

# CHALLENGES AND APPROACHES FOR KNOWLEDGE MANAGEMENT

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Abstract:

Knowledge Management is now a crucial issue in companies: Knowledge is a major economic challenge for the future. Create, capitalise and share its Knowledge Capital is a need of any innovative organisation.

But managing the Knowledge Capital is not only processing information through new technologies. It is a long term programme, starting from a strategic commitment, involving a correct analysis of Knowledge and Know-how in the company, and integrating various and well adapted tools

## **Knowledge, a strategic resource for companies**

In the late 90's, Knowledge Management (KM) has become a major issue for companies. A set of strategic criteria may help to understand that sudden interest in Corporate Knowledge. For instance, Knowledge is now considered as a capital which has an economic value, Knowledge is a new strategic resource for increasing productivity, Knowledge is a stability factor in a unstable and dynamic competitive environment, Knowledge may bring a decisive competitive advantage...

The strategic vision, that can potentially develop managers on their Corporate Knowledge, make them define global objectives in order to optimise that resource. Those objectives are always structured by three key issues: Capitalise ("to know where you are and you come from to better know where you go"), Share ("switch from individual to collective intelligence"), Create ("create, innovate to survive). One may notice that those objectives are, in a certain way, paradoxes ("Knowledge is Power»!), and then KM is a real challenge for managers, leading to a considerable change, and new visions of firms.

## **Tools for Knowledge Management**

As lot of companies, of all sizes, of all sectors, are mobilised on that domain of the new “Knowledge Based Economy”, there appears a tremendous offer, on the market place, for tools for building “Knowledge Management Systems”. It is then rather difficult to understand what KM really is!

We’ll try to give a classification of basic blocks that can be included in a KM system. It is not a classification based on technologies, but on the different types of Knowledge that can be managed. We then consider different approaches that can be methodological, computerised, or organisational. That shows the inherent complexity of such KM systems.

### *Tacit Knowledge*

The first type of Knowledge we have to take in account is “Tacit Knowledge”. This is a whole theory (essentially developed in Japan), based on the idea that “we know more than we can say”. In that idea, the Tacit Knowledge, impossible to formalise, is the core of the cognitive power of a company. Sharing Tacit Knowledge (tightly linked to culture) is the issue of that kind of KM. This Knowledge is disseminated with the help of cooperative tools (Intranet, groupware...). It is organised through new management methods (concurrent engineering, for instance). It is shared with “face to face” confrontations, cooperative work with experts etc.

### *Knowledge transcription*

Some parts of Tacit Knowledge may be elicited in a simple manner, by transcriptions more or less structured. This is the case for instance of the quality systems (the first rule of quality is “write what is to be done”), or return on experience recordings, or numerous kinds of publications. This is also the case with the redaction of “secondary documents”, which synthesise Knowledge included in certain documents.

### *Knowledge Modelling*

Some parts of Tacit Knowledge may be elicited with the help of modelling tools. Modelling may be rather difficult to use, but is much more powerful than the simple transcription. One may model Knowledge:

- By observing systems and building formal models (mathematical, physical, control ...) or semi-formal (functional analysis, system analysis ...)
- By building models directly from “Knowledge Sources”: interviewing experts or specialists, analysing corpus of pertinent documents. This is the object of the discipline called “Knowledge Engineering”

### *The transcribed Knowledge*

#### *Data*

The category of Explicit Knowledge (versus Tacit Knowledge) includes the one which is already transcribed, available in the company through information. This is the Information (or Structural) Capital of the firm. A very common kind of transcription is the database, managed by a DBMS, or Technical Database Management System. Those databases may contain a huge amount of data; the problem is then no longer to stock the data, but to extract the right (operational) Knowledge from those bases. This is exactly the problem of Data Mining or Knowledge Discovery.

#### *Documents*

Another kind of transcription of Knowledge is available in companies through the documentation. Documents are still, in a large part, written on paper, and constitute a large capital that is often misused or not correctly optimised. In the electronic form, documents are managed by Document Management Systems, of the same type than DBMS. Sophisticated research tools (Text Mining, for instance) are used to find elements of information (Knowledge), based on statistical and/or linguistic principles.

### **Setting up a KM Approach**

As we can see, setting up a system to manage a Corporate Knowledge Capital is a complex problem, with a lot of point of views, with solutions that can be very diverse. These solutions may use various tools, and imply important organisational changes.

This complexity mastering is rarely pointed out in pragmatic approaches of KM. If strategic and economic analyses are now clearly performed on Corporate Knowledge, they usually directly lead to

the implementation of tools (generally based on intranet), without asking what is the actual content of Knowledge, how to structure the Knowledge Capital to be managed by those tools.

