

Knowledge Management Consulting Method

Part 4 – KM Development Plan

Module 4.4 – Develop the Knowledge Asset Schema

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Introduction

An Overview of the KM Consulting Methodology

The KM Consultancy Methodology enables structured thinking and planning for a knowledge management project. The KM Consultancy Methodology is designed to be modular so that an organisation can choose to start at different levels depending on its readiness, needs and requirements.

The KM Consultancy Methodology is divided into 6 parts of learning and activity. Part 1 concentrates on KM Education, understanding what KM is, the terminology used and why it is important. Part 2 introduces the individual to the importance of KM frameworks, and more importantly, the framework used for the KM Consulting Methodology.

Parts 3, 4 and 5 focuses on the planning, developing and implementing KM within and organisation. This involves looking at the initial or the planning stage of the strategic planning for knowledge management, in Part 3. Part 4 looks at developing the knowledge organisation, looking at how to KM enable the organisation and the need to iteratively develop the KM initiative. Part 5 looks at implementing the KM initiative, from a small pilot project, to a organisation wide KM roll-out and then to an inter-organisation wide KM roll out.

Part 6 focuses on the knowledge and skills required to successfully conduct KM on a daily basis. This involves fundamental skills, such as utilising the KM system and working effectively as virtual teams through to understanding the new roles and responsibilities of the Chief Knowledge Officer, Knowledge Manager, Knowledge Administrator and the Knowledge Workers.

Part 7 introduces the 9 steps of the KM Process. The KM process enables organisations to introduce, implement and assess how an organisation can become KM enabled. This part will introduce the 9 Steps and describe their purpose and importance. A KM Maturity Model is introduced to allow users to start assessing how effectively they are KM enabling their organisation/process/project.

Part 4 - Develop the KM Organisation

Part 4 of KM Consulting Method concentrates on developing the KM organisation. There are six different modules as follows:

- Modules 4.1 are an audit-leverage pair that focuses on business processes.
- Modules 4.2 are an audit- leverage pair that focuses on organisational structures and networks of people.
- Modules 4.3 are an audit- leverage pair that focuses on technology issues.
- Module 4.4 focuses on the development of the underlying model for knowledge asset organisation and is essential for the customisation of KM System tool, such as Knowledger.
- Module 4.5 focuses on the knowledge assets measurements
- Module 4.6 is a module that synthesises and documents the changes that the organisation is implementing as a result of the knowledge management initiative.

The purpose of this Part 4 is that it is iterative in nature, where an organisation will constantly analyse and leverage the knowledge for continuous further improvements. Modules can run in parallel and can be repeated several times throughout the knowledge management initiative. Three simple steps underlie the proposed iterative approach. First, diagnose the most critical problems and opportunities facing the organisation with respect to knowledge management and sketch out a possible solution. Second, quickly, over a few months, translate the sketch of a solution into new work processes and systems; include new ways of working as well as new computer systems, and begin using both for real. If, for example, the problem at hand is customer knowledge management, use the new process to manage some important customers at several offices (or business areas). Given this real-world experience, determine where these new processes and systems succeed or fail, and quickly fix the failures. In other words: do it, then fix it. Third, scale up systems for rollout across the whole organization. Communicate the proven success of the trials in order to build momentum for change.

The essence of the iterative prototyping approach is rapid learning from doing. Speed ensures that change is always relevant, it forces trade-offs so that limited resources are devoted to pursuing goals of real value, it allows top people to participate in change, and it builds unstoppable momentum. Trying out new ideas in the real world allows their shortcomings to be rooted out by the harshest of tests - real-world experience - and their successes to be proven beyond challenge from the most cynical critics. By stressing speed of change and using the real world as a laboratory to learn from, the iterative prototyping approach makes change and improvement a constant fact of corporate life.

