The use of the Information Architecture in the design of the IT Services

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ABSTRACT

The Information Technology Infrastructure Library – ITIL - provides a framework of best practices for managing IT services. The study of this framework, as regards the definition of the IT Service Strategy, allows us to see that it does not have space in its body for Information Architecture. As one of the objectives of the Information Architecture is to enable the integration of organizational processes allowing efficient use of the organization resources, it has much to contribute to the design of the IT service when making the identification of service information needs, designs and builds structures of information spaces and define the interrelationship between them. The use of the Information Architecture in the Design of IT Service that this paper presents evidence the perception that the concepts of Information Architecture are present in the construction of IT services. This use contributes to the union of the bodies of knowledge, facilitating the design of services more aligned with business needs.

Keywords: *Information architecture, service management, infrastructure, IT services, ITIL, Service Design*

1. INTRODUCTION

The Information Technology Infrastructure Library - ITIL - provides a framework of best practices for managing IT services. Since its inception in 1989, the use of ITIL has become widespread, making it the most widely accepted approach to managing services related to Information Technology - IT in the world (CARTLIDGE et al, 2007).

The service management using ITIL allows suppliers to: (a) understand what services they are providing; (b) ensure that services, in fact, facilitate the achievement of results desired by the client; and (c) identify the value of services to allow customer to manage costs and risks associated with these services (CARTLIDGE et al, 2007).

According to Alison Cartlidge et al (2007), "a service is a way to provide value for customers by facilitating the desired results for them without the ownership of specific costs and risks." Therefore, this value should be identified by the client, this allows customers motivated to obtain new services according to the results, explaining the relationship between service value and how this service makes it easy to obtain the desired result.

The primary goal of IT service management is to ensure that there is an alignment to business needs and provide support effectively. To understand the significance of this management is necessary to identify the object of the service and how it can assist the providers in their delivery.

As a framework, the main goal of ITIL is to provide a set of practices for managing IT services, tested and proven in the market, which can serve as benchmarks for both organizations that already have IT operations in progress and intend to undertake improvements, as for the creation of new business (FERNANDES, 2008).

According to Fernandes (2008), the adoption of ITIL practices intended to lead an organization to a level of maturity and quality to the effective and efficient use of their strategic IT assets, always with the focus on alignment and integration of customer needs.

The five books of the third version of ITIL address all stages of the lifecycle of IT services, from its steps related to the service strategy and service design, from the migration during the transition of service, through the beginning of the operation and improvement of services, to the continuous improvement of services.

The concepts related to the Service Strategy to compose the first of the five books of the third version of ITIL. Service Strategy provides guidance on how to design, develop and implement a good management of services, making it a strategic asset and not just an organizational capacity. Service management can be defined as "a set of specialized organizational capabilities that provide value to the customer in form of services" (IQBAL; NIEVES, 2007).

The Service Design provides guidance on how to design and develop services and service management processes. Design principles and methods for converting strategic objectives into portfolios of services are discussed. The service design focuses not only on new services. It takes into account existing services. This includes changes and improvements necessary to increase or maintain value to customers throughout the lifecycle of services, as well as the continuity of services, and achieve service levels in accordance with standards and regulations (IQBAL; NIEVES, 2007).

The Service Transition provides guidance to the development of enhancements and capabilities that enable

new services and services modified to be migrated to the operating environment. This guidance discusses how the requirements of service strategy, included during the design phase of service, will allow the execution of the service with success, managing risks associated with failures and downtime and enabling innovations (IQBAL; NIEVES, 2007).

The objective of the Service Operation is delivering Service Level Agreements - SLAs for both users and customers, and manages applications, technology and infrastructure that enable the delivery of services. A job well designed and implemented will not result in good levels of generation of value unless it is conducted, controlled and managed effectively during the Service Operation (CANNON; WHEELDON, 2007).

The Continual Improvement Process aims to help creating and maintain value through improvements to the design, implementation and operation of services. The goal of Continual Process Improvement is achieved through the combination of principles, practices and methods found in quality management, change management and improvement of capacity. With the guidance provided, companies can achieve improvements for small and large scale in relation to service quality, operational efficiency and business continuity. This guidance relates the efforts and results in improvements to the strategy, design, transition and service operation (IQBAL; NIEVES, 2007).

