Approaches for Improvement of IT Systems Management

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Abstract—TM Forum has developed the eTOM-ITIL Application Note [1] in order to give the IT society a direction to find an appropriate combination of different IT Management frameworks in order to improve the effectiveness of their management systems. In the past years the set of standards GB921 was developed. These standards cover a wide aria of applications that use a combined use of business and technical management frameworks. The aim of this work is to make a proposal for enhancement of the operability of the combined use of eTOM and ITIL for improvement of the services quality in the information systems. The paper presents three different ways for studying and evaluating of the relationships between these two frameworks.

Index Terms—e TOM, ITIL, Management Frameworks, combined use.

I. INTRODUCTION

ITIL is a guideline for IT Service Management [2], [3]. ITIL was originally developed as a guideline to serve a single customer, though many users use many IT Services. The customer in this case is generally the organization or company that is using the IT Services to support its business whether they are provided using internal resources or external outsourcers. Below this single point of delivery any number of Operational Level Agreements (OLAs) and Underpinning Contracts (UC's) can be used to support the delivery of IT Services to the customer and their users. An OLA is an internal Service Level Agreement while an Underpinning Contract is a Service Level Agreement with a third party supplier.

ITIL is primarily non-prescriptive - it offers advice/ guidance on the implementation and continued delivery of Service Management. It contains extensive advice covering the construction of cases for the systematic implementation of Service Management, overcoming objections raised to those proposals, planning their implementation and resolving typical problems likely to be encountered during the implementation process [4], [5], [6], [7]. ETOM is a catalogue of process element categories [1], [8]. eTOM is a business process framework to guide the development and management of key processes within an Infor-mation and Communications Service Provider. It provides this guidance by offering a catalogue of industry-standard names, descriptions and scope, at multiple hierarchical levels, of all the Business Activities (or process elements) within an information and communications Service Provider [8], [9]. The current version of eTOM is customer centric viewing business processes in terms of their contribution (whether directly or indirectly) to customer service. At that level, it is difficult to discern the shape of some of the internal support processes dealing with the infrastructure, resource and business needs of the organization [10], [11]. Those processes supporting IT systems fall into this category. Future iterations of eTOM may illustrate the shape of these processes, as well as develop the linkages needed between these processes and customer-related processes. To accelerate these enhancements to eTOM, reference to specialized process recommendations such as ITIL will bridge these gaps with proven, reliable process models. Further, the application of eTOM to the development of ITIL processes is likely to improve the scope and design of these processes, and will ensure their successful integration into a Service Provider's overall process environment..

II. LITERATURE BACKGROUND

A. Current challenges of IT service management

The authors in [12] made a wide observation of the current IT service management frameworks. However, they limited their reflections to produce a set of requirements to the authors that have published their own view on the problem. There is no concrete proposal for the combined use of these frameworks.

B. Towards a New Approach For Combining The IT Frameworks

The authors in [13] have made a step forward in comparison with the work mentioned above – they have proposed a number of areas concerning the Information Systems covered by the IT management frameworks. These areas were used in the comparative analysis. Each framework becomes a weight between 0 and 3 according every one criterion. The main advantage of this approach is the possibility to visualize the most effective frameworks. The first two positions are occupied by ITIL and eTOM.

C. Modeling ITIL-SLM Process Flows with eTOM Level 3 Process Elements

In [14] the authors model a Service level management process, defined in ITIL, with eTOM process elements. The authors proved the possibility for the combined use of these two frameworks.

The present work has the goal to widen the approach for finding the way for combined use of ITIL and eTOM in order to improve the effectiveness of the IT management systems.

III. PRACTICAL APPROACH

According the comparative study in [13] 22 areas are defined.

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For each one the grade of coverage by different IT management frameworks is given. It becomes clear the not all frameworks is able to cover all functions, needed for optimal management process. eTOM remains the only framework, that consists of functions in all management aspects. However the coverage of some of them is very poor.

Table 1 shows the ability of ITIL and eTOM to fulfill the areas listed:

Table 1. IS concerns' area of coverage by IT Frameworks [12]

IT Concerns	ITIL	eTOM
Manage availability	+++	+++
Manage capacity	+++	+++
Manage quality		+++
Manage legal compliance		++
Manage communication	++	++
Manage security and continuity	++	+++
Manage billing		+++
Manage supplier relationship	++	++
Develop IT solutions	+	++
Manage projects		++
Assist client	+++	++
Manage configurations	+++	+
Manage put into production	+++	+
Manage problems	+++	+
Manage incidents	+++	+
Manage needs		+
Manage changes	+++	+
Manage services	+++	+
Manage risks		+
Manage quality and intern control		++
Manage Competences		+
Manage Budget		+

From the table we can deduce, there are four groups of relationships between eTOM and ITIL:

- areas with equal grade of coverage (Case 1);
- areas with advantage for ITIL (Case 2);
- areas with advantage for eTOM (Case 3);
- areas with no coverage by ITIL, but covered by eTOM (Case 4).

