

# **Handling of Change Requests in a Template-Based Software Solution**

by

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**Statutory Declaration**

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# Zusammenfassung

Aus der zunehmenden Globalisierung der Märkte und dem wachsenden Wettbewerb resultiert ein steigender Kostendruck für Unternehmen. Dieser bedingt heutzutage eine weltweite Standardisierung von Prozessen und Informationstechnologie, um Ausgaben hierfür mittelfristig signifikant zu senken und gleichzeitig Effizienz zu erhöhen.

Da die meisten Großkonzerne aus heterogenen Unternehmenslandschaften bestehen, die international aufgestellt sind, ist ihre IT-Landschaft daher sehr individuell ausgeprägt und unübersichtlich.

Doch Standardisierung und Individualität sind oft schwer zu vereinen. Daher setzen weltweit tätige Unternehmen heute Template-basierte Applikationen ein, die sowohl Standard-Software enthält als auch spezifische Anforderungen berücksichtigt und auf lokale und regionale Ausprägungen angepasst werden kann.

IT dient als „Enabler“ für unternehmerische Tätigkeiten. Aber durch den verstärkten Einsatz wächst die Abhängigkeit von der Verfügbarkeit der IT und den damit verbundenen IT-Services. Das Management dieser IT Services stellt eine große Herausforderung der Unternehmen dar. Als Prozess zur Planung, Steuerung, Kontrolle und Koordination aller IT-relevanten Aktivitäten und Ressourcen hat es das Ziel, nachhaltig die Qualität, Effektivität und Effizienz dieser zu steigern. Zur Gestaltung dieses Prozesses hat sich der „Best Practice“-Ansatz der IT-Infrastructure Library (ITIL) international als de facto Standard etabliert.

Auch die Siemens AG nutzt heute diesen ITIL-Ansatz für ein effizientes IT-Service-management. Im Rahmen des Projektes SRM Impact, einer template-basierten Applikation für den Einkauf von indirektem Material, wurde ein Change Management Prozess, ein standardisiertes Verfahren zur kontrollierten und effizienten Handhabung und Durchführung von Änderungen aller Art innerhalb der IT-Landschaft, entwickelt und etabliert.

Das Bearbeiten einer Änderungsanforderung für eine IT-Applikation erfordert ein durchdachtes Verfahren zur exakten Einschätzung von Risiken, Auswirkungen der Änderung auf die IT-Infrastruktur und den Geschäftsbetrieb, Ressourcenbedarf sowie Genehmigung der Änderung. Diese Methode ist absolut notwendig für die Wahrung des Gleichgewichts zwischen der Notwendigkeit einer Änderung und den möglichen Auswirkungen.

# Abstract

Based on the increasing globalization of markets and the expanding competition a increasing cost pressure results for organizations today. This causes a worldwide standardization of processes and information technology in order to reduce expenditures significantly in the medium term and to increase efficiency parallel.

Today most large enterprises consist of heterogeneous corporate landscapes, which are internationally positioned. Their IT landscape is mostly very individually formed and complex too.

However, standardization and individuality are often difficult to harmonize and unite. Therefore worldwide operating companies are using template-based IT applications today. This approach consists of combining predefined standard applications with group-specific elements and data to produce a complete application.

IT enables business activities. But a higher usage of IT results in a deeper dependency of the IT availability and the related IT services. The management of these IT services represents a great challenge for enterprises. As a process for planning, controlling, monitoring and coordination of all IT-relevant activities and resources IT management has the purpose to increase quality, effectiveness and efficiency sustainable. To meet the realization of these processes the best practice approach of the IT Infrastructure Library (ITIL) has been established as a de facto standard.

Also the Siemens AG is using this ITIL-approach for an efficient IT service management today. Based on the project SRM Impact, a template-driven software solution for procurement of indirect materials, a Change Management process has been developed and established. This is a standardized procedure for controlled and efficient handling and management of all kinds of changes within the IT landscape.

The handling of a Change Request for an IT-Application requires a well-thought out procedure for the exact estimation of risks, impact on IT infrastructure and business, resource planning as well as the decision of an approval for the change. This approach is absolutely necessary to balance between the necessity of a change and its possible effects.

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**Für meinen guten, liebevollen Vater**

*„Was man tief in seinem Herzen besitzt,  
kann man nicht durch den Tod verlieren.“*

Johann Wolfgang v. Goethe

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## List of Abbreviations

<b>AA</b>	Asia and Australia
<b>AMC</b>	Application Management Center
<b>BADI</b>	SAP Business Add In
<b>BSM</b>	Buyside Marketplace
<b>CAB</b>	Change Advisory Board
<b>CAB/EC</b>	Change Advisory Board Executive Committee
<b>CCTA</b>	Central Computer and Telecommunications Agency
<b>CI</b>	Configuration Item
<b>CIO</b>	Corporate Information Office
<b>CMDB</b>	Configuration Management Database
<b>CR</b>	Change Request
<b>CSP</b>	Corporate Supply Chain and Procurement
<b>DSR</b>	Development System
<b>EBP</b>	Enterprise Buyer Professional
<b>ERP</b>	Enterprise Resource Planning
<b>FSC</b>	Forward Schedule of Change
<b>GROC</b>	Groups, Regions, Operating Companies and Central Units
<b>ICT</b>	Information and Communication Technology
<b>IPW</b>	Implementation of Process-oriented Workflow
<b>ISO</b>	International Organization for Standardization
<b>IT</b>	Information Technology
<b>ITEC</b>	IT Executive Committee
<b>ITIL</b>	Information Technology Infrastructure Library
<b>itSMF</b>	IT Service Management Forum
<b>KPI</b>	Key Performance Indicator
<b>MOF</b>	Microsoft Operations Framework
<b>MSE</b>	Mid South Europe
<b>OCS</b>	Operative Customer System
<b>OGC</b>	Office of Government Commerce

<b>OMS</b>	Operative Master System
<b>PIR</b>	Post Implementation Review
<b>PRL</b>	Procurement and Logistics
<b>PSR</b>	Production System
<b>QSR</b>	Quality Assurance System
<b>R/3</b>	Realtime-Processing/3-ary client-server architecture
<b>ROI</b>	Return on Investment
<b>RFC</b>	Request for Change
<b>SAP</b>	Systems, Applications and Products in data processing; SAP AG Walldorf, Germany
<b>SCD</b>	Siemens Corporate Directory
<b>SD</b>	Service Delivery
<b>SLA</b>	Service Level Agreement
<b>SM</b>	Service Management
<b>SOA</b>	Sarbanes Oxley Act
<b>SRM</b>	Supplier Relationship Management
<b>SWE</b>	South West Europe
<b>TBS</b>	Template Building System

# 1 Preamble

Uncontrolled and inefficient changes in software applications represent a significant risk for organizations, further development and operation of IT-applications. These may cause immense costs for enterprises. Many problems and disturbances can be retraced to changes on IT applications. Therefore changes in heterogeneous system environments have to be implemented with appropriate controlled and standardized methods.

The ITIL Change Management process ensures that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of any change-related disturbance on service quality and business operation.

## 1.1 Purpose

Purpose of this thesis is the development, implementation and establishment of a Change Management process based on the ITIL recommendations in the initial phase of the project SRM Impact, a template-based software solution for procurement of indirect materials within Siemens AG, which provides an efficient and controlled further development process of the template.

## 1.2 Structure

The present diploma thesis consists of four sub areas. To be able to explain the origin and necessity of a Change Management process and to apply this in the following at a practical example, it is necessary to understand the subsequent described chapters.

Chapter two describes the project SRM Impact within the Siemens AG, the development of a template-driven application for procurement of indirect material for the entire corporate group. The basic principles of a template-driven approach and consequent advantages will be indicated. Furthermore the necessity of the project initiation, main objectives, template development and the deployment within the entire Company will be figured out.

The following chapter provides a short overview about service-oriented IT management. The development and reasons for this trend in the area of IT management will be indicated. As basic approach the recommendations of the IT-Infrastructure Library (ITIL) will be described. After a short overview about the complete ITIL library both services for IT management, Service Support and Service Delivery with included processes and relationships, will be pointed out in detail. Terms and definitions which are important for further examination of this thesis will be defined.

In chapter four the Change Management, as an integral component of the ITIL area Service Support, will be described. As a central concern of this thesis, primarily the activities and processes of Change Management will be highlighted within the entire lifecycle of a Change Request. The design of a workflow, which contains processing and management of a Change Request until its implementation in an application, will be documented in detail.

The last chapter of this diploma thesis is concerning about the practical application of a Change Management process based on ITIL within SRM Impact. The further development of the SRM Impact template is designed through the accordance with the incoming change requests. This part describes the current implemented approach dealing with Change Requests during the initial phase of this project. Furthermore challenges, needs and possible problems which exist in general and

which have to be observed in connection with an implementation of a Change Management process will be pointed out.

## 2 Project SRM Impact

### 2.1 Need for Action

The current IT landscape for procurement at the entire Siemens AG is characterized by the former “best-of-breed” strategy, which means, for each functionality the best product available on the market was selected to cover the Siemens procurement processes. This resulted in software products from different suppliers being used. While functions were fulfilled adequately in some cases, this was however countered by frequently inadequate integration, especially of the operative ERP<sup>1</sup> systems.

Across the entire Siemens Group a wide range of various procurement tools are used at the several GROCs. These GROCs are the different Groups, Regions, Operating Companies and Central Units at the entire Siemens Company. The following figure provides an overview of the used procurement tools within the groups of Siemens as an example:

[INT01]

Group	System	Usage	Regional Rollout	Application Provider
A & D	EBP (3.5)	Office supplies	GER	A&D
Com	eFLOW	Indirect Mat. & Office supplies	GER	Com
PG	EBP (4.0)	IT Material & Office supplies	GER + USA	TS (PG)
PTD	EBP (3.5)	Office supplies	GER	A&D
SBS	1) eCOS 2) EBP (3.5)	1) Office suppl. 2) IT (FSC)	GER	1) BSM 2) SBS
L & A	eCOS	Office supplies	GER	BSM
SV	EBP (3.5)	Indirect Mat. & CSM Portfolio	GER/FRA/ USA/MEX/CAN	SV
TS	EBP (4.0)	IT Material & Office supplies	GER	TS (PG)
I & S	eCOS	Office supplies	GER	BSM
Med	EBP (3.5)	Indirect Mat. & Office supplies	GER	Med
Osram	EBP (4.0)	Office supplies	USA + GER	Osram Sylva.
SBT	1) eCOS 2) SPNx	Office supplies	1) GER 2) CH	1) BSM 2) Reg AUT
SFS	eCOS	Office supplies	GER	BSM
SRE	eCOS	Office supplies	GER	BSM

Figure 1: Overview Procurement Tools at Siemens Groups

<sup>1</sup> ERP – Enterprise Resource Planning: is an industry term for the broad set of activities supported by multi-module application software that helps a manufacturer or other business manage the important parts of its business, e.g. product planning, parts purchasing, interacting with suppliers, providing customer service [SEARC]



For Desktop Purchasing<sup>2</sup> Siemens is currently using a various set of applications in Germany and numerous other legacy applications in the regions. The international and cross group IT landscape is not sufficiently harmonized and in the area of operational procurement of indirect materials<sup>3</sup> and have to be more optimized. Beside the implemented non-SAP<sup>4</sup> applications and the implemented SAP-EBP<sup>5</sup> in some GROCs, applications are different customized and modified as well as based on different release versions of SAP. Other components of the SAP-SRM<sup>6</sup> suite rather than the Enterprise Buyer Professional (EBP) are not implemented and in productive usage at all or covered by other applications. Additionally as of today no consistent and centralized solution for a hosted EBP at Siemens is available.

Also the Siemens procurement department has identified several areas where there is a need for action. Examples are listed in the following:

*[int02]*

- *The availability of company wide procurement information could be improved, for example concerning to requirements and usage.*
- *Current data warehouse solutions are only partly harmonized; a uniform data model for all GROCs I does not exist.*
- *The data transparency and quality for aggregations. has to be enhanced*

---

<sup>2</sup> Desktop Purchasing systems are software applications for ordering goods (e.g. office supplies) and services (e.g. translation service) through the usage of electronic catalogues. With these systems procurement processes can be extensively automated.

<sup>3</sup> Indirect materials are goods and services which are not directly needed to manufacture a end product (e.g. office supplies, hotel- and fly booking)

<sup>4</sup> SAP – Systems, Applications and Products in data processing; SAP AG – Software provider from Walldorf, Germany

<sup>5</sup> SAP EBP is an e-procurement solution of SAP and is a module of SAP SRM

<sup>6</sup> SAP SRM – SAP Supplier Relationship Management; SAP SRM is an IT business suite which combines several modules to support SRM business processes.

- *The IT support for new business requirements has to be improved, for example in the networking of communication with suppliers.*
- *Because of the non-harmonized IT landscape global procurement initiatives are handicapped*
- *The user acceptance of procurement application has to be improved*

## 2.2 Target Architecture Procurement

To ensure that the procurement processes as well as the current business objectives are supported in line with requirements a Target Architecture Procurement was drawn up. This Target Architecture Procurement is now the prescribed framework for implementation and use of the application landscape for strategic and operative procurement processes within the Siemens Company.

In order to optimize the identified and above-named needs for action, following objectives are defined in the target architecture: [int03]

- *Support strategic and operative procurement processes with standard software*
- *Avoid and reduce the integration overhead through usage of standard platforms, preferably SAP solutions*
- *Interlink the strategic procurement processes with the operative procurement processes through integration in the surrounding Siemens application landscape, especially with the ERP backend systems*
- *Increase process automation*
- *A company-wide uniform use of applications to increase user acceptance*
- *Improve the quality of decision-making processes with optimized provision of relevant information for decision making.*

- *Reduce costs of implementing and running IT processes by collaborative and centralized developments*

## 2.3 Initiation SRM Impact

To meet these objectives the project SRM Impact was initiated by Siemens CIO<sup>7</sup> in cooperation with Siemens CSP<sup>8</sup> in July 2005. CIO and CSP have the common responsibility for the future-proof development of procurement processes and IT applications in the procurement area. CSP is the owner of these procurement processes and CIO owns the IT application.

The world-wide usage of a web-based procurement front end system with deep integration into the corresponding backend systems of the several Siemens GROCs was required. The main objectives for this project should be optimization of pooling, improvements of efficiency of operational procurement processes and improvements of transparency within the procurement area for indirect materials.

The development and establishment of a corporate template for procurement was decided. Based on a special license agreement between Siemens AG and SAP AG, Siemens decided to use the IT business suite SAP SRM as the core element for supporting purchasing of indirect material and for processing of requests and offers.

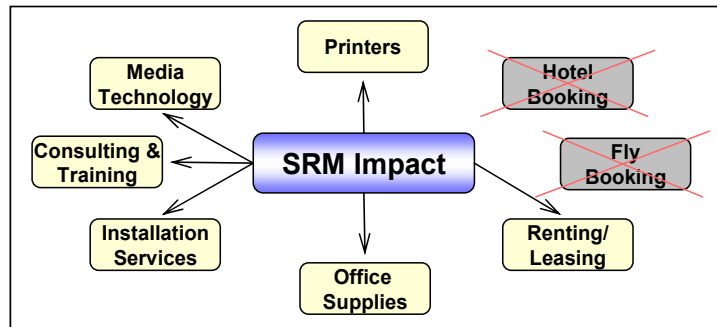
To reduce costs and to standardize the IT landscape for procurement applications a template driven and centralized approach was considered for this project. The target is to have one application for all requisitions of indirect material without mobility and logistics.

Figure two shows examples for indirect materials which are in an out of scope at SRM Impact.

---

<sup>7</sup> CIO - Corporate Information Office; responsible for designing a high-performance, cost-effective and secure IT landscape and establishing standardized end-to-end processes and information flows. [C/IOS/]

<sup>8</sup> CSP - Corporate Supply Chain and Procurement; Strategic procurement department of Siemens

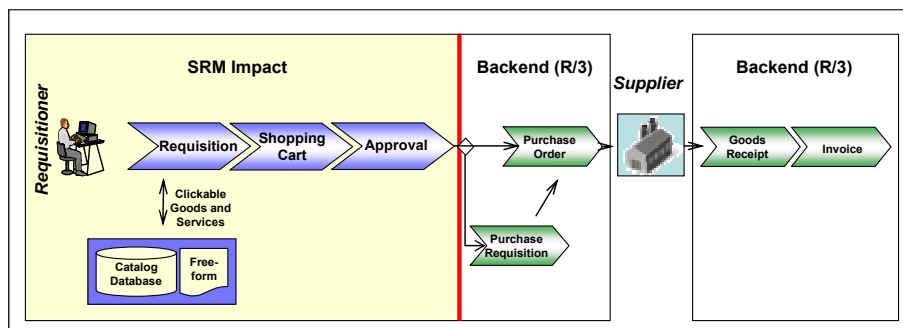


**Figure 2: Indirect Materials in Scope of SRM Impact**

Therefore Siemens CIO provides a Template Master System as a centralized SAP SRM solution for all Siemens GROCs.

With regards to the complexity and business requirements the first SRM Impact activities and roll-out concentrate on SAP EBP functionalities as a standard desktop purchasing SRM system. In the first releases the template has a comparatively small subset of the several SRM functions with SAP EBP as base template. The Enterprise Buyer Professional is one module of SAP SRM and is a web-based procurement front end system. This system supports the business processes from demand to creation of purchase requisition and is mainly used to enable requisitioners to place orders on a web-enabled platform after selecting the required goods and services out of integrated catalogs or special requisitions (free forms orders).

The following figure shows the high level process flow from demand to invoice.



**Figure 3: High Level Process Flow of Procurement**

Later the SAP SRM IT landscape will be enhanced with further SRM functionalities, for example contract management.

The following figure shows an overview about the whole SAP SRM suite. [INT01]



Figure 4: Overview of the SAP SRM Suite

## 2.4 SRM Impact Project Targets

The main targets of SRM Impact are: [INT04]

- *Support of global procurement programs at Siemens*
- *Standardization of SRM application (IT Landscape)*
- *Enablement and acceleration of Field Implementations*
- *Assurance of world-wide usage of SRM application*
- *Preparation for future challenges in procurement*

The following chapters describe the main targets and objectives of the project shortly:

### 2.4.1 Support of Global Procurement Programs

Correct buying and data transparency are two examples of the global procurement programs at Siemens.

### **Correct Buying**

A common desktop purchasing infrastructure allows the purchasing guideline compliant definition of purchasing roles and approver workflows. Purchasing can make sure and control that only released electronic catalogs of preferred suppliers are provided to the end users. In case of not using catalogs for defining special request orders, the IT-infrastructure allows the appropriate involvement of required purchasing roles.

### **Data Transparency**

The goal is to improve the quality of procurement data and provide the basis for a complete and correct data base for the total purchasing volume. SAP SRM-based operational procurement processes can ensure that relevant purchasing as well as reporting data are used in a mandatory manner. Above this, all transacted business data can be Siemens-wide reported by using Data Warehouse<sup>9</sup> applications.

#### **2.4.2 Standardization of SRM Applications**

As shown in chapter 2.1 a wide range of various procurement tools are used at entire Siemens Group. Target of SRM Impact is the standardization and harmonization of IT landscape for procurement to increase the usage of SAP applications, reduce costs for IT operations and centralized development and roll-out of SRM business requirements and features.

The standardization will happen in three steps:

- *All GROCs have to use SAP SRM*
- *All GROCs have to use the same release of SAP SRM and the SRM-Impact template*
- *New processes are implemented and established for all GROCs*

---

<sup>9</sup> A data warehouse is a central repository for all or significant parts of the data that an enterprise's various business systems collect. [SEARC]

### 2.4.3 Enablement and Acceleration of Field Implementations

Relevant knowledge and experiences with regards to SRM systems, business requirements, implementation knowledge, processes and features has been gained already across Siemens. With this, existing implementation knowledge and best practices can be leveraged across the organization which can accelerate the implementation processes and reduce relevant SRM investments. Target of SRM Impact is to sight, collect and analyze this experience to develop a SRM framework which can be used for implementing in the several GROCs.

### 2.4.4 World-Wide Usage of SAP SRM Application

A world-wide coverage of SAP SRM is mandatory to accomplish project objectives, display corporate, regional and group-wide procurement transparently and support correct buying for all procurement initiatives.

### 2.4.5 Preparation for Future Challenges

SAP SRM is an application which offers several functionalities for supplier relationship management processes. These are beside the enterprise buyer professional for example contract management functionalities.

The future trend in procurement is distinguished and driven by the aim of end-to-end collaboration between companies, its requisitioners and suppliers. Collaboration in this case means, that the future trading platform for procurement need to be fully integrated. IT systems and technologies are used to shorten procurement lifecycles and investments.

Target of SRM Impact is to prepare the Siemens Company worldwide for future trends and challenges within the procurement area, for example tighter integration between processes of operative procurement and end-to-end collaborations.

## 2.5 Template Based Software

By the intention of Siemens CIO, to reach those above-named objectives and therefore to standardize IT landscape in procurement of indirect materials in the entire Siemens Company a template driven and centralized approach was considered for this project.

### 2.5.1 Principle of Template Approach

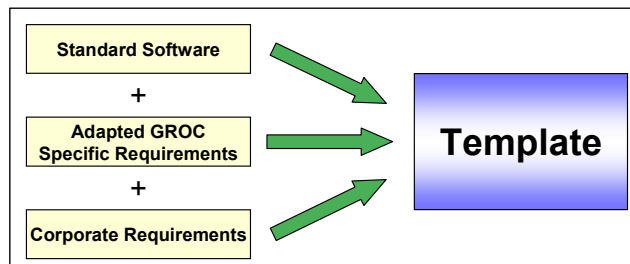
The reason for a template-driven approach is the assumption, that standard software for large organizations is not sufficient enough for their business. Customer specific characteristics as a part of an application are absolute necessary.

A template approach is based on the idea that dynamic interests gradually flow into an existing standard software application (in the project SAP SRM). This approach consists of combining predefined standard applications with customer-specific elements and data to produce a complete application. In addition to preconfigured elements GROC-specific requirements are taken into consideration. Then these can be adapted individually to local or regional characteristics. Every GROC can adapt and customize this template-standard on his own needs; every general functional enhancement gets into the template and is therefore available for other departments of the organization.

The basic principle is to implement SRM Impact in the several GROCs gradually and in the meantime to develop further requirements constantly.



