Service Support in IT Governance, IT Management and Enterprise Architecture Context

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ABSTRACT

IT decision making is supported by the different kind of frameworks for IT governance, IT management and enterprise architecture. Two main governance principles, conformance and performance, can be established when the service has reached the status of a continuous service and service requests are managed (for example, services are supported). However, the context of service support is unestablished. Therefore, we present a conceptual context of service support by establishing how two main governance principles (conformance, performance) can be assigned with the governance entities (service, objective, service quality, measure, and contract). Furthermore, we present a service support framework because our literature review (212 hits, 20 appraised hits) did not get any clear evidences from service support in the IT governance, IT management and enterprise architecture context.

KEYWORDS

service support, service management, IT governance, IT management, enterprise architecture

1 INTRODUCTION

When services are considered from the perspective of the customer, then we are dealing with contacts concerning service delivery and service support. When services are considered from the perspective of the service provider, then we are dealing with service management, the functions of which are service strategy, service design, service transition, service operation, continual service improvement, master data management and business continuity management [1].

We are interested in service support, the processes of which concern the customer interface by managing service requests. However, there are even different notions about processes which are included in service support. In ISO/IEC 20000 [2], service support is analogous to resolution processes: problem management, incident and service request management. The Control Objectives for Information and Related Technology (COBIT) framework [3] has two processes which are analogous to resolution processes, for example, manage service requests and incidents, and manage problems. In summary, it can be stated that the service support and the associated processes are defined in different ways. Furthermore, a service desk is either included or excluded. For example, it is included with incident and problem management in support management, which is "responsible for user interaction and mainly keeps user satisfaction" [4].

IT Infrastructure Library (ITIL) [5] includes a wide detailed, but an abstract framework for service support. Our earlier studies on ITIL and its framework have shown that the ITIL framework needs somewhat explicit description. For example, service support may encounter challenges and problems in the service support interface between the service provider and the customer if the service isn't properly managed [6]. We have also discovered other critical service support challenges from the release management process. These challenges were identified during a case study where the focus was to improve the process [7].

Additionally, service support in a network of multiple actors and parties may encounter difficulties, if the big picture and the environment of the service are unclear [8]. For measuring IT service management and service support, we have presented an ITIL-based IT service management measurement system (ITSM-MS), which proposes a framework and a tool for measuring IT services and service support processes [9].

It is important that the top management participates and takes responsibility for information management. Usually, the task of these groups is to show where IT should be used and what it should produce (evaluate), to whose responsibility the carrying is given (direct) and to follow that the intended advantages will be reached (monitor) [10]. It is talk about governance function, the tasks of which are based on the EDM model (E=Evaluate, D=Direct, M=Monitor). For example, the Corporate governance of information technology (ISO/IEC 38500) [11] models the corporate governance of IT and it divides into governance function and management function, the tasks of which are based on the PDCA model (P=Plan, D=Do, C=Check, A=Act).

The main aim of the different kind of frameworks for IT governance, IT management and enterprise architecture is to support IT decision making. We will integrate some frameworks or parts of those so that we can find out what the service support should be considered and why. Actually, we integrated conceptually two main governance principles (conformance, performance) with the governance entities of the enterprise architecture metamodel, as well as, service support framework (Section 3), where we have "hands-on experience and values in practice" [12]. Therefore, abductive reasoning is used to argue the claims and points of view that have been presented. Abductive reasoning began with a literature review (Section 2). Finally, the discussion and conclusion are given in Section 4.

2 LITERATURE REVIEW

The data collection method in this study is literature review. We reviewed IT governance together with IT management, service management and enterprise architecture. We tried to find frameworks for clarifying what the service support should be considered and why. Furthermore, we collected statements for IT governance if it was defined in the selected papers. Actually, we collected statements because definitions "are statements describing a concept" [13].

Research literature can be reviewed for different purposes: to provide a theoretical background for research, to learn the breadth of the research field or to answer practical questions by finding out what is said in existing research literature [14]. Our main aim is to find out the latest scientific researches around IT governance and IT management, first of all, to learn "the breadth of research on a topic of interest" [14].

Our review has been conducted by adapting two systematic review guidelines [14] [15], and our review process is as follows:
1. Specifying the search terms.
2. Selecting the databases from the field of computing.
3. Searching the papers.
4. Creating the inclusion criteria.
5. Appraising the hits and selecting the papers.
6. Citing the statements from the papers.

We used IEEE Xplore as a pilot database and we tried different search terms, for example, (Title:IT governance AND Abstract:IT management) or (Title:IT governance AND Abstract:service management). Finally, we chose the databases, the advanced search of which allow searching from title and abstract.

We selected the following databases from the fields of computing and information technology:
- ACM Digital Library [16]
- IEEE Xplore [17]
- Elsevier Science Direct [18]
- Wiley Online Library [19]
- EBSCOhost Academic Search Elite [20]

First, we listed all hits (Table 1). In the result tables we use the following abbreviations: ITG=IT governance, ITM=IT management, SM=service management, and EA=enterprise architecture. Secondly, we included (Table 2) the papers which are available in full versions, written in English, and published in scientific conference or journal papers.

