EU-IST Project IST-2003-506826 SEKT

SEKT: Semantically Enabled Knowledge Technologies



D9.2.1 Siemens Scenarios

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Abstract

The overall goal of the Siemens Business Services case study is to optimize the analysed knowledge flows (between Siemens employees, customers and partners) which means to make the contribution, relocation and reuse of information, documents and knowledge easier.

This will be achieved by superior new functionality which creates considerable benefit for the user and business process effectiveness (focussing sales & delivery, see D9.1.1) by means of higher quality and more efficient access to information.

Scenarios aim to outline the objectives of the case study guidelines and concepts for user interfaces to access innovative search technologies. They provide a theoretical and conceptual framework for the different characteristics of a search process in a corporate environment and thereby serve as input and inspiration during the user validation process and the development of the final user interfaces.

Based on the analysis carried out in Task 9.1 scenarios were developed on how work could actually be changed by applying the envisaged SEKT technologies.

These scenarios take the form of graphical storyboards, in the first place, which will be further elaborated and validated together with the user groups in workshops.

Keyword list:

Knowledge Base, business process support, requirements capture, searching and browsing, alerts, knowledge capture and reuse, knowledge sharing, expertise location.

WP9 Report Contractual date of delivery: M12

RE Actual date of delivery: M20

D9.2.1 / Siemens Scenarios

CHANGES

Version	Date	Author	Changes	
1.0	10.02.04	Paul	Inclusion of change control section and list of	
		Warren	partners, as suggested by York Sure.	
1.1	30.08.05	Jasmin	Creation of D9.2.1	
		Franz		
1.2	05.09.05	Jasmin	Revision after first review	
		Franz /		
		Ralph		
		Traphöner		
1.3	08.09.05	Roland	Further revision	
		Zeilbeck		

N.B. This section to be deleted before submission to the Commission

SEKT Consortium

This document is part of a research project partially funded by the IST Programme of the Commission of the European Communities as project number IST-2003-506826.

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Executive Summary

For Siemens / Siemens Business Services the use of Knowledge Management & Retrieval Technology is part of the business process supporting methodology having major impact on accessing and reusing the company's most important assets. But the value of the organisational knowledge is not based on its pure ownership, but on the multiplication of the knowledge (e.g. the re-use of knowledge).

As the objective of the Siemens Business Services case study is to investigate and verify how semantically enabled technologies can improve the productivity of IT and business consultants, the scenarios focuses on how to stimulate the emergence and creation of new knowledge and its capture along the Proposal- & Project Management Process in the Consulting Department.

The biggest hurdle to overcome with semantic enabled knowledge management is the effort to spend on classical attribution or search via metadata. Both normally requires additional work from the IT consultant what in many cases people are not willing to invest.

Another challenge of Knowledge Management per se is the difficulty of measuring the business impact. Therefore the selected business cases should also been seen as a test field to measure the impact both in employees acceptance and management key performance indicators. While the most important key figure will be time saved, it is important to show also what will be the additional business benefit based on the time savings.

Referring to knowledge discovery in corporate intranets and knowledge management systems, the context-awareness of a search engine may be defined as to include e.g. the current role of an employee performing a specific task in a specific process. Additionally it may also take into account the personal profile of this person including previous searches, manually set preferences and access-rights. The kind of device the user is accessing the search with, e.g. by using a mobile PDA, may be regarded, too.

Therefore the process of information search from a user perspective is described in detail (Use Case 1), defining the components the process may consist of and outlining the different types of searches or rather search intent of users. Referring to this process description, the key success factors and different available options for designing the user interface to access the search are outlined, taking especially into account the opportunities given by the assumed availability of an ontology based semantic search technology. To ensure the consistency of the interface to access the search technology within the Siemens / Siemens Business Services intranet and knowledge management environment, the guidelines predefined by the Siemens Online Style Guide are followed as well.

Covering the process steps of adding new content to the Knowledge Base and answering the request of automatic support for assigning metadata is subject matter within (Use Case 2).

Reusing existing knowledge within an IT Service Organization for providing competitive offerings in order to generate more business while achieving their productivity targets is in the focus of Use Case 3.

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1 Scenarios

Based on the analysis carried out in Task 9.1, scenarios were developed on how work could actually be changed by applying the envisaged SEKT technologies. These scenarios take the form of graphical storyboards, in the first place, which will be further elaborated and validated together with the user groups¹ in workshops.

1.1 Business Context of the scenarios (scope)

The figures below show the workflow along the Siemens Business Services sales and delivery processes. It shall give a quick overview at which phases and milestones of the process which work products have to be created. The circled work products are declared mandatory for small projects based on service contracts.

According to PM@Siemens (Siemens Project Management Initiative), small projects belong to the lowest classification level (see figure below). A project means that a customer specific solution is offered, in contrast to plain supply business which does not involve any customized modifications (catalogue products & standard services). Siemens Business Services has defined the escalation levels I to IV+ and each project has to be classified to one of these levels. Small projects at Siemens Business Services are always projects of Escalation Level I. Projects of other escalation levels than I are not covered by this guide to reduce complexity, i.e. we focus on projects of a size up to 2.5 Mio \in and up to 5 Person Years.



Fig. 1: Workflow Sales

¹ Currently mainly from the knowledge management community within SBS



Fig. 2: Workflow Delivery



Fig. 3: SBS classification

Main target groups are Entrepreneurs (Top Level Management, responsible for profitloss in business), Sales Manager, Proposal Manager, and Project Manager. SEKT shall especially help them to speak the same language and know the responsibilities of each other in small projects.

