

## TOWARDS AN INTEGRATED KNOWLEDGE MANAGEMENT: EXPERT NETWORKING IN THE COMPANY

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**Abstract.** Most tools and methods in use for knowledge management (KM) have only a limited scope in respect to the dimensions of KM – handling ‘contents’ of different complexity, integrate the different groups of people involved, and promoting knowledge today and for the future. By analyzing the internal status of experts established in Framatome ANP recently, it will be shown that they themselves are an element of KM and can integrate these diverging dimensions and methods. This relies mainly on the different forms of their networking. First examples of experts’ activities are mentioned and extended to concepts for their role in the company, especially regarding the innovation process.

### 1. Introduction

Companies in the field of nuclear power generation are active in a knowledge based business: They are faced with the close interaction of quite different technologies, the complexity of large projects – especially when constructing new plants – and the challenges of the long lifetime of their product. Knowledge management has to assure the availability of all relevant knowledge required for these business processes in a systematic way and on time. Thus it cannot result only from temporary actions of those involved in these processes.

In the past daily needs have pushed the introduction of diverse procedures and tools for knowledge handling in the different organisational units of Framatome ANP; examples are IT based systems like the project documentation systems, or methods related to human resources as knowledge transfer to young engineers, or co-operation with external institutions. Most of these methods have grown up locally. But further progress in extending and sharing KM methods – wherever needed – and exploiting their full potential should be based on the common understanding of its basic mechanisms and the interaction of procedures and participants involved.

### 2. ‘Dimensions’ of knowledge management

The different methods and tools of KM can be characterised in respect to their application and support function along three axes (cf. fig.):

- how they support the handling of ‘contents’, e.g. as do document management systems, or information transfer by internal training or mentoring;
- how they facilitate interaction by fulfilling the needs of different people participating in the activity, e.g. by quality manuals – often for more localized activities –, or project management guidelines concerning some units, or systematic mutual use of competences with external institutions;
- how they cover the temporal development of knowledge, e.g. from the consolidation of existing factual or data information, to the innovation for products or processes.

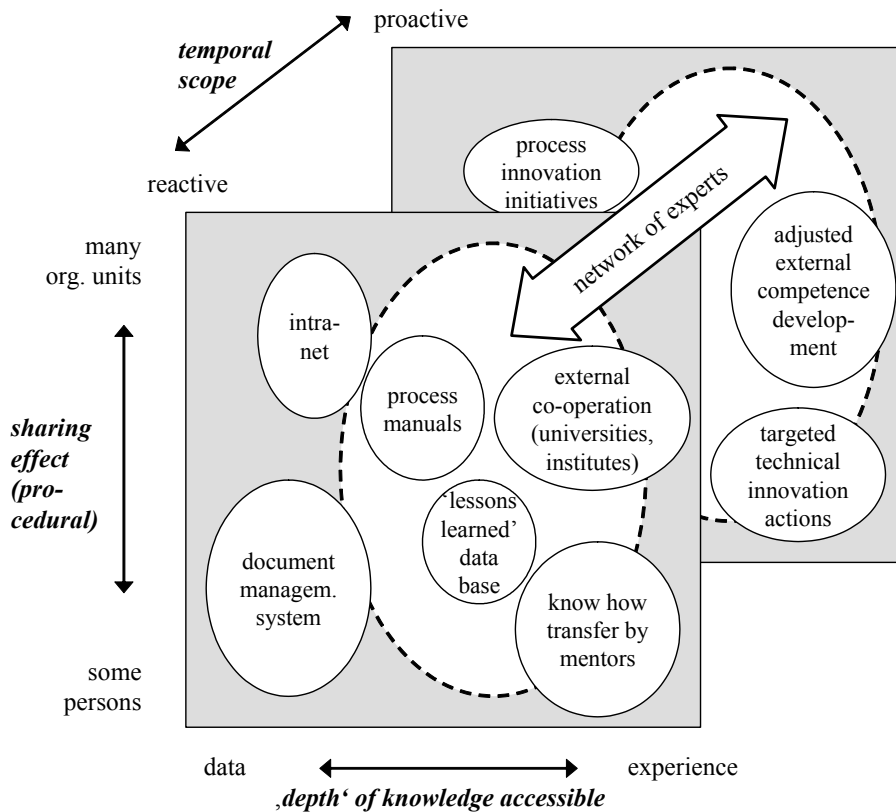


Fig.: Dimensions of knowledge management and positioning of some tools and methods deployed