2. INFORMATION ARCHITECTURE

Since 1975, when Richard Saul Wurman coined the terms information architecture and information architect, several other authors has been written about them. Wurman starts the discussion by proposing that information architecture is concerned with the collection of information needs, understanding the content and the challenges of organizing information. His concepts were first applied to the aid of information search in publications such as graphical maps and guides and with the passage of time were extended to other areas.

According to (AGNER, 2006), the information architecture will be effective if it succeeds in acting as a mediator of the different views that are placed by users, customers, team graphics and programming team. For this author, the Information Architect is a professional who must employ a range of tools and techniques to translate the needs and objectives of this complex network of ideas and needs.

Information architecture endeavors in an attempt to unify methods of recovery, sorting, organizing and presenting information, using techniques derived from traditional architecture applied to digital environments using tools of information technology (CAMARGO and VIDOTTI, 2006).

According to the information available on the website of the ASIST&T (American Society for Information Science and Technology), the information architecture is characterized by a set of activities standardized and structured to provide access to information in order to organize and make available content, easy navigation and recovery.

The application of information architecture in the organizational environment is described by (CUNHA and CAVALCANTE, 2008) as:

"Map of the information environment of an organization, only in your present, and may provide an environment model to be followed in the future. It bridges the gap between the behavior, processes and specialized personnel and other aspects of the company, as administrative methods, organizational structure and physical space. "

To (CHOO, 1998) a good strategic partnership between the elements of the organization that manage content, information specialists and those responsible for information technology is very beneficial for mounting a mesh organizational information, allowing a design of an architecture organizational information that enables the integration of organizational processes.

(CASAGRANDE, 2005) says that many companies use the concepts of information architecture combined with the use of methodologies and business strategies to integrate information systems in order to provide efficient use of organizational resources.

According to (REZENDE and ABREU, 2003) is needed to adequately plan the information architecture of an organization and say:

"[...] The information architecture can be defined as a particular form of use of the information technology adopted by a company to achieve certain goals or perform certain tasks. This architecture must include the business functions at the top, the information systems at different levels and information technology [...]"

Information architecture, in the organizational context, is defined by (ABELL and WINGAR, 2005) as a set of strategies and plans that consistently provide safe and efficient access to content, highlighting the work of many information professionals that act in the management of corporate informational environments.

(McGREE and PRUSAK, 1994) point out that the information architecture in organizational contexts should be concerned with the following objectives:

- ✓ Identify the strategies, sources, filters and optimization of information;
- ✓ To demarcate the boundaries of information spaces;
- ✓ Facilitate access to information;
- ✓ Improve the adaptability established by the information policies;
- ✓ Improve the management communication with the definition of the information models shared.

These same authors point out that the work of information architecture has as targets the organizational needs assessment and requirements, maintaining the logical characteristics of information and facilitating access to information. This way the information architecture plays a role, along with policies and strategies, at the organizational setting.

3. SERVICE DESIGN

This is the second stage of the service life cycle. Focuses on the service design and its establishment on the basis of the strategic definitions coming from the Service Strategy. Adopts practices, processes and IT policies to ensure the quality of delivery, customer satisfaction, cost efficiency and facility to put them into production. (FERNANDES e ABREU, 2008)

The main objective of this step is to design a new service or change existing services for the introduction of them in the production environment, to ensure consistency and integration with all the activities and processes within the context of the IT organization. (LLOYD e RUDD, 2007).

A change in a service at the production environment or an adding of a new service in the Service Catalog cannot be an isolated activity, but must consider the impact of service throughout the Portfolio Service, in the current IT architecture, in the IT Services Management and in the assets of the current services. (FREITAS, 2010).

3.1 Service Design Process

(LLOYD and RUDD, 2007) described the Service Design in the ITIL framework in form that the processes include the processes of the Service Catalogue Management, Service Level Management, Capacity Management, Availability Management, Service Continuity Management , Information Security Management and Supplier Management.

a. Service Catalogue Management

The purpose of the service catalogue management is to provide a single place of consistent information about all the agreed services and ensure it is widely available. (LLOYD and RUDD, 2007)

To manage the information contained in the Service Catalog and to ensure that it is accurate, reflect the current details of services, status and relationships with other services that are being made available.

b. Service Level Management

The purpose of the service level management is to negotiate, agree and document the goals and warranty of IT services with their customers and monitor the delivery of services according to the agreed targets. (LLOYD and RUDD, 2007)

c. Capacity Management

The purpose of the capacity management is to ensure that the IT infrastructure is capable to support, effectively and within the estimated cost, the business demands. (LLOYD and RUDD, 2007).