1.2 Process Flow Models of the scenarios

The retrieval & content-creation process is a specific process that turns a local document into a corporate knowledge asset (candidate) and regulates the worldwide exchange of knowledge. It ensures that the contents of the knowledge base are up to date and of a high quality.



Fig. 4: Overview of the process of content validation

When a new business problem arises e.g. a new task has to be faced by the IT Consultant an appropriate process model has to be conceptualized, retrieved and instantiated. The execution of the new instance embodies the reuse of the process knowledge as well as of the knowledge contained in the attached information. Due to the hierarchical process structure other (partial) models might be inserted by additional retrieval steps. Furthermore, instances of similar processes can be used as additional knowledge sources.

Knowledge-based systems are "Meta-models" of expertise consisting of concepts in terms of human expertise. They are described by ontologies implemented declaratively.

"Knowledge model" is described in terms of ontologies. The task ontology is needed to make knowledge-based systems aware of what task they are performing. Therefore specific conceptualization for the knowledge has to be defined before its use in the knowledge-based system. Such research on ontology is called ontology engineering.

An authoring system dealing with a tutoring task ontology knows what a tutoring task is and knows what type of domain knowledge is necessary to perform the task, which enables the authoring system to behave intelligently in the authoring support process. For specific search by explorative navigation an IT Consultant is able to retrieve appropriate knowledge in which the content is localized by performing a sequence of selection steps within an organized content repository using semantically based retrieval algorithms.

1.3 Use Case 1 - Solution Design for a Proposal (Phase S40)

In information technology, however, we force employees to use and understand a case wise created model whose concepts and terms are able to be utilized. They are represented in classes, instances, relationships, properties and rules. The Solution Design describes the planned solution for the customer's problem in sufficient detail to enable the "IT Consultant" so that all requirements are convincingly covered and the time and effort to be spent on implementation can be reliably estimated. The Proposal Manager / Project Manager Candidate has to make sure the design includes only those parts necessary for demonstrating the proposed solution and for estimating expenditure.

As a result, the design scenario could be interpreted depending on the delivery type and content in the Role "Sales Manager" (see Fig. 1 and 2) to assure getting fit with relevant information (knowledge) – proposal drafts, templates, benchmark numbers, market position, etc.

The search might also be seen as a basis for knowledge sharing by means of getting connected to other users working in the same knowledge domain.

Steps to be taken with the customer before and after submission of the proposal must be selected, planned and prepared in time.

Roles:

• Proposal Manager – Responsible for creating the proposal work products in time and budget.

• Sales Manager – Responsible for ensuring that the proposal is competitive and meets the customer needs.

The minimum requirements of the mandatory Quality comprise the following:

- Process steps of the Siemens Business Services Process Architecture SALES Process Phase S40 (see Fig. 1)
- Work products from "Minimum Standards for Small Projects"
- Project-specific work products/deliverables

Process steps are indicated in the documentation (process cards) of the Process Architecture and the Sales Framework.

They form a basis for evaluating the process quality.

Work products / deliverables are a further basis for evaluating the process quality. They take the form of documents which have to be verified. In the "Minimum Standards for Small Projects", the work products for each process phase/milestone are listed, differentiated by project escalation level.

The work products of the proposal phase also include the solution model and the proposal itself, i.e. the products of this phase, so that here the product quality is also evaluated.

Documents on the project planning and monitoring include details of project staffing and thus also provide information on the quality of the personnel.

Project-specific work products/deliverables serve to check the quality of the processes, personnel and the product in the Delivery-Transition phase.

The following figures show mock-ups of an implementation of Use Case 1. **1.3.1 Example Process Flow - Simple Search**



Fig. 5: Use Case 1, Simple Search

<image><image><image><complex-block><complex-block><complex-block><image><image>

1.3.2 Example Process Flow - Advanced Search



This search form provides the following facilities for searching and is available in an expert search interface:

- 1. The result set is automatically sorted based on the statistical relevance (percentage of match) of the retrieved documents.
- 2. The system offers the option to perform a natural language search: The user may enter a complete paragraph or a question which the engine then analyses for similarity of content elements and returns associative related documents.
- 3. Another option will allow the user to advise the engine to find "similar documents" related to a single document in the result set. This similarity is also based on associative, statistical relationships.
- 4. To control the scope of the search the search engine offers options to apply search filters based for example on metadata attributes contained in the source documents of the different data pools (see 2 SBS Core-Metadata Set) or external sources. Other filter options could limit the search to specific types of documents (PDF, HTML, PowerPoint, etc.) or even specific data-pools (e.g. Search only the "Customer Project Base" within knowledgemotion/Livelink).
- 5. And finally all user queries' results are shown in the search presentation interface:



Fig. 7: Use Case 1, Search Results

1.3.3 Use Case 1 - Summary profile: Searching for Information

Use Case ID:	UC1
Short - description:	 To write a proposal a huge set of information is necessary, such as: templates methods knowledge about customer knowledge about market knowledge about competitors knowledge about solutions / products knowledge about own delivery competencies Not all information will always be able to be gathered in internal sources, therefore an extension to external sources is necessary as well. Standard "full text"- and advanced searches don't meet user expectations, therefore it is necessary to also provide information based on the push principle (based on role, customer prospect, portfolio, industry, etc.) or do implicitly include those framework information into the search.
Roles (involved):	Proposal / Sales Manager, Project Manager, Project Team members
Compelling event:	See process S 40
Data:	See above
Result:	Proposal ready for proposal delivery, transfer to S50 (see Fig. 1)
Pre-conditions:	
Relevance:	Very important, Very often
Expected improvement:	Improved quality of information retrieval in terms of recall and precision leading towards increased productivity i.e. reduced proposal preparation time. Queries can be saved which enables the system to provide the user with relevant new information (push service).

