Enterprise Architecture management challenges in the Norwegian health sector

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Abstract

Enterprise Architecture (EA) is instrumental to align ICT and business strategy, and many organizations carry out substantial efforts to implement EA. It is therefore seen as imperative to drive the digital strategy, identifying innovative new business models and technologies, and realizing more business value of technology investments. However, recent work suggest that it is a challenging task to implement enterprise architecture in an organization. This study explores the implementation of enterprise architecture (EA) in the Norwegian health sector. We found a number of challenges that impeded the process toward a common EA: unclear enterprise architecture roles, ineffective communication, low EA maturity and commitment, and complicated EA tools. These challenges were traced to three root causes: the ambiguity of the EA concept, difficult EA terminology and the complexity of EA frameworks.

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1. Introduction

IT and Communications Technology (ICT) is a crucial technology in most organizations. Vast resources are invested in ICT to make organizations more effective and efficient, but realizing the full benefits of such investments is very challenging. It is generally believed that business strategy and ICT must be aligned. Enterprise Architecture (EA) is such an integrated perspective. Ross et al. stated that: “EA provides a long-term view of a company’s processes, systems and technologies so that individual projects can build capabilities – not just fulfil immediate needs.” This is also holds for the health sector, where innovative use of new ICT will have significant impact on the logistics and care of patients.

Norwegian health trusts had operated as separate enterprises until 2007. They acquired ICT systems without cooperation and coordination with other health trusts. In addition, the health trusts were not allowed to share information. This had led to a maze of different solutions, infrastructure and ways of doing things. The Norwegian health sector is now organized into four regional health authorities, and has started the process toward a mutual enterprise architecture for the health trusts.

Health enterprises are very complex organizations, and they have a high degree of specialization and a heterogeneous combination of actors and interests. Health enterprises have very complex ICT infrastructures, and must cope with significant challenges in creating appropriate enterprise architectures that can accommodate agile changes in services, processes and systems. It can therefore serve as a good example of the increasing complexity related to ICT utilization in many sectors. The effort to create a common enterprise architecture in specialized health care services is very challenging. While the literature has documented an array of challenges related to EA management, little research has focused on the challenges related to the adoption of a common EA for an entire sector. This paper will present insights from the Norwegian specialized health care services. We have posed the following research question:

Which are the most important challenges related to enterprise architecture management in the specialized health care services, and what are the root causes?

The rest of this paper is organized as follows: The next sections present related work, the research method, the results and the discussion. Finally, we present the conclusion.

2. Related work

There are many definitions of EA and from a number of perspectives, and there is a lack of a universally accepted definition. Gartner group has defined EA as: “The process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key principles and models that describe the enterprise's future state and enable its evolution.” We can interpret EA as a holistic view of the organization, emphasizing the interaction between business and IT. We can also perceive it as the process of developing and transforming the organization. “Enterprise architecture (EA) implementation refers to a set of activities ultimately aiming to align business objectives with information technology infrastructure in an organization. EA implementation is a multidisciplinary, complicated and endless process.” We should therefore also expect that large organizations, with complex IT environments, and with extensive standardization and integration, would benefit most from an EA.

The literature identifies a number of important potential benefits. Tamm, Seddon, Shanks, Reynolds identified twelve high-level benefits: increased responsiveness and guidance to change, improved decision-making, improved communication and collaboration, reduced IT costs, business-IT alignment, improved business processes, improved IT systems, re-use of resources, improved integration, reduced risk, regulatory compliance and providing stability. However, empirical studies show that very few organizations are able to realize substantial benefits. The literature estimates that approximately five percent of EA efforts succeed. Several authors have pointed out that EA must be liberated from the IT focus, and become better entrenched at the executive level to realize its potential as a facilitator of strategic planning and business transformation.

Enterprise architecture management (EAM) has been defined as the management activities conducted to install, maintain and develop the EA in an organization. Kotusev et al identified three approaches to EA Management: the traditional approach, the MIT approach and the DYA approach. The traditional approach was introduced by Spevak, Steven and can be described as a four-step sequential process: document the current state, develop the desired
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