

## On Enterprise Architecture Conformance and Benefits

Ralph Foorthuis<sup>1</sup>, Marlies van Steenbergen<sup>2</sup>, Nino Mushkudiani<sup>3</sup>, Wiel Bruls<sup>4</sup>,  
Sjaak Brinkkemper<sup>5</sup> and Rik Bos<sup>5</sup>

<sup>1</sup> UWV Business Services, La Guardiaweg 116, 1040 HG Amsterdam,  
The Netherlands, ralph.foorthuis@uwv.nl

<sup>2</sup> Sogeti Nederland BV, Hofsemolenweg 5, 8171 PM Vaassen,  
The Netherlands, marlies.van.steenbergen@sogeti.nl

<sup>3</sup> Statistics Netherlands, Henri Faasdreef 312, 2492 JP The Hague,  
The Netherlands, n.mushkudiani@cbs.nl

<sup>4</sup> IBM Netherlands NV, David Ricardostraat 2-4, 1066 JS Amsterdam,  
The Netherlands, wiel\_bruls@nl.ibm.com

<sup>5</sup> Utrecht University, Institute of Information and Computing Sciences,  
Padualaan 14, 3584 CH Utrecht, The Netherlands  
{S.Brinkkemper, R.Bos}@cs.uu.nl

**Abstract.** This three-page document is an abstract of the paper “On Course, But Not There Yet: Enterprise Architecture Conformance and Benefits in Systems Development”, which is accepted for presentation at the Thirty First International Conference on Information Systems (ICIS 2010), St. Louis, Missouri, USA.

**Keywords:** IS Projects, Enterprise Architecture, Determinants of Conformance, Benefits.

### Introduction

By providing holistic overviews and high-level constraints, guidelines and logic, Enterprise Architecture (EA) aims to achieve coherent and goal-oriented organizational processes, structures, information provision and technology. Various claims have been made regarding the application and effectiveness of EA, by academics and practitioners alike. At the level of the *entire organization*, for example, benefits in the reduction of complexity and realization of business/IT alignment have been claimed. At the level of *individual projects*, costs and risks are said to be reduced when complying with (i.e. conforming to) EA. Since EA conformance is crucial for gaining the aforementioned benefits, various techniques for stimulating project compliance with EA are suggested in the literature. This study aims to critically and empirically verify various claims regarding EA benefits and conformance. The research question therefore is: *What benefits can be gained by conforming to EA, and what are the most effective techniques for achieving conformance?* The research method for testing the hypotheses is an online survey ( $n=293$ ) and subsequent statistical analysis (binomial tests, chi-square tests, multivariate ordinal regression).

## Results

In general, we can conclude that most of the identified *techniques* for encouraging compliance with EA are used regularly, such as compliance assessments of projects, management propagation of EA, Project Start Architectures (i.e. architecture contracts), architects providing assistance to or participating in projects, organized knowledge exchanges, and the use of document templates. Quite notable is the fact that financial incentives and disincentives are used only very rarely.

In terms of the *organization as a whole*, several benefits can be attributed to EA. However, it seems that most positive perceptions are held regarding the sub-goals, whereas the ultimate goals are not being judged as positively. EA, for example, proves to be a good instrument to provide insight into the complexity of the organization, whereas it is less suitable for actually controlling it. In addition, EA is an effective means to depict a clear image of the desired future situation and a good instrument to standardize, integrate or eliminate redundant processes and systems. However, EA does not seem to be a good instrument to control costs. EA is also not a highly effective means for achieving business/IT alignment.

Regarding the benefits for *individual projects*, EA simply does not seem to offer projects very much in the way of time and cost savings, but it does clearly increase delivered quality. In addition, EA offers better management of project risks and complexity. Furthermore, projects conforming to EA do not get initialized faster than projects that do not have to conform. In fact, a majority of the respondents indicate that projects actually start up (much) slower than projects not conforming to EA. This is probably due to the additional commitment that EA brings to bear on projects (such as getting acquainted with architectural standards and balancing possible conflicts between local and enterprise-wide interests).