1.4 Use Case 2 - Contribution of a document / Knowledge Asset

This use case covers the process steps of adding new content to the Knowledge Base and answering the request of automatic support for assigning metadata.

1.4.1 Knowledge Base – Add Asset

	Market Development	Service Offering Life Cycle
Core Processes	0 on testserver 💌	0 active on testserver 💌
	Sales	Delivery
	0 active on testserver 🔽	0 active on testserver 🖌
Officiary (Beauty	11-	
Offerings / Portio		
Industries / Custo	mers	0 active on testserver

Fig. 8: Use Case 2, Asset Upload

Once users have confirmed the details by means of **Add Item**, they will be requested to add particular attributes to the document on another screen:

SBS KB Core Metadata 🛆 SBS KB Core Metadata System 🛆					
Abstract/Keywords/Keyphrase: Å	KM knowledgemotion Knowledgemanagement				
Content-Language: 🔔	Content-Language: 🔺 English 🗸				
Geography: 🕭	<worldwide></worldwide>				
Content Type: 🕭	<none></none>				
Technologies / Platform / Partner: Å	<not applicable=""></not>				
Process Type: 🔔	Support Process				
Practice: 🔔	<not applicable=""></not>				
Program: 🛕	SOL - Knowledge Management				
Industry: 🛆	Cross-Industry				
Knowledge Broker: 🛆 CB knowledgemotioner's					
Done Apply Reset Remove					

Fig. 9: Use Case 2, Metadata

The users select the attributes that best characterize their document.

The document will now be the responsibility of the community the user selected. If appropriate the relevant experts will contact the user about the quality of the document and its suitability as a knowledge asset.

Of course the user may also contact the responsible community broker itself at any time.

1.4.2 Community Workspace – Asset Upload

The second method for users to make knowledge-asset candidates available to their colleagues is provided in the workspace of a community itself.

If, by browsing the Siemens Business Services communities, users find a community to which their document could be of value they can send their knowledge-asset candidate straight to the community concerned.

	pen Source	Contact	Join	Members Asset Upload
tile -	Community Profile			
1 500	Open Source Discussion			
10	Meetings & Workshops			
	News			
	6			1 million (1997)

Fig. 10: Use Case 2, Community Workspace

In its workspace, each community has a folder called **Asset Upload**. To increase the user-friendliness many communities have included an extra button for this purpose.

In each case the process is the same as described above: The user enters all necessary information to describe the document and confirms the details. In this way, the knowledge-asset candidate will be sent straight to the "mailbox" of the relevant community. It will then be checked as quickly as possible for its suitability as a knowledge asset, and if appropriate will be incorporated into the existing structure.

1.4.3 Use Case 2 – Summary Profile: Contribution of documents

The upload process described is today mainly based on manual steps and contributions of additional information provided by the users. In many discussions we heard that this additional effort is considered as being too high. Many individuals, who are not willing to share their documents or their knowledge captured, will argue that the additional effort of the upload process is too high.

The idea behind UC2 is to automatically identify and gather all the semantic meta information coming along with the document (e.g. type or format) as well as the role and the context of the individual user.

Referring to the basis information described for introduction, these might be the following:

Roles:

- Sales manager
- Project Manager
-

Business Process Context:

- S 40 – Proposal Development

Within a certain area of the business (Business Type), Working for a specific client or industry, Member of specific communities, Earlier uploads, etc.

Most of this information describes the specific situation in which a user may want to upload a document and therefore they should be provided to the user by the system as pre-defined / proposed attributes that the user only has to confirm:



1.4.4 UC2 profile: Contribution of documents / knowledge assets candidates

Use Case ID:	UC2	
Short - description:	A user would like to upload a specific document / knowledge asset candidate to the Knowledge Base and therefore has to attach additional information to the document.	
Roles (involved):	User as Sales Manager / Proposal Manager, Project Manager, Project team member	
Compelling event:	See process model	
Data:	Role, situational context personal profile (history of behaviour, project context, etc.), Document	
Result:	Document with add. Metadata, based on pre-configured / proposed metadata (attributes).	
Pre-conditions:		
Relevance:	Very Important, very often	
Expected improvement:	Metadata will be collected according to an improved Siemens Metadata Core Set definition (see chapter 2). Applying SEKT and in particular Information Extraction and Knowledge Discovery capabilities must lead to an improved metadata quality in terms of richness and completeness when compared to purely manual annotation.	

1.5 Use Case 3 – Re-use Initiative

To every customer SOL is selling Solutions, most desirable with high quality and minimal risk. Risk reduction occurs when proven project results and outstanding successes can be replicated. Basis for this is a completed project with a proven systems architecture.

Reusing existing knowledge give us the chance for competitive offerings in order to generate more business while achieving our productivity targets. The degree of reusability depends on the ability of matching the existing architectural and functional features and modules with new customer requirements."

Reuse in the Project Process

All aspects of Reuse have to be planned by the Sales, Proposal and Project Managers and Solution Architects at the very beginning of each opportunity/project (project ramp-up):

Match customer requirements with already existing Solution Architectures Estimate potential degree of reusabality.