Capacity Management is a balancing act between cost x capacity and supply x demand.

d. Availability Management

The purpose of the Availability Management is to ensure that IT services are designed to meet and maintain the levels of availability and reliability required by the business, minimizing the risk of interruptions to business activities. (FERNANDES and ABREU, 208).

e. Service Continuity Management

The purpose of the IT Service Continuity Management is to ensure that all technical and IT services needed to be recovered within a preset time. (FERNANDES and ABREU, 208).

f. Security Information Management

The purpose of the Security Information Management is to ensure the confidentiality, integrity and availability of data, hardware, software, documentation and procedures. Aligns IT security with business security. (FERNANDES and ABREU, 208).

g. Suppliers Management

The purpose of the Supplier Management is to manage suppliers and contracts needed to support the services that they provide, in order to provide an IT service with quality that meets the agreements made. (FERNANDES and ABREU, 208).

Ensure that the contracts and agreements with suppliers are aligned with business needs and the targets agreed in Service Level Agreements and Operational Level Agreements. (LLOYD and RUDD, 2007).

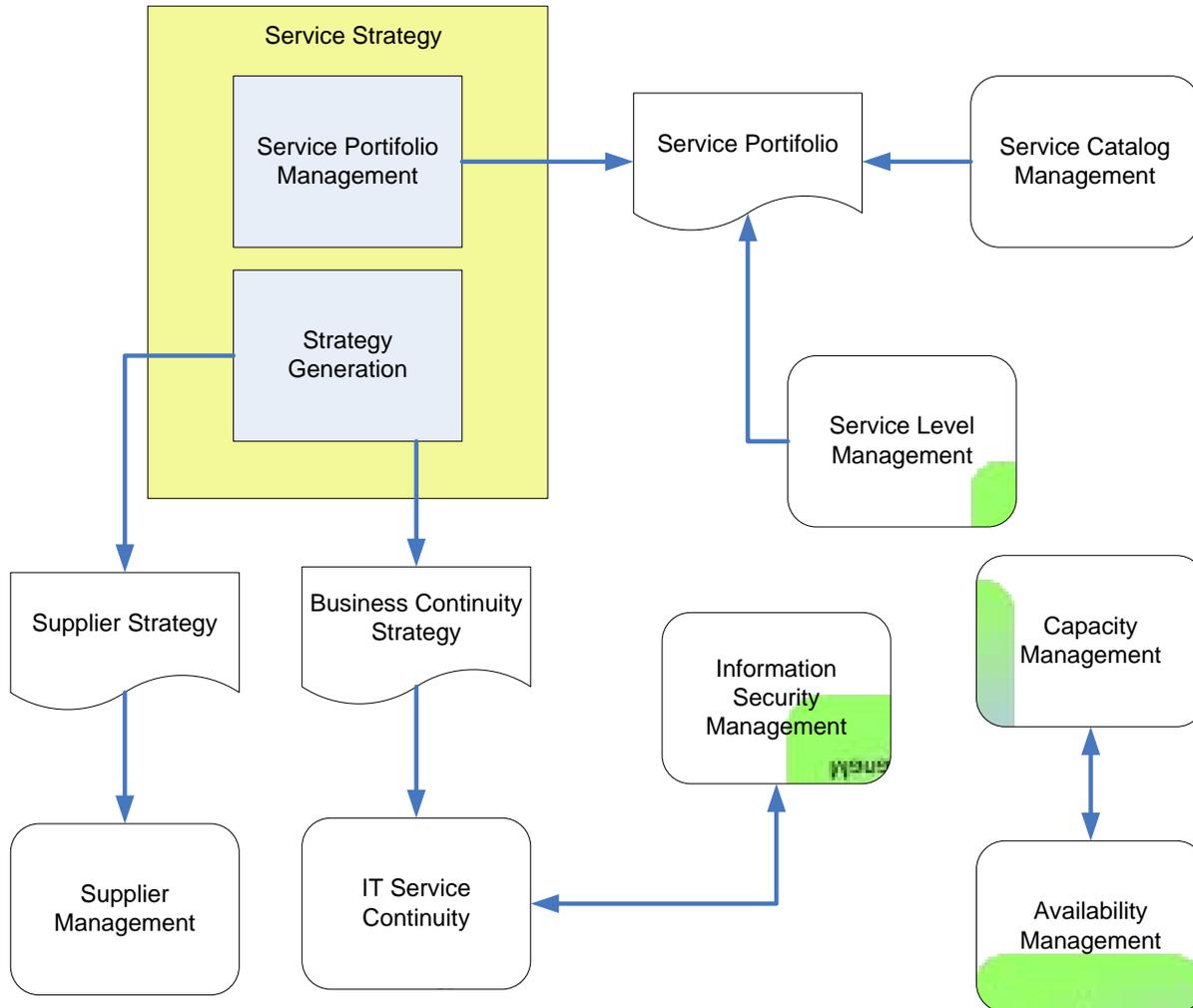Figure 3 shows the relationship between the Service Design Process.

