A Study on the Process Model for IT Service Management

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Abstract: - The article proposes a process model for designing, developing and deploying business solutions, primarily deals with IT Service Management (ITSM) and IT Infrastructure Library (ITIL), as a process-based method. To develop an architecture for information technology service management and design process solutions, it is necessary to establish a common framework for delivering IT services. The model is a framework for organizing the assets that constitute an ITSM design. Using this framework, an organization can document the available set of IT services offered and understand how they are composed from finer-grained services delivered by internal or external providers. This process model can be used by management software vendors to describe the capabilities of their ITSM offerings and to align those with the needs of different customers.

Key-Words: - ITSM, Process Model, Framework, ITIL, XML,

1 Introduction

In today’s on-demand world IT plays a pivotal role in creating new opportunity and delivering competitive advantage. As your reliance on technology increases, your IT infrastructure becomes ever more crucial to delivering business critical services. In information technology service management (ITSM) [1], there are many models and frameworks created in face of the challenge.

The IT Infrastructure Library (ITIL) is a collection of books in which best practices in IT Service Management are described. ITIL follows the principle of process-oriented (IT Service-) Management and groups management activities into defined management processes. Incident Management, Problem Management, Change Management, Release Management and Configuration Management are five operative ITIL Service Management processes described in [2].

This paper addresses basic issues of supporting ITIL with process-oriented tools, introduce process improvement model, which can be used by an organization as the framework for process improvement. Its aim is to facilitate collaboration among the many individuals and roles involved in creating and supporting these complex systems [3]. The process model is grounded in the realities of running an ITSM organization and was developed to meet real-world needs. The model includes constructs that are specifically of value to commercial service providers, such as the sales and marketing aspects of services. The people who can benefit the most from using the model are those who lead enterprise IT service provision, either as executives [4].

2 The Process model

The ITSM process model provides an overall framework that allows models from many domains to be cross-referenced and their relationships understood. The model shows how to develop and describe IT solutions, especially ITSM solutions that use structured design methodology and deliverables. It does not prescribe a specific
solution or technology. The process and data/information domains are defined to a higher degree of detail in the model due to how critical they are to ensuring the success of ITSM.

The process model is centered on the concept of services. ITSM is about the definition and delivery of IT services and the management of the organization that provides the services. The model provides a structure that allows us to describe what the services are (the service definition aspect), and it links the service definition information to how the service is delivered (the service delivery aspect). The model shown in Figure 1 is a generic process model. Data enters the process, is processed, data comes out, the outcome is measured and reviewed. This very basic description underpins any process description. A process is always organized around a goal. The main output of that process is the result of that goal.

The service definition aspect contains two domains that describe what the services are: the service offering domain is for the purpose of marketing and selling the services; the service provision domain identifies the base set of services and groups them into a hierarchical structure.

The model is represented as an informal entity-relationship diagram. Figure 1 identifies all the entities proposed for the model and shows how they relate to each other. At this overview level, cardinalities are not shown, but these are included in the detailed descriptions of the Process and Data/Information domains that follow.

2.1 The Process Domain

The process domain is key within the ITSM process model (Fig 2). Too often new service management tools and automation technologies receive insufficient focus and management attention. Yet typically, 50 to 70 percent of total budget spent on ITSM is on people, and the consistency and reliability of processes is critical in making IT delivery as efficient as possible.

Three basic concepts underpin the process domain [5]. Within the process model, the processes are organized into disciplines, such as problem management and systems management. The principal use for the process reference model is as a reference point or checklist, enabling IT managers to confirm that they understand all the necessary process disciplines and have implemented them appropriately. The IT Infrastructure Library (ITIL) framework is perhaps the most common industry-standard process reference model, and ITSM conforms to ITIL structures and terminology.

A series of service flows define the processes to be implemented in practice. Each service flow is created in response to a specific event or
trigger. Service flows can only be designed by considering the events or triggers that need to be handled. The key to using these various process artifacts effectively is to focus on the service events or triggers that need to be managed. Process design starts from understanding the complete set of events and using the scenarios (service flows) to identify the actual work that must be done to handle each of them. As process definitions mature, the process model and the service flows need to be maintained and updated. Some business assets (such as PRM-IT, the IBM Tivoli Unified Process (ITUP), and ITIL) form useful starting points and provide much useful reference material for tasks.

2.2 The Data and Information Domain
The data-and-information domain describes the key data model elements that represent managed entities in a comprehensive ITSM solution. It also describes how this information is used by the key service management entities and how the data-and-information domain contributes to the other domains.