All this four types of relationships will be studied here. The IT concerns' that will take part in this work are highlighted in the table.

A. Case 1

In this case there are only four management areas that have equal grade of coverage by the frameworks. Two of them – *Manage supplier relationship* and *Manage communication* are of grade two and the two remaining – *Manage Availability* and *Manage capacity* - are of grade three.

The fact, that both frameworks cover fully the areas mentioned above , should make the combination of both frameworks very easy and such combination should be very powerful.

According to GB921 Series of TMForum, the Availability management and the Capacity management have the following functions: Model, monitor and analysis Service / Resource performance to ensure that capacity is sufficient to meet Business needs and SLA or OLA requirements. These functions are fully related to a set of eTOM level 2 processes, among which Service Quality Management, Resource Data Collection and Processing, Product & Offer Development and Retirement. Service Capability Delivery, Service Development and Retirement, Resource Capability Delivery, Resource Development and Retirement, Strategic Business Planning, Technology Scanning, Enterprise Performance Assessment.

Thus the combined use of both frameworks shouldn't be a problem and these IT concerns can be easy implemented in both – technology and business aspect.

Most interesting are the remaining three cases.

B. Case 2 and Case 3

In Table 2 is clearly shown that many IT concerns have full ITIL coverage in comparison to eTOM. The majority of these are the main elements of the ITIL framework. Only concerning client assistance, the eTOM provides some tools and procedures.

Because almost all ITIL processes are a part of the service management, we will show how the ITIL - Service level management process can be presented with eTOM level 3 process elements. This should prove the possibility to combine both frameworks in order to achieve higher efficiency of the IT Service delivery and management.

Service Level Management (SLM) negotiates, agrees and documents appropriate IT service targets with representatives of the business, and then monitors and produces reports on the service provider's ability to deliver the agreed level of service. The success of SLM is very dependent on the quality of the Service Portfolio and the Service Catalogue and their contents, because they provide the necessary information on the services to be managed within the SLM process.

Figure 1 illustrates all the main activities of SLM as separate activities, they should be implemented as one integrated SLM process that can be consistently applied to all areas of the businesses and to all customers. These activities are described in the following sections. The model is developed and validated with Enterprise Architect® v8.0.
There are several methods of mapping between the ITIL processes and the eTOM framework. One possible approach might be to decompose the ITIL processes into lower-level processes and end-to-end flows can be constructed from a combination of both eTOM and ITIL processes, alternatively ITIL processes can be constructed solely from lower-level eTOM process elements. The problem here is that the eTOM is currently defined to Level 2 for most processes and partially to Level 3.

The second way to map ITIL and eTOM is to define the correlation level between the major ITIL processes and the eTOM process elements.

Information and Communication Service Providers need to ensure that many different processes that they operate will