The basis for replication is a completed project with the proven systems architecture of an implemented solution with as many stable, Reusable Knowledge Assets and documented modules as possible.

Reusing existing knowledge gives an organisation like SBS the chance for competitive offerings in order to generate more business while achieving our productivity targets.

The degree of reusability depends on the ability of matching the existing architectural and functional features and modules with new customer requirements.

1.5.1 Types of Reusable Knowledge Assets

Reusable Knowledge Assets originate out of a project. They save money and time and deliver better quality when replicated within new customer projects.

The spectrum of Reusable Knowledge Assets can vary from a single project element to pre-packaged projects. Accordingly the EBIT and sales impact of a Reusable Knowledge Asset differs:

	Type of Reusable Knowledge Assets	Explanation
A	Single project elements = Reusable Elements	Single standardized elements, identified through Project Overview / Debriefing, e.g. reference, customer presentation, opportunity assessment tool, proposals & contract repository, ROI calculation, lessons learned, tool, demo / screen cam, implementation guide, project plan, training,
	Solution kernels = Reusable Components	Reusable Element with direct Ebit impact, through cost and risk reduction; similar to a product; e.g. application module, graphical interface, application interfaces, training module,
В	Project approaches = Reusable Concepts	Standardized methodologies, concepts or models with direct Ebit impact for reuse in similar projects; e.g. introduction concept, industry specific business process models, architecture models, workflow models,
	Pre-packaged projects = Reusable Solutions	Aggregated package with direct Ebit and sales impact, package is directly related to the SBS portfolio on service offering or module level

Fig. 13: Use Case 3, Re-Use types

Differentiation for the further proceeding:

- **Reusable Knowledge Assets of type A** enhance our competence and capabilities and demonstrate this towards our customers, e.g. through references. Here the direct Ebit impact is difficult to quantify.
- **Reusable Knowledge Assets of type B** have a direct measurable Ebit impact or reduce the delivery effort significantly. They improve our internal performance.

1.5.2 Reuse in the Project Process

For efficient replication, projects require knowledge transfer during ramp-up and wrap-up:



Fig. 14: Use Case 3, Re-Use course

Knowledge transfer into a project

All aspects of Reuse have to be planned by the Sales, Proposal and Project Managers and Solution Architects at the very beginning of each opportunity/project (project ramp-up):

- Match customer requirements with already existing Solution Architectures
- Estimate degree of reusability of Reusable Knowledge Assets
- **Transfer of experience** and applicable **Reusable Knowledge Assets** into upcoming projects involving the CoCs² and the owners of Reusable Knowledge Assets

² Center of Competence: organisational units that collect and disseminate knowledge and best practices within SBS

Every new customer requirement, proposal and suggested solution architecture needs to be evaluated for the utilization of Reusable Knowledge Assets. This affects both the proposal and delivery process. Reusable Knowledge Assets are stored in the Knowledge Base and can be found e.g. via:

- a central find area
- the Reusable Catalogues for Reusable Components, Concepts and Solutions
- predefined queries or topic folders of the particular CoC
- the Cross CoC Search center

🌮 Knowledge Base 📼 » 📴 SBS Community Workspaces 💌 » 🏂 SOL 💌 » 🔩 Cross CoC Topics 📼
Fig. 15: Use Case 3, Toolbar (Mock-Up)

Sales Material	— Please select —	*
Portfolio	— Please select —	
➡ Practice	All	
Drogrom	References	
Fiografii	Offeringflyer /-brochures	
Service Offering	Sales kits	
Industries	Presentations (slides)	
	Price information	
Country	Internal sales information / Sales guides	
Full-text	Detailed service descriptions	3
search [?]	Press article	8
	Additional calco information	
	Comprete Technology (System Strategy)	
	Links (Communities Wobsites)	
	Market & competitor information	
	Portfolio films	
Show further search	Proposal Support	
	Belease	
	Reusables	
	Rol calculation	

Fig. 16: Use Case 3, Examples for Sales Material Types (Mock-Up)

Reusable Knowledge Assets are always related to our portfolio

This relationship is displayed on each search results page.

Knowledge transfer out of a project

To ensure that knowledge is efficiently transferred out of a project (project wrap-up), two work products are mandatory:

- the Project Overview and
- the Project Debriefing Report

In the project wrap-up phase, new Reusable Knowledge Assets shall be identified and submitted to the Knowledge Base.

1.5.3 Reuse in the Knowledge Management Process at the CoC

The CoC is responsible for the collection, aggregation and propagation of Reusable Knowledge Assets:



Fig. 17: Use Case 3, CoC responsibility

Collection, aggregation and propagation of Reusable Knowledge Assets

The person contributing the Reusable Knowledge Asset is responsible for its correctness. In general any employee of Siemens Business Services can identify Reusable Knowledge Assets and upload these to a CoC for Siemens Business Services-wide availability. For Reusable Knowledge Assets resulting from a project, the project manager takes responsibility for uploading the asset to the corresponding CoC community workspace.

The Reusable Knowledge Asset candidates (including the Project Overview) shall be delivered to the folder "Upload Reusables" (CoC letter box Use Case 2) of the corresponding CoC community workspace in Knowledgemotion.