## 2.5.2 Graphical View



**Figure 5: Basic Template Approach**

Figure five shows the high level template driven approach of SRM Impact. The template is developed with standard software, requirements compliant to Siemens guidelines and GROC-specific requirements. To be able to exhaust further synergy effects and to reduce efforts in development, single GROC specific requirements, if possible, are adapted and standardized again.

## 2.5.3 Benefits of Template-Approach

The main benefits of a template-driven approach are given below.

- *Cost savings, uniform/standard applications*
- *Synergy effects through to usage of a standardized approach*
- *Possibility to design the template flexible*
- *Functions and processes are grasp to basics*
- *Increase of communication between several customer*
- *Possibility to adapt altered requirements faster*
- *Speed up of application development in large organizations*
- *Common data representation of all involved participants*

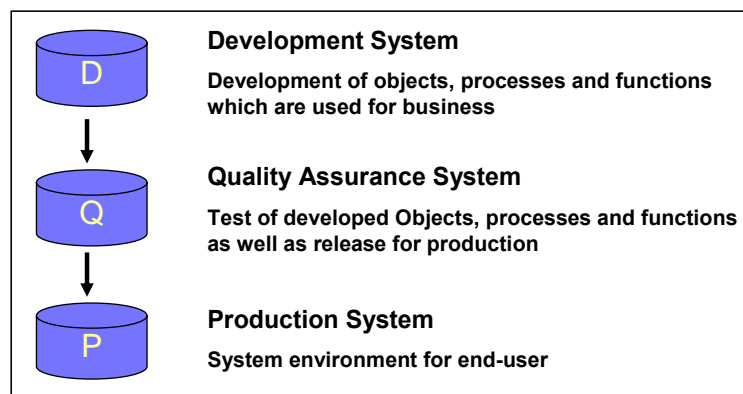
## 2.5.4 Template Development

The SRM Impact template is a complex IT system. Therefore development must be able to remove consisting heterogeneity and map

those into a very cost-effective IT system (inclusive personnel, infrastructure and temporal effort) and processes. That means, several congruent requirements and processes of the different GROCs should be developed, tested and rolled out only once.

Therefore the development of an IT system requires a special process. Complex systems are consequently developed in a three-ary system landscape.

The following figure shows the three-ary approach. *[Modified from TUCHE]*



**Figure 6: Three-Ary System Landscape**

The main objectives of a three ary-approach are:

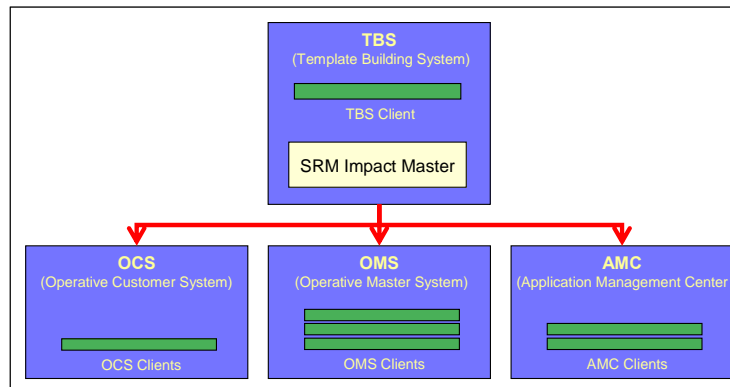
- *Parallel development, testing and productive use are given*
- *Tests do not disturb productive usage*
- *Minimization of risks*
- *Developments, whose functioning is not yet ensured, are not transported into productive system, as long as they are not sufficiently tested*

## 2.6 SRM Impact Development and Deployment

As known, SRM Impact is a pre-configured SAP SRM application for procurement in the area of indirect materials. To have a short overview

about development and distribution of the application to the several Siemens GROCs the SRM Impact template and the different systems for worldwide Siemens use are described in the following chapters.

Figure seven illustrates the deployment scenario of the template.



**Figure 7: Deployment Scenario of SRM Impact**

### 2.6.1 SRM Impact Master Template

The Template Building System (TBS) contains the SRM Impact master template which serves as a blueprint for the SRM solution. It acts as the development system for the SRM Impact master template and contains the client for the GROCs. This master template is the main installation of SAP SRM and it is developed and maintained within TBS.

Siemens CIO is responsible for the development and distribution of the pre-configured SRM application across the entire Siemens group. The master template contains and provides all common relevant functions and features of SAP SRM as well as all client independent customizing for all Siemens GROCs. This system is a non-productive system of all global requirements regarding SRM Impact. It implements the functionality which is common to all SRM Impact users, including enhancements and customization.

#### **SRM Impact Template Development**

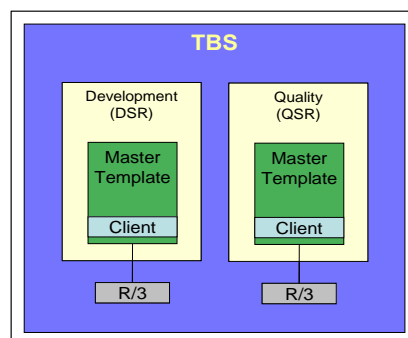
The development of SRM Impact is lead by Siemens CIO. Siemens CIO is the system owner of the TBS and is responsible for the Service

Management (SM) of the project. Service Management focuses on the activities that are involved within deployment, operation, support and optimization of an application.

The following activities and responsibilities for example are accomplished by the Service Management:

- *Definition of the SRM Impact development roadmap*
- *Definition of development guidelines*
- *Gathering of business requirements to SRM Impact from the several GROCs*
- *Development of further requirement specifications*
- *Responsibility for treatment and handling of incoming Change Requests*
- *Assignment and monitoring of the template development*
- *Accomplishment and responsibility for different system tests*
- *Release of the template*

The Template Building System is depicted in the figure below. It consists of two different systems for development.



**Figure 8: Template Building System**

In the development system (DSR) the development of the master template or further enhancements will be conducted. Therefore Siemens CIO Service Management authorizes a suitable Service Deliverer to develop the master template in accordance to the

underlying statement of work (Pflichtenheft) or the respective Change Requests. Backend systems are connected to the development system to accomplish development tests by the developers within the DSR. After completion of the development of all required functions and the approval by Service Management all developed functions are transported to the quality assurance system (QSR). On this quality assurance system the acceptance test will be executed by the Service Management and the developments will be released.

The master template contains standard functionalities of the SAP SRM suite and as well as extensions in form of customizations<sup>10</sup>, enhancements<sup>11</sup> and modifications<sup>12</sup> which are in general interest of the entire Siemens group. Additional customer requirements and system enhancements from the GROCs have to be submitted to the Service Management in form of a Request for Change.

To ensure a controlled and proper further template development process it is important to establish a standardized, deliberate and disciplined Change Management process for the template development. It is only allowed to change the master template on the TBS. All changes are distributed from there.

To standardize the IT landscape of SRM applications in the Siemens Company the developed template solution is deployed from the TBS via transports into different other systems (OMS, AMC and OCS) who will implement clients based on the master template.

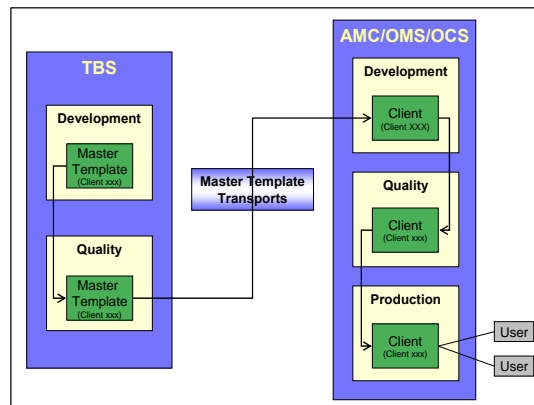
This distribution is illustrated in figure nine.

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<sup>10</sup> Customizations are adjustments or changes of SAP SRM/SAP EBP functionalities in the Master Template system or client environment. This adjustments or changes are in accordance to business requirements or the needs of a group of users. Customizations do not affect any functional standards or guidelines of SAP SRM/SAP EBP itself or the defined CIO framework for the SRM Impact Template Master System. [INT03]

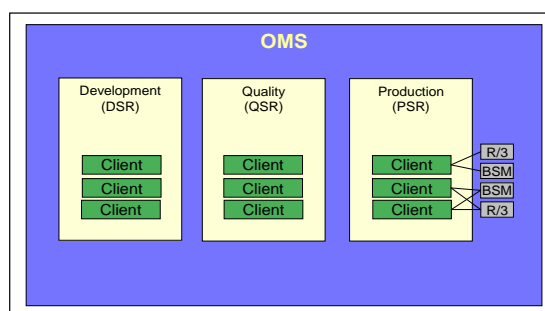
<sup>11</sup> Enhancements are additions to a SAP standard program for making additions. An enhancement does not change R/3 Repository objects. Enhancements are not affected by upgrading to a new release. [INT03]

<sup>12</sup> Modifications are adjustments or changes made to SAP SRM/SAP EBP Repository objects in the Template Master System or Client environment which affect the functional standards or guidelines of SAP SRM/SAP EBP itself or the defined CIO framework for SRM Impact. [INT03]



**Figure 9: Distribution of SRM Impact**

## 2.6.2 Operative Master System



**Figure 10: Operative Master System**

SRM Impact is intended for worldwide Siemens use. The Operative Master System is the central host for the SRM Impact master template and the shared clients for the GROCs that use the OMS as a shared service. It is hosted by Siemens CIO and based on the master template. Operative Clients on the OMS are named OMS clients. These clients are implementations of the SRM Impact template for GROCs that do not wish to implement their own SRM solution or as well as for GROCs that do not require an own SRM installation. It is also suitable for small-sized groups or regions to start up with the OMS, because the implementation of an own solution for these GROCs is not very cost effective.

Each client is connected to one or more backend systems (mostly SAP R/3) and to a Siemens Buy Side Marketplace (BSM), which hosts all

catalogs for ordering goods and services. Also GROCs that have a shared backend system can use the OMS.

The OMS consists of three staging areas (DSR, QSR, and PSR); each of them includes several clients. In respect to the SRM Impact project, clients are used for example for the characteristics of the several GROCs which participate in the shared-system of the Operative Master System.

A staged system environment, with the named areas development system, quality assurance system and production system (PSR), is finally set up in order to ensure a stable production system. It provides the possibility to develop and verify system changes in non-productive environments.

The developed master template is transported to the development system of the OMS. Within the OMS' development system all settings and customizations for the several GROCs are accomplished. Before the system can be going live (in PSR), a set of several tests have to be performed in the quality assurance system of the OMS again to ensure usability, correctness and stability. These tests are executed from each GROC.

Siemens CIO is responsible for installation the different clients as well as operation and maintenance of the OMS. But for actual operation in the several GROCs each GROC is responsible for its client.

On all OMS systems (DSR, QSR, PSR) no cross-client settings have to be conducted by the OMS customer, only client-independent tables may be maintained. Furthermore no self-contained developments on the OMS have to be accomplished by the customer.

To follow a well-ordered approach and as well as to consider business requirements with proven business needs and business benefits the user of a client has to request a client-specific development or a desired enhancement to the SRM Impact Service Management. Through this approach it is ensured, that developments and coding, which are not compliant to the master template, are not executed by the customer.

Advantages in the use of the OMS are for example:

- *Reduced implementation workload*
- *Reduced IT operation management*
- *Reduced system administration*

Disadvantages of this system are for example:

- *No individual and independent system architecture*
- *Reduced functional flexibility*
- *Reduced decision independency*

### 2.6.3 Application Management Center

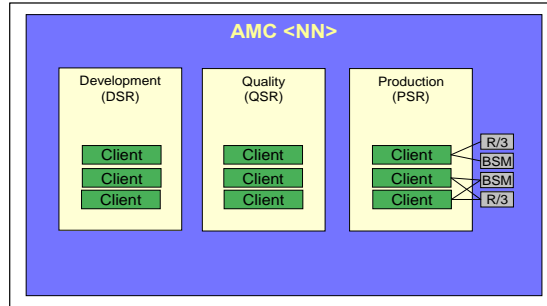
Application Management Centers (AMC) are defined along Siemens' economic regions. There are several AMCs at Siemens, e.g. AMC SWE (South West Europe), AMC MSE (Mid South Europe) or AMC AA (Asia and Australia). For example the AMC SWE is serving the countries Portugal, Spain, France, Belgium/Luxembourg, Italy, and Greece.

An Application Management Center hosts standardized IT applications and delivers IT shared services to its dedicated countries.

Shared service in this context means the supply of an application (e. g. SRM Impact) plus the corresponding application management service.

Task of an AMC is to perform application management for standardized applications. Application management encompasses application development and Service Management for an application. Application development covers all activities needed to plan, design and build an application, whereas Service Management focuses on the activities that are involved with the deployment, operation, support and optimization of an application.



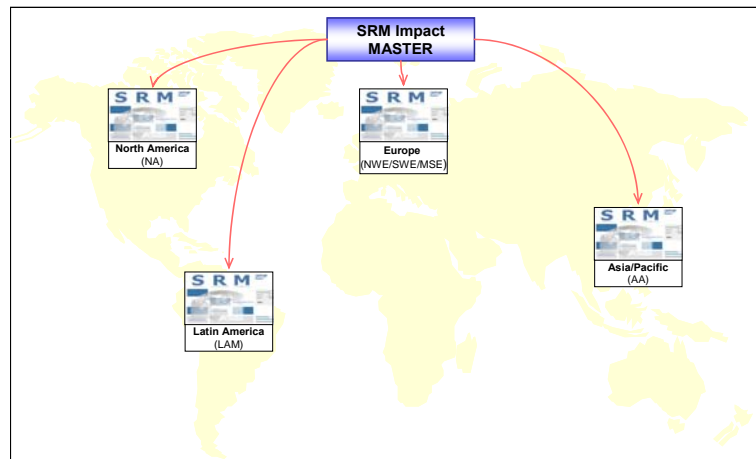


**Figure 11: Application Management Center**

The Application Management Center contains the operative clients of the several AMC-GROCs that have to use the system or it contains the clients for the GROCs which want to share their application with the AMC.

The Client on the AMC is named AMC client. This client is implemented based upon the SRM Impact master template.

To ensure a global usage the master template of SRM Impact will be implemented on six continental Application Management Centers.



**Figure 12: Distribution of SRM Impact to AMCs**

From these AMCs the application will be rolled-in in the several countries which belong to the AMC.

As an example the distribution scenario from the AMC SWE with its head in Spain is illustrated in figure 13.

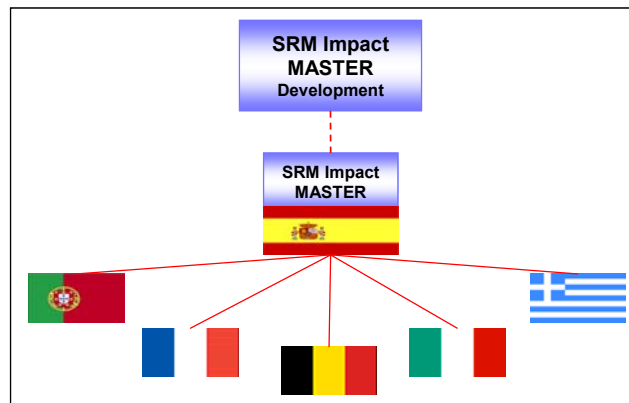


Figure 13: Template Roll-Out and Roll-In in Countries

#### 2.6.4 Operative Customer System

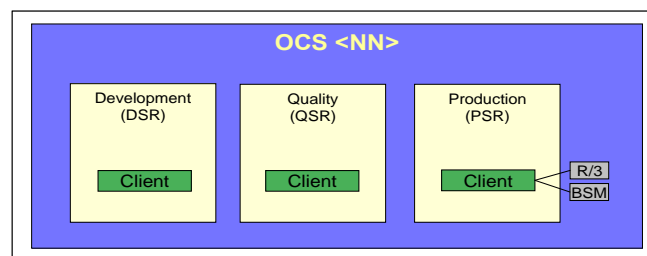


Figure 14: Operative Customer System

The Operative Customer System contains the operative client of a specific GROC that does not want to use either the OMS or an AMC. The Client on the OCS is named OCS Client. This client is also implemented based upon the SRM Impact master template.

The use of the OCS is intended for big GROCs with a large number of users or for GROCS that wish to implement their own SRM solution.

From the master template's view the distribution model of OCS and AMC can be regarded similar. In both cases Siemens CIO does not own the whole system, AMC or the OCS customers are responsible for the operation of the SRM application. Siemens CIO acts only as the master template's supplier. The OCS respectively the AMC customers are also responsible for the customizing of their systems (client-specific and cross-client).

Settings are given by the template, however, may not be changed in any way, unless they are released. Modifications, changes on SAP- or

template objects, are not allowed. Customer specific proprietary developments or enhancements are only permissible if they are made into the customer specific “BAI”<sup>13</sup> or if they are conducted out of the template.

Advantages in the use of the OCS are for example

- *Individual and independent system architecture*
- *Flexible system functionality*
- *Flexible system customizing and enhancements*

Disadvantages of this system are for example

- *Enhanced implementation workload*
- *Management of system operation*
- *Management of system administration*

Customers who have specific requirements or who need developments which concern the SRM Impact template have to submit a Change Request to the Service Management of the SRM Impact team. A Change Management process assumes the management and handling of these Change Requests.

The importance of implementation of a Change Management process, tasks and activities which have to be accomplished and which steps a Request for Change has to pass through, anything what needs to be done to become a change on the master template, will be pointed out in the following chapters of this diploma thesis.

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<sup>13</sup> BAI – SAP Business Add Ins; This can be insert into the SAP System to accommodate user requirements too specific to be included in the standard delivery. [SAPIM]

### 3 IT Management in the Change of Time

#### 3.1 The Way to Service-Orientation

Through the globalization and therefore resulting increasing competition pressure today more than ever enterprises are compelled to standardize their processes, map those in a clear way and interlock those into each other. Only with this approach you are able to face the immense cost- and time pressure, which rules in the market today. Thereby advantages in competition can be achieved continuously.

This applies not only for an organization as a whole, but also to all departments within the enterprises, particularly with regards to organization's IT departments.

An efficient management of all IT resources is necessary by the fact that IT becomes more and more service and customer related, has a significant value in organizations and takes also critical tasks (for example controlling of nuclear power plants, traffic management).

Based on the recommendations of "4Managers" an efficient IT management covers today five substantial modules. *[modified from 4MANA]*

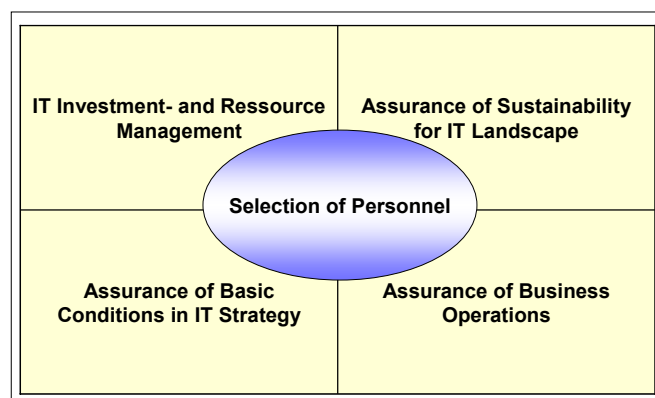


Figure 15: Modules of IT-Management

These modules are driven by different needs and requirements.  
[4MANA]

Module	Needs & Requirements
<b>Selection of personnel</b>	<ul style="list-style-type: none"> <li>▪ Personal with business and IT-know how</li> <li>▪ Perennial project experience, ability to communicate</li> </ul>
<b>IT-investment- and resource management</b>	<ul style="list-style-type: none"> <li>▪ Creation of transparency regarding to IT-investments and costs</li> <li>▪ Budget responsibility by IT-managers</li> </ul>
<b>Assurance of sustainability for IT-landscape</b>	<ul style="list-style-type: none"> <li>▪ Support of IT-planning and monitoring</li> </ul>
<b>Assurance of business operations</b>	<ul style="list-style-type: none"> <li>▪ Defining quality standards for IT-projects and controlling</li> </ul>
<b>Assurance of basic conditions in IT-strategy</b>	<ul style="list-style-type: none"> <li>▪ Defining IT-Strategy</li> <li>▪ It contains also application- and innovation management, sourcing and investment policy</li> </ul>

**Table 1: Needs & Requirements of IT Management**

The major task of the traditional IT management did include planning and development of IT applications particularly. The primary objectives were to identify early the benefits of using IT, planning of IT applications as well as to accomplish IT projects in time. Economical or cost aspects acted as a secondary role and were almost irrelevant. This was also counted to all kind of aspects to the IT architecture and standardization. A minor role was also assigned to the operation of IT infrastructures. It is indisputable that the significance and spreading of IT has been increased in enterprises as well as in private households. Today purchases of IT achievements often become the matter of course. In the course of this development requirements and demands to IT services have been changed which are made by users and customers. Today technologies do not stand in the focus of interest for customers any more. The concrete benefit of IT services for those, which is created within the use of IT services, comes in the focus. This means for organizations the optimum support of their business processes for reaching business objectives.

For this reason the manner of production of IT services is not relevant for IT benefit recipients, but rather the output, that means the IT

services per se. Quality parameters of the IT services, like functionality, availability or costs play an important role in the customer's view and not the traditional technical elements such as IT applications, servers or networks, which are necessary for the production of IT achievements.

### 3.2 Originated Models for IT Service Management

Purpose of the IT is nowadays the optimal support of business processes for reaching business objectives. Therefore the availability of the IT belongs to the critical successful factors of successful enterprises. This leads to the fact that services of IT must be business process orientated, cost optimized, user-friendly and target-oriented. Furthermore a customer orientation is indispensable. It requires the development of concrete tasks, methods and concepts for implementing, anchorage and establishment of those thoughts within IT organizations.

Different initiatives have been committed to this development work and created frameworks for a service-oriented IT management. Examples are the Information Technology Infrastructure Library (ITIL), the Microsoft Operations Framework (MOF) as well as various ISO standards resulted in the area of IT management.

The information Technology Infrastructure Library is the worldwide established de facto standard for IT Service Management. In the following chapters the ITIL framework with its integrated Change Management process will be described and explained more in detail.

## 3.3 Information Technology Infrastructure Library

### 3.3.1 Development of ITIL – Some basic Facts

The Information Technology Infrastructure Library<sup>14</sup> was born in the late 1980s in the United Kingdom. The British government has been mistrusted the efficiency<sup>15</sup> and effectiveness<sup>16</sup> of IT services in their agencies. The level of IT service quality, which was provided, was not sufficiently adequate.

