4.4 Communities

Usually, there is more than one expert available in a specific topic area, that is essential to a company. Within companies these experts may span the whole organisation structure. Experts might not know about other experts in their own topics. Therefore forming communities is one of the main tasks of the KBN.

As introduced in Section 3.5 “Communities of Practice” [Lave & Wenger, 1991] are groups with special interests and common knowledge.

Meanwhile companies try to identify these communities of practice or so-called “living labs” automatically. To discover employee networks, statistical analysis of communication relationships can be used, e.g. email traffic. [Heuer, 2003] Communication between employees is the key concept of the KBN approach – the communication behaviour might be analysed to discover communities of practice as described in Section 4.4.2.

Before introducing how communities of practice will be integrated into the KBN concept the following section will discuss some aspects of the idea of communities of practice.

4.4.1 Communities of Practice

The definition used in this thesis is based on the following characteristics of the communities of practice [Faegri et al., 2006]:

- a group of people sharing the same (professional) interest, and
- interact regularly.

There should be no restriction to online or “virtual” communities. There are differences between online and physical communities. An online community is simply a community that exists online. Online and physical communities support the development of relationships among people. Online communities offer special opportunities and challenges, e.g. erasing boundaries created by time and distances. [Kim, 2000]

Communities of practice in organisations can be found within existing groups and within business units. These will work together with a constant flow of information focusing certain topics. Cross-functional teams form communities across business units. In some cases, communities of practice cross company boundaries, e.g. when involving external consultants. [Wenger, 1998] Figure 4.4-1 illustrates a community of practice containing people of two departments, an external consultant and an employee of a partner organisation.

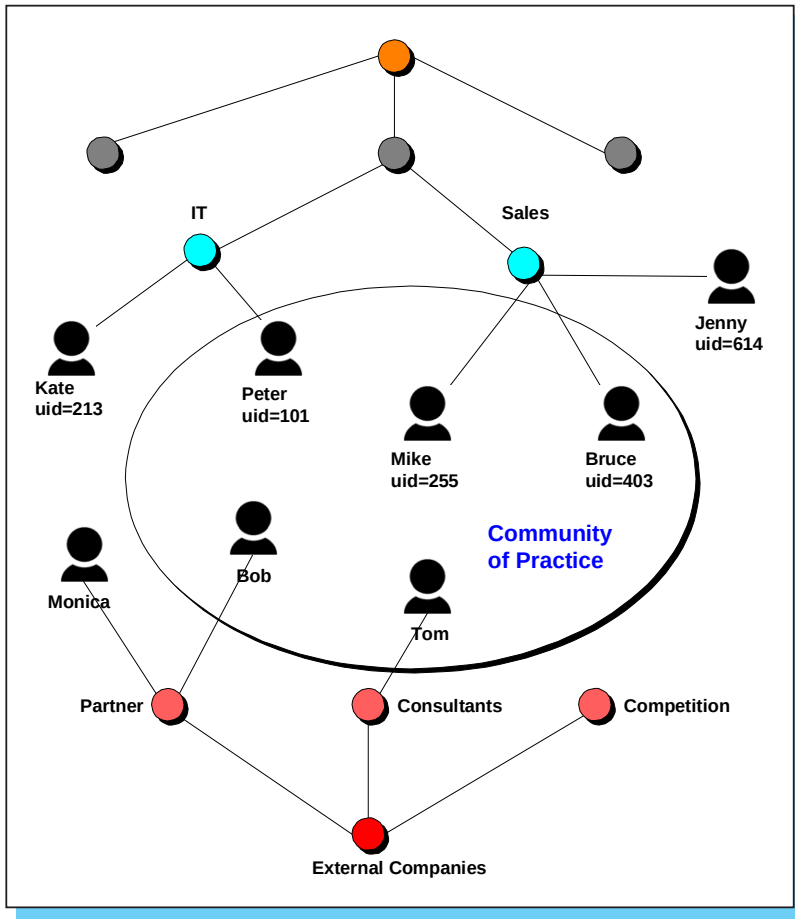

Figure 4.4-1 Example of a Community of Practice

Communities of practice differ from organisational units and other kinds of groups [Wenger, 1998]:

- In a community of practice members develop among themselves their own understanding of what their practice is about.
- Communities of practice focus on the shared learning, interest and knowledge of members. They are not defined by tasks like teams.
- A community of practice is different from a network of people in the sense that it focuses on a specific topic and is not just a set of relationships.
- A community of practice exists as long as participation is valuable for members.
- Boundaries of communities of practice are more flexible than those of organisational units.
- People often simultaneously belong to communities of practice and official organisational structures.

"In their business units, they shape the organization. In their teams, they take care of projects. In their networks, they form relationships. And in their communities of practice, they develop the knowledge that lets them do these other tasks. **This informal fabric of communities and shared practices makes the official organization effective and, indeed, possible.**" [Wenger, 1998]

4.4.2 Management of Employee's Relationships

Within the KBN approach relationships between employees emerge when users search for experts and communicate with them. Between knowledge brokers and users two different relationships can exists:

- a KB is the personal KB of a user, or
- a user wants to communicate with a certain KB (e.g. because of the KB's expertise, availability or location).

Further relationships between users have to be considered. These are based on organisational structures such as working groups and teams. When a user searches for a specific topic and the expert identified is not available it might be valuable to inform the searching user that there are group or team members of the expert available. Group or

team members might give a hint who can be asked certain questions.

Relationships between knowledge brokers are also important. Within the KBN they should communicate regularly. Thereby they learn the experiences of other KBs and the main topics of other organisational units.