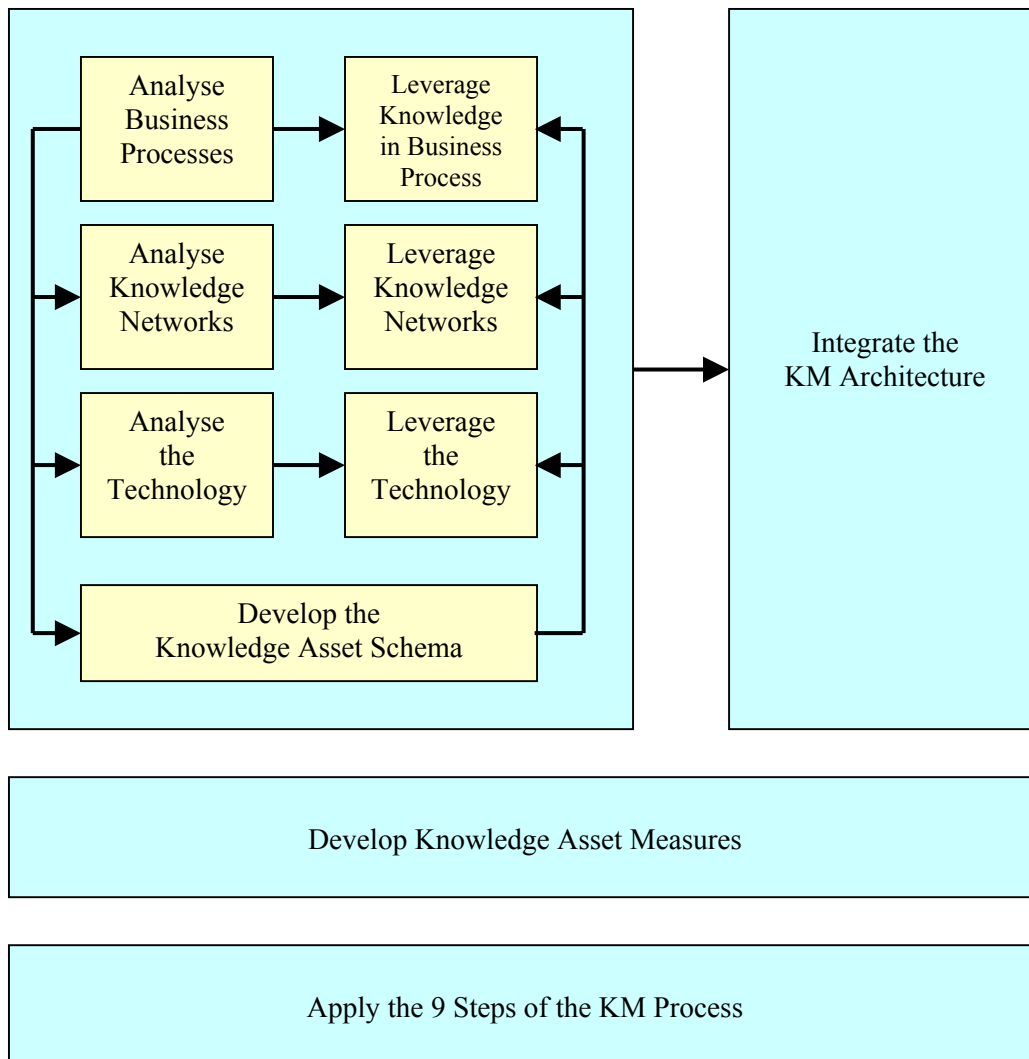


Figure 1 – Develop the KM Organisation

Summary of Activities per Module

Module		What is it used for?	Who is involved?	What are its prerequisites?	Comment
4.1	Analyse Business Processes	This module helps you audit the knowledge requirements of business processes.	Consultant and employee that 'governs' BUSINESS process. Additional interviews with employees involved in process.	High-level identification of key knowledge assets and key business areas of the organisation.	This module is useful: in relatively structured environments when there is a need to better manage knowledge in specific business processes
	Leverage Knowledge in Business Processes	To design and implement additions / modifications in business processes to improve knowledge management within process	Consultant and employee that 'governs' business process. Additional interviews with employees involved in process.	An analysis of the existing process; Knowledge Asset Schema	
4.2	Analyse Knowledge Networks	This part of the module helps you understand the informal flow of knowledge within networks of people in the organisation.	Consultant and Change Agent. Additional interviews with people in knowledge networks.	High-level identification of key knowledge assets and key business areas of the organisation.	This module is to be used only in environments that there already exist informal networks of people that focus on a specific knowledge asset or business area
	Leverage Knowledge Networks	This part of the module helps you design and moderate Knowledge Networks within the organisation.	Consultant and Change Agent. Additional interviews with people in knowledge networks.	Knowledge Asset Schema	This module is used by organisations that wish to build communities that will be collecting, storing and advancing key knowledge assets of the organisation. Particularly important for dispersed organisations.

Module		What is it used for?	Who is involved?	What are its prerequisites?	Comment
4.3	Analyse the technology	Asses the current state of IT in the organisation and identify existing information sources	Consultant, Change Agent, CIO, IT director or similar		This module supports the integration with existing enterprise systems.
	Leverage the technology	Present the technology element in knowledge management	Consultant, Change Agent, CIO, IT director or similar	Ideally Modules 4.2 and 4.3	
4.4	Develop the Knowledge Asset Schema	Design the knowledge asset schema, knowledge objects and attributes, and ontology	Consultant with Change Agent		This module provides essential input for the design of the knowledge repository.
4.5	Develop the knowledge asset Measures	To measure, track and report on the organisations knowledge assets	Consultant with Change Agent	Knowledge Asset schema	This module is essential for knowledge accounting
4.6	Implement the KM architecture	Helps integrate people, process and technology changes into one holistic solution	Consultant with Change Agent		Practical tips on integrating the people, process and technology changes. Addresses cultural issues.