An initiative was started with the objective of documentation and unification of all IT processes. A need for a methodical approach to IT Service Management was considered. [ZAHOB 05, p. 19]

The Central Computer and Telecommunications Agency (CCTA), now called the Office of Government Commerce (OGC), was assigned to develop a framework for efficient planning, controlling and monitoring of IT resources and IT processes. In cooperation with IT experts, business partners, consultants and the itSMF (IT Service Management forum), which is the only internationally recognized and independent non-profit<sup>17</sup> organization dedicated to IT Service Management [ITSMF], the framework was continuously enhanced and complemented.

Now ITIL consists of a set of about 60 books [ELSAE, p. 40] describing a comprehensive, process-based framework of processes that are involved in the administration of IT infrastructure and the management of IT services.

The components of the IT Infrastructure Library are described in the following chapters more detailed.

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<sup>14</sup> ITIL® is a registered Trade Mark, and a Registered Community Trade Mark of the Office of Government Commerce; it is also registered in the U.S. Patent and Trademark Office.

<sup>15</sup> the ratio of the output to the input of any system [WORDN]

<sup>16</sup> power to be effective; the quality of being able to bring about an effect [WORDN]

<sup>17</sup> A non-profit organisation is an organisation which is not operating for the profit of its individual members

The ITIL set of books are a comprehensive, non-proprietary, publicly available guidance for IT Service Management. It is the most used IT Service Management best practice approach in the world.

Today ITIL represents more than books. It has generated an entire industry that includes: *[PINKE, P.3]*

- *Training*
- *Certification*
- *Consulting*
- *Software Tools*
- *Trade Associations*

### 3.3.2 ITIL specific Terms and Definitions

Before major contents of ITIL are being described, a few concepts which are closely connected with ITIL have to be defined.

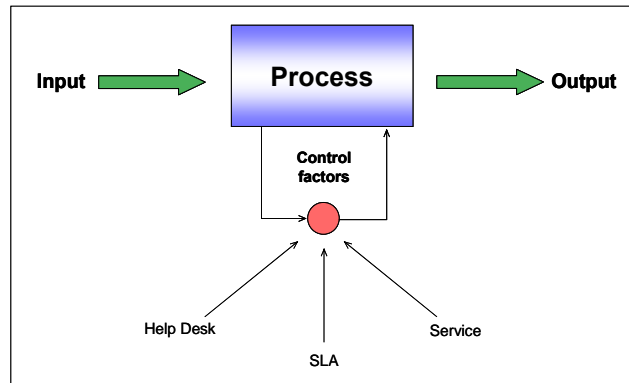
ITIL is based in the core on a process-oriented approach, which describes work routines within an organization or company and is divided into several service processes. *[KOEHL, P. 28]*

The target is to get away from the old traditional product organization to a process organization inside the entire enterprise.

#### **Process**

A Process is a “structured set of activities designed to accomplish a specific objective. A process takes one or more defined inputs and turns them into defined outputs.” *[ITILG, p. 27]*





**Figure 16: Process**

Control factors have an effect on a process, which can influence the course. These control factors may as well be outputs from other processes.

By the commitment to specific measurement categories the result can be put in comparison to any similarly process.

### **Service**

A service is a defined task which is necessary to accomplish a certain business process. The level for quality and quantity of a certain service or defined task should be measurable. All requirements for a service, any business process and also the underlying IT infrastructure are gathered under ITIL within a SLA (Service Level Agreement). [KOEHL, p. 31]

### **Roles**

For every ITIL set suitable roles have to be defined which realize the processes and which are responsible for these realizations.

The responsibilities and competences of the several roles have to be defined clearly and must be accepted by all employees as well as in the management. [BUHLU, p. 135]

The three main roles with their responsibilities are:

Process owner

- *Responsible for the entire process*
- *Responsible for the consideration of strategically enterprise purposes in the process*
- *Arranges targets and Key Performance Indicators (KPI) together with process manager*
- *Supports and guides the process manager to solve problems*

Process manager

- *Responsible for "functioning" of process and steering necessary changes for the optimization*
- *Arranges necessary measures for implementation of the process and supervises it*
- *Controls and steers the observance of instructions and check lists*
- *Leads process quality teams*
- *Typical process managers are incident-, problem-, change and release manager*

Process employee

- *Realizes of the activities defined in the process*
- *Responsible for the quality of the output*
- *Escalation in case of complicacies to the process manager*

### Key Performance Indicators (KPI)

To be able to compare processes among each other and to be able to indicate the success and use of an ITIL implementation, suitable measuring dimensions and key dates have to be fixed. Within ITIL these are called Key Performance Indicators.

A KPI is “used to help manage and report processes, IT services or activities. KPIs should be selected to ensure that efficiency, effectiveness, and cost effectiveness are all managed.” [ITILG; p. 22]

Köhler, an author in the area of IT Service Management, has the opinion that KPIs are “informative key dates in the direct relation to an ITIL process”. [KOEHL05, p. 33]

Based on the ITIL empirical best practice approach KPIs are the important value to compare own processes with processes of IT organizations in other enterprises. It is important that these suitable measuring dimensions already exist in organization before an ITIL implementation takes place. Only so you are able to indicate the changes after the adoption. [ELSAE05, p. 38]

Indeed, ITIL refers to the importance of the implementation of measurements, however, ITIL returns no fix and general-valid.

Some typical examples of various KPIs from practice are:

- *The number of changes implemented in the period*
- *The total elapsed time on closed problems*
- *Total number of incidents managed*
- *Number of Configuration Items (CI) logged and tracked*

According to a publication of university of applied science Bonn-Rhein-Sieg key performance indicators must identify special requirements: [SOCOS, p. 10, et. seq.]

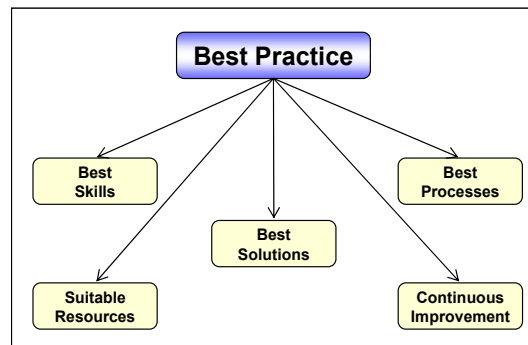
Requirement	Description
<b>Transparency concerning process objectives</b>	KPIs must have defined statements for reaching process goals or removal of weaknesses
<b>Interference</b>	Containing the examination of the process design to the KPI value. A redesign of an process must have effects to the defined KPIs
<b>Independency</b>	KPIs have to be defined separately for each separate process.
<b>Measurability</b>	KPIs must be measurable and the measurements must be lawful
<b>Intelligibility</b>	KPIs should be easy to understand
<b>Acceptance</b>	The KPI must be accepted by the process owner as well as by all process involved parties

**Table 2: Requirements of KPIs**

### Best Practice

“A best practice is a technique or methodology that, through experience and research, has proven to reliably lead to a desired result. A commitment to using the best practices in any field is a commitment to using all the knowledge and technology at one's disposal to ensure success.” [SEARC]

The significant elements of best practice are depicted in figure 17.



**Figure 17: Elements of Best Practice**

Advantages of the adaptation of a best practice procedure are for example: [KOEHL05, p. 34]

- *Improved customer satisfaction*
- *Enlarged contentment of the staff and therefore smaller personnel fluctuation*

- Assurance of a mature approach
- Enlarged and quicker ROI<sup>18</sup>

### 3.3.3 ITIL Structure – an Overview

ITIL is a set of books written principally by customers, to give best practice information on the several disciplines of running IT.

After a large revision in 2001, the target was to group and actualize the present information and remove redundancy, seven essential modules have been originated. Today, these modules are an established framework for systematic, practical and customer oriented implementation of IT services. They are enclosing the enterprise view as well as the technology view.

Figure 18 shows the publication Framework. [modified from ITILO]

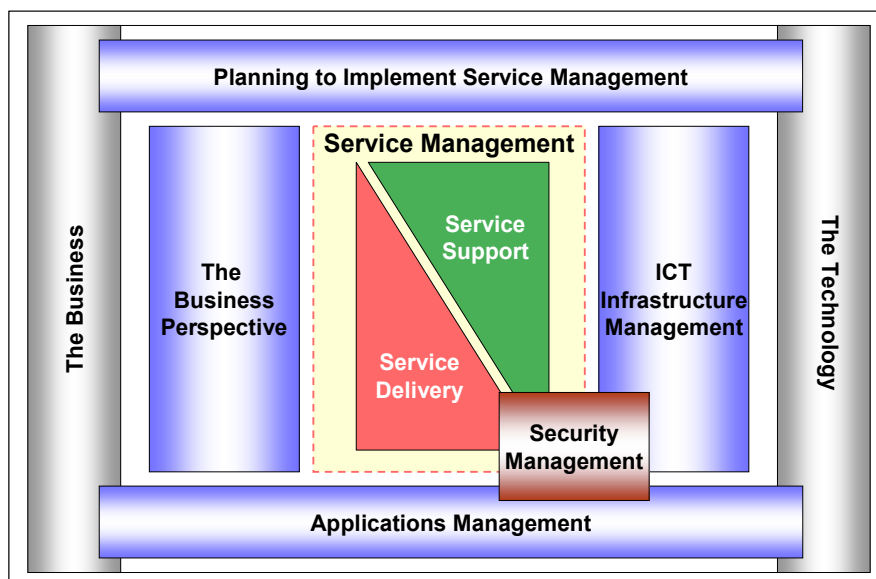


Figure 18: The ITIL Framework

To receive an overview about the several ITIL areas, the different books are described in the following chapters in a short way. [KOEHL, p. 37 et seq.; ELSAE, p. 40 et seq.; ITILO]

<sup>18</sup> The Return on Investment (ROI) is a measurement of the expected benefit of an investment; Calculation:  $ROI = \text{Annual profit} / \text{Average amount Invested}$

### **The Business Perspective**

The Business Perspective is concerning with allocation links between IT and the business of the organization. Requirements for the IT management are considered. Strategic aspects of the IT services like supply and backup for the services used in daily business as well as for special or emergency situations are in the focus of this set. Furthermore this part deals with partnerships, outsourcing, supplier relationship management and customer relationship management.

### **Planning to Implement Service Management**

The aim of this module is to give some best practice guidance to evaluate present maturity levels of Service Management and to implement improvement to processes. It is concerning with planning, implementation and continuous improvement of the ITIL-processes. It supports organizations to identify their strengths and weaknesses and explains how to reach their benefits. Advices for creation of as-is analysis, target agreements and milestones are also part of this book.

### **Applications Management**

In this set basic requirements for the application lifecycle are moved in the foreground. It guides users through the planning, delivery and management of quality IT services and shows the complex field of managing applications from the initial, through the lifecycle, up to and including retirement.

The book provides a widespread description of all the management processes that need to be run through the lifecycle of an application.

This lifecycle contains of:

- Requirements
- Design
- Build
- Deploy

- Operate
- Optimize

ITIL gives useful tips and best practice approaches for the agreements between software development and estimated use. In addition defined standards for development, change and test are described.

### **ICT Infrastructure Management**

ICT Infrastructure Management defines key processes that build the infrastructure for Information and Communications Technology (ICT). It is concerning with the processes, organization, and tools which are needed to provide a consistent IT and communications infrastructure. General-valid attempts (none specific for branches) for the use of hardware, software, networks and computer concerning activities are described.

ITIL divides the ICT Infrastructure Management into the following parts:

- *Design and Planning*
- *Deployment*
- *Operations*
- *Technical Support*

### **Security Management**

Today security is an essential quality aspect of management. Because of e-commerce and the increasing World Wide Web IT is regarded as one of the major management challenges for the following years.

Security management extends the existing ITIL processes by the issue security. It presents processes to manage and ensure a defined level of security on information and IT services, including the management of the reaction to security incidents. The main task is to guarantee a defined step in security for the IT services.

To be able to ensure data security, a security plan has to be drawn which contains all arrangements for the protection of a company or public institution. To enable anyone to check the observance of the introduced safety measures, regular audits should be accomplished. It is also important to conduct continuously supervision of the safety measures, to evaluate their effectiveness and efficiency and if necessary initiate other measures.

Main targets of the Security Management are for example:

- *Protection of data confidentiality*
- *Securing integrity and availability*
- *Fulfillment of legal and contractual obligations*

### Service Management

The core element within the ITIL framework forms the IT Service Management. This is basically composed of two main areas, Service Support and Service Delivery. These parts demonstrate the operational and accordingly the tactical level of service-oriented IT management. Together, these parts comprise the operations that supply provision and management of effective IT services.

Figure 19 shows the different components including varied processes contained within IT Service Management:

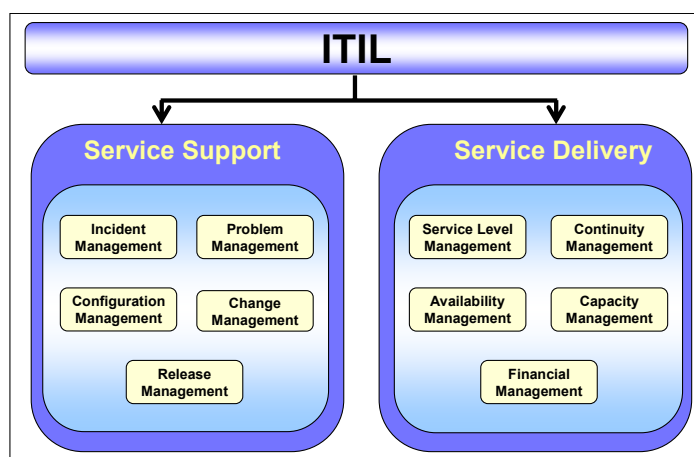


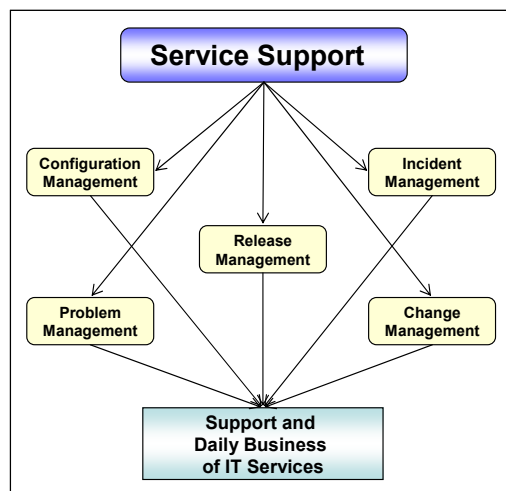
Figure 19: ITIL Service Management



In the following chapter the components and processes of ITIL Service Management are described more detailed.

### 3.3.4 Service Support

The area of Service Support deals with the daily business to support and provide IT services.



**Figure 20: Scope of Service Support**

Each of these processes forms a logical unit. Nevertheless, they have interfaces and relations to each other as well as connections with other ITIL process groups.

#### **Incident Management with Service Desk**

Incident management treats the interface between users of data processing and the IT department which covers the suitable support. The main objective is to fix a disruption on IT services and return operation as quickly as possible. In this process a defined solution of a problem is not in the focus, but rather the rapidity of recovering frictionless business.

In ITIL an Incident is an “unplanned interruption to an IT Service or reduction in the quality of an IT service. Any event which could affect an IT service in the future is also an Incident.” [ITILG, p.18]

The Service Desk is closely connected with the Incident Management and is no independent process. But it is a central point and a key function within the IT organization. This function has to supervise the activity of troubleshooting.

To handle an incident accurately, different escalation steps in the service desk are distinguished: [ELSAE, p.48]

- *First Level Support: immediate trouble-shooting by call centre*
- *Second Level Support: for complex and difficult problems by special skilled personnel*
- *Third Level Support: using of experts*
- *Fourth Level Support: if Third Level Support fails, external support is possible*

### **Problem Management**

A problem is “the root cause of one or more incidents.” [ITILG, p.27]

The task of problem management is searching for the cause of an occurred incident. It has the objective of minimizing the impact of incidents and problems resulting from errors within the IT infrastructure and to proactively prevent the occurrence of incidents, problems and errors.

### **Configuration Management**

“The Process responsible for maintaining information about Configuration Items which are required to deliver an IT Service, including their relationships. This information is managed throughout the lifecycle of the CI.

The primary objective of Configuration Management is to underpin the delivery of IT services by providing accurate data to all IT Service Management Processes when and where it is needed.” [ITILG, p.11]

Configuration Items are “any components that needs to be managed in order to deliver an IT Service.” [ITILG, p.11]

A central unit of Configuration Management forms the ITIL Configuration Management Database (CMDB). All CIs and basic information about data as well as relationships between several CIs, which are necessary for the service provision, are stored in the ITIL CMDB.

### **Change Management**

Within the scope of the Change Management standardized methods and procedures are figured for all changes in the IT environment. It accomplishes all planned changes in the IT infrastructure and all of their Configuration Items to avoid negative effects of a change and to maintain service quality. The requests for change (RFC), also named Change Requests (CR), of other ITIL processes as well as customer specific RFCs are gathered, classified, authorized, planned coordinated, documented and evaluated.

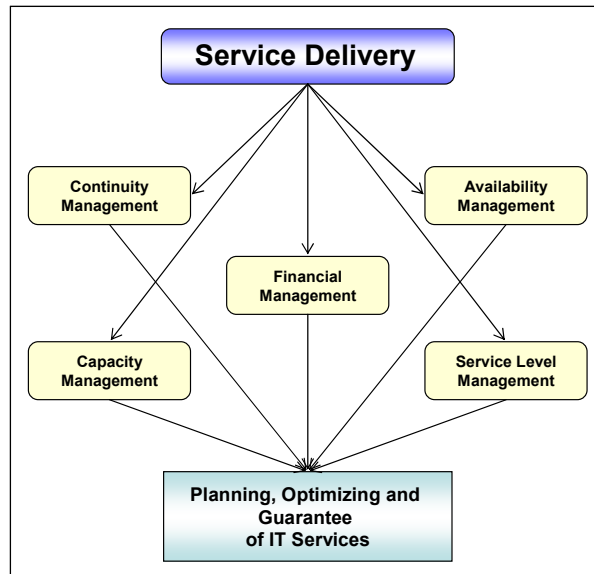
The separate process steps of the Change Management, which can also be applied to the management of Change Requests within software applications, are described in the chapter four in detail.

### **Release Management**

The purpose of ITIL Release Management is the successful planning and controlling of extensive hard and software installations. In contrary to Change Management the Release management is focused on the actual implementation of changes as well as the managed rollout of new versions.

#### **3.3.5 Service Delivery**

The area of Service Support deals with the long-term planning. It optimizes and guarantees the IT services to customers.



**Figure 21: Scope of Service Delivery**

The provision of a service is to offer users adequate support. Service Delivery covers all aspects that must be taken into consideration.

Like Service Support the separate processes are still related to each other.

### **Service Level Management**

Service Level Management is the process that illustrates the connection between the IT organization and customers. The objective is to draw, monitor and control the service level agreements<sup>19</sup> and their underlying service quality.

### **Financial Management**

Financial Management is used to deliver cost-effective responsibility of the IT assets and resources used in providing IT services. It provides the basis for information on economical control, finance planning and cost accounting.

<sup>19</sup> A service level agreement (SLA) is an informal contract between a service provider and a customer that defines the terms of the service provider's responsibility to the customer and the type and extent of remuneration if those responsibilities are not met.[IECOR]

**Availability Management**

This part guarantees the availability of IT services as specified by the customers. It is also used to optimize the ability of the IT infrastructure, services, and supporting organization to deliver a cost effective and ongoing level of availability enabling IT to succeed their objectives.

**Capacity Management**

Capacity Management ensures that the resources to meet the agreed customer requirements are provided economically. The future business needs of IT services have to be considered.

**Continuity Management**

The goal of Continuity Management is to safeguard the performance of service in any eventuality based on planning and implementation of preventive measures. Continuity Management ensures that the required IT, technical and service facilities can be recovered within required and agreed timeframes.

**3.3.6 Interaction of Service Delivery and Service Support**

The following example lifecycle of an incident illustrates the reciprocal relations between the separate processes.

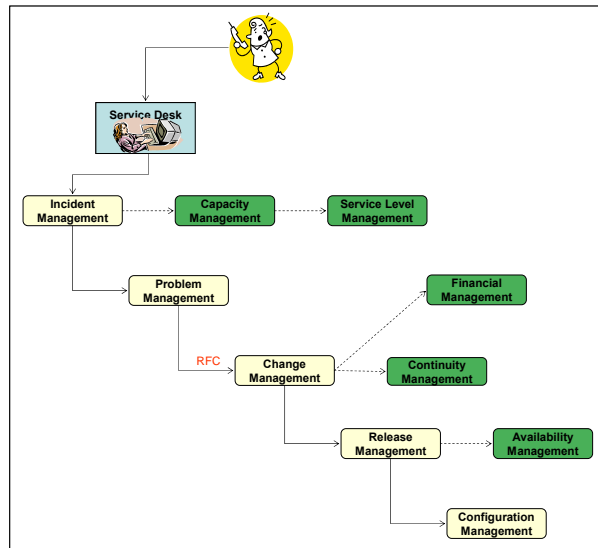


Figure 22: Interaction of Service Support and Service Delivery

### Example

A user calls the Service Desk because he has problems with his IT service. For example he does not have access to his web-based database application.

Now the Incident-Management process is gathering the incident, but it can not solve. The Problem Management checks the reason for the happened problem and consults to Capacity Management. Also the Service Level Management is informed about the infringement of the Service Level Agreement. In the meantime the Problem Management gets the solution of the user's dissatisfaction and proposes a Request for Change with to objective to change the system and to solve the problem subsequently. The Change Management process coordinates the change. Also Financial Management is involved in this scenario. It assists to the compurgation of cost of an eventually upgrade. A backup is ensured by the Continuity process if a problem occurs in the implementation phase. The necessary changes are implemented by the Release Management, which informs the Change Management about new releases that are available. The Availability Management process ensures the level of availability and reliability. In the last step the

information of the involved and changed system components are updated in the Configuration Management Database.

