Chapter 5
Comparison and Integration of IT Governance Frameworks to Support IT Management

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ABSTRACT
Recent years have seen an unprecedented consolidation of best practice know-how in various areas of IT management. With it came a certain popularity of standards and reference models (COBIT, ITIL, CMMI, ISO/IEC 27000 family etc.) commonly classified as frameworks for IT governance. Each of these frameworks aims to support certain parts of IT management with best practice knowledge and enhances the quality of the delivered IT Services. But now we are facing a situation characterised by an abundance of these IT governance frameworks. In particular their combined or parallel usage increasingly creates redundancies and issues of complexity. To organise an efficient interaction between frameworks and to cope with their heterogeneity; e.g. in process semantics and description techniques; the application of these frameworks has become a lively issue of research. In this contribution the authors will reflect on the state of the art in comparing and integrating IT governance frameworks, analyse pros and cons of various approaches, and present their own approach based on metamodelling. The authors consider metamodelling a promising approach to close the gap between high-level comparison and detailed mapping as it allows an identification of redundancies and incoherent semantics on a framework-independent level. Promising an increasing return on investment, harmonisation is an important topic within IT departments (Siviy et al., 2007). This approach is a first step toward an integrated and harmonised handling of the meanwhile mandatory frameworks for IT management.

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**INTRODUCTION**

The recent past has seen the appearance of a wide variety of standards, best practice frameworks, reference models, and proprietary methods (hereafter collectively named frameworks) dedicated to the support of IT governance. The frameworks are typically aimed at improving e.g. IT alignment, compliance, service management, process quality, and security management (Johannsen & Goeken, 2007). Well-known examples of frameworks are COBIT (Control Objectives for IT and related technology), ITIL (IT Infrastructure Library), CMMI (Capability Maturity Model Integration) and the ISO/IEC 27000 family of standards for security management. With ISO/IEC 38500, a specific standard for “Corporate Governance of Information Technology” is currently being specified.

While the implementation and application of a single framework already creates significant efforts in operative business environments (or governmental institutions), the usage of multiple models usually constitutes strong concerns regarding complexity, redundancies of functions, and total costs of ownership. The current situation is characterised firstly by a steep growth of acceptance of these frameworks and secondly by increasing investments in the implementation of frameworks in operations. The reasons for applying frameworks may be based on issues of conformance (compliance to rules and regulations) or performance (gaining optimal efficiency and effectiveness that is IT alignment) or both.

Given the degree of heterogeneity of best practice groups and standardisation bodies producing frameworks, the need for analysing those with respect to the coverage of functions, redundancies of functions and activities and inconsistencies of functions becomes obvious. This holds also for analysing integration options of multiple frameworks in the same environment. In the following we will give an overview of our work regarding analysis, comparison, and integration of frameworks. The presented approach is the foundation of a management-oriented project within the field of IT governance. This ongoing project aims to support management in order to raise the challenges of the multimodel environment and increases return of IT investment.

**EMERGENCE OF MULTIMODEL ENVIRONMENTS**

Companies are exposed to the coexistence of several frameworks, which are used in parallel or partially to support the different tasks of an IT department. The frameworks increasingly show overlapping areas with respect to their functions and application areas although they focus on different purposes. COBIT for example is commonly used by auditors and accountants (ITGI, 2007a & 2006a) whereas IT developers often use CMMI however COBIT includes a maturity model (SEI, 2007). IT operations although it could be ITIL focused may however cover business value issues addressed also by COBIT (OGC, 2000 & 2007). The supervised and controlled combination and integration is a precondition for an effective usage and the disposal of the disadvantages of each individual framework.

The multimodel environment (Siviy et al., 2008) creates a significant challenge for companies’ IT departments as (1) partial or customized frameworks and/or (2) their usage in parallel will trigger the inherit complexity of applying frameworks and the cost of covering overlapping and redundant application fields to soar and application costs to rise. Thus a satisfactory cost/benefit ratio in a multimodel environment may hard to gain.

In recognition of these developments, our approach consists of two parts analysis (I) and reduction of overall complexity (II):

- Situation analysis: We investigate why companies (1) may use only parts of frameworks and (2) why they tend to apply
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