Table 1. Hits

Database	Title: ITG	AND Abstract: ITM	AND Abstract: SM	AND Abstract: EA
ACM	9	2	-	-
IEEE	103	4	3	2
Elsevier	28	2	-	-
Wiley	49	15	4	1
EBSCOhost	23	1	-	-
Total	**212**	**24**	**7**	**3**

Table 2. Appraised hits and selected papers

Database	Available in full version, written in English, scientific conference or journal paper	Selected papers
ACM	2	1
IEEE	8	7
Elsevier	2	1
Wiley	7	2
EBSCOhost	1	-
Total	**20**	**11**

We selected 11 papers which included a statement for IT governance and the abstract contained the term "IT management", "service management" or "enterprise architecture". Next, we highlighted the statements of IT governance at the citing phase and marked the excluded parts on three dots (. . .):

– "The IT governance performance, as seen from the business viewpoint, is not directly controllable. Within the realms of control for IT management are IT processes and IT governancematurity indicators". [21]

– "IT Governance is defined to be a subset discipline of Corporate Governance focused on information technology (IT) systems and their performance and risk management". [22]

– "The role of IT Governance is to control the formulation and implementation of a strategy for the IT function that ensures the strategic alignment of Business and IT". [23]

– "IT governance determines the rules and regulations an IT department follows . . . IT governance runs, plans, shapes and controls IT capabilities in accordance with broad organizational strategy . . . IT governance uses IT assets to direct and control risk management and productivity . . . IT governance influences the structure for decision making and the accountability, by overseeing the return on investments . . . IT governance allocates the decision rights and forms the accountability structure to encourage desirable behavior in the use of IT". [24]

– "IT governance is the process by which decisions are made around IT investments. A well-matured IT governance framework is based on three major elements: structure, process and communication. In addition, there are four objectives that drives IT governance and must be covered in IT governance processes: IT value and alignment, accountability, performance measurement, and risk management". [25]

– " IT governance implies a system in which all stakeholders, including the board, internal customers and related areas such as finance, have the necessary input into the decision making process. IT governance is the preparation for, making of and implementation of IT-related decisions regarding goals, processes, people and technology on a tactical or strategic level". [26]

– "IT Governance as the definition of structures and procedures of decision making, and the allocation of decision rights to people and organisational entities". [27]

– "IT governance is a key moderator in the performance effect of IT investments". [28]

– "IT Governance: The ability to manage and develop the services, processes and technology solutions that realize and support the primary capabilities". [29]

– " IT governance includes the roles and responsibilities used to apply information systems and related technologies to manage and support the organization's functions. These roles and responsibilities of IT governance fall into three domains: the IT

department, the users, and management. While management oversees the IT department, ensuring that IT objectives link to organizational objectives, users are the ones who monitor IT systems and provide input to new IT implementation plans. IT governance objectives should emphasize:

1. Alignment of IT objectives to the overall business strategy,
2. Measures of IT performance, and
3. Competitive advantages provided by IT for the organization".[30]

There is one framework [31] where IT governance contains enterprise architecture and risk management, which are connected with program management, IT investment management and standards-policies-procedures by alignment of strategies, processes and applications. Furthermore, there is one hierarchical structure of IT governance [26] where people, goal, process and technology are domains; strategy and tactics are scopes; understanding, decide and monitor are decision-making phases. The third finding is the conceptual view of the model for IT governance performance prediction where IT processes are evaluated by maturity indicators because it is "reasonable to believe that some of the IT governance maturity indicators are correlated with IT governance performance" [21].

3 CONCEPTUAL CONTEXT AND FRAMEWORK FOR SERVICE SUPPORT

The services are realized through logical application components and implemented on logical technology components in TOGAF Content Metamodel [32]. When we talk about entities, which are related to service, we have identified at least four entities (contract, objective, measure, and service quality), which should be taken into account when the responsibility for information management is shared. The objective, as well as, the service, is tracked against the measure. The service is governed and measured by contract. Furthermore, the service should meet the service quality.

When we combine key stakeholders (users, customers, and different kind of providers) and two main principles of governance frameworks (conformance and performance) with the entities around the service, we will see that conformance will be established when the service meets the requirements which are specified in the contracts (Figure 1). Furthermore, performance is deemed to be the fulfillment of the obligations, which are based on contracts or objectives.


Figure 1. Conceptual context

In the conceptual context, there are no needs to list different kind of providers such as business providers, development providers and IT Service Management providers [33]. We were influenced by our literature review when we desired to use the domain users [30]. Furthermore, performance is mentioned in the cited statements [21] [22] [25] [30].

The objective of service support is to resolve cases and issues that the customer is experiencing, usually, when the service has reached the status of a continuous service. Our simple framework for service support (SSport) is presented in Figure 2.