### 3.3.7 IPW Model

Another known process model in the service-oriented IT management is the IPW-Model<sup>20</sup>. It shows how the ITIL processes can be linked sensibly. With this process model it is possible to describe simple and clear the relationships and dependencies of the separate ITIL processes. It provides a process-oriented view to organizations and includes customers, users as well as suppliers in the whole process. The whole model is depicted in figure 23. [modified form TCTCO]

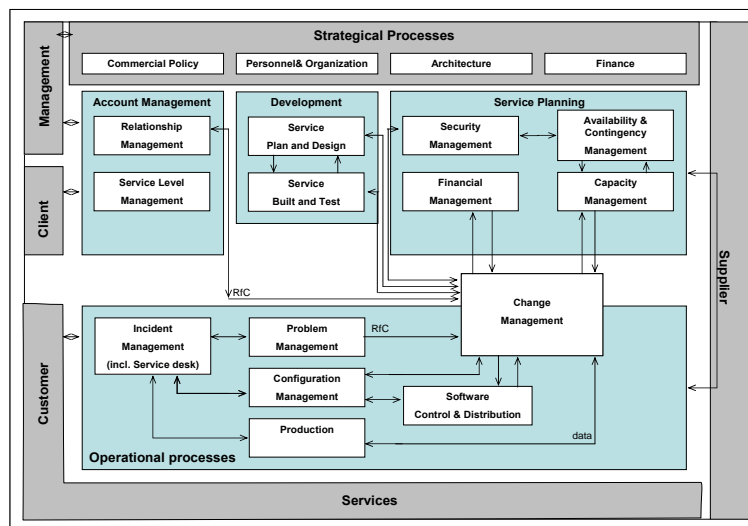


Figure 23: The IPW-Model

### 3.3.8 ITIL Implementation in Organizations

The IT Service Management represents an enormous challenge to the modern management of IT in organizations. As a process for planning, controlling, monitoring and coordinating of all IT relevant activities and resources the Service Management aims for the long-termed increasing of quality, efficiency and effectiveness to IT services.

<sup>20</sup> IPW is a trademark of Quint Wellington Redwood and KPN Telecom.

In the meantime the ITIL set of books are often proved as a guideline for best practice. ITIL illustrates today a de facto standard for IT Service Management. It has been rapidly adapted across Europe and is gaining acceptance across the globe. [CHORU]

The following listed surveys from different sources should give an overview about the diffusion rate of ITIL, business drivers for an adoption and the implementation rate of ITIL projects. Also barriers of an ITIL introduction are pointed out.

### Diffusion rate

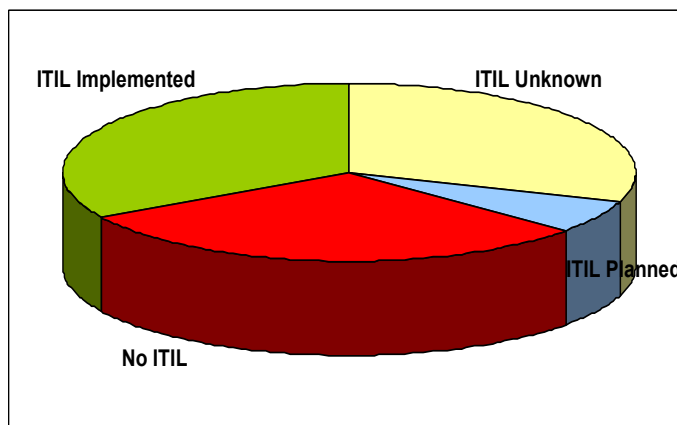
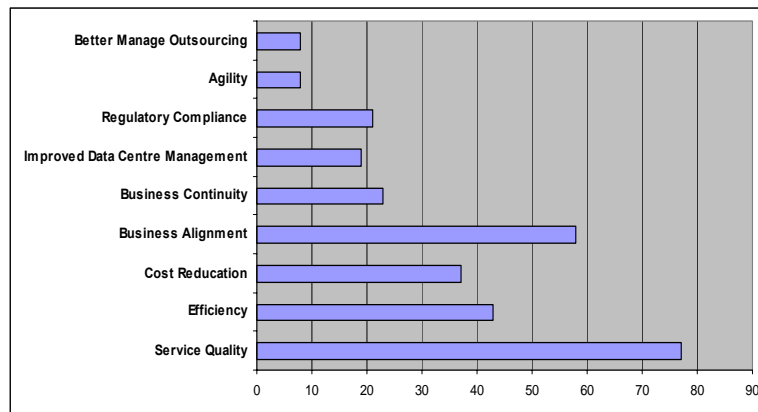


Figure 24: Diffusion Rate

This study from the University of Applied Science Aalen from the year 2004 with 217 participants figures that the IT Infrastructure Library is the most popular approach for implementation of IT Service Management. At the present the majority of enterprises align their processes with the assistance of ITIL.



## Key Business Drivers



**Figure 25: Key Business Driver**

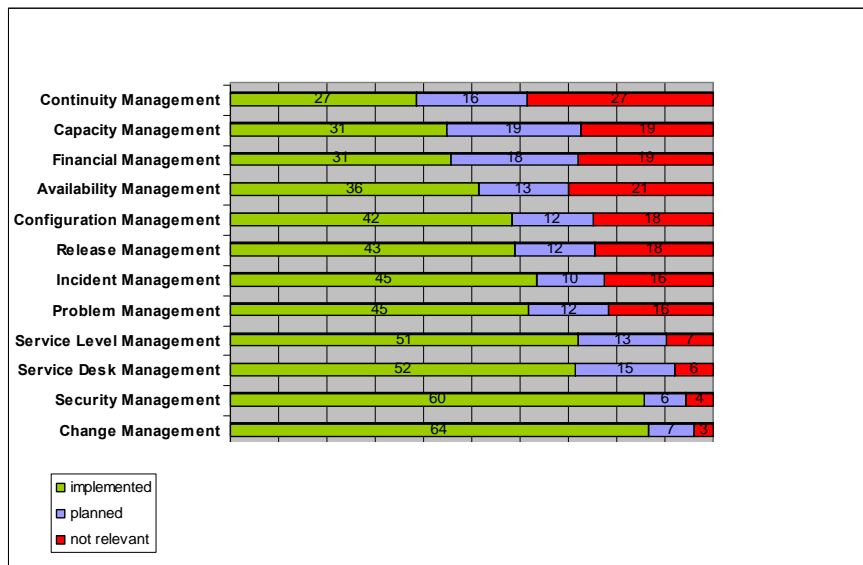
In the first quarter of 2006 the Evergreen Systems, Inc. conducted a survey to 108 companies in North America. Among other things also expectations of the enterprises with an ITIL implementation were analyzed.

The survey does indicate that the goals of the questioned enterprises with an ITIL certification are multi-layered.

It does not surprise that quality, efficiency, business alignment and cost reduction rank first of the expectations. These are also the principal objectives that ITIL defines for its best practice approach.

Service quality is the top business driver for an ITIL adoption. For most organizations, service quality is inconsistent, unpredictable and hard to improve. With the ITIL principles the enterprises expect to define and deliver planned services for quality. Also ITIL can be a good solution for improving business continuity and data center management. To reach these goals and to put them into the enterprise, organizations need special ITIL-trained personnel.

## Implementation rate of ITIL projects



**Figure 26: Implementation rate of ITIL projects**

This diagram gives an overview about typical ITIL processes that already moved into the enterprises. Schwetz Consulting accomplished this study in 2004 with 67 enterprises.

The evaluation shows that the Service Support processes are widely-used in the interviewed enterprises today. This results of external pressure, which means a process optimization is mostly pushed by customers or users. Furthermore this survey shows also that other ITIL adoptions are planned in organizations.

Also the Change Management is frequently deployed. This process is necessary for further changes in the sense of the ITIL implementation.

## Barriers to ITIL Adoption

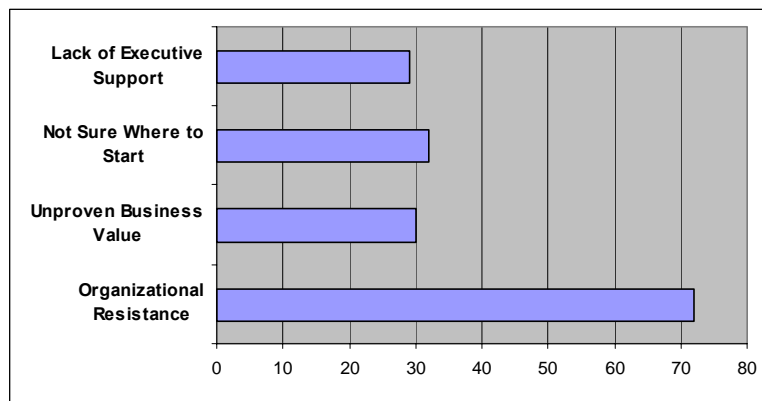


Figure 27: Barriers to ITIL adoption

This survey was published by Prosci Research in 2005 at 411 enterprises in North America.

The figure shows the most significant barriers to ITIL adoption within organizations. The primary barrier is the organizational resistance to change. Employees face skeptically to an adoption of a best practice framework. Every implementation requires an extensive change of the employees, customers and users. This change must be accepted at first, so that the project can be moved successfully.

Other reasons like unproven business value, unawareness of where to start and lack of executive support represents also big barriers. But these may be easier to remove to meet business goals.

### 3.4 Conclusion

The primary objective of IT Service Management is the alignment of IT services to the present and future challenges of the enterprise and its customers. The quality of the performed IT services shall be improved and the long-term costs of the service activities shall be reduced. By giving best practice with integrated guidelines, ITIL contributes to the achievement of those objectives. The efficient and effective use of all technical and non-technical resources is in focus.

But, ITIL only dictates what has to be done, not how it has to be done. The how is something every organization needs to determine for themselves. ITIL is no international approved standard, so enterprises can not get certified by using it. It is not a maturity model, but a customizable framework of best practices.

Each enterprise should be conscious that ITIL does not represent a silver bullet. It is not able to change the organization, define the services, and motivate the employees or even offering complete solutions. It only presents supporting processes.

Although all core elements are described in ITIL, many questions remain open for a concrete implementation in each enterprise and are still unsettled.

However, ITIL offers flexibility, because the different modules can be combined with each other almost arbitrarily to receive the maximum value. It is not necessary to use the whole concept for implementing ITIL successfully.

ITIL requires a stringent rethinking in organizations, away from pure technology to a service-oriented approach. The primary objective is to align the mostly technology-centered IT organizations up to a process-, service- and customer oriented approach. So the ITIL recommendations are a crucial basis for reliable, safe and economic IT services.

It is also very important to inform and include the employees betimes. The successful use of the best practice approach needs primarily the management to live by the ITIL philosophy.

The major benefits and gaps of ITIL are depicted in figure 28.

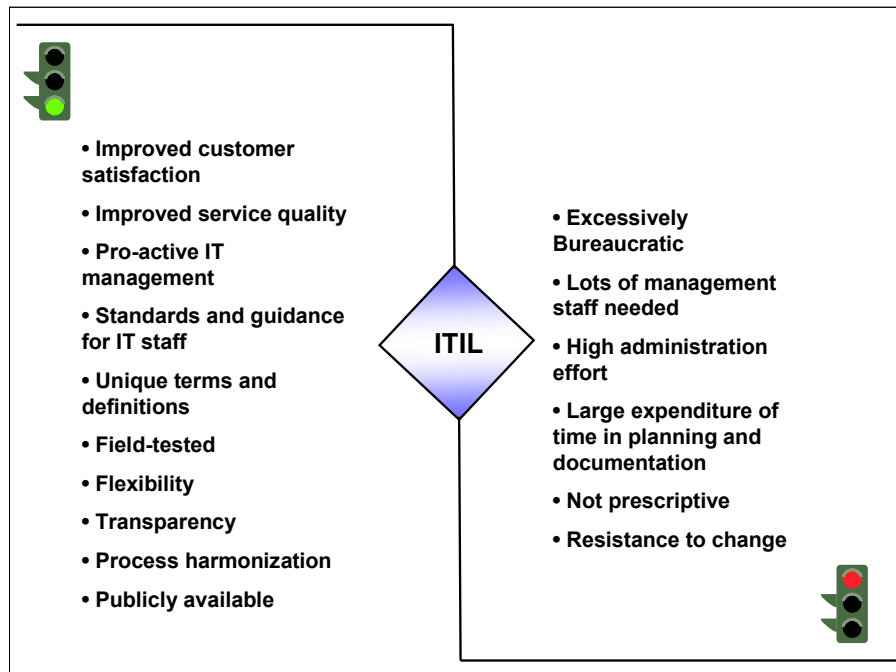


Figure 28: Fits and Gaps of ITIL

## 4 ITIL Change Management

ITIL Service Support generally focuses on the daily operation in business and support of IT services. It is splitted into five main processes and one key function. This part deals with the day-to-day support and maintenance of Incident Management, Problem Management, Change Management, Configuration Management and Release Management plus the Service Desk function.

The several Service Support processes with the centralized Change Management are depicted in the following figure. *[modified from OGCUK]*

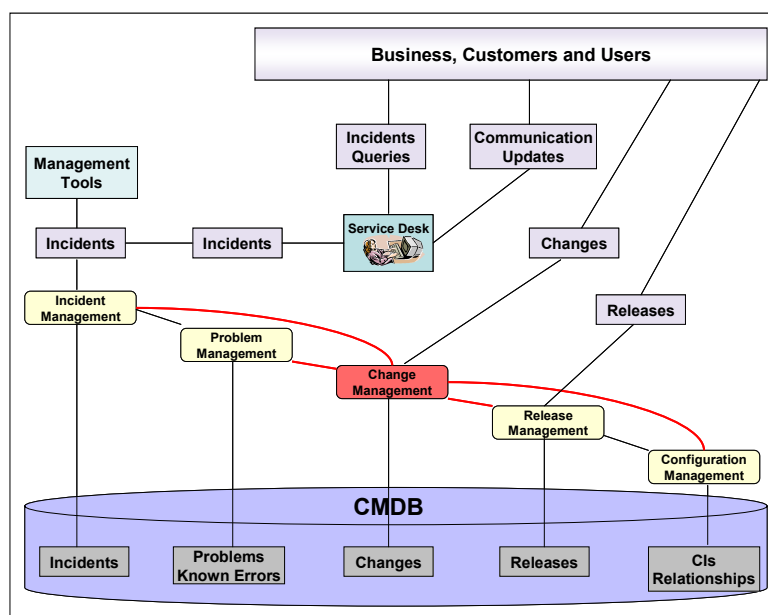


Figure 29: Relationships within Service Support

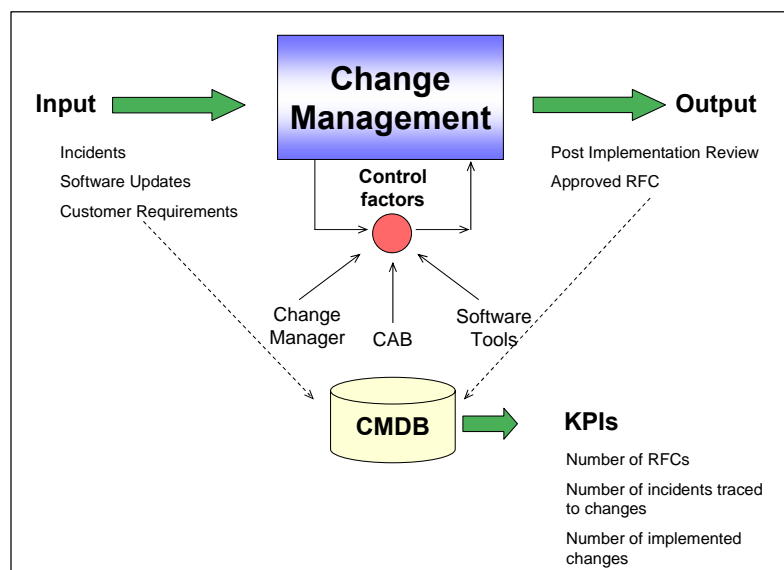
A single, centralized Change Management process, for the efficient and effective handling of changes, is essential to a successful operation of any IT organization. Changes must be carefully managed throughout their entire lifecycle from initiation and gathering, through filtering, prioritization, categorization, approval, scheduling, development, testing, implementation and review.

According to the opinion of many authors the Change Management represents one of the most important ITIL processes. All other ITIL processes cause changes in existing systems which are subjected to the Change Management. The experience in the daily business shows that a high portion of incidents, errors or problems concerning IT service quality can be traced back to failed changes on IT systems.

## 4.1 Goal of Change Management

The goal of the Change Management process is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of change-related incidents upon service quality, and consequently to improve the day-to-day operations of the organization. *[ITILS]*

The schematic view of the Change Management process is depicted in the following figure. *[modified from KOEHL, p. 95]*



**Figure 30: Change Management Process – schematic view**

## 4.2 Tasks of Change Management

A high portion of problems regarding to quality and availability of services can be retraced to changes on a current IT system. Each new adoption of an IT system, any update and each system expansion may implicate changes, which pose a high risk for the running system in an organization and thus for the service quality.

With the increasing requirements for the end customer's services and therefore resulted higher complexity, changes in heterogeneous system environments can not be implemented without appropriate controlled and standardized methods. These Changes have to be accomplished cost-effective and with low risk as well as minimum of consequences for the customer.

Therefore it is crucial important to establish a Change Management process in an organization, that ensures a uniform, standardized procedure for the approval and realization of all changes. This process estimates possible effects that a change may implicate. Also costs, benefits, risks, advantages and disadvantages are identified.

Typical examples for changes in the IT environment are:

- *Implementation of changed software packages*
- *Installation of new tools*
- *Exchange of system components*
- *Modifying of software because of customer requirements*
- *Implementation or recon of new Hardware*

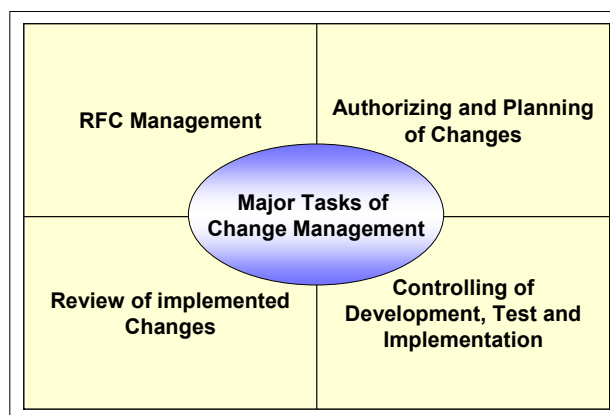
In addition to ensure that standardized methods are used for the handling of changes the Change Management has the following tasks:

- *Management of Change Requests*
- *Authorizing of changes*
- *Risk estimation in the run up of change implementation*
- *Cost estimation of changes*



- *Change planning*
- *Controlling of development, test und implementation of changes*
- *Review of changes*

The major tasks of Change Management are depicted in Figure 31 below.



**Figure 31: Major tasks of Change Management**

### 4.3 Terms and Roles

To understand the entire Change Management process different specific terms and rolls are explained in the following. [OGCBP, ITILG] It depends on the scope of discretion as well as on the enterprise' size if an organization needs every single role or tasks. Organizations can allocate multiple responsibilities to each role.

#### 4.3.1 Terms

##### **Request for Change**

A Request for Change, also named Change Request, is a form or screen, used to record details of a request for a change to any Configuration Item within an infrastructure or to procedures and items

associated with the infrastructure. Details are for example a description of the change, affected components, business need, cost estimates, resource requirements and approval status.

A Change Request can have two different results:

- *It can be approved / accepted*
- *It can be rejected*

## **Change**

A Change is the addition, modification or removal of anything that could have an effect on IT Services. A Request for Change becomes a Change after the approval by the Change Advisory Board. The Scope should include all Configuration Items, processes, documentation etc.

## **Change Advisory Boards**

Change Advisory Boards are an important issue in the Change Management process. They are the decision-making boards for the IT organization that approve or reject Change Requests.

ITIL distinguishes three different types of boards:

### *Change Advisory Board (CAB)*

This board is the standard decision-making board. It consists of a group of people that assists the change manager in the assessment, prioritization and scheduling of Change Requests.

### *Change Advisory Board Executive Committee (CAB/EC)*

This instance is a sub-set of the Change Advisory Board which decides about emergency changes.

### *IT Executive Committee (ITEC)*

This board approves major changes to the IT environment if the CAB cannot reach a final conclusion.

**Forward Schedule of Change (FSC)**

The Forward Schedule of Change is a document that lists all approved changes and their planned implementation dates.

**Backout Plan**

When implementing a new release, it is very important that backup procedures can fully restore the live environment to pre-implementation conditions. If a significant implementation problem occurs, a backout plan should be available immediately. The Change Management is responsible for the development of backout plans.

**Post Implementation Review (PIR)**

This review takes place after a change has been implemented. A PIR determines if the change was successful or not and identifies opportunities for improvement.

#### 4.3.2 Roles

In order that the Change Management process can operate effectively, different roles with their corresponding areas of responsibility have to be defined. ITIL suggests the following roles:

**Change Management Process Owner**

The process owner owns the process and the supporting documentation. He has to ensure that the process is followed by the organization. He is also responsible for the approval of all proposed changes to the process.

**Change Requester**

The change requester initiates changes by submitting an RFC to the change manager. Everyone in the organization should be authorized to initiate a Change Request. He is responsible for completely filling out

the RFC form. The change manager has to inform the change requester about the decision of the approval process.

### **Change Manager**

The change manager is responsible for managing all activities of the Change Management process in the IT organization. He is involved in every step of the process, from the receipt of an RFC to implementation of a change. He is also responsible for successful implementation of any change in the IT environment.

Different tasks and responsibilities of the change manager are for example:

- *Selection of CAB members*
- *Leadership in CAB meeting*
- *Analyzing and prioritizing Change Requests*
- *Approving requests for minor changes*
- *Reviewing and evaluating the change process*

### **Change Owner**

After the Change Request's approval the change manager assigns a Change Owner for a particular change. He is responsible for planning and implementing the approved change in the IT environment. Furthermore he has to follow the change schedule. The Change Owner should routinely provide status feedback to the change manager and has to identify any problems if they arise. He has to work closely with the change manager to ensure that the change will meet the change initiator's requirements.

For major, significant, and minor changes (categories are being described in the following chapters), the change owner may also serve as the release manager. Together with the change manager he coordinates the post-implementation review analysis.

## 4.4 Change Management Process

The following chapter shows and describes a possible workflow of the Change Management process. It figures an overview about the way a Change Request, for example from a customer's demand, has to pass through and what have to be done to become a change. The several activities of the Change Management process and corresponding steps, functions and responsibilities are described in chapter 4.5 in detail.

### 4.4.1 Workflow

Figure 32 shows a flowchart of a possible Change Management workflow.

