Chapter 7
SOA Governance in Healthcare: Beyond Early Ideas to a Structured Framework

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ABSTRACT

This chapter depicts the gradual development of a conceptual SOA Governance Framework tailored for healthcare organisations. The proposed framework presented herein is based on the authors' previous research and includes nine SOA Governance elements that need to be considered during the SOA process. The identification and conceptualisation of the elements were grounded in the normative literature and further developed to include healthcare specific aspects. This comes as a method to overcome the limitations identified in normative literature and enhance the elements' conceptualisation. Besides, the authors propose a unique design combining nine elements of SOA Governance with SOA Critical Success Factors (CSFs) and Healthcare Information Systems (HIS) challenges. This proposal aims to pinpoint attributes and guidelines for each element, required to successfully govern SOA and tackle longstanding HIS challenges. The framework is intended to be used as a decision supporting tool for SOA Governance in a healthcare setting.

INTRODUCTION

Economic conditions demand that Healthcare Information Technologies (HIS) deliver ever more business value. Today, HIS play a more and more important role in the provision of healthcare. The scope and complexity of HIS projects has increased, requiring excellent project management to fully realize the benefits of such an investment. Unfortunately, healthcare projects are associated with considerable failure rates or having significant cost or budget overruns (Kaplan & Harris-Salamone, 2009). Both re-

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search and anecdotal evidence suggests that many HIS projects struggle to meet functionality and quality targets. Research has identified multiple reasons for these challenges in HIS projects, such as: project escalation, poor risk management, failure to manage user expectations, poor software development or project management processes, or inability to learn from past mistakes and successes (Dwivedi et al., 2013; Lunt et al., 2011). Yet, integrated technologies that have been employed by healthcare organisations, to tackle these challenges, have not shown great levels of adoption due to their barriers, like: (a) high costs, (b) resistance to change, (c) organisational issues, (d) high complexity, (e) large scale of change, (f) time consuming implementation and (g) politics.

Consequently, the necessity for integrated HIS in a safer, interoperable and more manageable environment motivated organizations to consider the adoption of paradigms, such as SOA. SOA can be beneficial for a healthcare organisation as it provides interoperability and integration of the legacy HIS, attributes need in modern healthcare organisations.

Nevertheless, despite SOA benefits Heffner (2009) indicates that, 41% of SOA users in the Global 2000 firms believe that: (a) SOA has delivered less benefit than expected, (b) 17% claim they face problems and (c) will not expand SOA use. This reveals that even though SOA is considered a valuable architectural paradigm its application, efficiency and performance are affected by various factors. These statistics indicate that almost half the companies that implement SOA have not figured out how to benefit from their projects. This is attributed to unclear or weak governance planning (Stephens, 2008). In a recent research on the global status of IT governance standards and models (like COBIT, ITIL/ISO20000 etc.) the findings reveal a tendency to adopt such frameworks, but also a lack of a clear "winner" amongst them. For example, amongst 834 business executives, from 21 countries and 10 industries reveal that ISO20000 or ITIL is referred in 28% of them, while COBIT in 12% (ITGI., 2011). Yet, out of the 839 respondents only 10% have been healthcare executives, thus the percentages drop lower regarding their focus on IT governance in healthcare.

In an attempt to study this issue, we focused on SOA CSFs in healthcare, like: (a) alignment of SOA, organization, human and legal aspects, (b) clear goals set from the beginning of the endeavour, (c) complexity introduced to the system, (d) cost, funding and sponsoring the SOA project, (e) SOA culture that can create support and communication between the stakeholders, (f) experience, skills and training of the employees, (g) governance plan to provide compliance and check services concerning capability, security and strategic business alignment, (h) long-term planning to include reusable services that fit future business, (i) adequate measurement of the compliance and performance, (j) maturity identification and progress of the organization in aspects as IT, organization etc., (k) identification of the right candidate projects/pilots, (l) security risks (data confidentiality, access control), (m) detailed roadmap, (n) adequate standards (e.g. XML, WSDl, REST, HL7 etc.), (o) a team with understanding and experience in change management and clear vision of SOA, and (p) testing of the services and impact (Koumaditis, Themistocleous, Mantzana, & Souliotis, 2012).

The outcome of the review, demonstrates that the most frequently reported CSF in the cases reviewed is SOA Governance. In a nutshell, they report that SOA implementations require governance mechanisms to excel, otherwise the architecture will end up complex, uncontrolled, brittle and eventually discarded (Marks, 2008). A failure in a healthcare organisation's IT infrastructure is not an option as the literature is full of cases where healthcare IT failures cost patients' lives (Fitzgerald & Russo, 2005; Johnson, 2011; Kaplan & Harris-Salamone, 2009). This motivates us to study SOA Governance in healthcare.