IT Service Management Architectures

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INTRODUCTION

In a world of ever increasing importance of digital business models with strong elements of outsourcing, heterogenous IT landscapes, and cloud services, IT service management (ITSM) must be founded on strong approaches of governance (Pröhl & Zarnekow, 2015; Iden & Eikebrokk, 2013; Ali et al., 2013;). Digital business models mean that companies potentially both can act as providers and users of IT services (Richardsson & Mahfouz, 2014), and companies changes from being suppliers or distributors of traditional physical product to provide or rely on a mesh of digital services. ITSM architectures cover the system architecture, information architecture, and enterprise architecture enabling IT services and IT services deliverances (Braun & Winter, 2007; Eder & Nag, 2001). Important for these architectures are the alignment with fundamental operational agreements, mainly Service Level Agreements (SLA) and operational frameworks such as Information Technology Information Library (ITIL) (Holland, 2015), COBIT (Saran, 2015), Microsoft MOF, HP ITSM and IBM ITPM (Iden & Eidebrokk, 2013). ITSM architectures most generally reflect the services stipulated by ITIL (Gama et al., 2013) although an extension of ITIL is seen with the introduction of the Service Integration and Management (SIAM) framework (Armes et al., 2015).

As many ITSM architectures are relatively well-defined on single management dimensions of ITIL, there is a general lack of architectural understanding across the different service management dimensions. Complex services crossing several ITIL management layers and other added services suffer from lack of a single ITSM architecture with this resulting in customized and hard-coded solutions for monitoring, reporting and enabling of transparency. Data collection for e.g. incident management might remain loosely connected to management systems for continuity, capacity or security management. Configuration Management DataBases (CMDB) and Service Catalogues are widely expected to connect services and management systems, but are often incomplete, inconsistent, under-managed, over-manager, overaged or lagging behind with precision.

The claim of this article is that the modern digital business must connect all its silos of service management systems in well planned architectural systems potentially also connected to the general enterprise architecture of the company.

This article is based on a case study in a major IT services provider, where it was realized that service management had grown apart from the enterprise architecture in terms of highly customized solutions and services not using sufficient scale of magnitude and uniformity of processes, services and reporting. A services architecture was made from available but disjoint sources in order to create transparency and efficiency in the services production. The services architecture is important to realize digital business models whether being producer of IT services as core business or being a digitally enabled business.

DOI: 10.4018/978-1-5225-2255-3.ch255

BACKGROUND

Most companies and organizations are increasingly dependent on information technology (IT) and IT services. As technology is becoming more distant and commoditized in the form of cloud services and fragmented between highly specialized vendors, management of services is getting comparatively more critical (Amanatullah et al., 2013). IT Service Management (ITSM) is thus the adaptation of the right services to the right business.

Services Fundamentals

The fundamental concept of creation of business value of IT is normally expressed as services (Lahtela et al., 2014). Services are building blocks of service systems. Services are inclined to interact with work as work systems (Alter, 2014a; Alter, 2014b) with a need to recognize 'service' as a highly multi-faceted term with numerous contextually-linked meanings. Moreover, services are defined by constituting elements of technology, practices, and skills and operable elements of initiation, execution and termination. Frameworks such as ITIL (Holland, 2015; Randone, 2012; Kaschanki & Toland, 2006) define services from levels of criticality and impact for business, especially drawing up the concept of Service Level Agreement (SLA) that over time has transcended from IT into business in general.

Quality of service (QoS), and henceforth fulfillment of business expectations, is fundamentally defined as the ability to meet SLA KPI's (Dubois, 2014). QoS is thus not a subjective judgement but an objective, agreed, defined fact normally also being measurable. This leaves the subjective issue open. Popularly, there can be disputes on services as they are subjectively perceived "bad", but do meet SLA. Garschhammer et al. (2001) define QoS as independent of providers and clients, but at the same level as service access, service functionality and service management. QoS consists the several elements of service expectations stipulated in the SLA, e.g. availability, scalability – capacity management, 'detect and correct', and the two 'front ends' of ITIL: Incident management and problem management (Soomro & Hesson, 2012; Franke et al., 2014).

Service design is the activity of composing the right set of services from available or new services based on business customs, technologies, people, skills and context. Garschhammer et al. (2001) discuss service design based on telecom services and describe the service design process as based on a service life-cycle analysis, mapping interactions, describing functional attributes, defining roles, object and relations, and ending with a service model.

In designing services, appropriate design for the optimal solution of a given requirement is normally the point of departure. It is however much more critical to ensure reusability of services through harmonization, standardization, adaptation, scalability and security. Wullenweber et al. (2008) discuss standardization of services in relation to potential outsourcing thereby underlining the importance of services being movable across organizational barriers.

Infrastructure and Enterprise Architecture Fundamentals

Infrastructures have traditionally seen as the supporting structures for IT services consisting of technology and assets (Ali et al., 2013; Närman et al., 2014). Infrastructures are in such a perspective company internal, also considering Alter's Work System Model (Alter, 2014a). Increasingly benefits have been realized from outsourcing of parts and pieces of infrastructure. Especially application management, server-services, security services, and more labor intensive services of incident management and call centers.

Cloud architectures and service virtualization mean that services are provided by a shared infrastructure. Technical as well as human efforts in services are thus to be considered as relative mobile which in turn can be discussed as fragmentation