4.7	Applying the 9 Steps of the KM Process	To KM enable the organisation/process/project. To monitor and measure the progress of KM enabling your organisation.	Consultant with Change Agent	A clearly defined area to be KM enabled	This module supports integration of the KM process within an organisation.

Module 4.4 - Develop the Knowledge Asset Schema

1.0 Purpose of module

- To finalise the identification of the knowledge asset and related knowledge objects, and their characteristics (attributes).
- To design the metadata, or “properties”, such as ownership and tags, of knowledge assets.
- To develop a common ontology that will allow employees to search accurately across many sources of information.
- To design corporate classification schemata based on the common ontology.

2.0 Knowledge Assets and Knowledge Objects

Because the KM Consulting Method is about identifying, managing and leveraging knowledge, and because it recognises both the content and flow perspectives, and deals with this through managing Knowledge Assets (defined in the holistic knowledge asset framework), we need to now define clearly what a knowledge object is and its relationship to Knowledge Assets.

Knowledge is an asset like any other, however the fundamental difference is that unlike most assets, knowledge assets are not subject to diminishing returns. In contrast to traditional assets, knowledge assets do not decline in value as more people use them, but grow in value as they become a standard for others to build on. In essence, we are working to better manage the content, quality, value and transferability of the Human Knowledge Assets, the Structural Knowledge Assets and the Market Knowledge Assets.

Lets take one from each category as an example:

- Human Assets - the key knowledge asset is our 'people' and 'networks of people'.
- Structural Asset - a key knowledge asset could be the automated 'sales process'.
- Market Asset - a key knowledge asset could be a 'corporate brand' (Coca Cola).

A Knowledge Asset has the following further characteristic that needs to be considered when developing the Knowledge Asset Schema:

A knowledge asset creates/stores/disseminates knowledge objects

E.g.

- A person is a knowledge asset that can create new ideas, learnings, proposals, white papers (k. objects)
- A community of interest is a knowledge asset that can create new ideas, best practices (k. objects)
- A process is a knowledge asset that can create and/or store and disseminate best practices, company standards, R&D material (k. objects)
- A vision is a knowledge asset that can create a new mission statement, strategic plan, goals (k. objects)

An effective Knowledge Object has in turn the following characteristics:

- It facilitates the knowledge transfer from person to person, or from information to person
- It is the physical digital object (unit of technology) that is a catalyst, as it enables the fusion of knowledge flows between people, with knowledge content discovery and retrieval, through technology. That is to say, a knowledge object acts, amongst other things, as the primary connecting node for all key components in a KM system (strategy, people, process, content, technology) - 'the KM glue'.