The Information professionals have met the same kind of problem several decades ago. In that period, the strategic value of information was fostered correlatively with the development of computers. Then, starting from a strategic plan of Information Management, computers systems were directly implemented. Those first systems failed in their objectives, because an intermediate methodology, between a strategic plan and operational tools lacked. Now, there are well known methodologies for designing Information Management Systems, filling that gap. It seems that the same problem is arising in KM.

Moreover, Knowledge is not Information (roughly speaking, Knowledge is Information with one or several meanings given in one or several operational contexts –syntactic/semantic/pragmatic-). Knowledge is a “material” elaborated by people for people, it is tightly related to culture, to personal features. A KM approach must then be built on three levels:

#### *The strategic level*

It analyses the strategic value of Corporate Knowledge available in the company. It gives the objectives in term of capitalisation, sharing, and evolution of Knowledge. This point has been discussed in the beginning of this article.

#### *The tactical level*

It is organised in three key issues:

##### *The KM repository*

It gives a framework from KM actions. It answers the following questions: what are the critical Knowledge Domains for the company on which we have to put the efforts? What is the Knowledge Network that detains the Critical Knowledge? What are the Knowledge Sources that have to be optimised?

The critical criteria, to determine the strategic importance of a Knowledge Corpus may be various, and dependent from the nature and the culture of the firm. Such an evaluation can be performed from economical criteria as quoted at the beginning, or from a KMM (see the article in this workshop), or from the Business Model of the firm.

The “Knowledge Network”, support of the Critical Knowledge, that will be the first involved in the KM project, is generally tacitly recognised in the company (remarkable “Knowledge Workers”). That recognition must be formalised.

Others Knowledge Sources, in addition to the Knowledge Network, may be managed with specific means (data, information, documents, and software libraries...).

The possible actions using those Knowledge Sources have been evoked in the paragraph “tools”. A schedule and a general plan for setting up such actions constitute a KM programme.

#### *Analysing Knowledge Corpus*

The Critical Knowledge identified in the previous step must now be structured and become visible, and linked to information sources available in the company, or in its competitive environment (for Business Intelligence, for instance).

Very often, KM is only a simple structure for different information bases. The content, in terms of Knowledge, is not analysed and not dispatched to the user. Elicitation, re-structuring, especially the tacit part of Knowledge, has a considerable added value, in terms of capitalisation and sharing. It is however clear that those cognitive structures must be linked to information sources, because a KM system cannot be designed without strong links to the Information System.

The KM objective, now well known, of “The right information to the right people at the right moment” may strongly depends on that pre-existing analysis.

### *Leading change*

Leading change in KM actions guarantees commitment and participation of the different people involved. It is a usual deadlock to be carefully considered. In a KM project, actions for leading change and communication must be structured and very well prepared. Three fundamental aspects can be encountered in KM projects:

#### *- Mobilise the “Knowledge Network”*

The “Knowledge Network”, as defined above, is necessarily involved, to give the Knowledge, to share it, to validate it etc. It is obligatory to include that network in a “Win-Win” strategy, in order that it becomes the principal support of the project.

#### *- Obtain a consensus*

The acquired Knowledge cannot be validated in the classical way, because it is essentially internal, individual/collective, and top level in the company. There is no external model to be compared for validation. The only possible validation, as in a scientific community, is to obtain a consensus by a “peer committee”, in general composed of others elements of the Knowledge Network, or related people. Consensus is not a natural process, especially in companies, so it must be carefully organised, and assessed by the hierarchical levels.

### *Share the Knowledge*

It is clear that Knowledge acquisition and capitalisation has interest only if there is an appropriation and an evolution of that Knowledge in the company. This can be achieved only if the Knowledge is shared (not only disseminated) by all the concerned people. The new information technologies are of great help in that purpose, but it is not a sufficient condition. Adequate communication and procedures are necessary. This step is essential to perform the “Knowledge Cycle”, which guarantees the success and the perennial aspect of the ongoing KM actions.

### *The operational level*

This level consists in implementing the technological blocks, and the organisational methods that guarantee the objectives at the strategic level, based on the approaches elaborated at the tactical level.

Coherence between tools and environments must be obtained. Technological blocks, based on information technologies, must have an “acceptability” level very high for the users. The problem is not to give tools for supporting the processes in the company, but tools for creating new Knowledge, for sharing Know-how, etc. The “information component” is no longer essential. Through the KM systems implemented, concerned people must re-create their new Tacit Knowledge, invent new Know-how that will give decisive competitive advantages to their company, in the full respect of their contribution.

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