the great difficulty in plan and structure all field work, mainly due to different agendas – consultancy companies and Municipalities; to realize that BITA has been studied for so many years and it is steal difficult to use a consensual model/framework in the research; the validation method should be more effective, starting in inquiring different consultancy companies with the list of recommendations achieved.

Further work has many options. Specifically in Public Administration Sector study cooperation of professionals with different profiles or definition / usage models / features architectures of known processes such as single vision, are good examples.

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