3.0 Knowledge Object Store and the Knowledge Ontology

A Knowledge Object Store is required in order to support the disciplined, formal, and in some cases mandatory archiving of knowledge objects. Such a disciplined approach ensures that all information collected or distributed adheres to some department or company “standards” e.g. has the name of the author on it. Having such structured mechanisms in place will reduce the “noise” in knowledge distribution and will simplify the passing of information from creators to users. The price that the organisation has to pay for these advantages is the overhead that is required first to design the Knowledge Object Store for organising knowledge objects (which includes also metadata, content types, etc.), and second to actually package and store knowledge objects according to the schema.

Furthermore, effective knowledge organisation is also facilitated by relatively loose mechanisms (such as alternative classification mechanisms, thesauri and ontologies) that allow employees to organise their knowledge objects according to their conceptual understanding of the business, and then retrieve information by making use of the facilities that these mechanisms provide.

In brief, an ontology is a centrally managed taxonomy of terms while classification schemata are used to provide different views on the same information according specific users’ needs. Figure 1.1 illustrates this schematically. On one side (formal

knowledge organisation according to a data model), the Knowledge Object Store is the storage mechanism for the collection of knowledge assets and their attributes (including metadata). On the other side, ontologies and classification schemata can be defined. Some KM Systems, such as Knowledgeger, include components that are specifically designed for Knowledge Object Stores and Ontologies.

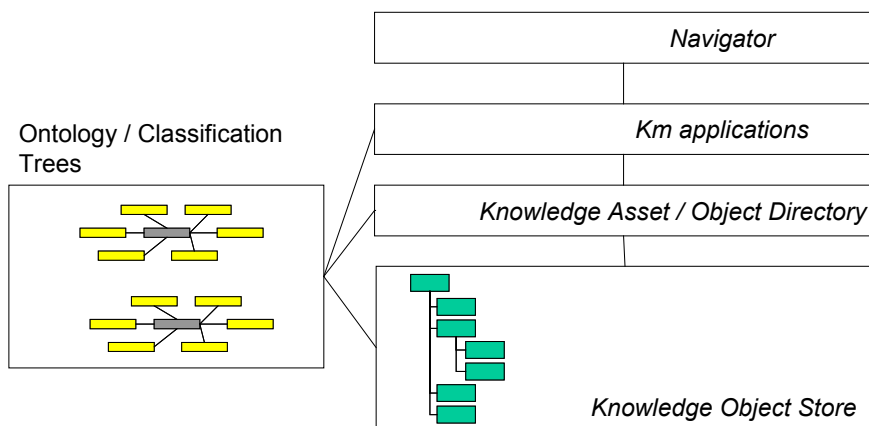


Figure 1.1 The two sides of knowledge organisation

4.0 Development of the Knowledge Object Store

4.1 Where to start from?

Mapping knowledge to business processes has helped us identify the important pieces of information that need to be captured and delivered to the key knowledge workers and in critical business processes. You can start from the description of the knowledge assets and their attributes that are part of the output of Modules 4.1 – 4.3. Mapping knowledge to networks helps locate information within human networks and identify the life-cycle of informal knowledge. In this step we will design the knowledge architecture: create a common vocabulary and well defined-content types. Before proceeding to the actual design of the Knowledge Object Store we need to go through an additional refinement process that includes:

- *Identification and arrangement of possible overlappings.*
This exercise is of significant importance if you have undertaken both Modules 4.1 and 4.3. It is practically certain that you have identified the same knowledge assets twice during the work done for these modules.
- *Logical grouping of knowledge assets into high-level categories and grouping of lower level of knowledge assets into subcategories.*
For instance, “Product” knowledge would be high-level knowledge asset, while “technical specifications” or “training material” would be subcategories of “Product” (secondary knowledge asset in the Knowledger terminology – please refer to the Knowledger tool documentation for more information).