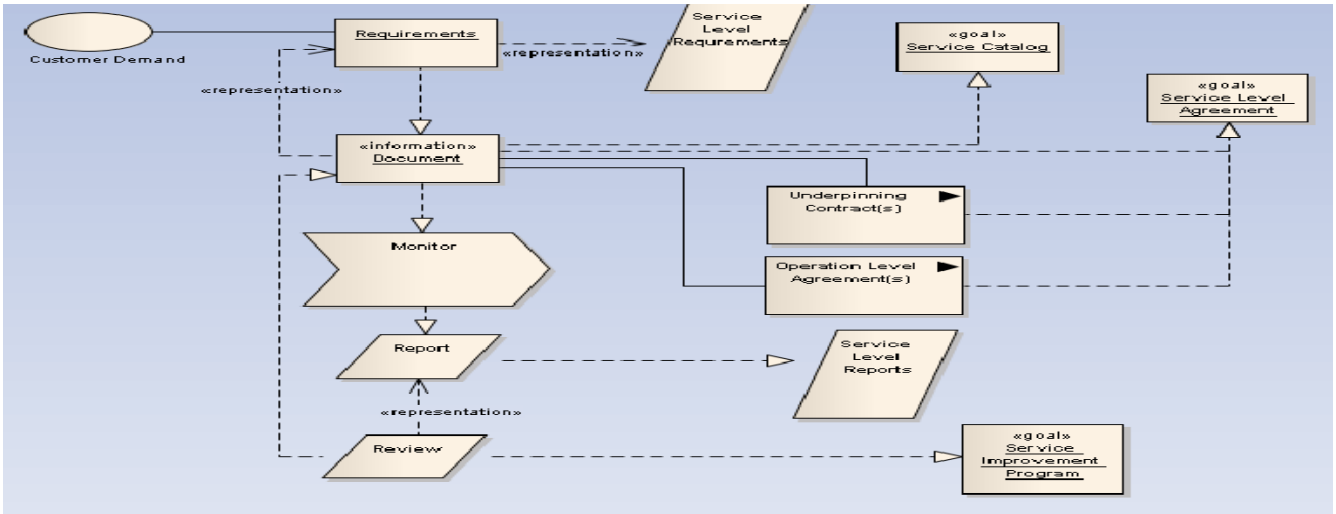

Fig. 1. The Service Level Management process (build and validated with Enterprise Architect® v8.0)

work together effectively. The staff can easily understand the processes without having to learn a new language and they must be effectively implemented in IT. To do this they need to model all their operational process in a standard way and that can be done by modelling the processes using the Process Elements of the eTOM process framework.

Fig. 2 represents one of the goals of this work – the ITIL - SLM Process modelled with eTOM Process Elements. According

to the eTOM Framework two areas where defined – the Customer- and the Internal Perspective. Each of them includes the appropriate business processes and activities, defined in eTOM and being mapped through the SLM Process. From the customer perspective the process starts with establishing the product offer and the leading requirements for the customer SLA. The goals of the customer centric process are the appropriate management activities and metrics for an optimal SLM process that includes the customer SLA's. The Service level monitoring process is internally fulfilled according to the predefined KPI's and KQI's of the Service Delivery and the Service Support processes. These processes involve the establishment, the management and the continual improvement of the corresponding UC's, internal
SLA's and the relationship with the suppliers and the partners during the whole process.

Based on this model the optimal enterprise organization can be developed in order to fulfil the processes needed without a redundancy or lack of workforces.