Fig. 18: Use Case 3, CoC community

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In case more than one CoC is involved in a project, the community workspace of the leading CoC should be used. This upload folder is used for all Reusable Knowledge Assets that originate during a project or describe a particular successful project which would be suitable as an internal or external reference. Reusable Knowledge Assets can be categorized as follows:

- Industry and customer information, i.e. external best practices, white papers, benchmarking results, assessments, links, etc.
- Business plans, market data, etc.
- Methods and tools (processes, techniques, templates, checklists, calculation sheets, opportunity assessments, ROI calculation tools, etc.)
- Technical solution components, i.e. prototypes, re-usable solutions core components, solution kernels, hardware, platforms
- Projects Reusable Knowledge Assets such as, concepts, architectures, models, generic processes, workshop material, training material, etc.
- Project Overviews
- Proposals and example contracts
- Marketing and communication, i.e. conference material, articles
- Sales material candidates, i.e. offering flyers, presentations
- Lessons learned and debriefing reports
- Success stories and references

When Reusable Knowledge Assets are submitted, the CoC shall undertake a formal quality check (see checklist for the formal check of Knowledge Asset Candidates). Next the CoC performs the necessary content and value assessment check (see Checklist for value assessment and improvement of Knowledge Asset Candidates). Any suitable asset will then be shifted to the relevant folder within the CoC community workspace by the CoC community broker.

If significant effort is involved in preparing the Reusable Knowledge Asset (e.g. translation, completion, etc), the CoC should clarify the cost implications.

Additional procedure for Reusable Knowledge Assets of type B

In the case of Reusable Knowledge Assets of type B a professional finding and selection process as well as a more detailed and uniform preparation is mandatory.



Fig. 19: Use Case 3, Segment Responsible

Through the network of Segment Responsibles (SRs) the countries deliver their Reusable Knowledge Asset of type B as candidates to the CoC. The same upload procedure as described in chapter 5.1 is recommended. The documents can be clustered by a separate folder.

First the CoC checks whether the candidates fulfil the following criteria:

- Technical or conceptual documentation in the English language is available
- Customer reference is available
- Reusable Knowledge Assets is "available" (a specific unit is able to deliver)

Second the CoC decides which of the candidates will be promoted. For those Reusable Knowledge Assets the CoC shall produce a short description, called Reusable Component / Concept / Solution description. This description shall include:

- Name of the Reusable Knowledge Asset and related service offering
- Customer situation and customer requirements
- Solution overview
- Contact person

The CoC can define additional criteria and provide further optional descriptions and presentation if applicable. Each CoC shall maintain a list of available Reusable Knowledge Assets of type B in Knowledgemotion, the so called Reusable Catalogue, which includes also the candidates.

The quality assurance of the Reusable Knowledge Assets remains principally with the Reusable owner. This will make sure that the overall Siemens Business Services quality standards remain maintained.

The CoC is responsible for marketing and roll out of new Reusable Knowledge Assets of type B via its network of SRs, CoC newsletter, campaign, etc. For these Reusables the SRs shall obtain a roll out training from the CoC in order to spread this Reusable Knowledge Assets within the delivery and sales units of their respective countries.

Reuse of Knowledge Assets and Reuse campaigns

When starting a proposal or a delivery project, the Sales, Proposal or Project manager is responsible for considering and transferring Reusable Knowledge Assets into the project. The corresponding CoC Community Broker shall assist upon his/ her request.

In addition to that specific campaigns preferably for Reusable Solutions can be launched in order to reach the CoC net sales and gross profit goal:



Fig. 20: Use Case 3, Reuse Campaign

Such a campaign requires the involvement and/or commitment of the:

- Campaign manager
- Local unit manager SOL
- Segment manager / CoC Segment Responsibles
- Local sales manager / key sales people / multipliers
- Key project managers / team leader Delivery / key systems architect
- Key communications people / multipliers

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During the local assessment the opportunities are identified based on existing customer opportunities. Therefore the account plans of the target customers shall be matched to the Reusable Catalogues. The local sales managers shall commit to the Reusable Solutions to be focused on. The engagement of the CoC bridges the gap between local sales and the Reusable Solutions.

1.5.4 Use Case 3 - Summary: Re-use initiative

Use Case ID:	UC3
Short - description:	Support for Sales, Proposal or Project manager
Roles (involved):	 Campaign manager Local unit manager SOL Segment manager / CoC Segment Responsibles Local sales manager / key sales people / multipliers Key project managers / team leader Delivery / key systems architect Key communications people / multipliers
Compelling event:	Reuse of Knowledge Assets and Reuse campaigns
Data:	See process Input
Result:	See 1.5.3 Reuse in the Knowledge Management Process at the CoC
Pre-conditions:	Transfer of experience and applicable Reusable Knowledge Assets into upcoming projects
Relevance:	Very important, Very often
Expected Improvement:	Increase the sale of existing reusable assets through an improved dissemination i.e. knowledge transfer and mediation between sales and project teams - to facilitate knowledge flow by utilizing explicit representations (ontologies).

2 Siemens Business Services Taxonomy

Siemens Business Services - Core Metadata Element Set – Implementation Guideline To control the scope of the search the search engine offers options to apply search filters based for example on metadata attributes contained in the source documents of the different data pools (Siemens Business Services Core-Metadata Set). SEKT technology enables the enrichment of metadata by relations, additional concepts, automatically extracted from the text sources, such as named entities for example.