#### Legend

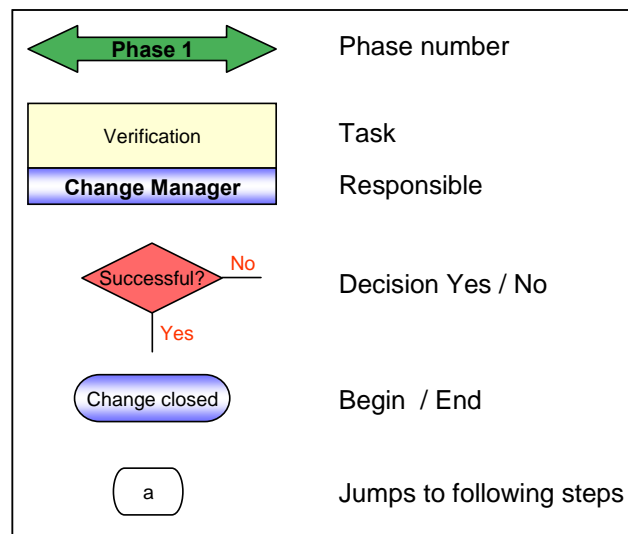
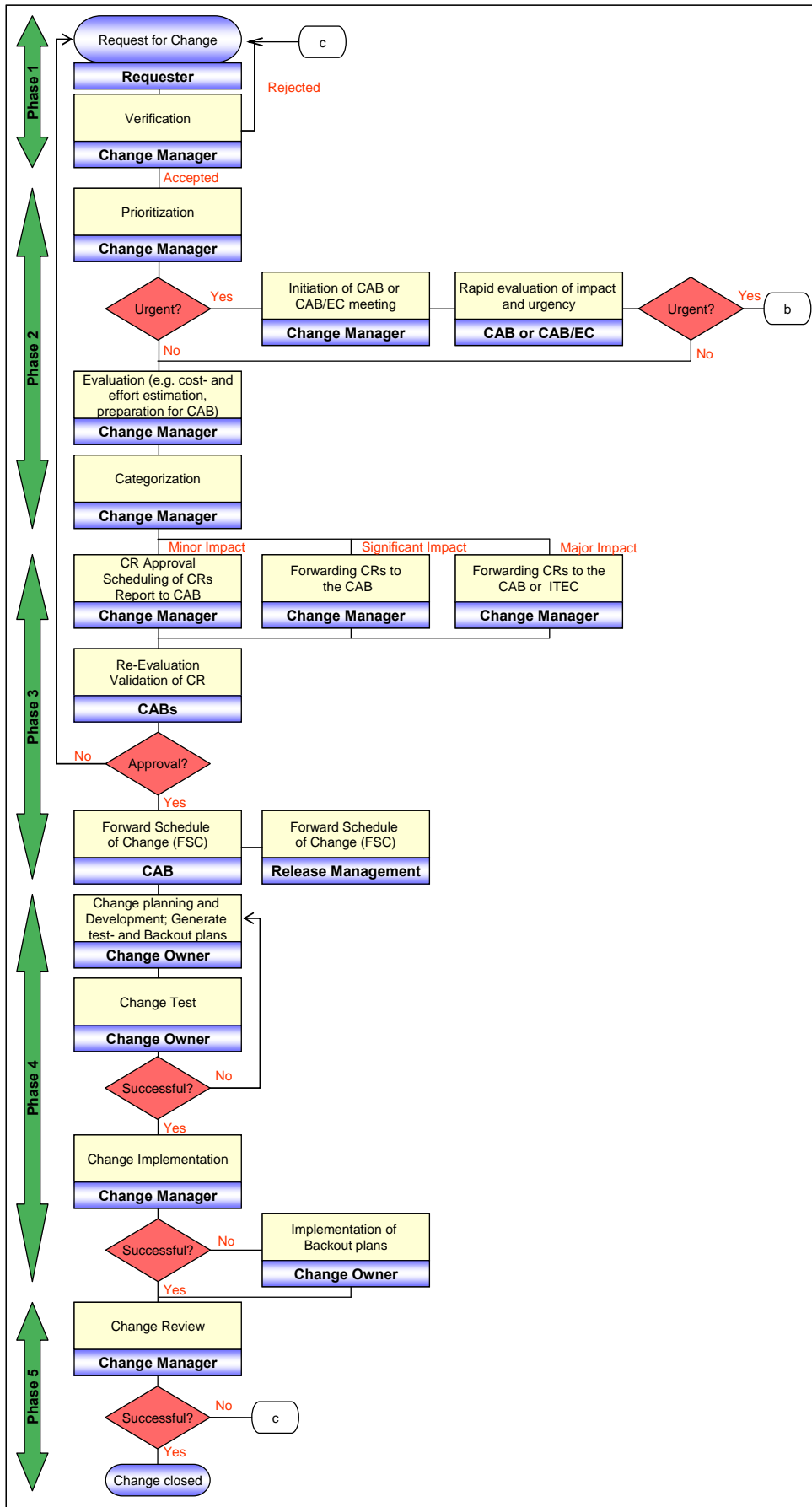
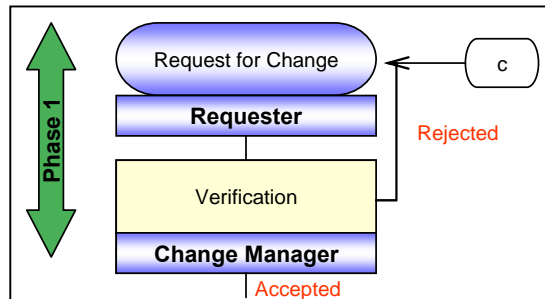


Figure 32: Workflow Legend



**Figure 33: Change Management Workflow**

#### 4.4.2 Basic Process

**Figure 34: Phase 1 of the CM Process**

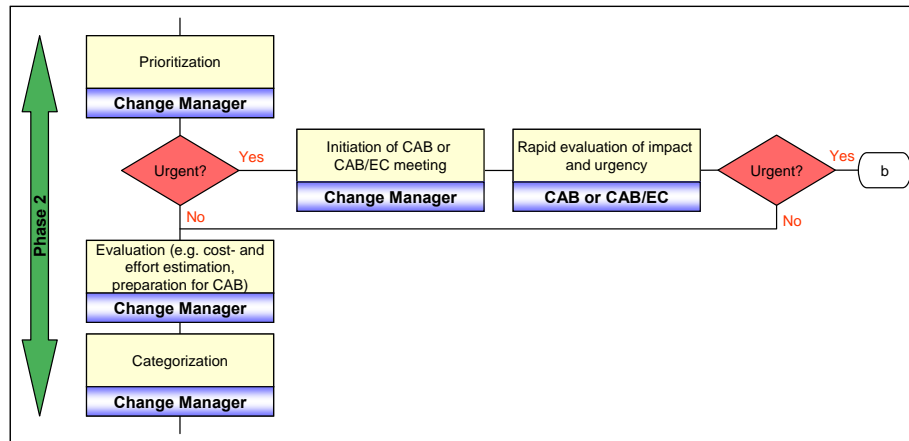
The Change Management process begins with the receipt of RFCs from the requester. He collects and filters all Change Requests of his own department / environment from different reasons which will be mentioned in chapter 4.5.1 and submits these requests to members of the Change Management.

The Change Manager gathers and checks the request against completeness, necessity and feasibility. He also verifies that the change does make really sense and ensures the business content. Absurd requests can be filtered in this early phase.

If everything is correct he accepts the request and logged it into a database or into any other gathering place. If anything is incorrect or inconsistent the Change Request will be rejected and the Change Requester will be contacted.

Reasons for the rejection may be for example:

- *The Change Request is not suitable to the company's strategy and architecture*
- *The Change Request is inconsistent against the organizations guidelines*
- *The prospective complexity is too high*
- *Conflicts with ongoing development*



**Figure 35: Phase 2 of the CM Process**

After the Change Request has been verified the Change Manager has to prioritize, evaluate and categorize the Request for Change.

To meet the Change Management's process objective, approval or rejection of a request, the change manager firstly defines the priority of the RFC.

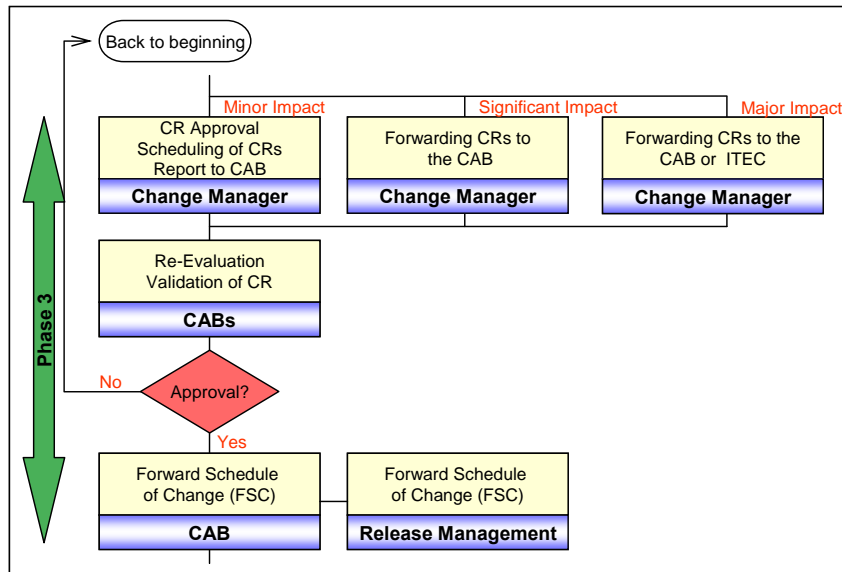
If it concerns urgent changes an accelerated process takes effect in which the RFC enters. This process will be described in chapter 4.4.3.

The change manager prepares the request for discussing in the Change Advisory Board. If he does not have all information or knowledge to specify the CR exactly he orders a team (mostly the subsequent development team) to do the technical specification of the Change Request. This specification is also the base for the effort- and cost estimation. If there is no budget to implement the change or the effort for realization is too high, it will be discussed in the CAB meeting again.

The next step is to categorize the Change Request to the impact on business of the expected change. In this phase, if necessary, coordination with the requester is expedient.

All information about prioritization, evaluation and categorization as well as information of the following phases has to be stored.





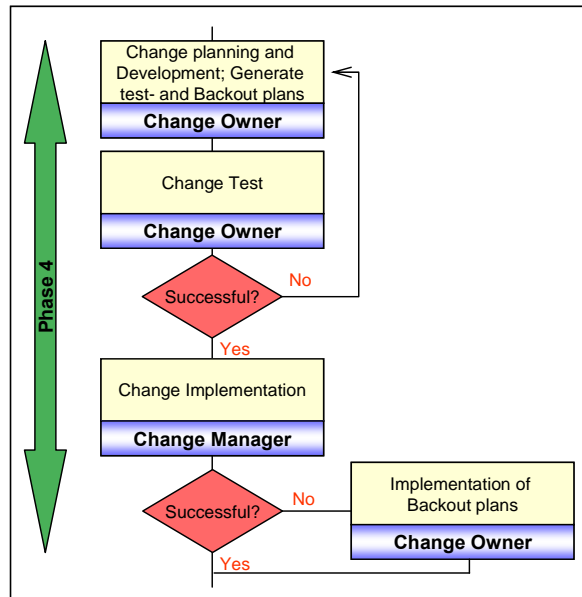
**Figure 36: Phase 3 of the CM Process**

Depending on the each category, the Change Request may be approved directly by the change manager (minor changes). In case of significant or major changes the RFC has to be approved by the Change Advisory Board.

The change manager prepares the CAB meeting and informs the members about the determining RFCs. He forwards all requests that have to be discussed to members of the CAB.

On the basis of the change manager's priority and category evaluation all RFCs are debated. If it is necessary the priorities are specified again. If the Change Request is approved by the Change Manager or by a certain board it becomes a change. The hierarchy of the different approval steps is described in chapter 4.5.5. In case of a rejection the Change Manager contacts the requester and gives reasons for this decision.

With assistance of the Forward Schedule of Change the time planning of changes for development will be conducted. Together with the Release Manager this schedule will be planned. These changes will be inserted into the change schedule and thus they are available for other processes like Release Management and Service Desk.

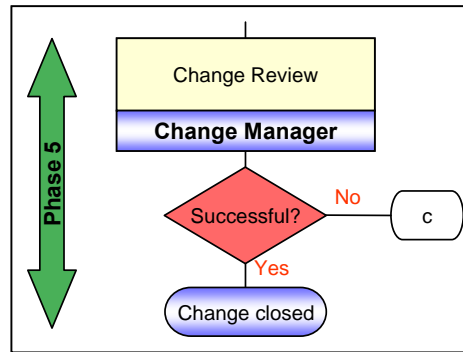


**Figure 37: Phase 4 of the CM Process**

After the Change Request has been approved and has been entered in the change schedule too the change manager forwards the change to the change owner, who is responsible for planning the development. Also test plans and backout procedures, to ensure that the system environment can be recovered in case of problems or disturbances are planned and developed by the change owner.

Now the Release Management is responsible for the development and test of the change, whereas the Change Management coordinates and monitors these work procedures and remains responsibility for the result. The following test phase should be executed extensively, because follow-up costs of failed changes are considerably higher than the costs for sufficient tests.

After development the change manager approves these tests and enables the change for implementation into the system environment or into the new release. To ensure that the changed system runs, tests have to be accomplished again. If these tests fail a backup will be installed.



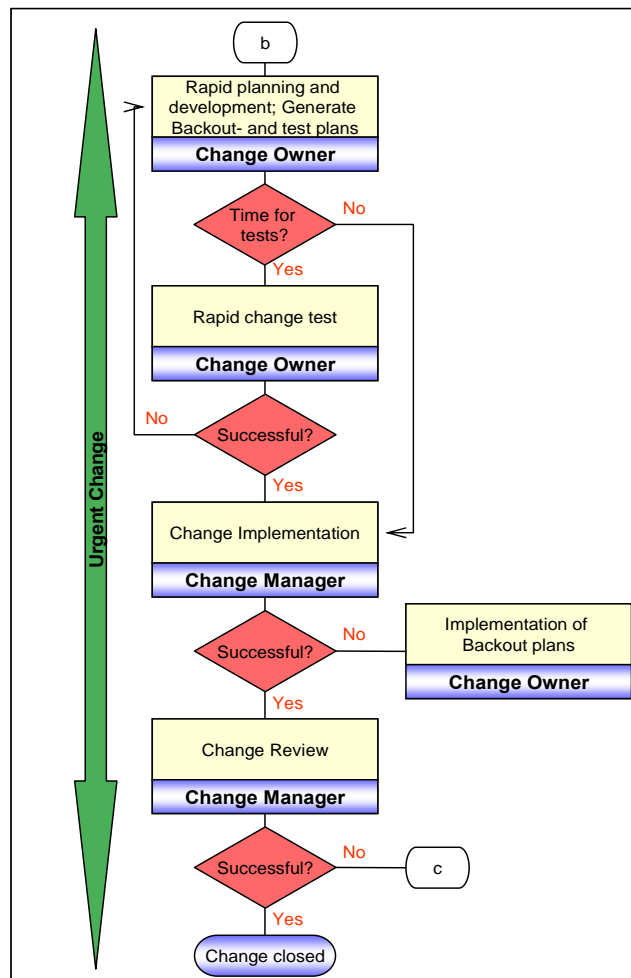
**Figure 38: Phase 5 of the CM Process**

The change manager accomplishes a change review (Post Implementation Review) to ensure that the change has been met his objectives.

If there are positive effects within the new change it will be closed. In case of negative effects a new Change Request has to be forwarded to the Change Management.

Further processes for instance Configuration Management and the Service Desk as well as the requester will be informed about the accomplished changes. All information about the change and possible changed components of the system environment has to be updated in the CMBD. The change manager provides this information to the Configuration Management.

### 4.4.3 Urgent Process



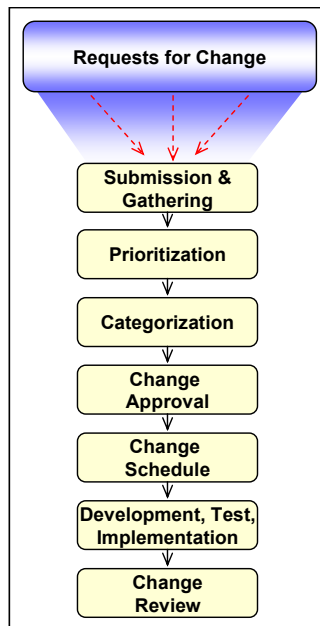
**Figure 39: Urgent Change Management Process**

In case of urgent and emergency changes the CAB Emergency Committee will be called up at short notice by the change manager. This committee does have the necessary competence to make adequate decisions in emergency situations. In spite of Emergency Changes an approval must take place in either case, because the decision on a change is the most important precondition to realize the change.

These emergency changes are not elements in the release calendar. But they are handled in a similar manner to the basic process. They will be developed, tested and implemented as rapid as possible.

## 4.5 Activities of Change Management

The activities proposed in ITIL contain guidelines which describe the functions and responsibilities that a Change Management process should fulfill. These steps are depicted in the following figure.



**Figure 40: Activities of Change Management**

To see how an effective Change Management process has to work and which steps, functions and responsibilities are important, suggested steps and activities are described in the following chapters. [OCGBP, p. 204 et seq.; MICCCQ]

### 4.5.1 Reasons for a Change Request

A Request for Change in terms of ITIL is a presented request for an implementation of a change at a Configuration Item. RFCs may concern all components of the IT infrastructure or other activities.

In order to speed up innovation ITIL recommends that all employees or customers of an organization must have the right to propose a Change Request at any time. Through this approach employees feel better involved in the organizational culture too. In large enterprises or rather

for a large number of users it may be expedient to implement a suitable level of hierarchy to exclude senseless or impracticable Change Requests early.

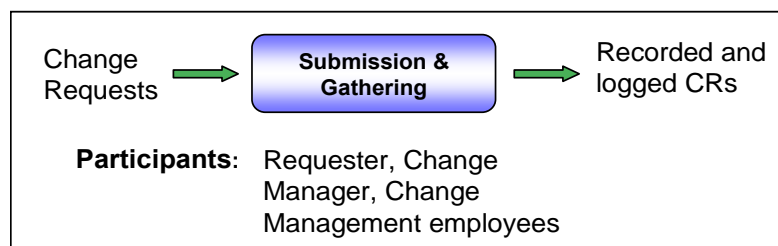
For example the signature of a superior has to be required, when submitting an RFC. This contributes to the fact that identical Change Requests can be summarized, in order to reduce the total number of RFCs. Also the responsibility of each RFC can be defined clearly.

In addition, to coordinate the request or to confer with the requester, the change manager knows the appropriate contact person at any time.

Reasons for a request for change may be, for example, the following:

- *Trouble shooting respectively problem removal*
- *Lack of customer satisfaction*
- *Customer requirements*
- *Implementation respectively deletion of a Configuration Item*
- *Changes of organizational policies*
- *Legislation amendments*

#### 4.5.2 Submission and Gathering



**Figure 41: Submission and Gathering of CRs**

If need for action is seen to a potential change, Change Requests can be submitted in paper form as well as in electronic form.

Change Management employees are responsible for gathering the several Change Requests. To avoid redundant data it will be checked if former presented Change Requests are not equal to the new one. If some RFCs already exist the requester will be informed.

Change Requests have to be recorded and logged in any case. In addition, by the SOA<sup>21</sup> relevance for large enterprises quoted on the stock exchange, it has to be ensured that RFCs must not be deleted in any case.

ITIL recommends the use of electronic software Tools for gathering RFCs. The advantages for this procedure are perfectly obvious. On the one hand software tools provide considerable efficiency- and high-quality advantages and on the other hand the subsequent manipulating or even deleting of a request for change, however, is substantially made more difficult.

If nevertheless paper-based systems are used, it is strongly recommended to gather the following points in the RFC form. This is also valid for electronic systems.

- *RFC-ID*
- *Name, location, phone number of the requester*
- *Date of RFC*
- *Reason for RFC and description*
- *Benefit of RFC*
- *Desired date of completion*
- *Actual date of completion*
- *Priority*
- *Date of approval, in case of rejection a short description*
- *Developer details*
- *Status of RFC*

It has to be defined clearly which persons may have access to protocol systems and which access levels exist.

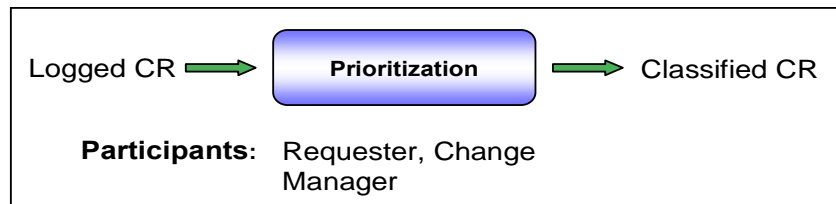
To be able to be informed about the current status of a RFC or Change or also to be able to add reports about the progress of the RFCs,

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21 SOA – Sarbanes Oxley Act of 2002: “An act passed by U.S. Congress to protect investors from the possibility of fraudulent accounting activities by corporations through improving the accuracy and reliability of corporate disclosures.” [bitpi]

participants should be authorized in this system. However, Change Management employees should only be allowed to close RFCs.

### 4.5.3 Prioritization



**Figure 42: Prioritization of CRs**

After an RFC was received the priority of the Change Request has to be specified. Possible effects of the request and the urgency for realization are described with this measurement. Also the consequences of a non-realization should be discussed in the prioritization.

Coordination with the requester is recommended and sensible. However, a final allocation of the priority should be incumbent on the Change Management, because the requester could assign a higher priority to its request than necessary.

This risk estimation is very important in this early phase of the requests lifecycle. The CAB needs information about the priority to value the risks, which can occur through realization or rejection, effectively. Furthermore the priority can be classified in the CAB meeting again.

ITIL suggests several priorities:

#### *Urgent/Emergency*

Urgent or also named emergency changes are changes that can not wait, because of having serious problems with the availability at a large group of user or failure of a service. Prompt action is required. For these changes it might be necessary to call for an urgent CAB meeting.



### High

A serious problem or requirement that will affect few people. or a less serious problem that affects a larger number of people.

### Medium

This is a Change Request without serious consequences, but it may not be extended to the next release.