Fig 3: Schematic model of the Service Design processes. Adapted from (LLOYD and RUDD, 2007)

4. THE PROBLEM

How is it possible to develop services without regard the Organizational Information Architecture? How to make effective use of IT resources without regard to the Information Architecture of the organization? How can we provide IT services that are appropriate to business needs?

Analyzing the ITIL framework it is possible to realize that it was not built in compliance with the concepts of Information Architecture mentioned above. Thus, there is possibility of using Information Architecture in the IT Service Design? As information architecture can facilitate the organization of information so that companies can achieve their strategic objectives?

5. PROPOSAL

Whereas the authors already cited in this study, we prepared a proposed modification of the ITIL framework including a process called Information Architecture Design Management that will relate to the model as shown in Figure 4.

5.1 The proposed use of the Information Architecture in the IT Service Design

It is hoped a partnership between service users, information specialists and those responsible for information technology for the assembly of an information network that enables the design of organizational information architecture

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that will enable the integration of processes and facilitates the construction of the service (Choo, 1998).

The Information Architecture plays an important role in service portfolio management, providing informational map of all services of the organization. Subsidizes the management of IT services continuity with a

mesh of informational relationships as way as to support the information security management. The managements of the capacity and continuity use the information architecture to define their limits of performance and readiness to offer new services. The ways as the architecture information can be used in the service design is shown in Figure 4.
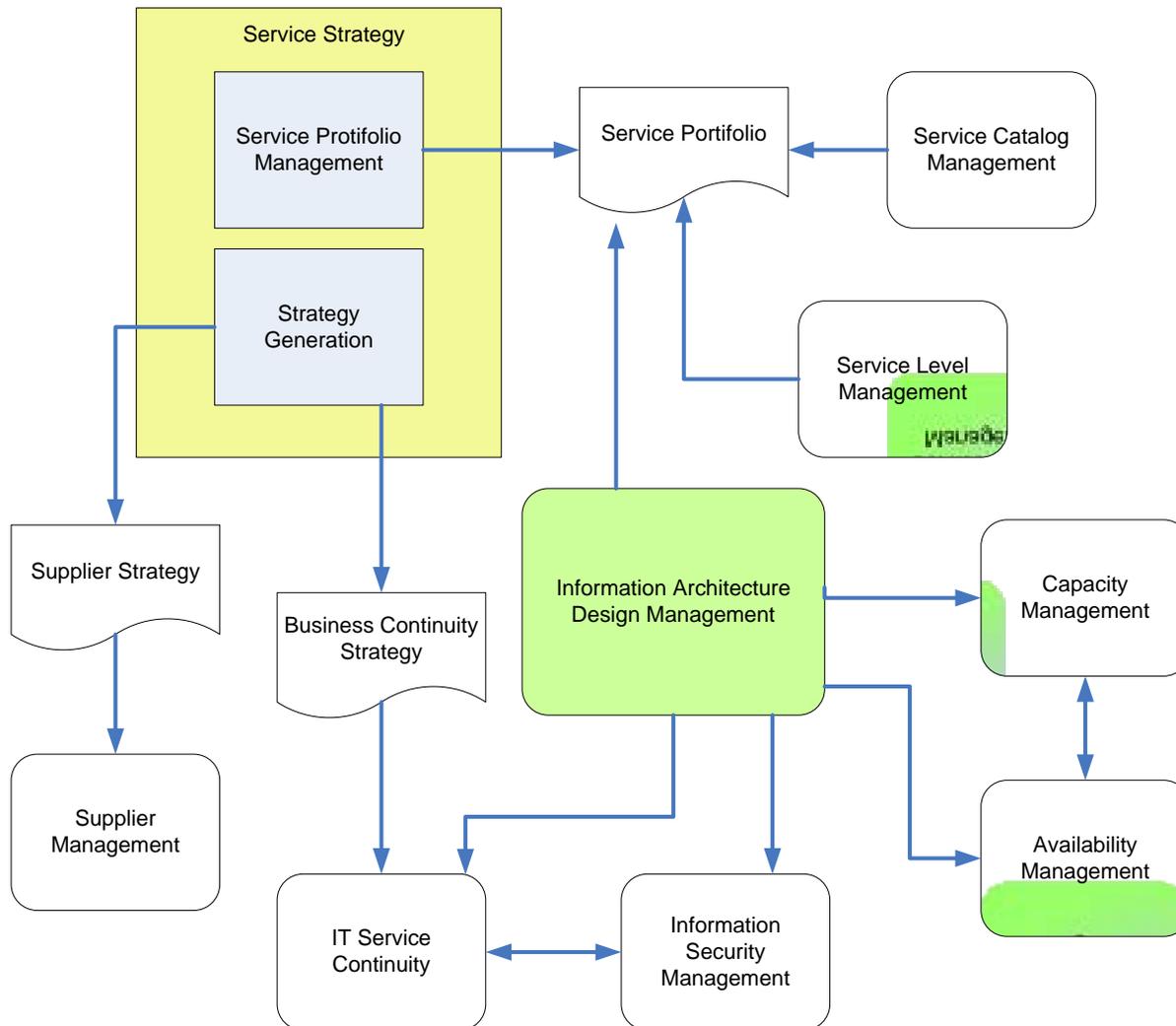