No	Values	SBS Core Metadata elements Set	SBS Name of <i>Attribute/</i> <i>Picklist</i> [Mandatory – Optional]	Descriptions, Remarks
1		Description → description. abstract → description. key phrase	M / Abstract/ Keywords/ Keyphrase	Definition: An abstract or keywords describing a topic of the content of the resource. Comment:: Typically, a Subject will be expressed as key phrases or abstracts that describe a topic of the resource. Some Users might fill in complete phrases to describe the asset, others might fill in any keywords e.g. CMC Abstract for Offering, keywords for any technology Usage: KeM, Sales Service, CoC, Intranet, Project Base
2	ISO 639 Language Codes English <default></default>	Language	M / Content Language - German - English - Spanish - Finnish - French - Italian - Dutch - Swedish - Turkish - other - <multi language=""></multi>	Definition: A language of the intellectual content of the resource. Comment: Recommended best practice for the values of the Language element is defined by RFC 1766 which includes a two-letter Language Code (taken from the ISO 639 standard), followed optionally, by a two-letter Country Code (taken from the ISO 3166 standard). Usage: KeM, Sales Service, CoC, Intranet, Project Base

No	Values	SBS Core Metadata elements	SBS Name of Attribute/ Picklist	Descriptions, Remarks
		Set	[<u>M</u> andatory – <u>O</u> ptional]	
3		Country of origin <depending given<br="" on="">controlled vocabulary, thesaurus> d.h.all regions Values have to be mapped to a specific country: <worldwide> no change <europe> no change <asia> has to be mapped to India, Singapore</asia></europe></worldwide></depending>	M / Country of origin [Multiple Attribut] -Argentina -Austria -Australia -Belgium -Brazil -Bulgaria -Canada -China -Croatia (Hrvatska) -Czech Republic -Denmark -Estonia -Finland -France -Germany -Great Britain (UK) -Greece -Hungary -India -Ireland -Italy -Latvia -Lithuania -Luxembourg -Malaysia	Definition: This element can be used to specify the origin of an asset. Comment:: It can be used as an allocation of Country- Assets by specific Report. Typically, an Asset will be uploaded using the country attrributs value describing the origin of that asset. Some Users might fill in a specific country. Usage: KeM
		Country of origin	-Morocco -Netherlands -Norway -Poland -Portugal -Romania -Russia -Singapore -Slovak Republic -South Africa -Spain -Sweden -Switzerland -Turkey -United States - other - «Worldwide> - <europe> - <asia> - <africa> - <americas> - <australia> - <not assigned=""></not></australia></americas></africa></asia></europe>	

No	Values	SBS Core Metadata elements	SBS Name of <i>Attribute/</i> <i>Picklist</i>	Descriptions, Remarks
		Set	[<u>M</u> andatory – <u>O</u> ptional]	
4		Content Type	M / Content Type [Multiple Attribut]	Defintion: Branch&Customer information could be Profiles, Studies, Press-Articles, Organisation Plans etc.
			 Industry/Branch & Customer Information Business Plan, Market Data etc. Method&Tools (Templates, forms, 	Business Plan, Market Data etc.could be Business Plan & -Ideas, KEP, Executive Summary, Awareness WS, Opportunity
			 checklists) - Technical Solution Components (SW,HW, Platforms) - Re-Usables, Projects 	<u>Method&Tools</u> (KB or Community Content) could be Templates, forms, checklists etc.
			 Project Overview Proposal / Contract Marketing&Communication Sales Material (SO, Flyer) Lessons Learned / Debriefing Success Story / Reference other 	Technical Solution Components are related to SW, HW & Platforms, and could be Release Notes, Announcements, Code-Pieces, Application Modules, Training, DEMO , Screencam, Documentation, solution components
				<u>Projects / Re-Useables</u> could be Project Definition, Deliverables, Change Requests, Success Stories (intern), etc.
			<u>Note:</u> Reference <-> Success Story: Reference adresses an officially by	Project Overview For the Re-Usability of specific project know how the attribut "Project Overview" has been included.
			customers' commitment released document. A success story is an internally reusable project or experience	Proposal / Contract could be Proposal, Calculation etc.
			····	<u>Marketing&Comm-unications</u> could be Broschures, Business TV, Press Release, Event etc.
				Sales Material could be Service Offerings, Flyer, Presentations etc. Lessons Learned / Debriefings could be Debriefings from projects, Lessons Learned from Communities or knowledge transfer Success Story / Reference
				Usage: KeM, Sales Service, CoC, Intranet, Project Base

No	Values	SBS Core Metadata elements Set	SBS Name of Attribute/ Picklist	Descriptions, Remarks
5	 Market Development Service Offfering Lifecycle Sales Delivery Support Process <not applicable=""></not> 	Business Offering → Business Offering. process type	[<u>M</u> andatory – <u>Optional</u>] M / Process type [Multiple Attribut] • Market Development • Service Offfering Lifecycle • Sales • Delivery • Support Process	Definition: This element can be used to specify business offerings more detailed than it is possible using only the Siemens Core Metadata set regarding relevant process phase within SBS Process type. Definition process type:
6	 Strategic IT Consulting C01 Supply Chain Management S01 Enterprise Resource Planning S02 Customer Relationship Management S03 Systems Integration S04 Business Information Management S06 Application Management O03 Customer Interaction Center O01 Operational Services O02 Application Management O03 I&C Outsourcing All O04 Infrastructure Maintenance P01 Infrastructure Service Solutions P03 Enterprise Services B01 Supply Management B02 Demand Management B03 Operations B04 	→ Business Offering. Practice	• <not applicable=""> M / Practice [Multiple Attribut]</not>	Definition Answer the question: "What is the kind of business the offering refers to ?" The Process type represents the four main processes along the SBS value chain Usage: KeM, Sales Service, CoC, Intranet, Project Base

