Extending Traditional IT-Governance Knowledge Towards SOA and Cloud Governance

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ABSTRACT

Enterprises today often strive to keep up with the paces of technological development. A particular case in point is the IT function where traditional governance approaches are often questioned by technology trends. Examples for such trends in the last ten years are the service-oriented architecture (SOA) and cloud computing. The introduction of SOA in the enterprise was one of the key enablers for cloud computing. Therefore, it can serve as a natural fit for bringing traditional IT governance approaches forward to the challenges of cloud governance. This article presents an approach for extending IT governance mindsets to the areas of SOA and cloud governance. It allows an IT organisation the adaptation and the continuous usage of already established governance knowledge and models during the adoption of cloud computing solutions. The authors also present an application case study where they demonstrate the feasibility of the approach in real-life scenarios in the context of an international telecommunication provider.

Keywords: Cloud Governance, IT Governance, Knowledge Extension, SOA Governance, Technological Development

1. INTRODUCTION

The rapid technological improvement and innovation in the last couple of decades and increasing globalization and competition across all industry branches have also forced the IT field to improve itself. Managing the enterprise information more effectively than the competitors became the critical success factor in order to gain a competitive advantage and to increase the value of the organization.

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Especially in terms of service providing, new concepts and trends like the Internet of services and devices (Stantchev, Hoang, Schulz, & Ratchinski, 2008; Stantchev, 2009a, 2009b), which are driven by the vision of providing world-wide distributed applications and increased functionality, and cloud computing, which aims to provide an unlimited flexibility of resources by being able to combine own and outsourced software, platform and infrastructure elements strategically, require improved management capabilities to govern the more complex information structure driven by those
concepts. The trend towards service-oriented computing (SOC) and service-oriented architecture (SOA) (Stantchev & Malek, 2006), as well as the availability of cloud computing offerings make the governance of IT even more complex and challenging.

Specific approaches can look at different architectural levels to address governance requirements (Stantchev & Malek, 2008; Stantchev & Schroepfer, 2009a, 2009b) or focus at project portfolio aspects of the problem (Stantchev & Franke, 2009). Other approaches focus on the performance evaluation peculiarities of cloud computing offerings (Stantchev, 2009c).

An interesting idea is to try to extend existing IT governance approaches such as ITIL (Van Bon, 2009) and COBIT (Lainhart, 2000) to the world of SOA (Stantchev & Tamm, 2011) a more viable approach compared to the introduction of purely SOA/cloud-based governance frameworks. Such developments gain currently even more traction with the emergence of COBIT V.5.

In this work we extend this approach. After analyzing the similarities and differences, strengths and weaknesses of ITIL and COBIT, the support that they can give to better implement the service oriented architecture and the combination of ITIL and COBIT to combine their power, implement SOA better and achieve the full range of IT management, will be examined. The domains and processes of both frameworks will be mapped to each other in this context to create a basic guideline for organizations, which are looking forward to integrate and implement both frameworks.

The rest of this work is structured as follows: Section 2 presents a short overview of IT governance frameworks and the terminology we use. In Section 3 we give an overview of our proposed mapping of such frameworks for the governance of SOA and cloud computing. In Section 4 we describe a Specific mapping process that we have assessed within an industry case study with an international telecommunications provider. Section 5 contains a summary of our results and outlook on our future research activities.

2. PRELIMINARIES

In this section we introduce briefly common frameworks for IT governance and provide the terminology that we need throughout the work.

2.1. IT Governance Frameworks

IT governance frameworks aim to define standardized processes and control metrics for IT provision. Commonly applied frameworks in this area include the IT Infrastructure Library (ITIL) (Van Bon, 2009) and the Control Objectives for Information and Related Technology (COBIT) (Lainhart, 2000). They typically provide best practices for measurement and control of IT-Specific indicators. These indicators can be generally divided into two groups key performance indicators (KPIs) and key goal indicators (KGIs). KPIs measure how well a process is performing and are expressed in precisely measurable terms. KGIs represent a description of the outcome of the process, often have a customer and financial focus and can be typically measured after the fact has occurred (Van Grembergen, 2003). While KGIs specify what should be achieved KPIs specify how it should be achieved.

3. MAPPING OF IT GOVERNANCE FRAMEWORK TO SOA

3.1. The SOA Lifecycle

The SOA life cycle is an iterative process model that integrates software engineering and business process management approaches to deliver a holistic view of service creation, deployment and management (Stantchev & Malek, 2010). It consists of two general phases the preproduction phase and the production phase. The preproduction phase includes two stages the Model stage and the Assemble stage. In the first stage the business model of an organization is created. It includes business processes and business metrics (KPIs) that relate to them. A formalized business model is the starting point...
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