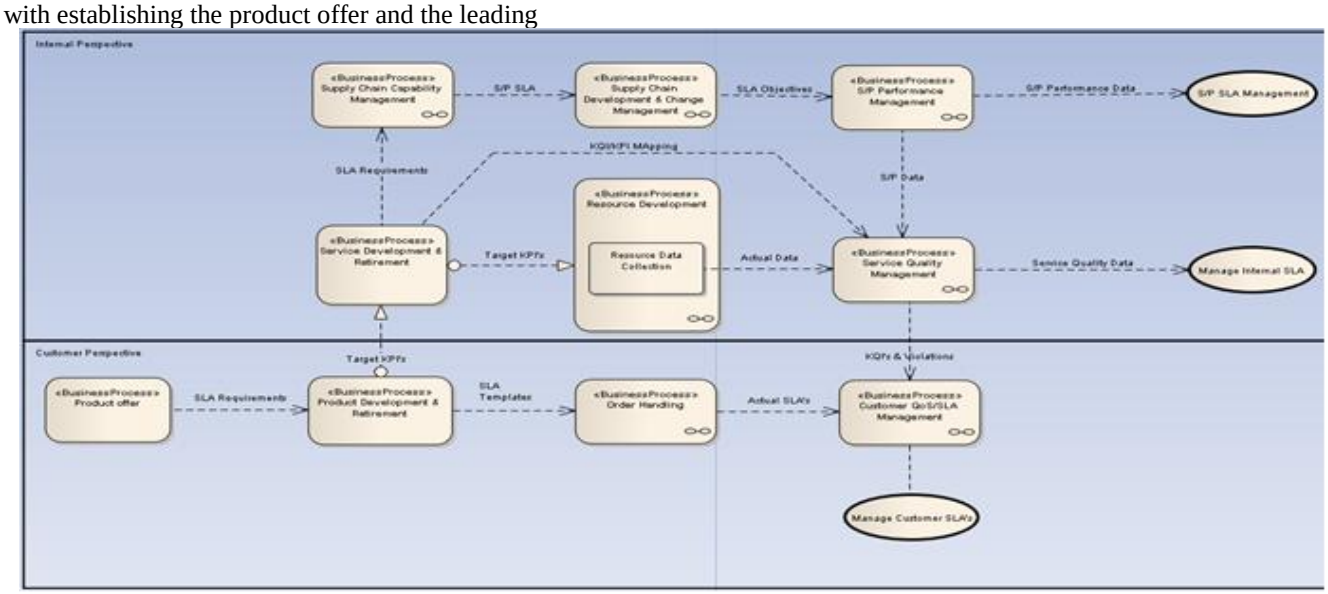

Fig. 2. The ITIL SLM Processes modelled with eTOM Process Elements

C. Case 4

This might be the most challenging goals – to fill the empty fields in Table 1. If this is achieved, the closure between ITIL and eTOM will make the design, the delivery and the management of IT services more efficient, reliable and winning.

In this work, one possible way for implementation of ITIL in risk management architecture, in order to achieve ITIL coverage on the IT concern *Manage risk*, will be proposed. Fig. 3 shows how to combine the kernel of

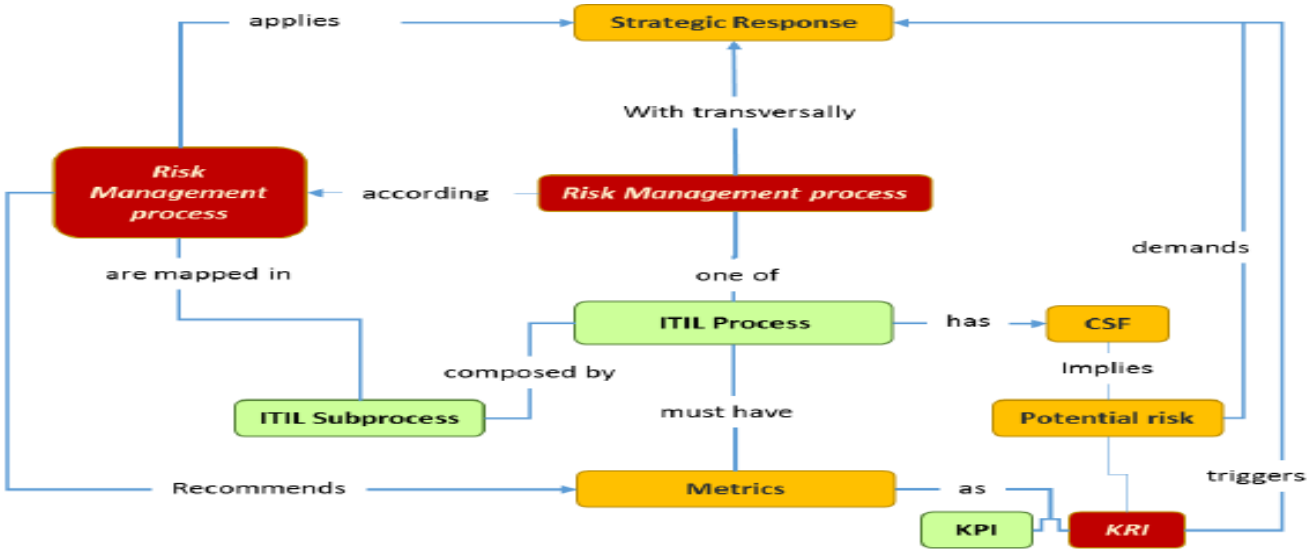

Fig. 3. ITIL and Management of Risk combined model

any risk management process [15] with ITIL processes in order to achieve new risk management architecture, which can be implemented in ITIL, and then the correlations with other frameworks like eTOM to be found. The orange fields show the ITIL concept extended according Management of Risk requirements.

IV. CONCLUSIONS

In this paper the author has just open the big theme – to find an appropriate way for achieving the most efficiency of IT services. The creation and the delivery of the services are very important, but the management of these services requires complying with many different circumstances: network architectures and functionality, customer behavior and customer perception of the services delivered etc. That is the reason to have many management frameworks: based on good practices or on pure business plans. Every one framework itself covers one area of the management. Therefore, the practice and the science look for possible combinations of these frameworks. The main goal is to extract the best from every one framework and to combine these best characteristics in common management systems that should guarantee the most efficient and powerful use of the IT services. There are many known approaches. Some of them are based only on the management standards, but this includes a lot constraints. The author tries to use a more unusual way based on finding the relations between the primitive functions in the defined procedures in different frameworks and to model workflows from one framework using elements of other framework. This should give the opportunity to define the closure between the frameworks and to define combined models for best IT service management.

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