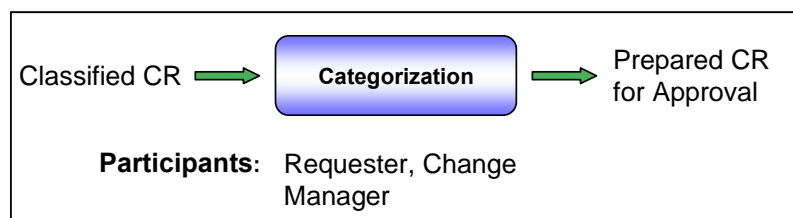
### Low

The change is justified and necessary, but it can wait until the next schedule release or upgrade.

This default of ITIL is only an example and should act as a help. Also steps, for example from “one to five”, can be awarded.

It is only important to define the priorities clearly in the preposition to avoid eventual discrepancies or misinterpretations.

## 4.5.4 Categorization



**Figure 43: Categorization of CRs**

It is very important to analyze an RFC in regards to its consequence concerning the required resources on a possibly approved change. The question about all kind of risks for the organization should also be discussed to every change before the approval process takes place. The previously specified priorities can also serve as a basis for the estimated impact.

The following category proposes ITIL:

### Minor Impact

Few resources are needed. The change manager may decide or delegate the responsibilities. He can also approve minor CRs.

### Significant Impact

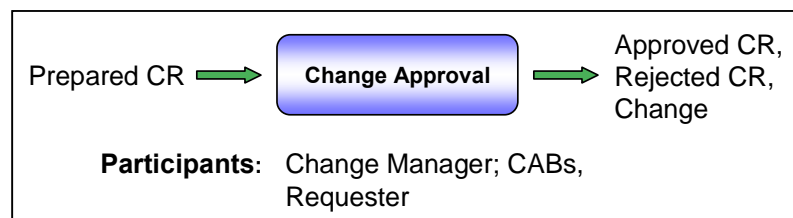
Significant resources are needed. The change manager may decide if there is a need to convene a CAB meeting.

### Major Impact

A large amount of resources are needed. The Request for Change should be referenced to the highest advisory board.

As well as the prioritization these categories are not obligating. It should only act as a help. The structure and complexity of the categories depends on the requirements of the respective organization.

## 4.5.5 Change Approval



**Figure 44: Approval of CRs**

The Change Management is the process that is responsible for the approval of Change Requests. For the several categories of RFCs different hierarchies of approval boards are needed. In case of a positive approval of a Change Request the change can be developed. If a RFC is rejected the requester gets information about the related circumstances.

In the following the several hierarchies are described.

### Change Manager

The change manager can approve or reject RFCs with minor impact on business. In case of rejection he is responsible for the dialog with the requester.

### Change Advisory Board

The CAB is the standard decision-making board for the IT organization. It evaluates and votes for approval or rejection Change Requests. This group may include representatives from the Service Management; especially release manager and configuration manager.

The CAB is also made up of individuals with stakeholder interest in the production environment. In general, the CAB should be composed of individuals with a wide range of expertise.

The board should meet at regular intervals to review, re-prioritize, approve and schedule RFCs. The change manager directs the CAB in the vote to approve or reject changes. He prequotes the RFCs that are discussed in the CAB meeting. On the basis of the change manager's priority and category evaluation the RFCs are debated. If it is necessary the priorities are specified again.

A separate meeting is not required for each single change. Several changes are bundled and will be discussed and approved at a certain meeting. However, it is important to deal with every change.

The CAB does not have the necessity to meet at a place physically for debating decisions. Today there are different electronic tools to accomplish a meeting from every place of the world. But ITIL still recommends on regular meetings, for instance half-yearly or yearly, for carrying out formal checks or to debate basics and fundamental issues.

Main tasks and responsibilities of the CAB are:

- *Supporting the change manager*
- *Budget- and resource-related decisions*
- *Drawing up the change schedule*
- *Reviewing the status of each change*
- *Specifying emergency- and executive committee*

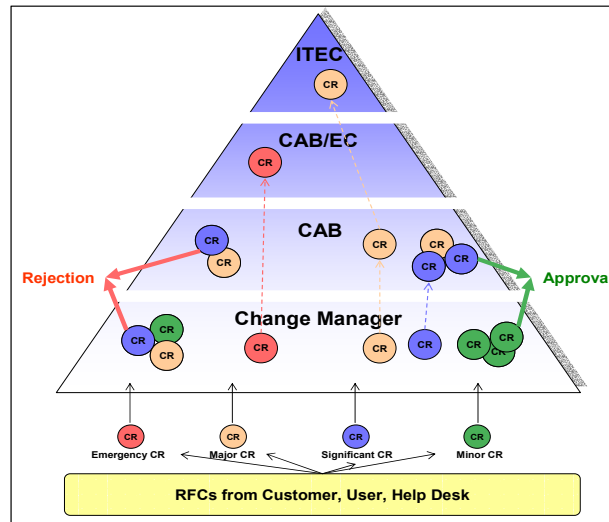
### CAB/EC

The change advisory emergency committee is an entity of the CAB. The CAB/EC is a subset of the CAB and is responsible for evaluation and approval of emergency changes. Members must have the flexibility to meet short dated or to provide suggestions by using different forms of communication.

### IT Executive Committee (ITEC)

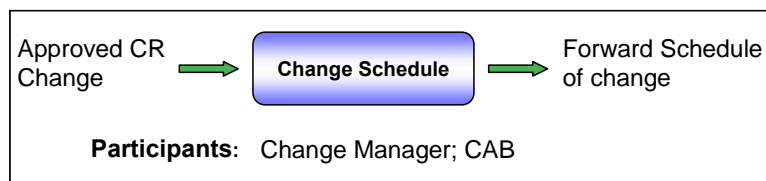
The function of the IT executive committee is to approve disputed changes that have been escalated to the ITEC by the CAB or changes that the CAB does not have the authority to decide. It approves major changes to the IT environment if the CAB cannot reach a final conclusion. Typically, managers who have the authority to make decisions regarding to budgets and resources will fill these positions.

Figure 45 shows the several approval hierarchies.



**Figure 45: Approval Hierarchy**

#### 4.5.6 Change Schedule



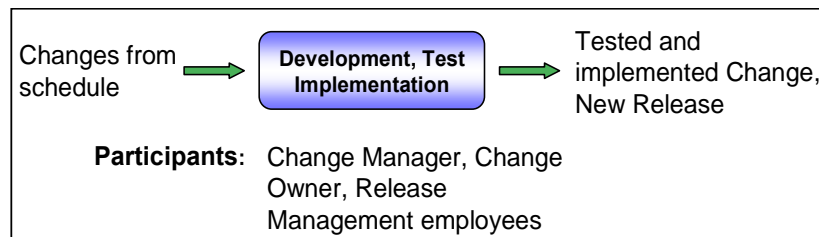
**Figure 46: Change Schedule**

After the change has been approved, it has to be decided when the change can be deployed.

The Forward Schedule of change (FSC) is maintained by the change manager and contains details of all approved changes and their proposed implementation date. It shows when all changes have to take place. Furthermore the FSC has to include information about the several releases in which the different changes get in. The CAB members define and decide the FSC.

The final change schedule should be sent to all customers, users, service employees and also to the Service Desk to have an overview of all planned changes.

#### 4.5.7 Development, Test and Implementation



**Figure 47: Development, Test and Implementation of Changes**

After the change has been approved and is entered in the change schedule it has to follow some logical ways to ensure efficiency and service quality.

The approved change will be forwarded to the change owner and to the responsible technical group, which is authorized for realization. Thereby Change Management monitors the activities, controls resources and ensures that the time schedule is kept. For the development of the new change best practices and procedures should be used, which were already used in the development of the current system or software.

In case of errors or incidents in the implementation phase backout procedures must be prepared and developed for each authorized change so that negative effects to service quality from an occurred error could be reduced to the minimum.

The Change Management has also to ensure that all changes that can be tested are extensively and efficiently tested. Therefore it can be useful to create separate test environments.

These tests should contain following aspects of the change:

- *Efficiency*
- *Safety*
- *Reliability*
- *Functionality*
- *Maintainability*

It is important to perform several tests in the development- and implementation phase of the new change.

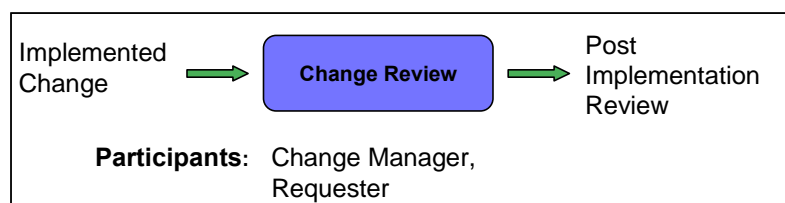
A functional test is accomplished by the developers to ensure that the change will meet his requirements. Furthermore an integration test is necessary to verify and guarantee that the change does not have negative impacts to the infrastructure and to processes of other groups. Finally an acceptance test is accomplished by the requester.

The implementation phase of the change should be planned for an uncritical point of time on which only few potential disturbances of the current live system are being expected. For example, it does not make sense to implement a change on business workdays.

If it is possible a pilot project of the changed solution should be implemented. With this method risks can be minimized and it is possible to gain experiences in the current system operation. To ensure that no details for a change review get lost all information about development, test and implementation have to be documented.

The development, test and implementing of changes is not only realized by the Change Management, it is conducted by the Release Management process. The Change Management coordinates and monitors these work procedures and remains responsible for the result.

#### 4.5.8 Change Review



**Figure 48: Review of Changes**

The Post Implementation Review is the last step of the Change Requests lifecycle. In this phase the effect of the implemented change

has to be discussed and it has to be reviewed if the change has met its objectives.

As well as a success and failure decision on the change implementation, this review should also look how the change was deployed and whether it was implemented on time and on budget.

The format of the PIR also depends on the planned and actual impact of the change. A minor change for example does not require a formal meeting with several interested parties for reviewing.

The change manager schedules and moderates the review meeting. Then Review feedback will be send to all parties involved in the change process.

## 4.6 Key Performance Indicators

As shown in chapter 3.3.2, several key performance indicators have to be defined, monitored and analyzed by the change manager, to be able to evaluate the effectiveness of the Change Management process. Changes must be accomplished at a high level of quality, economically, cost-efficient and implemented on schedule. Furthermore a potential user disturbance during the realization has to be reduced to a minimum. Change Management specific KPIs are for example:

- *Number of implemented Changes*
- *Number of incidents traced to changes*
- *Number of RFCs rejected*
- *Number of reduced incidents, which are led back to implemented changes*
- *Number of incomplete RFCs with high priority*

The systematic reduction of the total number of RFCs is not the purpose of the Change Management, but rather the compliance with the



correct RFC mix. By reducing the actual number of changes, innovation may be prevented. [OGCBP, p. 227]

## 4.7 Relationships within Service Support

As figured in chapter 3.3.6 the several processes are related to each other. In the following as an example the relationships between Change Management and the other service support processes and are being described.

### **Incident Management**

Incidents or service inquiries, which are collected in the Service Desk, can lead to the production of Change Requests. Likewise new errors or incidents can occur with the implementing of changes and release error reports.

The Incident Management should be informed about the current status of the Request for Change and changes, in order to provide, if necessary, up-to-date information to customers and users. The Change Management process provides information about current and future change activities, as well as change history to the Service Desk. Also information about a possible incorrect implementation of a change is communicated to the Incident Management.

### **Problem Management**

The Problem Management provides also input to the Change Management process. The treatment of problems mostly leads to the production of a Change Request. Possible changes often result from the analysis of problems and are brought from the Problem Management to the Change Management. If Change Requests become changes, task of the Change Management is to inform the Problem Management about the current status of the problem-related changes.

### **Release Management**

There is a very close relationship between the Change Management process and the Release Management.

Several changes are mostly summarized to releases. The Release Management is responsible for the realization of all changes. The installation of new releases takes place under the control of the Change Management again.

The Release Management may be seen as a change process in substantially larger extent. Due to this close relationship representatives of Release Management should be also member in the Change Advisory Board.

### **Configuration Management**

These both processes are also connected closely to each other. Without a functioning Change Management it is not possible to manage the current and complete Configuration Management Data Base. Any change has to be stored in the CMDB. The Change Management needs information about all dependencies of related Configuration Items from the Configuration Management. It shows which other components could be affected by a change. Otherwise possible consequences of changes cannot be recognized.

## **4.8 Conclusion**

IT becomes increasingly one of the most critical success factors for enterprises. Business requirements ever-changing, new technologies are developed and must be implemented. Customers and users require a reliable and constantly growing up service for their operations. These are only few important factors that enterprises must deal with in their daily business nowadays.

To meet these requirements, organizations need an IT environment in which the management and control of all incoming Change Requests

are regulated clearly and precisely. A strict and controlled approach is absolute necessary for an effective Change Management process, because many problems and disturbances can be retraced to changes on IT systems. The outcome of this may be extensive consequential costs for organizations which cannot be accepted any more.

The goal of Change Management is to manage the process of change with standardized methods and procedures, to minimize incidents which are related to the change and improving day-to-day operations. It is the procedure to ensure that all changes are controlled, including submission, impact analysis, approval, build, test, implementation and review of all changes.

For the Change Management, especially for handling of Change Requests, a deliberate approach is mandatory to estimate risks, effects of changes, the required resources and the approval of the change correctly. Only with this approach it may be possible to get a well-balanced relationship between the need of a change and its possible effects.

Change Management processes have to be distinguished by high transparency and open channels of communication. Like all other processes that are adopted successful, the Change Management process needs the management to live, too. To reduce risks and costs, it is very important to regulate the management and control of changes exactly. A Change will only become advantageous if its possible effects are analyzed exactly before and if the implementation is controlled.

To improve the identification of risks and to reduce the degree of possible negative impacts, all changes have to be controlled and handled clearly. Therefore organizations may have significant advantages regarding to their service quality and of course also a saving of money and time.

The major benefits that Change Management can provide are:

- *Standardized change process for the whole organization*
- *Better arrangement of IT services to organizations business requirements*
- *Number of failed changes may reduced*
- *Exact back-out procedures are available*
- *Information for the management to identify problem areas*
- *Better cost estimation of changes*
- *Communication in organizations and to business may be improved*

Change Management is a critical part of enterprises Service Management processes. It is also an extremely important process. This process is not something that can be implemented overnight. The important thing is that organizations have to understand the benefits that the Change Management process can provide.

## 5 Change Request Handling SRM Impact

This part of my thesis is concerning about the handling of Change Requests within SRM Impact. It describes the current approach dealing with CRs in the initial phase of the project. In addition to this approach challenges, needs and possible problems which are existing in general and which have to be observed in connection with an implementation of a Change Management process will be pointed out.

### 5.1 Interim Solution SRM Impact

The further development of the SRM Impact master template is designed through the accordance with the incoming change requests. Due to changes in the business and system requirements and an ongoing improvement process, changes within the software will be necessary. To ensure a controlled and proper further template development process it is important to establish a standardized, deliberate and disciplined Change Management process for the template development.

At the moment Siemens CIO still owns no uniform and general-valid Change Request process for projects. Also a central tool for gathering and management of changes does not exist yet.

A simple procedure for handling of Change Requests had to be implemented to keep on track of every single change or error on SRM Impact. Furthermore the establishment of a controlled Change Request procedure is necessary, because changes regarding to SRM Impact have to be implemented with controlled and standardized methods.

These requirements are given to this simple process:

- *It should be realized very fast*
- *It should be cost-effective*
- *It should be easy to handle*

- *It should contain all relevant information about the incoming Change Requests and their realization for all stakeholders (Requester, Service Management, Service Delivery, Approver...)*

The change request procedure in the early phase of the SRM Impact project should fulfill in the most parts the recommendation based on ITIL to provide transparent information and to ensure communication to all participants and members which are involved in this procedure.

To meet the above-named requirements a simple Change Request process and a Document was designed, which contains all information about the Change Request's lifecycle.

The SRM Impact Change Request Document consists of seven parts (six parts from the lifecycle plus one including relevant state values for the process) to evaluate and manage each Change Request. It provides all necessary steps which are required and mandatory for the evaluation of a change request. It is also the basis for a decision about the Change Request and subsequently the working basis to realize the result of the evaluation and decision.

The Document is sent to all customers using SRM Impact as well as to the Service Desk in case of Requests for Changes from related incidents or problems. The entire Document is added in the appendix.

In addition to this Change request form a Change Request Pool based on Microsoft Excel was created.

In the following chapters the Change Request's lifecycle within SRM Impact, process steps for handling of CRs, the Change Request Document with all relevant attributes and an example, to demonstrate how this process works, will be explained. Only special working steps will be explained closer, because chapter four contains all important tasks and activities and were already described.

### 5.1.1 Change Request Lifecycle SRM Impact – Overview



Figure 49: Change Request’s Lifecycle at SRM Impact

The process flow of the SRM Impact Change Request’s lifecycle is built on six process sub steps. Each CR has to run through successfully to get implemented and operated.

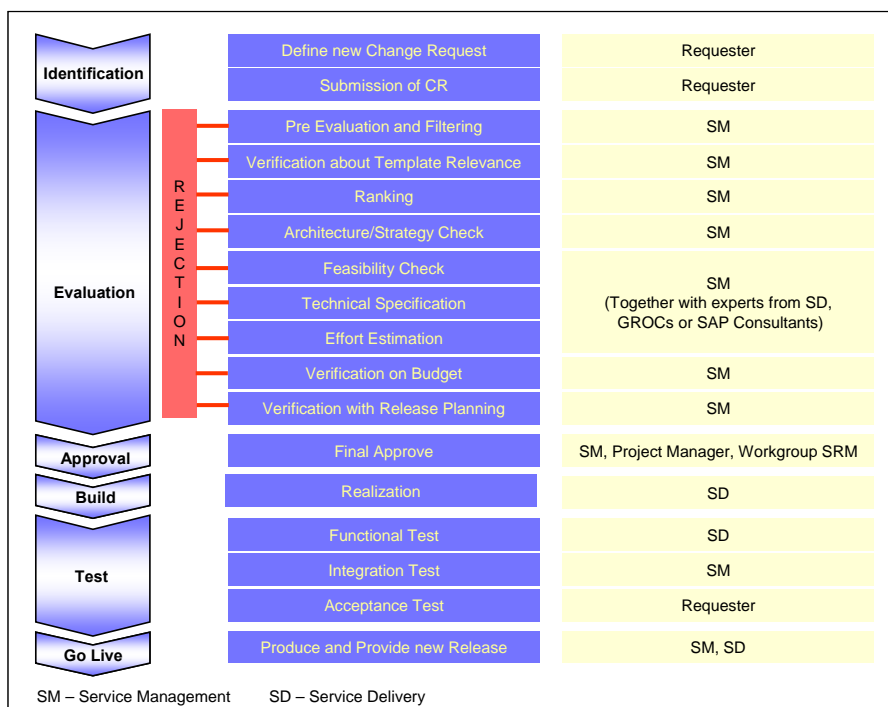


Figure 50: Process Steps of the Change Request Process

These sub process steps of the SRM Impact Change Request process fulfill substantially the recommendations based on ITIL. All work steps and responsibilities are depicted in this process. This procedure is valid for every change on the SRM Impact functionality.

The several process steps are driven by the following roles:

**Change Requester**

- *Change Requesters are a small group of persons named by each customer that use SRM Impact. Additionally Change Requester may also named by CIO Service Management.*
- *Collects and filters all Change Requests of his own department and defines a new Change Request*
- *Responsible for filling out the CR form in a clear way with high information quality*
- *Responsible for submitting the CR form to Service Management*
- *Responsible for acceptance test*

**Service Management**

- *Responsible for the whole evaluation of the submitted CR*
- *Coordinates and controls the whole CR process*
- *Coordinates resources*
- *Management reporting*
- *Prepares the incoming CRs for approval*
- *Design of CR*
- *Approval of Change Requests together with project manager and/or workgroup SRM*
- *Controls the realization and implementation of the CR*
- *Service Management consists of the entire SRM Impact team*

**Service Delivery**

- *Supports Service Management within technical evaluation of the CR*
- *Implementation of the change*
- *Responsible for functional test of the new change*

**Project Manager**

- *Escalation Management*
- *Contracts with customers and Service Delivery*

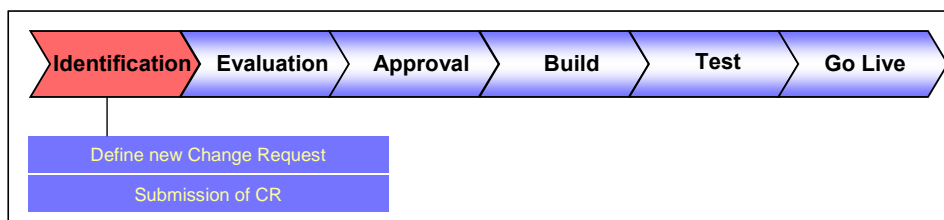


- *Approval of Change Requests together with Service Management*

### **Workgroup SRM**

- *Members of this workgroup are representatives of the involved GROCs and Service Management*
- *Meets on a regular basis*
- *Decision Board for ongoing development and further releases of SRM Impact with focus and effects on common issues*

### **5.1.2 Phase – Identification**



**Figure 51: Identification Phase of the SRM Impact CM Process**

The first process step of the SRM Impact Change Request process is the identification phase. If the requester has the need for a Change Request he has fill out his part of the Document exactly and send it back to Service Management of SRM Impact. This is the responsibility of each customer.

The Identification phase of the SRM Impact Change Request form consists of the following attributes:

- *Requester (including name, department, phone, email and date)*
- *CR Title*
- *CR Description*
- *CR Benefit*
- *Involved GROCs*
- *Desired Date of Completion*

It is important to get all information about the requester. If questions or problems concerning the CRs may occur during processing, it is necessary to have the correct contact person. Also if the responsible Service Management agent may not be available every other authorized agent has to possibility to receive all information about the requester at a glance. Thereby a laborious searching of information will be avoided. Each Service Management employee has the current condition of information at any time.

Attributes like "CR Title", "CR Description" or "CR Benefit" are recorded to have a short overview about the received CR and to explain the possible benefit

The field "CR Title" is used for a short and concise description of the Change Request. This title will also be used for the entry in the CR Pool. For a more detailed description of the problem or request the Requester should be use the field "CR Description".

It is important that all information that are delivered by the Change Requester are completely and accurate as possible. Thus the Service Management may save time during the problem identification. Therefore the incoming CR can be evaluated and realized faster.