Another interesting finding is that EA creators (e.g. enterprise architects) generally tend to have more positive perceptions regarding EA than EA users (e.g. project members). This can probably be attributed to their involvement and commitment. In their turn, EA users can not view the overall picture due to their local focus. Moreover, they have to deal with an additional effort when conforming to EA, which may temper their enthusiasm regarding EA. Therefore, in order to have a balanced view, it is of paramount importance that EA research takes both perspectives into account.

Using multivariate ordinal regression, we studied the effects of the techniques for stimulating compliance on project conformance, as well as the effects of project conformance on achieving the benefits for the organization and individual projects. Figure 1 presents some of the most interesting findings (excluding the statistics).

Three techniques prove to be important determinants of project conformance: compliance assessments of projects, management propagation of EA, and assistance to projects. In general we observe that the more a technique is used, the higher the level of conformance achieved. Being assessed on compliance has the largest effect on whether projects will actually conform. The fact that a project will be explicitly confronted with its nonconformance apparently stimulates them to comply with the norms. This could be due to the fact that carrying out compliance assessments is an indication of the importance of conforming or, alternatively, simply to the project's

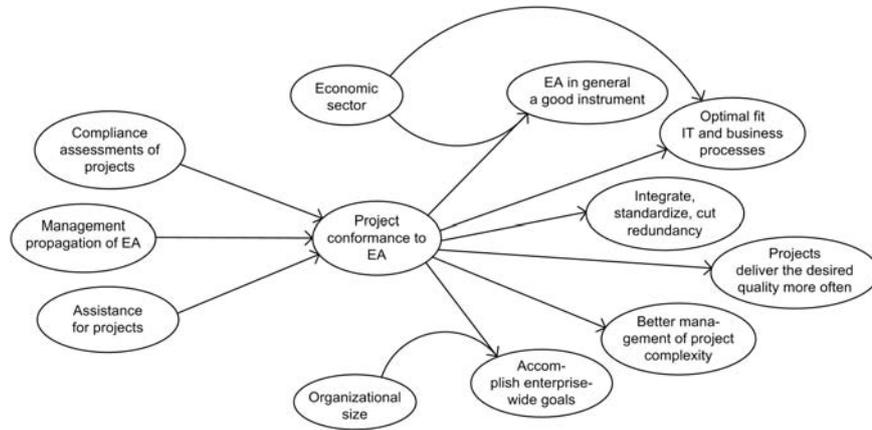


Fig. 1. The empirical model for EA conformance and benefits.

desire to avoid confrontation. Management propagation of the importance of EA has the second largest influence. Third in rank is providing assistance to the projects when applying the EA's rules and guidelines.

In its turn, conformance has significant influence on several EA-related benefits. Four *project benefits* could be attributed to conformance, namely delivering more of the desired functionality and quality, and better management of complexity and risks. If there is a high level of conformance, then projects conforming to EA – compared to non-conforming projects – are likely to achieve higher levels of these benefits.

Project conformance is also positively associated with *enterprise-wide benefits*. The strongest relationships were found for accomplishing enterprise-wide goals, achieving an optimal fit between IT and business processes, and also integrating, standardizing or eliminating redundancy from related processes and systems. These represent some of the key aims of Enterprise Architecture, the achievement of which in the respondents' experience is dependent on project compliance with EA. Especially for the last two benefits the important role of projects is not difficult to see: business/IT alignment in processes and integrating several individual systems are typically EA-related issues, but the organization is highly dependent on projects for actual implementation. It is therefore not entirely unexpected to find strong relationships with project conformance here. Weaker, but still statistically significant associations were found for other important goals, such as achieving organizational agility and providing insight into and controlling the complexity of the organization. See the full paper for an overview of all significant effects.

Particular interesting is the fact that project conformance seems to have more impact on organization-wide benefits than on project-level benefits. This demonstrates that (project conformance to) EA is indeed an important factor in achieving enterprise-wide benefits and goals. Contextual factors, such as the economic sector and organizational size also have a (moderate) influence. To conclude, this study has shown that EA offers different kinds of value, but that additional effort is required from the IS community to fulfill more of its promised potential.