While usually all dimensions are applicable and required in the business, it becomes apparent from such analyses that there is no unique method or tool for an optimal covering of all dimensions. As an example, experience from the past has shown clearly that KM cannot be realized by IT support alone.

Furthermore KM withstands a unifying deployment within the company, but develops more easily according to the special needs of the units. Nonetheless some aspects urgently require an integrating view for these distinct elements:

- Methods and tools developed may be useful for other business contexts in the company also. Therefore there is an obvious need for exchange of information and ‘best practice’.
- Common projects and collaboration require mutual use of methods and tools by different units not foreseen before. General guidelines agreed for knowledge management facilitate the linking and merging of tools.
- Knowledge improvement and extension – i.e. innovation – should be supported within all methods and tools. Promoting suggestions from users and integrating improvements are optimized approaches to be unified within the company.

Handling these issues by a specialized organisational unit only will not overcome alone the barriers faced in the past. Best solutions can be expected by involving directly users with a more general scope.

### 3. The status of experts

Successful work of all experienced engineers of the company is the basis for the business. In many respects KM should be a service to them; so their participation in KM development should not interfere with their generic duties.

Recently Framatome ANP has established the official status of an expert. About 140 experts have been nominated, covering the whole spectrum of technical activities of the company in the different regions. These experts stay within their technical ‘home’ organization, but can easily be identified by a respective internal website. A closer examination of their additional duties reveals that the experts may fulfil the functions of promotion and integration for KM as described above.

Their nomination is based on their technical and scientific abilities, proven in successful applications in the respective field. The constituents of expertise required – as described in the internal guidelines – fit to the axes mentioned:

“... In order to meet the technical challenges, the required expertise goes far beyond providing special technical knowledge and can be seen in assignments such as:

- expanding and consolidating various areas of knowledge and know-how with regard to the areas of expertise,
- making this knowledge and know-how available within the company and sharing it,
- identifying, developing, analyzing, assimilating and harnessing the new technologies required for future markets, and
- giving relevant opinions on the technical direction of projects. ...”

As such the experts’ activity is a method of KM in itself, because it helps assuring the availability of relevant knowledge. And it is implicitly adjusted to the requirements of the different business activities and technical fields, because experts stay with their operational units. In contrast to the other KM tools and methods, experts will have a strong integrative impact over all KM dimensions mentioned.

This activity cannot rely on the individual initiatives of the experts only; for ‘best practice’ an intense networking – on different levels as described in the following – is required:

- Networking on their respective technical field, globally over the different locations of the company, resulting in an integrative effect and optimized allocation of the know-how.
- Interaction of experts from different technical areas – a usual situation for engineers in large projects – constitutes a good environment for new developments and innovative concepts, by challenging and testing ideas.
- In addition, the collaboration of the technical experts with marketing and sales and the strategy units helps mutual understanding and foster basic orientation for the company’s success.

The limitation of the number of experts has beneficial effects as it facilitates identifying and understanding a representative from another technical field, and supports informal links without administrative barriers among the units.

#### 4. Knowledge management by experts – first steps

The experts’ nominations in Framatome ANP cover closely all technical activities of the company. A decisive criterion was the technical expertise; but the nomination of managers has been avoided. The experts remain for most of their time with their operational units and projects. Nonetheless their first specific actions have become apparent yet:

(1) These experts are often involved locally in setting up the technology and products roadmaps of their fields, thus linking marketing and sales, technical competences and innovation. By this action, in some cases the focussing of innovation objectives is derived, as needed for starting the innovation process.