Data and information represented in the process model are described by five entities as shown in Figure 3:

- Canonical Mapping
- Physical Database Design
- Logical Data Model
- Physical Data Repository
- Deployment Unit
- Technical Component

Fig.3 The Data-and-Information Domain

It is obviously highly desirable to have a single information model and an associated logical data model from an overall service management perspective. However, it requires a governance structure and design authority for its maintenance, and any overall data model is likely to be at odds with the physical database designs for individual solutions. This is because the systems used in ITSM are predominantly commercial packages rather than custom applications. It is therefore unrealistic to expect that the information model and logical data model will do more than map the various physical database designs and support identification of gaps and overlaps. Nevertheless, such mappings are important in order to retain the best possible control of the multiple data repositories in the ITSM organization.

3 The Data Architecture in XML
Given the level of complexity of integration projects, especially with multiple developers and teams collaborating on the development of services, data models should be explicitly visible to all architects, developers, and project managers as a coherent set of XML schemas, in a Commonwealth Registry, and service development should be driven by those schemas.

Fig.4 Enterprise Data Architecture

The Data-and-Information Domain addresses specifications for Data Interoperability, Data
Management, Data Formats, and Records Management. Inclusion of these specifications in the development of service oriented applications is addressed in the Application Domain in Fig 5. A key to the enterprise visibility issue is metadata: information about shared services. To provide adequate IT visibility, agencies must follow basic metadata best practices for discovering and organizing metadata, encapsulating business logic in metadata, managing with metadata, and modeling with metadata.

A significantly underused mechanism for working with Web services is the services metadata repository. At present, these repositories primarily store only the interfaces for services. However, for Web services to be supportive of fusion, additional metadata is necessary. Service metadata includes sequencing information to properly order service execution, parameters and exception handling information for the process model, and data to manage services into usable assemblies. Content metadata, such as user interface elements, and the connection of Web services to multiple portlets must be stored in metadata to allow modification of the system without code changes. For Services to be searchable across applications they must be versioned and represent processes that are independent of a single-application model.

4 Using the Mode in Practice

A process model in practice describes the workflow of the business processes that are performed by an organization. The most important elements of Business Process Model are business processes that are defined by [5]:

- Goals – why to perform this particular process (added value),
- Activities and subprocesses – how to transform inputs into outputs,
- Resources – inputs of the process that are consumed during transformation,
- Information – inputs that are used to modify the transformations in the process, but are not consumed (e.g. the color of a product),
- Owner – the person responsible for performance of the process,
- Trigger – an event that sets the process in motion.

Here we assumed the procedures for making a contract.

Step 1: Identify the need for workflow improvement.

Business process management involves activities that should identify problems (or just a need for improvement) in the workflow of processes. Based on this finding managers can decide to find a partner company that will take care of this particular group of problematic processes.

Step 2: Identify the group of all processes to be outsourced.

A very important step is to select processes to be handed over to a new partner. It is sometimes appropriate to outsource even non-problematic processes linked with the problematic process in order to gain other benefits (to reduce the amount and frequency of information or material exchange, to cut the need to employ staff, etc.)

Step 3: Specify the interface for the cooperation.

The goal of this step is to identify inputs for the processes that follow the processes that are to be outsourced, and also the outputs of processes that precede the outsourced processes. The first part is more important, because the inputs of subsequent processes form the requirements for the cooperating company. Based on this data, the search for a cooperating partner should begin. The outputs of the preceding processes may not be enough for the partner company, and a change in close areas of Business Process Model can be triggered (or a new search for a cooperating company that will be able to transform the available inputs to the required outputs).

Step 4: Integration of a new partner into the
After a successful search for a cooperating partner, it is essential to integrate its processes tightly into the company’s Business Process Models. The possibility of integration (and maximum automation of information exchange) should also be one of the criteria in the selection process.

Step 5: Evaluation of effectiveness.
It is important to evaluate the effectiveness of outsourced processes. This has to be carried out continuously for the whole period of cooperation. In summary, implementation of the repository based on the integration model has allowed us to manage the true integration of our services, which was a key goal for our modeling work.

5 Conclusion
One of the major benefits of implementing business process management and thus creating the business process model of a company is that Process Model is a good starting point for setting up cooperation with other companies. The model clearly describes the requirements of each individual process, the added value for the customers (and implicitly for the company itself). Based on this information, it is easier to hand a particular part of the business process workflow over to another company. Further very important benefits of introducing business process management to a company structure can be found in literature [6].

The process model provides a coherent, holistic analysis of the ITSM space. It is firmly grounded in the reality of ITSM organizations. Therefore, in places it does not rigorously follow ideal modeling practice because our guiding principle was to produce a model that our users could relate to and use.

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References