If it is known that several GROCs will need the same requirement or if there are special requirements for the entire Siemens Company, these can be registered in the field "Involved GROCs".

### **Example**

*The matching of user data in the standard SAP SRM is very complex and connected with a high administration effort at present. You have the possibility to create or change user data either manually or you can upload data with an excel file manually to. With hundreds of data records per client it is very difficult to have current conditions of information at any time.*

*For these reasons a Change Request was submitted by Siemens CIO, to have the possibility to match user data automatically from a central Siemens employee database.*

*Purpose of the Change Request is an interface to Siemens SCD<sup>22</sup>, which obtains the user data automatically and in case of a change, for example a relocation of an employee, automatically updates. The expected benefit resulting from this request is to facilitate data maintenance and to reduce administration effort.*

To receive an overview about the CR in practice, the most important data are registered in the SRM Impact Change Request form.

<b>Change Request Identification</b>		
<b>Requester</b>	<b>name</b>	Max Mustermann
	<b>department</b>	CIO
	<b>phone</b>	123456
	<b>email</b>	Max.mustermann@siemens.com
	<b>date</b>	05.05.2006
<b>CR Title</b>	EBP Benutzerabgleich mit LDAP SCD	
<b>CR Description</b>	Ziel: Abgleich der Userdaten im OMS mit einer aktuellen, zentralen Adressdatenbank. Genauerer siehe unten (Evaluierung)	
<b>CR Benefit</b>	Datenabgleich und -pflege wird erheblich erleichtert; Verwaltungsaufwand wird erheblich erleichtert	
<b>Involved GROCs</b>	I&S	
<b>Desired Date of Completion</b>	21.08.2006	

**Table 3: Change Request Identification**

When the CR is received to CIO Service Management, a current state value will be allocated. This is necessary to receive an overview about the current conditions of any CR and to know in which phase several Changes are at any time. For each step of the CR lifecycle special values are defined.

The following state values are relevant for the SRM Impact Change Request process:

<sup>22</sup> SCD – Siemens Corporate Directory; Siemens' database for Employees, corporate communication contacts and selected business partners

State Value	Description
Created	CR received to CIO Service Management and gathered in database
Evaluated	CR is completely evaluated and ready for approval
Approved	CR is enabled to realize
Postponed	CR is postponed and will be evaluated again or later
Rejected	CR is rejected from SM/Approval board
In Progress	Change is in realization; starting date of realization
Implemented	Change is tested by developer
Released	Change is tested by CIO Service Management and customer
Closed	Cr is completed (implemented in production system, development- and user documentation available)

**Table 4: State Values for SRM Impact Change Request Process**

### Example

*The submitted CR was gathered and created on 08.05.2006 by a member of the SRM Impact team. Therefore the status of the CRs was set on "created".*

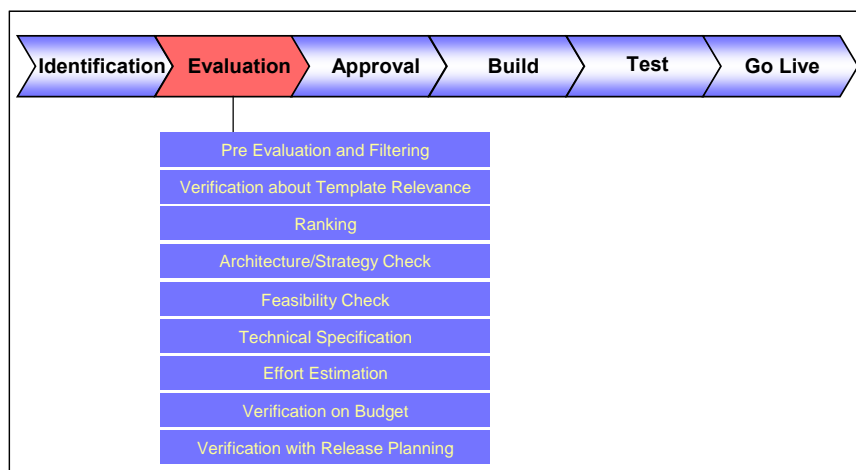
*To identify each Change Request and perhaps to transfer all CRs to an electronic tool later, also a unique number is assigned to this CR from Service Management.*

CR ID	1021	
Change Request Current Status		
Status	Date	by
<input checked="" type="checkbox"/> created	08.05.2006	Maier Daniel
<input checked="" type="checkbox"/> evaluated	29.05.2006	Maier Daniel / Markus Röder
<input checked="" type="checkbox"/> approved	13.06.2006	Workgroup SRM
<input type="checkbox"/> postponed		
<input type="checkbox"/> rejected		
<input checked="" type="checkbox"/> in progress	28.06.2006	Maier Daniel
<input checked="" type="checkbox"/> implemented	26.07.2006	Markus Röder
<input type="checkbox"/> released		
<input type="checkbox"/> closed		

**Table 5: Change Request Current Status**

### 5.1.3 Phase – Evaluation

After a new Change Request came up to the CIO Service Management the CR has to be evaluated by using the steps which are described in the following.



**Figure 52: Evaluation Phase of the SRM Impact CM Process**

In this phase the received Change Request will be evaluated. In order to be able to make a decision whether the CR could be accomplished or not, issues like impact on business, prioritization or effort estimation for realization of a possible change will be discussed. This evaluation from the Service Management forms the basis for the subsequent decision-making process.

#### **Pre Evaluation and Filtering**

When Service Management employees of SRM Impact received the Change Request Document they pre-evaluate and filter the newly submitted Change Request.

At first they check if some information of the CR form is missing. If it is they will contact the requester and edit the CR Document. Then they try to understand the reasons and benefits of the requested demand and look also for an alternative already existing solution. If an alternative

solution exists the requester will be contacted and the CR will be modified by the Service Management.

To avoid redundancy it is also checked if the same Change Request was already entered into the Change Request Pool.

### **Verification about Template Relevance**

The SRM Impact team has to decide if a received Change Request gets into the template or not. The following conditions have to be fulfilled for example:

- *Several CROCs require to use the enhanced functionality*
- *CRs have to be compliant to Siemens guidelines*
- *Received CR is a strategically function of SRM Impact*

If the SRM Impact team advises that the received CR is not template-relevant the requester will be contacted. But he has the opportunity to realize the CR by himself if the request does not concern other clients. In addition to this issue the requester has to pay the whole realization costs of his required demand. This realization has to be done out of the template.

The Service Management has to estimate exactly which Change Request is relevant for the template and which is only relevant for each requester. Customers of AMC or OCS will often try to get as much as possible own requirements into the template, because in this case they do not have to pay the whole costs for these developments.

### **Ranking**

To be able to value the received CR as well as to be able to define the priority for realization a special ranking process is used. In this step the Change Request will be checked against its effects concerning existing business processes, possible effects to related services, scope, expected effort and its impact on business. An evaluation according to urgency will happen.

At first the received CR will be checked against its urgency, that means it will be verified if the Change Request is emergency or not. If it concerns about an emergency CR an accelerated process takes effect. (quod vide chapter 4.4.3) The emergency CR has to run through of all kinds of the SRM Impact CR process as fast as possible.

The second step is to evaluate the scope and the expected effort. To see if a Change Request may be complex, SRM Impact differs currently between three different types of categories, which are relevant for release planning:

#### Project CR

- *Large amount of realization effort (more than 100000 €)*
- *Long-termed implementation time*
- *E.g. Completely new functionality (e. g. eAuction, Contract Management)*

#### Major CR

- *Implementation costs: more than 10000 €*
- *Impact to existing systems or standards*
- *Probably recurring costs*
- *E.g. programming an enhancement*

#### Minor CR

- *Implementation costs: less than 10000 Euro*
- *No or less impact to existing systems or standards*
- *Short implementation effort and –time*
- *E.g. cross-client customizing*

A detailed effort estimation will be happen in an own sub-phase. The team of SRM Impact delivers only a rough estimation to classify the several categories in this phase.

To each CR the impact on business will be determined. Three different types of categories are defined:

- *High impact on business*
- *Medium impact on business*
- *Low impact on business*

Based on these categories the priority for realization will be derived. Thereby the impact on business and the number of GROCs, that are going to use the required change, will be correlated. A matrix for determination of the priority was defined.

Figure 53 shows this prioritization matrix.

		Impact on Business		
		High	Medium	Low
Number of GROCs	$\geq 6$	1A	1B	1C
	$\leq 3$	2A	2B	3C
	1	3A	3B	3C

**Figure 53: Priority Matrix**

Nine GROCs are using the template at the moment. The prioritization occurs as follows:

If more than six GROCs need an enhanced requirement or a change and the impact on business was classified as high, this CR will get the highest priority (1A). For example a CR with the priority 1C (may CROCs need the change, but impact on business is classified as low) has to be ranked higher than a CR with the priority 2A (less customers, high impact on business).

This ranking is based on the basic concept of the SRM Impact template. Synergy effects, which are driven by the template approach, may only be used if many customers need and get the same requirements. If you would only regard to the impact on business the template character would be neglected.



This ranking refers to the estimations of the SRM Impact team. If need for action is seen it can be changed in the whole evaluation phase. The final ranking will be accomplished at a meeting of the Workgroup SRM. Change Requests concerning possible guidelines from the Siemens Company are also taken into consideration. These will get also the highest priority and must be accomplished preferentially.

### **Architecture/Strategy Check**

The Change Request will be checked against the architecture and strategy of SRM Impact.

Criteria's for possible rejection of Change Requests are for example:

- *The Change Request is not suitable to the SRM Impact architecture and strategy*
- *The Change Request is not suitable to guidelines of SRM Impact*

### **Feasibility Check**

To be able to realize the Change Request a feasibility check has to be accomplished. This checks whether a CR can be realized or not. If the Service Management does not have all information or knowledge to check exactly if the Change Request can be realized, it orders a team of experts for support. These experts may be employees from the Service Delivery, GROCs or SAP consultants. Together they do the feasibility check of the requested requirement. If necessary this group has to do an estimation of effort for the technical specification

### **Technical Specification**

Like the feasibility check the Service Management can order a team to do the technical specification of the Change Request. This step provides a way to identify affected Configuration Items which are already related to the Change.

For example following points have to be taken into consideration:

- *Specification which Configuration Items have to be changed*
- *Specification which other CIs are potentially affected*
- *Specification which parts of coding are affected*
- *Determination of development systems*
- *Determination of needed resources*

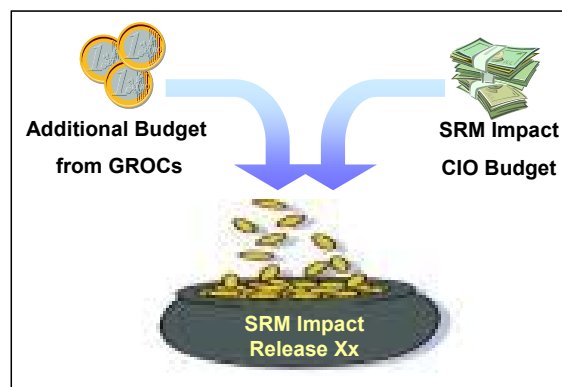
### **Effort Estimation**

The effort estimation is based on the technical specification and basis for the verification of budget.

### **Verification on Budget**

After the technical determination and the verification on budget of the CR is done a budget check will be accomplished.

The following figure shows the high level budget flow of SRM Impact.



**Figure 54: Budget of SRM Impact**

Change Requests which will get into a new release of SRM Impact are financed as follows:

For each single project Siemens CIO provides an annual budget. This will be distributed within SRM Impact to the several releases per year. Mostly two or three different releases are developed each year. For example, with a budget of 300000 Euro per year and three planned releases, a budget of 100000 Euro for each release is available. Change Requests, which are integrated into a new release, are

developed from this budget. In addition to this CIO budget an additional budget from customers using the template could be available.

For example an OMS customer wants the realization of a Change Request necessarily. The SRM Impact team as well as the Workgroup SRM classified this CR as type "3B". The realization of this Change Request is planned for a further release. For this reason the requester may have the choice to wait for realization or to pay for this by himself. Also GROCs can fund Change Requests by themselves if the budget is already utilized for a release. Activities from consultants in the evaluation phase, for instance technical specification, may also be financed by customers.

In contrast to the OMS, customers of AMC and OCS may develop changes by themselves which are not relevant for the entire SRM Impact template (quod vide chapter one). If these customers wish the realization of a change from the SRM Impact team, they have to fund this by itself.

### **Verification with Release Planning**

The SRM Impact team decides in which release the several Change Requests are getting in. Depending on each priority, ranking as well as on several project requirements it will be decided in which release each CR will be implemented.

To evaluate and manage each Change Request the CR Document consists of the following attributes in this phase:

- *Cluster*
- *Type of CR / Impact on Business*
- *Possible solution*
- *Estimated Date of Completion*
- *Proposed Release*
- *Estimated Effort/Cost*
- *Conclusion*

- *Comment*
- *Attached Documents*

Most of all this data are necessary for the subsequent decision-making process and serve therefore as a basis. Documents for a detailed possible description of the solution or other files (different emails from the requestor or developer concerning the solution) can be attached. A detailed description of the solution can be described in the field "Possible Solution". Also alternative solutions for realization of the demand can be documented.

However, a final solution description must be documented definitively.


### **Example**

*The SRM Impact team decided that the abovementioned Change Request will move into the template, because other GROCs need this matching of user data to. It was expected that more than six customers of the template want to implement this CR. The impact on business was classified with the type "medium", because this prospective change does not provide large amounts of savings in daily business. Consequently this Change Request got the priority "1B".*

*In order to solve the problem different approaches were considered. To get the most feasible solution for the template many meetings and discussions with customer, which already use such a matching of user data, were executed. All information about solution identification and description are stored in the Document.*

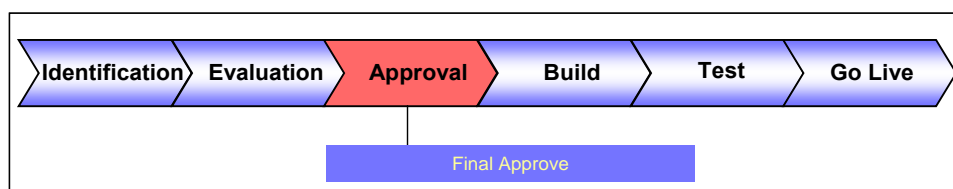
*According to the technical specification and effort estimation, which intends an expected effort of 15 man-days, the CR was classified as a "major CR".*

Change Request Evaluation			
<b>Cluster</b>	<input checked="" type="checkbox"/> User Administration	<input type="checkbox"/> Master Data	<input type="checkbox"/> Accounting Data
	<input type="checkbox"/> Approval Process	<input type="checkbox"/> Shopping Cart printout	<input type="checkbox"/> Follow on documents
	<input type="checkbox"/> Goods receipt	<input type="checkbox"/> Reporting	<input type="checkbox"/> Backend Integration
	<input type="checkbox"/> Others		
<b>Template relevant?</b>	Yes		
<b>Type of CR / Impact on Business / Priority</b>	Major	Medium	1B
<b>Possible solution</b>	<p>Ein Datenabgleich der User gibt es unterschiedliche Lösungsansätze:</p> <p>Option 1: Abgleich mit SCD-Flatfiles (wie bei I&amp;S)  Option 2: Abgleich mit LDAP-SCD  Option 3: Abgleich mit LDAP-Portal</p> <p>~~~~~</p> <p>Zu Option 1:  Maier Mitte 05.2006 Gespräch mit Herrn Klaus (I&amp;S). Folgende Lösung existiert bei I&amp;S und könnte mit geringem Anpassungsaufwand ins Template übernommen werden:  Wöchentliche Lieferung eines SCD –Flatfiles und upload aller Daten ohne Checks in ein BW-System. Danach erfolgt ein Adressabgleich aus allen angeschlossenen SAP-Systemen mit diesem „zentralen Benutzersystem“.</p> <p>~~~~~</p> <p>Zu Option 2 und 3  Maier 23.05.06: Gespräch mit Herrn Müller (EPS) und Hr. Hoppe (telefonisch).  Nachteile eines Abgleichs mit dem LDAP-Portal:</p> <ul style="list-style-type: none"> <li>▪ Es sind nicht alle Mitarbeiter aus dem SCD (z.B. nur interne Mitarbeiter) im Portal</li> <li>▪ Es sind nicht alle Daten aus dem SCD im Portal</li> </ul> <p>Vorteil:</p> <ul style="list-style-type: none"> <li>▪ Geringere Kosten. Der Zugriff aufs SCD ist kostenpflichtig.</li> </ul> <p>Technische Beschreibung und Preisliste für SCD-Zugriff:  <a href="https://scd.siemens.de/v3/de/info/add_service.html">https://scd.siemens.de/v3/de/info/add_service.html</a></p> <p>Da die Technik gleich ist, sollte ein LDAP-Zugriff aus unserem OMS vorgesehen werden. Ob dieser dann ins SCD oder ins EPS greift ist nicht der grosse Implementierungsaufwand.  Zu favorisieren ist der Zugriff aufs SCD, da hier auf jeden Fall alle benötigten Daten zur Verfügung stehen.</p> <p>Ansprechpartner zum Content LDAP-Portal: Hr. Smith Simon.  Ansprechpartner zur technischen Realisierung LDAP-Zugriff: Hr. Martin Josef</p> <p>~~~~~</p> <p><b>Lösungsbeschreibung:</b>  LDAP Abgleich mit SCD.</p> <p>Prämissen:</p> <ul style="list-style-type: none"> <li>▪ Keine Neuanlage von Usern, lediglich Abgleich von Daten</li> <li>▪ Kein „Umhängen“ von Usern im Organisationsmodell des EBP</li> <li>▪ Kein Attributabgleich (z.B. Kostenstelle)</li> </ul> <p>Flexible Steuerung, welche Felder abgeglichen werden sollen und wohin diese im EBP geschrieben werden.  Für I&amp;S müssen mindestens folgende Felder zur Auswahl stehen:</p>		

	<ul style="list-style-type: none"> <li>• GID (key-Feld)</li> <li>• Vorname</li> <li>• Nachname</li> <li>• Titel</li> <li>• Telefon-Nr.</li> <li>• Mobiltelefon-Nr.</li> <li>• FAX-Nr.</li> <li>• Mailadresse</li> <li>• Abteilung</li> <li>• Gebäude</li> <li>• Raum-Nr.</li> </ul>
<b>Estimated Date of Completion</b>	21.08.2006
<b>Proposed Release</b>	1.2
<b>Estimated Effort/Cost</b>	15 MT
<b>Conclusion</b>	Option 2 wird verwendet
<b>Comment</b>	
<b>Attached Documents</b>	Technische Beschreibung des LDAP-Zugriffs aufs SCD (von Gerlinde Lorenz zusammengestellt):  LDap.zip (2MB)

**Table 6: Change Request Evaluation**

#### 5.1.4 Phase – Approval

**Figure 55: Approval Phase of the SRM Impact CM Process**

Based on the evaluation of the Change Request the SRM Impact team and the project manager will do a common final approval.

Because the project is still in the initial phase and only few customers using the template at present, there is still no Change Advisory Board initiated. However, this is just in the constitution.

All approved CRs to a release are introduced regularly to the Workgroup SRM. This board decides finally about the realization of the changes and the new release. Based on the evaluation of the SRM Impact team this workgroup is discussing all CRs. If need for action is

seen to change the priority of Change Requests, a final ranking of the planned changes can be accomplished.

To ensure that all members of the workgroup are informed about the planned CRs to a release, the SRM Impact team sends a list, including all changes that will be discussed, to participants of this workgroup in the preparation phase of this meeting.

To get all information about the approval decision of the Change Request, the CR Document consists of the following attributes in this phase:

- *Date of Approval*
- *Approver*
- *For Release*
- *Decision*
- *Comment*

In order to receive evidence about the decision of each CR, it is important to record all related data of the approval phase.

It will be ensured that the Change Request was definitively discussed and also which state value (approved, rejected, postponed) the CR received.

In case of a rejection or postponing reasons for this decision can be entered into the field "Comment". Furthermore the final release within the Change Request will be realized can be recorded.

### **Example**

*The estimations of the SRM Impact team were presented in a meeting on 13.06.2006 to the Workgroup SRM, which decided this CR. Because there was no vote against, this CR was accepted unanimously. This CR became a change and it is ready for realization.*

Change Request Approval (Decision)	
Date of Approval	13.06.2006
Approver	Workgroup SRM
For Release	1.2
Decision	approved
Comment	

Table 7: Change Request Approval

### 5.1.5 Phase – Build

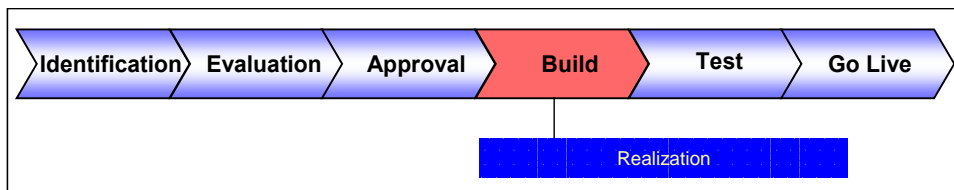


Figure 56: Build Phase of the SRM Impact CM Process

When the change request is approved, the SRM Impact team will determine the planned realization date together with the Service Delivery, which builds the change. A technical documentation, customizing documentation and an implementation concept for the change has to be created from the developer. The responsibility of the Service Management is to approve these documents.

To guarantee a stable production system a staged system environment, which was described in chapter two, is used to develop these changes.

To have all information about the realization of the Change Request the CR Document consists of the following attributes in this phase:

- *Actual Date of Completion*
- *Developer*
- *Actual Effort / Costs*
- *Comment*
- *Attached Documents*

These data are stored to know at any time which developer has been developed each change. In case of possible further problems or errors



the developer can be made accountable. Also actual costs of each change are raised and documented. The technical documentation, customizing documentation and an implementation concept for the change can be attached.