No	Values	SBS Core Metadata elements Set	SBS Name of <i>Attribute/</i> <i>Picklist</i> [<u>M</u> andatory – <u>O</u> ptional]	Descriptions, Remarks
7	 C Business Alignment of IT C0107 C Business Alignment of IT C0107 C IT Sourcing C0110 C Information Security C0109 C IT Factory C0108 C Business Improvement Program C0115 C Business Alignment of IT C0107 C Industrialization Financial Services Processes C0111 C Effectiveness Banking & Insurance Operations C0112 C E-Government and New Public Management C0113 C CCIS & Business Process Consulting C0114 C Operational Excellence C0116 C Harmonization Processes and Applications C0117 C Communication and Learning C0118 C Project and Program Management C0119 	→ Business Offering. program	M / Program [Multiple Attribut]	Definition: This element can be used to specify business offerings more detailed. As a view of the core processes. Definition program: Definition Answer the question: "Where does the programs refers to ?" The programm attribute represents the core processes topics Usage: KeM, Sales Service, CoC, Intranet, Project Base

	Metadata elements	Picklist	Descriptions, Remarks
	Set	[<u>M</u> andatory – <u>O</u> ptional]	
 SOL Procurement S0207 SOL Procurement S0207 SOL Industry Core Process Solutions S0208 SOL Advanced Planning S0103 SOL Procurement S0207 SOL Procurement S0207 SOL Product Lifecycle Management S0601 SOL Financials S0202 SOL Business Intelligence S0602 SOL Human Resources Management S0204 SOL Human Resources Management S0603 SOL Production Logistics S0206 SOL Human Resources Management S0603 SOL Production Logistics S0206 SOL Marketing S0301 SOL Sales S0302 SOL Service S0303 SOL Systems Engineering & Multivendor Integration S0401 SOL Software Engineering and Solutions S0402 SOL Mobile Business Solutions S0404 SOL Application Support for Business Solutions S0501 SOL Communication and Learning 	→ Business Offering. program	M / Program [Multiple Attribut]	
 ORS Help Desk Services 00101 ORS Help Desk Services 00101 ORS Desktop Services 00201 ORS Network Services 00202 ORS Data Center Services 00203 ORS Application Operation Services 00304 ORS Application Operation Services 00304 ORS Application Operation Services 00304 ORS Application Operation 	→ Business Offering. program	M / Program [Multiple Attribut]	
	 and Solutions S0402 SOL Mobile Business Solutions S0404 SOL Application Support for Business Solutions S0501 SOL Application Support for Business Solutions S0501 SOL Communication and Learning ORS Help Desk Services O0101 ORS Help Desk Services O0101 ORS Help Desk Services O0201 ORS Desktop Services O0202 ORS Data Center Services O0203 ORS Application Operation Services O0304 ORS Application Operation Services O0304 ORS Application Operation Services O0304 	and Solutions S0402 SOL Mobile Business Solutions S0404 SOL Application Support for Business Solutions S0501 SOL Application Support for Business Solutions S0501 SOL Communication and Learning ORS Help Desk Services 00101 ORS Help Desk Services 00101 ORS Desktop Services 00201 ORS Network Services 00202 ORS Data Center Services 00203 ORS Application Operation Services 00304 ORS Application Operation Services 00304	and Solutions S0402 SOL Mobile Business Solutions S0404 SOL Application Support for Business Solutions S0501 SOL Application Support for Business Solutions S0501 SOL Communication and Learning ORS Help Desk Services OOT01 ORS Help Desk Services OOT01 ORS Desktop Services OO2021 ORS Network Services OORS Desktop Services OO2022 ORS Network Services OO203 ORS Application Operation Services O0304 ORS Application Operation Services O0304

No	Values	SBS Core Metadata elements	SBS Name of Attribute/ Picklist	Descriptions, Remarks
		Set	[<u>M</u> andatory – <u>O</u> ptional]	
7	 PRS Hardware Maintenance & Support P0101 PRS Software Maintenance & Support P0102 PRS IT Management Services P0301 PRS Product Sales PRS Deployment&Integration Services P0201 PRS IT Management Services P0201 PRS IT Management Services P0201 PRS Deployment&Integration Services P0201 PRS Deployment&Integration Services P0201 PRS IT Management Services P0201 PRS IT Management Services P0301 PRS IT Management Services P0201 PRS IT Management Services P0201 PRS IT Consulting P0304 	→ Business Offering. program	M / Program [Multiple Attribut]	
7	 Infrastructure Service B0101 Human Ressources B0102 Administration B0103 Buying Processes B0201 Customer retention B0301 Healthcare Operations B0401 Banking B0402 Insurance B0403 Funds B0404 	→ Business Offering. program	M / Program [Multiple Attribut]	
8		→ Business Offering . Industry/ Branch	M / Industry / Branch [Multiple Attribut] • Financial Services • Manufacturing Industries • Public Sector • Media & Entertainment • Services • Siemens Group • Telecom • Transportation • Retail • Utilities • <not applicable=""></not>	Definition: This element can be used to specify business offerings in the industries / branches. Definition Industry / Branch: Definition Answer the question: "What is the Industry / Branche the offerings refers to ?" Usage: KeM, Sales Service, CoC, Intranet, Project Base

