Value-Based Requirements Engineering and IS Architecture Design Support for Cross-Organizational Environments

Novica Zarvić *
Department of Computer Science, University of Twente
P.O. Box 217, 7500 AE Enschede, The Netherlands
n.zarvic@ewi.utwente.nl

Abstract

The PhD project described in this paper abstract is part of the VITAL[1] research project (Value-based Business-IT Alignment) and aims to develop new techniques for the design support of cross-organizational software systems to provide information systems (IS) services required by the business. The objective of business-IT alignment is to bring the IS architecture of an organization into line with the company's followed business strategy.

Nowadays most businesses cannot be viewed anymore as a single enterprise. In order to satisfy complex customer needs businesses rather form networked business constellations. Such a network consists of profit-and-loss responsible business units, or often independent companies [3]. Matching IS services (e.g. email, data, or on-line music provision services) with the requirements of businesses is a hard task and with the advent of such networked constellations of enterprises this problem gets a new dimension. The IS architecture (or landscape) is the key ingredient in such a cross-organizational setting, because it must support the IS services required by the business and also enable cross-organizational coordination among the business partners.

The non-existence of an IS planning methodology that takes a value model [1] as its starting business model into account makes it a challenge to relate IS architecture decisions to value-based requirements. Classical IS planning methodologies such as Information Engineering [2] produce enterprise models, data models and process models to design the IS in the enterprise by means of CRUD matrices. However, these approaches are thought for single enterprises and start from a green field, whereas nowadays companies want to reuse their legacy systems or buy commercial off-the-shelf systems to satisfy the requirements. There exists also no assessment of the costs and benefits these systems cause.

*supported by the Netherlands Organization for Scientific Research (NWO), project 638.003.407 (Value-based Business-IT Alignment)

[1] See http://www.vital-project.org

The goal of my PhD work is twofold:

1. to define an IS planning methodology for deriving the IS architecture from value-based requirements.
2. to provide quantitative support to align cross-organizational IS architecture decisions to cross-organizational IS requirements.

The first goal will be achieved by adapting classical IS planning methodologies to value-based requirements. The identified natural systems need to be mapped against the legacy systems of the participating companies for the purpose of identifying nonexisting systems. In order to accomplish the second goal a structured and economic-driven IS architecture analysis method for supporting architectural decisions in networked business constellations needs to be developed, or more specifically the appropriate choice of the IS architecture must satisfy the value-based requirements and be feasible from an economic point of view. One solution direction that I will explore is to use real options analysis to support architectural decision making.

The results of my work described in this abstract are going to be validated by doing case studies and action research for industrial partners. By doing research in real life settings I will ensure the applicability of the proposed solution.

References

[1] J. Gordijn and H. Akkermans. Value-based requirements engineering: exploring innovative e-commerce ideas. *Requirements Engineering*, 8:114–134, 2003.

[2] J. Martin. *Information Engineering*. Prentice Hall, New Jersey, 1989. Three Volumes.

[3] R. Wieringa, J. Gordijn, and P. van Eck. Value-Based Business-IT Alignment in Networked Constellations of Enterprises. In *Proceedings of the 1st International Workshop on Requirements Engineering for Business Need and IT Alignment (REBNITA 2005)*.