Fig 4: Proposal for adequacy of the Service Design processes

From diagnosis until the publication of results in all stages of the assessment tasks are present tasks of the information management process (MCGEE & PRUSAK, 1994) that involve actions such as identifying information needs, organization, development of information products and their dissemination. Management as a process by McGee and Prusak (1994) implies a set of logically connected tasks that, in general, cross functional boundaries and has a direct responsibility.

So in stage of the Service Design, Information Architecture plays a role in guiding how to perform the

identification of service needs, how to organize the information relevant to the service and how to produce adequate supplies of information for the assignment in question.

In this way, the Service Design will be better able to build services that improve the use of IT resources and meet the strategic goals of the organization.

5.2 The Information Architecture Design Management Process

The Information Architecture Design Process proposed is described below in the same way that (LLOYD and RUDD, 2007) described the other processes in the Service Design ITIL V3 framework, detailing the goals, key concepts, activities and the roles and responsibilities.

a. Purpose of the Information Architecture Design Management Process

The main objective of the Information Architecture Design Management is to establish a set of standardized and structured activities to provide access to information, organizing the content, facilitating the creation, navigation and retrieval of information spaces required to the services in developing.

b. Concepts related to the Information Architecture Management Process

Informational space of a service is a space delimited in its context that provides all kinds of content for those involved in making strategic service.

c. Activities of the Information Architecture Design Management Process

The process of managing the information architecture design will be implemented through the following activities adapted from the proposed (McGREE and Prusak, 1994):

1. Identify strategies, sources, filters and optimization of information: Identify the needs and information requirements of the new IT service; to identify information sources and filters required; to identify the possibilities of relationships with existing information spaces.
2. Design the information spaces: identify and design interfaces and agents that interact with the IT service, links between repositories and stored content, meta data patterns and other specifications of the structure of the information; to estimate the volumes and strategies to divide the contents.
3. Define models of shared information: organize groups of virtual information for each IT service existing that relate to the new service.
4. Develop mechanisms for information retrieval: define and build the components for retrieval the information necessary to the service.

d. Roles of Information Architecture in the Design Management Process

The Information Architect is responsible for building the structures of the information environments, building, in addition to maps, the engines of search and research that are appropriate for the search and research patterns necessary to make a good performance of IT services and to the interfaces provided for this purpose.

6. CONCLUSION

This study suggests that the concepts of Information Architecture are present on the needs of IT service management, but ITIL does not even describe it.

The Service Design can improve the use of IT resources through the use of the Information Architecture Design Management process when making the identification of the information needs to the service, designs and builds the structures of information spaces and defines the interrelationship between them.

The proposed use of the Information Architecture in the ITIL framework, apparently, can contribute to the union of the bodies of knowledge; allowing the creation of more efficient and effective services to enable organizations to achieve its strategic goals using IT service.

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