No	Values	SBS Core Metadata elements	SBS Name of Attribute/ Picklist	Descriptions, Remarks
		Set	[<u>M</u> andatory – <u>O</u> ptional]	
		→ Business Offering . SubBranch	 M / SubBranch [Multiple Attribut] default: all Sub-Industries> Financial Services - Insurance Financial Services - Investment Funds Financial Services - Retail Banking Manufacturing Industries - Aerospaces Manufacturing Industries - Automotive Manufacturing Industries - Chemicals Manufacturing Industries - Electronics & High Tech Manufacturing Industries - Food & Beverages Manufacturing Industries - Food & Beverages Manufacturing Industries - Mechanical Engineering Manufacturing Industries - Mechanical Engineering Manufacturing Industries - Metal & Mining Manufacturing Industries - Oil & Gas Manufacturing Industries - Packaged Consumer Goods Manufacturing Industries - Paper & Wood 	
			 Manufacturing Industries – Pharmaceutical Public Sector - Government & Administration Public Sector - Social Care Public Sector - Security & Defense 	
8		→ Business Offering . SubBranch	 Media & Entertainment - Broadcast (TV/Radio/Internet) Media & Entertainment - Entertainment Media & Entertainment - Publishing & Printing Services - Education Services - Healthcare Services - Healthcare Services - Hospitality & Leisure Services - IT Services Services - Management Consulting Telecom - Cable Network Providers Telecom - Cable Network Providers Telecom - Fixed Carriers Telecom - Mobile Carriers Trelecom - Mobile Carriers Transportation - Airlines Transportation - Airlines Transportation - Mail/Packages/Freight Transportation - Rail Transportation - Travel & Tourism Transportation - Travel & Tourism Transportation - Travel Agencies Retail - Retailer Utilities - Energy Supplier Utilities - Water Supplier Utilities - Water Supplier 	

No	Values	SBS Core Metadata elements	SBS Name of Attribute/ Picklist	Descriptions, Remarks
		Set	[<u>M</u> andatory – <u>O</u> ptional]	
9	 Border Control Business Flexibility Business Process Outsourcing Open Source Services PC-Lifecycle Solutions Emergency Management Employee Efficiency ID Solutions IT Consolidation IT Consolidation IT Consolidation IT Continuity IT Implementation of Basel II Meter 2 Bill Microsoft Migration Services Optim. Manuf.&Logist. via RFID Optim.Procurement (click2proc) Power Portal Print Lifecycle Solutions Real Time Enterprise SAP Migration & Netweaver Security Services Service Management Storage Solutions TCO reduction for Telco TCO reduction via Appl. Mgmt. Transitional Outsourcing 	→ Business Offering . Business Topic	Not taken into account in knowledgemotion	Definition: Business Topics are communicated by CSM using a ,bundeled' approach - internal and external Business Topics focus on Customer needs in specific Industries Business Topics increase our Sales volume by addressing customer business units in their language Business Topics deliver the right business solution to key ,painpoints' of our customers Definition Industry / Branch: Definition Industry / Branch: Definition Answer the question: "What is the specific Industries the offerings refers to ?" Usage: KeM, Sales Service, CoC, Intranet, Project Base
10		Technologies	M / Technology/ Platform [Multiple Attribut] Platform - SAP Platform - Oracle Platform - KM, PLM, DS (z.B. Livelink, SAP PLM, SAP BW) Platform - Microsoft Platform - Open Source Platform - diverse OS - MS Windows OS - Unix OS - Open Source OS - Others DB - Oracle DB Server DB - Oracle DB Server DB - Informix DB Server DB - Informix DB Server DB - Informix DB Server Office Application Server Office Applications - (Microsoft etc.) System-, Net-, Information Security (Cisco, etc.) Others 	Definition: This element can be used to describe an arbitrary technology in more detail. Technological Platform / Components / Partners Usage: KeM, Sales Service, CoC, Intranet, Project Base

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No	Values	SBS Core Metadata elements Set	SBS Name of Attribute/ Picklist	Descriptions, Remarks
			[<u>M</u> andatory – <u>O</u> ptional]	D-finition.
11		KB Core → ShareNetCore. Quality Level	 K-Asset (placed in Community) KA Condition (Letter to be below d) 	Definition: This element provides qualifiers to define more ShareNet specific information in order to improve the administration of the content objects.
			 KA-Candidate (Letterbox Upload) 	Answer the question: "What is the quality level of the resource?" <u>Maturity Level in knowledgemotion:</u> Set per default "KA- Candidate" ; only changeable by Community Manager / Core Expert
12		→ ShareNetCore. SBS Knowledgebroker	M / Community Usage Workaround: Providing Picklist with all named CB's	Definition Feedback: Allows the user of the knowledge object to add comments and feedback to the resource. Usage: KeM, Sales Service, CoC, Intranet, Project Base
13			O / Lifecycle Information	Definition: This element provides information to related documents in order to improve the administration of the content objects.

Conclusion

As a conclusion we can state that for each of the three use cases described, we are going to implement a prototype. At the moment, the first prototype for use case 2 (Knowledge asset upload) is up and running. Referring to the SEKT technology, it uses Text Garden and GATE components developed in Work Package 1 and 2. The next step will be to build the prototype for use case 1 (Retrieval), which will make use of WP5 components (e.g., Search & Browse Facility). Use case 3 (Reuse) needs further elaboration and is expected to make use of mining technology (WP1) and ontology mediation service components (WP4).

The further enrichment of the Siemens core metadata model is also scheduled and will be facilitated by applying the diligence methodology, developed in WP7.

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