If you are starting directly from this point you need to focus on the high level identification of strategic knowledge assets and business areas, as identified in the KM Strategy Planning. Here, you have to work in more detail and produce a formal specification of the knowledge assets, objects and attributes that are going to become the elements of the Knowledger Knowledge Object Store.

5.0 Development of the Knowledge Ontology

Next we create the common ontology. The site ontology is a centrally managed taxonomy of terms that can be applied to content as metadata.

A common knowledge ontology ensures that a shared classification scheme is in effect across the company’s or departmental information repositories – whether structured, unstructured or tacit. For instance, if different departments have different ways of classifying similar information, someone looking for that information will have to know the different departments’ classification schemata in order to retrieve effectively what he or she needs. Instead, a common vocabulary structure will allow someone to search across different information repositories with a single query.

It is almost impossible to share, browse, search or filter a large amount of information unless it is categorized. Searching is not adequate, as the user needs to know what to search for, and he/she doesn’t know what’s there in the first place. Alerting individuals to new material also requires individual specification or personalization of the type of documents required, and the subject category, chosen from a vocabulary, greatly facilitate this. The common vocabulary is critical to starting small but thinking big.

The site ontology is a centrally managed taxonomy of terms that can be applied to content as metadata. If the site ontology is stored as part of a KM system, the administrator must use the Ontology Editor to create and maintain the site ontology. Then, when users look for information on the site, they can simply browse through the

site ontology terms. Each ontology term becomes a “category” in which users can find information.

Putting thought into the common ontology from the start will help ensure that information is useful, well organized, and easily searched. To illustrate the steps needed we use as an example the development of a site vocabulary for an IT consulting company.

You can start by building a Glossary of Terms that include all the terms (concepts, instances, attributes, verbs, etc.) of the domain (department, network of people, or company) and their description, as shown in Table 1.1.

Name	Synonyms	Description
Practice	Know-How	The core competency / expertise that is underneath a wide variety of services or products that the firm offers to its clients
Maritime Industry	Shipping Industry	...
Publication	Article	...
Market Analysis	Market Research	...
Deliverable	Report	...
Proposal	Tender, Bid	...

Table 1.1 Glossary of terms

Note: This step is important for resolving ambiguities between ontology terms.

5.1 Concept Classification Tree

The next step is the development of Concept Classification Trees. Each Concept Classification Trees represents a taxonomy for the domain. Taxonomies can be also seen as different views for presenting the same information.

Example: For the IT consultancy we can identify the following Concept Classification Trees:

Industry
Automotive
Energy
Financial Services
Banking
Insurances
Credit Institutions
Health Care
Insurance
Life science
Manufacturing
Retail
Transportation

Services
IT Consulting Services
Strategic IT Master Planning
IS Analysis and Design
IT Improvement Design
IT Project Management
Systems and Solutions Delivery Services
Client-Server systems development
Web-based systems development
...

Document
Deliverable
Proposal
Proposal Presentation
Tender
Marketing Material
Training Material
CV
Internal Document

5.2 Build Relations

The next step is to build “Ad-hoc” Binary Relations Diagrams between concept classification trees. The goal of this diagram is to establish relationships between concepts of the same or different ontologies.