It is the level for service performance, quality and measurement. The framework was implemented as a result based on our earlier studies from IT service management and IT service support [6] [7] [8] [9].
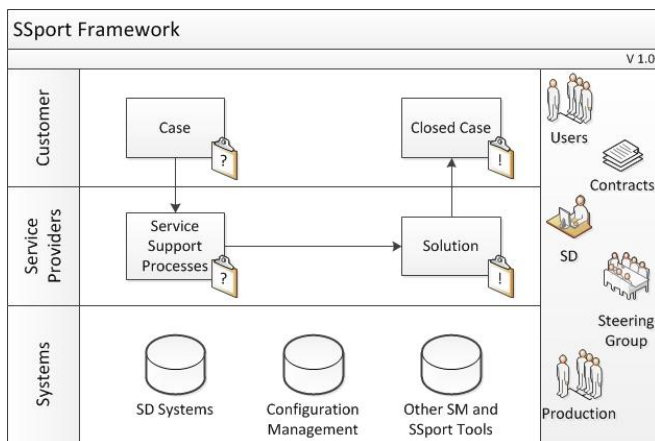
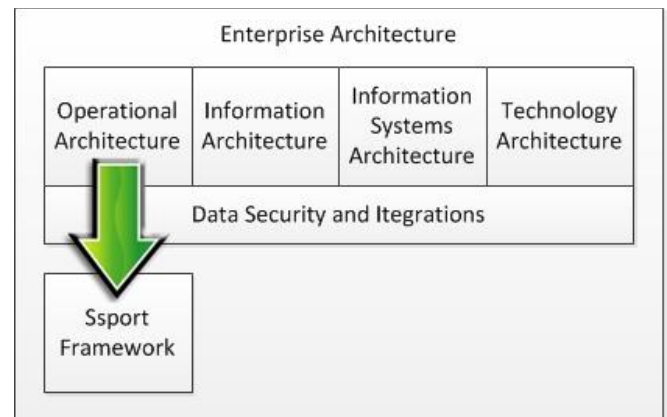**Figure 2.** The SSport Framework

The SSport Framework includes three operational elements: the customer of the service, the providers for the service, and different information systems.

Other components and participants in the framework are the service users, various contracts between participants (for example service level agreements), the service desk (SD) acting as a single point of contact (SPOC), the steering group (for example, the change advisory board) for handling, controlling and managing of major or large issues in the service, and the service providers production team for service implementation.

Basically, the SSport Framework is a process for case resolving. The customer has incidents or requests for the service provider to be resolved. The service provider uses service support processes (incident management, problem management, change management, configuration management and release management) to find the solution for the customer case. The service provider in the SSport Framework represents internal and external as well as third party service providers. Finally, service support processes and service implementation use different kind of information and service management (SM) system for the service desk, service build, configuration management, service delivery and service measurement.

The SSport Framework is a part of the IT service management. Another perspective is to define it from enterprise architecture perspective. Enterprise architecture is a unique method for managing

and describing an enterprise's operational environment, organizational structure, services, processes and infrastructure. It consists of different kinds of principles, models and guidelines that are used to obtain a holistic view of the enterprise [34]. Enterprise architecture is used for analyzing the present state of the architecture as well as for planning the future from different points of view: operational, information, information systems and technology perspectives. Additionally, data security and integration solutions are related to each of these perspectives [35]. In our case, the SSport Framework is principally a part of the operational architecture (Figure 3) where the operations and processes of the organization are located (services for the customer and services of the service provider).

Figure 3. The SSport Framework as a Part of Enterprise Architecture and Operational Architecture

4 DISCUSSION AND CONCLUSION

We noticed that the IT governance and IT management are functions, the tasks of which are unclear. However, it is possible to adapt a certain framework and during the adaption to increase the understanding of the tasks. Before adaption, it might be useful to categorize them, for example, into quality improvement or management, governance, information management and project management ones [36]. Our succession is that it is reasonable to establish how principles can be concretized by the entities of the enterprise architecture model such as the TOGAF Content Metamodel [32]. Furthermore, the relationships between different processes of the IT management [37] should

be specified, which was out of our scope in this paper.

It is common that we have "hands-on experience and values in practice" [12]. Then we need abductive reasoning to argue the claims and points of view that we have. In this paper, we used the literature review in abductive reasoning. The literature review is powerful when the review process is transparent and evidences are unmodified.

The objective of the presented SSport Framework (Figure 2) is to demonstrate a simple vision how service support is performed in a context of IT governance and IT management. It can also be viewed as a general service support framework without of IT. The framework was implemented as a result to our earlier IT service management researches where we have mainly studied challenges and problems in IT service support processes from customer and service provider perspectives. The framework is considered very useful especially among customer organizations, which are not familiar with IT service management or IT service support processes. Additionally, small service providers have noted that the framework can be used as an effortless guideline for service support.

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