(2) The global outcome of roadmapping is consolidated into an R&D action plan; the document has been distributed to all experts for comments. This action assures the cross information required for future contacts and networking of experts. Furthermore it helps sharing the information – wherever required – in the experts’ ‘home units’, according to the KM goal of making available the relevant knowledge.

(3) Belonging to another type of KM action, a study by experts on a well defined scientific field has been started. The application of own proven technologies and products in other industries as well as the complementing of own competences by new ideas found outside will be investigated. This is done by activating external co-operation for broadening the scope. Here proactive identification and systematic evaluation within the respective field are the elements KM is heading for.

These first examples realized have shown that experts and their networks are an effective approach for handling knowledge. Compared to the temporary action with changing participants in the past, the activities and studies will become more stable and their procedures will be optimized more easily.

#### 5. Towards further integration in knowledge management

The preceding sections have demonstrated that the experts and their networks are complementary to the earlier tools and methods of KM. Both approaches cannot replace each other; therefore the mutual adjustment and optimization of both aspects should be an important next step for KM deployment.

Starting analysis of the further integration from the side of *IT based methods and tools*, experts should be involved in structuring the more generic aspects of their field for general access. The intranet is a suitable IT platform; the experts' network may help to define interfaces between the areas and to evaluate, link and update the relevant information.

As quality management (QM) reviews accompanying many technical reports, similar checks for systematic identification of knowledge gaps, and improvement and obsolescence of methods could be established. This KM information might be gathered – similar to QM – on a separate cover sheet, even starting with remarks from the author. The tool for linking and collecting these documents will be the electronic document management system, as deployed in most companies. The consolidated results of these reviews may become part of the 'lessons learned' database. When merged with the database for collection of employees' suggestions, a 'team tool' for improvement actions is formed for use by the experts.

And finally the experts should represent the respective fields in all related deployment of IT systems; a suitable step should be included in the description of the IT development process.

Considering *non-IT related KM elements*, networking is the predominant mechanism for the experts' activities. Depending on the objectives, networking has different partners – colleagues of the 'home' unit, experts from other fields, the corporate functions, e.g. QM – as described above (sect. 3). But the schemes differ, for optimized success:

- There may be 'simple' requests, asking for contribution without deeper involvement in the respective activity, e.g. for process guidelines; some feedback will help the expert to perceive the relevance of his knowledge.
- Experts may organise their own groups and targets, working on self-defined topics emerging from the technical field, sometimes as a temporary action, but often also for longer time. The impact will be on technology driven progress, resulting e.g. in roadmapping, exploratory studies, definition of innovation actions with participation of other people, or external R&D co-operations. Obviously the scope and energy of these own initiatives of the experts would demonstrate best the technological power of the company.
- Of course the business will require consultancy and technical evaluations by the experts; the management may establish task forces, and the experts participating will rely also on the contacts and mechanisms derived from the other networking activities described before.

The degree of freedom – time and budget – for the experts' involvement in such networks may differ. But there is a clear benefit from the interrelation of the experts' knowledge, their

abilities in networking and the application of other means of KM that should be maintained and extended consciously.

#### 6. Conclusion

The mutual adjustment of the tools and methods by the community of experts, who represent technical contents through expertise and its use through their operational duties, is a decisive step for an integrated management of knowledge within the company. The full potential of this KM approach can only be exploited when the status of an expert is not interpreted as an isolated technical duty and is not reduced to a single aspect, e.g. internal consultancy.

And in addition, the integration of experts opens the opportunity for extending KM into innovation management by identifying the goals on a comprehensive basis and guiding the innovation process to the company's future products and services. Thus allowing and fostering experts' broader activities ensures targeted activities and the flexibility required for success.