### **Example**

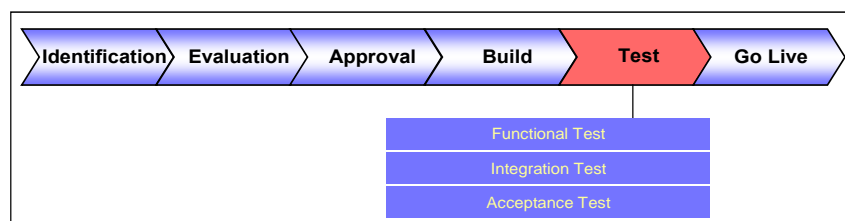
*After the Workgroup SRM has released the CR for realization, the change has been developed.*

*An implementation concept was designed by the Service Deliverer, which contains all necessary information for the realization. (for example which other components of the system are affected or which resources are needed/used). This document can be viewed at any time. Also the actual effort for development is recorded in the Document and can be compared to the expected effort (from evaluation phase).*

<b>Change Request Build</b>	
<b>Actual Date of Completion</b>	14.07.2006
<b>Developer</b>	Michael Peter
<b>Actual Effort / Costs</b>	12 MT
<b>Comment</b>	
<b>Attached Documents</b>	technical_documentation.doc; implementation_concept.doc

**Table 8: Change Request Build**

### 5.1.6 Phase – Test



**Figure 57: Test Phase of the SRM Impact CM Process**

After the change request is realized the change has to succeed following tests.

- *Functional Test – accomplished by developer (Service Delivery)*
- *Integration Test – accomplished by Service Management*
- *Acceptance Test – accomplished by Requester*

The CR form consists of the following attributes in this phase:

- *Description*
- *Test Environment*
- *Involved Persons*
- *Accepted by*
- *Date of Acceptance*
- *Comment / Related Documents*

These data are recorded to ensure that all necessary tests are accomplished. It is important to store the accepter of each test phase as well as the date of acceptance. Additional information like test descriptions or test protocols can be added.

### **Example**

*Several tests have to be accomplished to verify if the change has been met its requirements and corresponds with the customer's preferences. As described in chapter two a functional test for each developed change is accomplish by the developer on the development system of SRM Impact.*

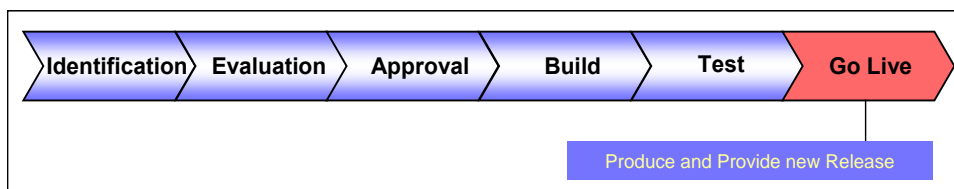
*When all planned changes for a release are already developed, these will be transferred via transports into the quality assurance system. From there the completely new release is tested by the Service Management. If these tests are accomplished positive, the developed release will be transported to the customer's quality assurance system. Now the customers are responsible for testing the whole release intensively, especially the requested change. The customer will delegate this activity mostly to his key-users.*

*If problems do not occur and everything is correct the new release will be transported to the production system and is able for going live. Individual changes are only tested and rolled out separately in case of an emergency change, because these are not elements in the release planning.*

<b>Change Request Test</b>			
	<b>Functional Test (Service Delivery)</b>	<b>Integration Test (Service Management)</b>	<b>Acceptance Test (Requester)</b>
<b>Description</b>			
<b>Test Environment</b>	DSR 100	QSR 100	QSR 210
<b>Involved Persons</b>	Peter	Maier, Lorenz	Maier, Mustermann
<b>Accepted by</b>	Herrmann	Maier	Mustermann
<b>Date of Acceptance</b>	26.07.2006	28.07.2006	
<b>Comment / Related Documents</b>	Testbeschreibung_funct.doc	Testprotokoll_integratio n.doc	Abnahmeprotokoll.doc

**Table 9: Change Request Test**

### 5.1.7 Phase – Go Live



**Figure 58: Go Live Phase of the SRM Impact CM Process**

After several tests are accomplished successful all changes are bundled to a new template release. This will be distributed to the several systems of SRM Impact (OMS, OCS and AMC).

However, if problems may occur in spite of an intensive test phase, the old system can be restored by using a backup, which is available by the Service Management at any time.

To be able to close the change, following data have to be recorded from each change.

- *Description*
- *In Release*
- *Comment*
- *Date of Going Live*

<b>Change Request Go Live</b>	
<b>Description</b>	
<b>In Release</b>	1.2
<b>Comment</b>	Alle Tests erfolgreich; Change closed
<b>Date of Going Live</b>	21.08.2006

**Table 10: Change Request Go Live**

### 5.1.8 SRM Impact Gathering Place

If you need some information about a special CR as fast as possible a Change Request pool is maintained which contains the most important attributes of each CR. This provides a rough overview about all CRs and their current state values.

With this pool a long-termed searching of information, concerning a special Change Request can be avoided. Furthermore small analysis can be accomplished, for example to get the total number of CRs to a release or to aggregate the total effort of all CRs, which belong to a release.

For these reasons the SRM Impact Gathering Place consists of the following attributes:

- CR ID
- CR title
- *Requester*
- *Differentiation if CR or bug*
- *Cluster*
- *Priority*
- *Status*
- *Short comment*

- Actual agent
- Estimated effort
- Actual effort
- Differentiation if template relevance
- Release planning
- Attached document (this is a link to the detailed document from of each CR)

The following figure shows an abstract of the SRM Impact Change Request Gathering Place.

1	SRM-IMPACT Change Request Gathering Place													
2	CR ID	CR Title	Reques	CR/Err	Cluster	priority	Status	short comment	actual agent	estimated effort (in MD)	actual effort	Template	release	attached Document
9	1007	Handling of Messages	OO	CR	Reporting	1A	implemented		Mudra	2	2	yes	1.2	CR_1007.doc
10	1008	Catalog validation of scale prices	I&S, CSP	CR	Goods Receipt	1A	in progress	not behobit Fehler und liefert Korrektur	BSM Fr. Schubert	5	4	yes	1.2	CR_1008.doc
11	1009	Prüfung Einkaufsgruppen Kundenfelder "abweichender Wareneingänge" und "Abblastele"	SRE	CR	Master Data	1A	implemented		Röder	6	6	no	1.2	CR_1009.doc
12	1010	Vorbelegung von	SRE	CR	Master Data	1B	implemented		Mudra	7	5	yes	1.2	CR_1010.doc
13	1011	Vorstellungen im SC	OO	CR	Approval Prot	1A	implemented		Kopfstein	8	8	yes	1.2	CR_1011.doc
14	1012	Workflow SRE spezifisch	SRE	CR	Approval Prot	1A	implemented		Herrmann	15	17	no	1.2	CR_1012.doc
15	1013	Prüfung auf unter verschiedene Anlieferadressen	SME	CR	Approval Prot	2B	evaluated	bereit für Workgroup SRM	Radek	2	2	yes	1.2	CR_1013.doc
16	1014	Übertragung Dateianlagen	OO	CR	Others	1B	implemented		Mudra	2	2	yes	1.2	CR_1014.doc
17	1015	Auswertung Shopping Carts	CSP P10	CR	Approval Prot	3B	implemented		Mudra	3	3	yes	1.3	CR_1015.doc
18	1016	CIP2SAP	OO	CR	Others	1B	in progress		Kopfstein	3	3	yes	1.2	CR_1016.doc
19	1017	Aufruf "Enhanced Account Checker" von CIP2SAP	OO	CR	Others	1B	in progress		Kopfstein	1	1	yes	1.2	CR_1017.doc
20	1018	Genehmigungshistorie ans Backend übergeben	SRE	CR	Backend Inter	3B	implemented		Herrmann	5	4	no	1.3	CR_1018.doc
21	1019	Findung Projektmanager für Eskalationsemail an Anforderer	CSP P10	CR	Backend Inter	1B	approved		Biegel	5	4	yes	1.2	CR_1019.doc
22	1020	LDAP-Schnittstelle Userdaten zu SC	CSP P10	CR	Approval Prot	2 C	evaluated	bereit für Workgroup SRM	Maier D.	5	5	yes	1.2	CR_1020.doc
23	1021	URL-Portalintegration	OO	CR	User Adminis	1B	implemented		Radek	15	12	yes	1.2	CR_1021.doc
24	1022	Screenvariante SC - Felder ausblenden	OO	CR	Others	1B	in progress		Kamm P./Biegel	15	15	yes	1.2	CR_1022.doc
25	1023	Check auf Dummy Asset number	CSP P10	CR	Approval Prot	2B	implemented		Mudra	3	3	yes	1.2	CR_1023.doc
26	1024		SME	CR	Backend Inter	3B	evaluated	bereit für Workgroup SRM	Drescher/Biegel	5	6	yes	1.3	CR_1024.doc

Figure 59: SRM Impact Gathering Place

## 5.2 Critical Examination

Uncontrolled and inefficient changes in software applications represent a significant risk for further development and operation of applications and may cause immense costs for enterprises. Many problems and disturbances can be retraced to changes on IT applications. Therefore changes in heterogeneous system environments have to be implemented with appropriate controlled and standardized methods.

This Change Management process serves for a controlled monitoring and management of all Change Requests regarding to SRM Impact in the initial phase of the project. It is important that all received CRs are gathered and managed centrally.

Because Siemens CIO still owns no uniform and general-valid Change Request process for projects, as well as Siemens CIO still has no central tool for the management of changes, a simple Change Management process was implemented to establish a standardized, deliberate and disciplined approach for the handling of all Change Requests within template development.

For later projects it may be absolutely useful to set up a corporate Change Management process which can be used from initializing a project up to handing over into a controlled operation.

However, as the daily practice shows it is already very difficult to find a common base for all involved people, even in smaller issues of business. The implementation of a corporate Change Management process would probably be a longsome task and it would be accompanied by a lot of resistances.

The implemented Change Management process of SRM Impact fulfills substantially the recommendations based on ITIL and is sufficient enough for the management of Change Requests. Interfaces to other ITIL processes, for example to Configuration Management, cannot be illustrated in totality, because it does not exist an entire Configuration Management Database.

However, basic approaches and parts, for example specification which other CIs are potentially affected within development of a change, are absolutely considered in the evaluation phase.

But, in general it is important to implement a process for the management and control of all Change Requests, because you must be able to know any time, why the change has been accomplished actually, which possible effects it could have and also when as well as from which person the change was approved and developed.

There is no uniform process model for handling of Change Requests which can be used equally at any time and everywhere. But in case of an implementation of such a process model it has to be obvious, how the Change Request's lifecycle is treated, which procedures and components are used for quality assurance and improvement and as well as how resources can be deployed therefore at the best. This process still illustrates all these issues.

Certainly an electronic tool for supporting would be helpful for the entire process and could save a lot of time and amount of work. However, the implementation of such a tool at the initial phase of a project is unsuitable and often connected with a large amount of costs (expenditure of time, acquisition or royalties). The expected benefit could be disproportionate to the achieved expenditure.

Tools are also no magic bullet, so that processes can exist and operate quite alone.

In fact, it is more important that all activities and processes that have been implemented will be lived, transparent for all involved participants and also pragmatic.

### 5.3 Challenges

With the implementation of a Change Management process different challenges and needs are associated. These are not only valid for SRM Impact primarily; most of them exist in general.

The most important challenges are:

- Change Management processes are part of a continuous improvement process
- It has to be adaptable, accessible and transparent
- Different cultural difficulties exist
- Everybody must be authorized to apply a Change Request
- Participants have to be supported
- Change Management process at the project beginning
- The decision board structure has to be logical and suitable
- Adequate measurement categories have to be defined
- Different Interests of the participants

### 5.3.1 Continuous Improvement Process

The implementation of a Change management of process requires time and patience. It is a part of a continuous improvement process in organizations. You can and should not expect that the development and implementation of a process may be done overnight and works immediately. Therefore, this approach needs some lead time to accomplish to all involved participants (persons and also subsequent processes). A continuous and complete examination of the process is also absolutely necessary and important. If necessary, the process must be able to adapt the whole process to new, constantly changing situations.

### 5.3.2 Adaptability, Accessibility and Transparency

The satisfaction of customers comes more and more in the focus of every organization's strategy and all strategically decisions. This leads to constantly new, increasing challenges and requirements for an enterprise every day. Especially internal processes must be adaptable in order to react to this result. To increase customer satisfaction for



instance, a Change management process must not be rigid. He must be able to react to requirements and needs of the customers. Only with these factors possibilities for improvement which could finally offer positive effects to customers can be implemented. If there are any problems, for example issues regarding to the communication with the requester or with a too detailed and complex approval process, the customer must have the possibility at any time to be able to indicate nuisances. These must be adapted immediately, if possible. Also implementation of an additional process step for example in case of organizational demands has to be allowed. For these reasons a Change management process has to be adaptable, accessible and also transparent.

### 5.3.3 Cultural Difficulties

There can be cultural difficulties within the attempt to convince all employees, customers and users to implement a uniform Change Management process for all parts of the used infrastructure. It must be indicated to all involved participants that components may influence themselves sustainable and that changes on each Configuration Item require coordination. Furthermore measures have to be implemented which can prevent that the Change Management process may be evaded. (for example regular process audits, employee training in the area of IT Service Management)

### 5.3.4 Submission from Everybody

It is important that all employees and customers of an organization have the right to submit a Change Request at any time. Only so it will be ensured that improvements and innovations can be speed up in the whole organization. Thereby these employees and customers feel better involved in the whole process and organization. Also each submitted Change Request has to be discussed.

### 5.3.5 Support of all Participants

It is important to inform employees, customers and users about the implementation of a Change Management of process. Employees are mostly willfully obstructive if it concerns about the implementation of new processes. This leads mostly to new tasks, competences and responsibilities. Therefore, all involved participants must be supported within implementation. It is not enough to draw up a new process and dictate tasks to employees. At the same time new tasks are also mandatory for management. Employees may only be motivated if the management lives the implemented processes.

### 5.3.6 Change Management Process at Project Beginning

It is also relevant during the implementation of a project to have a functioning Change Management process. Changes enter a project already at the beginning. Change Management has to ensure a controlled approach to receive Change Requests, that means participants have to be informed how to submit CRs and why using this method. Receiving of Change Requests by incoming telephone calls or in any other similar ways have to be eliminated to accomplish a straight, optimal process from the beginning. It has to be ensured that changes are only gathered and managed from Change Management, including involved processes and implemented systems. The management of Change Requests on additional systems, which are not involved in the whole process, must be eliminated.

### 5.3.7 Logical Board Structure

The decision board structure must be well considered, so that it can act. A crucial task within implementation of a Change Management process is the establishment of a comprehensive board model at the beginning, including all contained necessary tasks, responsibilities and competences. In order to reach this purpose, it has to be constructed

logically and must own a comprehensible hierarchy. Through the worldwide roll-out of the template it must be enabled that all communities of interest, which are involved in the whole process, are represented. The acceptance, involvement and cooperation of all participants form the base to reach successful results for all members at the end of every meeting.

### 5.3.8 Defining adequate Measurement Categories

An important challenge for the management of Change Requests is the risk estimation for a non-realization of a change as well as the estimation to advantages which the change will own. The estimation concerning the impact on business is also very important. Changes in systems can only be accomplished effectively and efficiently if you establish suitable measurement categories which describe each CR. It would do no sense to classify all CRs equally; a well thought-out order for processing must be acquired.

### 5.3.9 Different Interests of GROCs

The template will be rolled out in the entire Siemens Company and therefore it is available for many GROCs. These also have different interests in the further development of the template. By the fact that budgets of each single GROC become smaller and smaller every customer is going to try to accommodate his requirement into the template. The Change Management is responsible for balancing requirements which are used actually from the bulk of GROCs. Also standardization of single requirements to a complete solution, that many GROCs will use and which are concerning the interest of the entire Siemens AG, belong to the most difficult and complicated challenges in the Change Management process.

## 6 Future Prospects

The implemented Change Management process is sufficient enough for the management of Change Requests within the initial phase of SRM Impact.

Like all other processes, the Change Management process is also affected by permanent changes and improvements, too. For future, worldwide and group spanning usage of SRM Impact in the entire Siemens Company the implemented process is not sufficient enough and has to be adapted.

As a result of the increasing number of customers, which will use the application in the future, the approval process for further development of the template has to be refined. A single centralized worldwide decision board for further development, in which each single Change Requests from all customers will be discussed, does not make sense.

A possible approach for solving this problem could be the following one: The present decision instance, the Workgroup SRM, will be replaced by a multi-level process. A three-part spreading of the approval boards would be conceivable. Figure 60 shows the possible structure of the decision hierarchy.

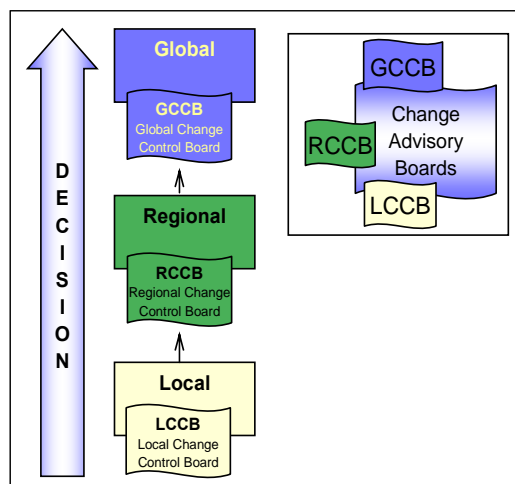
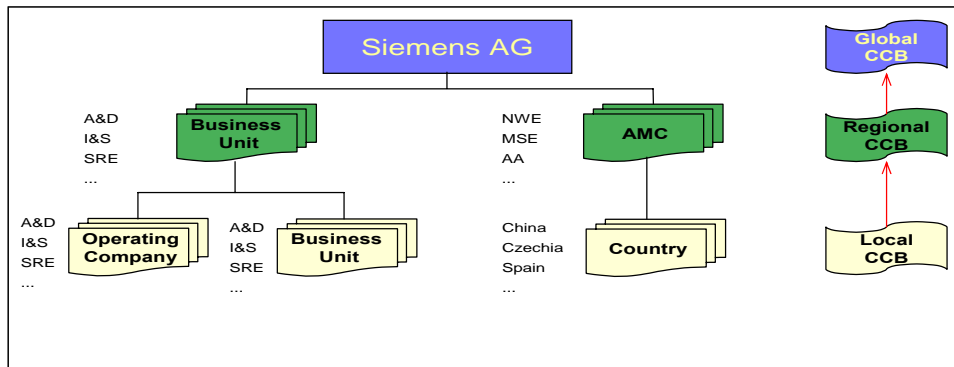


Figure 60: Decision Hierarchy of a further Approval Process

SRM Impact requires three different change advisory boards:

- *Local Change Advisory Board (LCCB)*
- *Regional Change Advisory Board (RCCB)*
- *Global Change Advisory Board (GCCB)*

Based on this hierarchical structure it could be ensured that Change Requests, which are not in the focus of the entire Siemens Company or which will not receive into the template, can be filtered out prematurely. To ensure that, every single step of hierarchy sends a representative into the next higher advisory board.



**Figure 61: High Level structure of the Siemens Company**

Figure 61 shows a high level structure of the Siemens Company with the suggested decision levels of approval.

At the lowest level all Change Requests of each single country, business area, operating company or central unit are gathered for the respective unity. (LCCB)

In the next higher level, the RCCB, each single Change Request will be discussed and decided. Change Requests, which are only valid for each single country, business area, operating company or central unit, are named as local and have to be realized by the respective unit. Furthermore the RCCB will check if the Change Request could be

applicable for the whole region, group or for all central units. In this case the CR will be forwarded to the GCCB.

This board checks whether the CR is generally valid, that means template-relevant, or the CR is in the interest of the Siemens AG. If it is not a common Change Request, the RCCB has to realize the Change Request itself.

But only the practical experience in business will show if this approach could be accomplished one-to-one or if it has to be adapted again.

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## **Annex**

### **SRM Impact Change Request Document**



Change Request Identification		
<b>Requester</b>	<b>name</b>	
	<b>department</b>	
	<b>phone</b>	
	<b>email</b>	
	<b>date</b>	
<b>CR Title</b>		
<b>CR Description</b>		
<b>CR Benefit</b>		
<b>Involved GROCs</b>		
<b>Desired Date of Completion</b>		

<b>CR ID</b>	<i>Will be assigned by CIO</i>	
Change Request Current Status		
Status	Date	by
<input type="checkbox"/> <b>created</b> <i>- CR received to CIO -</i>		
<input type="checkbox"/> <b>evaluated</b> <i>- CR ready for approval -</i>		
<input type="checkbox"/> <b>approved</b> <i>- enabled to realize -</i>		
<input type="checkbox"/> <b>postponed</b> <i>- postponed -</i>		
<input type="checkbox"/> <b>rejected</b> <i>- rejected -</i>		
<input type="checkbox"/> <b>in progress</b> <i>- starting date of realization -</i>		
<input type="checkbox"/> <b>implemented</b> <i>- tested by developer -</i>		
<input type="checkbox"/> <b>released</b> <i>- tested by CIO and customer -</i>		
<input type="checkbox"/> <b>closed</b> <i>- CR closed -</i>		

<b>Change Request Evaluation</b>			
<b>Cluster</b>	<input type="checkbox"/> User Administration	<input type="checkbox"/> Master Data	<input type="checkbox"/> Accounting Data
	<input type="checkbox"/> Approval Process	<input type="checkbox"/> Shopping Cart printout	<input type="checkbox"/> Follow on documents
	<input type="checkbox"/> Goods receipt	<input type="checkbox"/> Reporting	<input type="checkbox"/> Backend Integration
	<input type="checkbox"/> Others		
<b>Template relevant?</b>			
<b>Type of CR / Impact on Business / Priority</b>			
<b>Possible solution</b>			
<b>Estimated Date of Completion</b>			
<b>Proposed Release</b>			
<b>Estimated Effort/Cost</b>			
<b>Conclusion</b>			
<b>Comment</b>			
<b>Attached Documents</b>			

<b>Change Request Approval (Decision)</b>	
<b>Date of Approval</b>	
<b>Approver</b>	
<b>For Release</b>	
<b>Decision</b>	
<b>Comment</b>	

<b>Change Request Build</b>	
<b>Actual Date of Completion</b>	
<b>Developer</b>	
<b>Actual Effort / Costs</b>	
<b>Comment</b>	
<b>Attached Documents</b>	

<b>Change Request Test</b>			
	<b>Functional Test (Service Delivery)</b>	<b>Integration Test (Service Management)</b>	<b>Acceptance Test (GROC)</b>
<b>Description</b>			
<b>Test Environment</b>			
<b>Involved Persons</b>			
<b>Accepted by</b>			
<b>Date of Acceptance</b>			
<b>Comment / Related Documents</b>			

<b>Change Request Go Live</b>	
<b>Description</b>	
<b>In Release</b>	
<b>Comment</b>	
<b>Date of Going Live</b>	