An Initial Evaluation of the Strategic Alignment Model as an Enterprise Architecture for improving Business-IT Alignment

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Most organizations nowadays rely heavily on IT applications and technologies for performing their business. Since some years now, the question of how to best use ICT to support and drive the business activity and strategy is a concern of managers. The activity tackling this issue (as well as the desirable state resulting from it) are called Business-IT Alignment (BITA).

The Strategic Alignment Model (SAM) (Henderson and Venkatraman 1993) remains one of the most relevant and cited models aiming at helping managers to achieve BITA. Indeed, it is the most widespread and accepted framework of alignment (Wang *et al.* 2008) and has been used to evaluate and analyse existing work on alignment, for instance in (Avila *et al.* 2009 ; El Mekawy *et al.* 2009 ; Silva *et al.* 2006). However, some limitations to that model have been identified in (Avison *et al.* 2004 ; Fimbel 2006 ; Reix 2000 ; van Eck *et al.* 2004). They underline that the SAM is very conceptual and remains therefore difficult to apply in practice. Several improvements have hence been proposed, including the possible benefits of applying Enterprise Architecture (EA) principles (Goedvolk *et al.* 2000 ; Maes 1999 ; Maes *et al.* 2000 ; Wang *et al.* 2008). Others EA approaches for BITA not directly connected to the SAM have also been proposed like in (Chen *et al.* 2005 ; Cuenca *et al.* 2011 ; Fritscher and Pigneur 2011 ; van Eck *et al.* 2004 ; Wegmann *et al.* 2007 ; Wieringa *et al.* 2003). In this paper, we briefly analyze these proposals and argue that (1) some remain hard to apply in practice because of lack of precise guidelines, (2) some forget about some important insights from the SAM, (3) each approach has specific strengths and weaknesses, and, last but not least, (4) they are hard to compare because each approach uses a specific structure or vocabulary making the objectivation of their strengths and weaknesses hard.

Some common vocabulary and concepts are needed to make the comparison and evaluation of the approaches rigorous. The (ISO 15704 2000) standard for Enterprise Reference Architectures and Methodologies provide these standard elements. As a first illustration of the use of that standard to clarify some aspects of EA frameworks for BITA, we evaluate the SAM with respect to the requirements of ISO 15704. We show what kind of insights can be gained from this analysis.

The long term objective of this research effort is to contribute to the definition of methods based on enterprise architecture concepts that can be used by organisations to improve their business-IT alignment. In future works, we plan to analyse other BITA approaches based on EA principles so that their comparison and the evaluation of their conformance to standard requirements will be possible, leading to the identification of clear directions for improvement or selection of EA approaches for BITA.

ISO 15704 identifies several types of requirements, including applicability and coverage requirements (specification of the extent of applicability of the EA), concept requirements (coverage of aspects of importance for enterprise engineering), modelling views requirements (allowing management of views on an enterprise model) and methodology components requirements (stating important elements that should be present in any EA).

The results of our initial analysis show that the SAM quite correctly meets some of the requirements identified in ISO 15704.

- It fulfills the applicability and coverage requirements. Indeed, its scope is clear: "defining the range of strategic choices managers face, during business IT/alignment, and exploring how they interrelate" in order to provide alignment perspectives that define the role of management. In other words it is targeted at all classes of enterprises for the specific BITA concern. It is design driven as it provides management practices.
- Concerning the concepts, it covers all required aspects (human, process, technology, mission-fulfillment, control fulfillment) and provides additional ones specific to BITA (mainly business scope and distinct competencies).
- Regarding modelling views, the SAM provides some. According to (Henderson and Venkatraman 1993) the business and IT domains of the SAM shall have the same structure (made of three similar components). Our analysis based on ISO shows that they do not exactly address the same aspects. The use of the ISO standard pushes to clarify the nature of the dimensions the SAM proposes. We interpret them as modelling views (model content and purpose). Even if the four mandatory views of ISO (function, resources, organisation, and information) are not explicitly defined in the SAM, each of them is somehow addressed.
- Concerning the components of a methodology required by the ISO standard, regarding genericity (generic, partial, and particular) the SAM provides generic constructs but no guidelines for creating partial and/or particular models. It does also not provide any representation of life-cycle, methodology, modelling languages and tool.

Globally, although the SAM addresses a part of the requirements, it does not (but does not initially intend to) provide a complete solution to BITA. Notably, even though it identifies a set of constructs for modelling some aspects of BITA, these constructs do not have a precise definitions (as would be required by e.g. (ISO 19440 2007). Notably also, it does not provide concrete mechanisms for defining and analysing alignment among domains, further than the general concept of perspective. This observation is consistent with the SAM's limitations already identified in the literature. Our analysis makes these critiques more explicit, structured and objective and enables us to identify two directions for future research:
- Improving the SAM in the light of the ISO 15704 e.g. by developing the relation between SAM perspectives and the ISO notion of lifecycle;
- Defining a contingent EA for BITA based on fragments of existing EAs through a method-engineering approach.

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