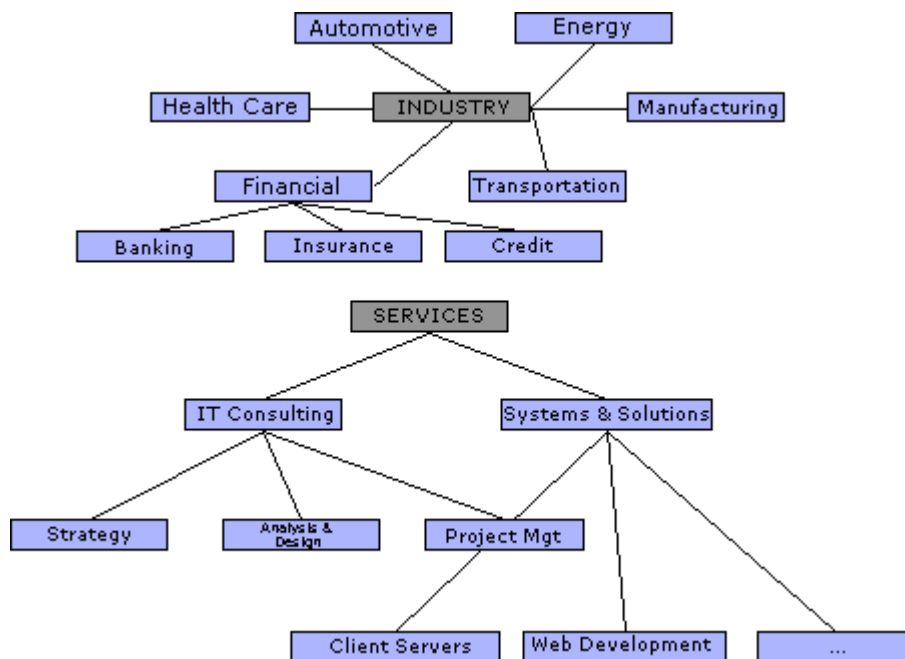


Figure 1.2: Example of an Ontology

6.0 Things to look for:

- When developing the knowledge asset schema, the KM Consulting Method is not implying that all departments should have a single, inflexible schema. The aim is to tailor the ontology for each knowledge network. There should be however an overall consistency, at least as far as the high-level categories are concerned. Each network should adopt these terms when appropriate, while continuing to use their own classification scheme for specialised information and knowledge.
- The KM team can help different networks (or departments) develop their own classification schemata that address their particular information types.
- Ideally, the site ontology has a basic hierarchical structure, allowing for broad, narrow, and narrower, (etc.) concepts to be nested.
- KM ontologies often have some similar structures for different organizations – e.g. customer, competitor, product, technology, sales operations, (etc.) branches of the hierarchy are commonly used, though with very different topics at the narrower levels.
- Quality of ontology depends on:
 - its structure (whether it parallels business processes),
 - the use of concise and familiar terminology,
 - the lack of synonyms that confuse usage,
 - the lack of orphan topics (those not part of the structure), and
 - the evolution to cater for new issues and entities.
- The quality of an ontology has particular bearing on the level of user satisfaction for browsing, searching and personalization.
- Stability of ontology structure is important, so users get to "find their way around", changing it regularly, (say) every time an analysis is made of documents will be counter-productive.
- Some narrow topics naturally exist in multiple branches of the hierarchy (i.e. they have more than one parent), because they belong to more than one part of the business structure.

7.0 Module interdependencies

- The knowledge asset schema can optionally receive input from Modules 4.1 and 4.3 for the customisation of the Knowledge Asset and Object Directory.
- The Knowledge Asset and Object Directory developed in this module should be used as input to all implementation (non-audit) modules (i.e. modules 4.2 and 4.3).

Glossary

Knowledge The ideas or understandings, which an entity possesses that are used to take effective action to achieve the entity's goals.

Knowledge management The ways to create, retain, share, account for, and leverage knowledge - at all levels, from the personal level to the team level, the organisational level, the inter-organisational level, and the global level.

Knowledge Asset A resource that an organisation wants to cultivate and manage. Human assets are people and networks of people, structural asset could be an automated sales process and market asset could be a corporate brand.

Business case A document describing the business issues driving the project, the project objectives, the project scope, the approach and time frame for achieving results, the budget and the project team.

Critical Success Factors The most important activities and processes the organisation has to make right to reach the goals outlined in the strategy. Examples include: product development, inventory reduction, time to market, customer service and so on.

Vision The dream of a future state for the organisation.

Change Agent The person responsible for the process of change and incorporating the principles and tools of change management into an organised and systematic plan of implementation.