Important parts of these relationships can be stored within the knowledge network. E.g. the membership of users to organisational units. The history about expert requests of different users concerning a certain topic must be stored in a system e.g. database, that is optimised for the maintenance of mass data. The exchange of questions and answers using the KBN portal is logged in such a database. This data is used to rank experts within a search result, as described in 4.2.5. Further, it can be used when a KB recommends an expert.

The automated part of the hybrid KBN system uses this relationship data to draw conclusions about experts or documents, recommended to a seeking user. A simple conclusion is shown in Figure 4.4-2: User A communicates with user B regularly, and user B communicates with user C regularly. If both communication relationships are related to the same topic the system concludes that a relationship between A and C might be valuable. The system would recommend documents of the user C to user A based on the same conclusion.

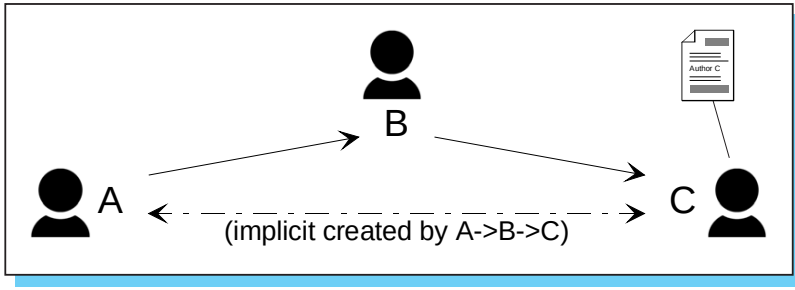

Figure 4.4-2 Calculation of Implicit User Relationships

Teams differ in several characterisations from organisational structures, as departments and groups (here used as sub-structures of departments):

- teams are build task oriented;
- teams exists for a certain time;
- employees are often members of more than one team;
- team memberships might change frequently.

In project based organisations a large amount of teams exists. The maintenance of team structures within a knowledge network is not useful, because of the change frequencies and the large amount of relationships. User directories might be used to store team structures (as shown in Figure 6.3-3). Eventhough this information must be up to date, the history of team membership is also important. During a “lessons learned” phase to finish a project [Probst et al., 2006] project membership should be documented also – and will be used to identify relationships within finalised projects by the KBN systems.

Successful relationships that have been established by a KB will be rated by the KB. Employees are allowed to rate experts they communicate with as well. Using this information the KBN system is able to identify the employees’ “communication capability”. By analysing the topics of user relationships, the system can identify potential experts. The identification of potential KBs is a further task of the system: If someone communicates with different users regularly he can be

- a generalist KB – if the communication is not focused on a certain topic, or
- a specialist KB – if he / she focus on one or a few more topics.

Relationship management is used to improve search results within the KBN approach as described here. Analysing the relationship and the communication structures is useful to identify communities of practice. They will be described in the following section.

4.4.3 Identify Communities of Practice based on Employee’s Relationships

A special community of practice is easy to identify: it consists of all knowledge brokers and deals not with special topics. But it deals with how KBs work, communicate and motivate other employees. This should not be an online community only. For the

development of relationships between KBs, they should have physical meetings regularly.

Communities focusing on key concepts within the semantic networks are also easy to identify: they consists of all experts for such a key concept. If KBs are experts in such a key concept they can also be member of that community. This type of community is equivalent then to a community of practice.

There are three different types of topic oriented communities:

- **Explicit communities**: A community that invites an employee to join the community or somebody, who registers himself in a community.
- **Automated maintained communities**: Based on his interests and expertise, an employee will be automatically invited to join a community.
- **Implicit communities**: A community for a special subject can be formed by analysing who is / was working in this subject and when the user worked on a specific topic. Regular members of the community are employees that work for a long time within a subject. This is also comparable with members of explicit communities. In addition, every employee who is or was working in that area could be found – without registration in this community. The advantage is that somebody who works only for a short time on a topic, e.g. for one project, does not have to register with the community. Also, if somebody has signed out for an explicit community, he will not be found even though he still has the expertise. In an implicit community, users are not able to sign out. Implicit communities are automatically maintained by the system. They are created and controlled by a knowledge broker. Implicit communities might be part of an explicit community, as well.

The above mentioned key concepts are modelled during the creation of the knowledge network by using information professionals and analysing the focus of the company. As a result of changes on the market, changes of company strategy, technological improvements and other reasons the key concepts may change and / or grow. Assuming that someone adds new concepts into the knowledge network to hold it up to date, the

new key concepts have to be identified only. Analysing the communication about topics, a large amount of questions and answers concerning a certain concept might point to a new key concept. Thus, this leads to a new community of practice.

4.4.4 Organisational Support of Communities of Practice

To keep a community alive depends on internal leadership [Wenger, 1998]. Building a new community of practice should be supported by a KB. Online communities are difficult to manage, due to people's behaviour [Kim, 2000]. Therefore, the membership of a networking specialist, such as a KB, might be helpful.

The support of communities of practice by the organisation is an essential success factor. This includes [Wenger, 1998]:

- legitimize participation: recognize the work of communities as substantial and give time for community activities;
- provide of guidance (for example by involving KBs) and resources;
- ensure that they focus on company strategies;
- improve motivation of members to focus on the cutting edge of their topic.

Communities of practice are able to break communication barriers and motivation barriers [Schuett, 2006] when members become acquainted. They are also useful for knowledge distribution. Physical meetings and video conferences of communities enable the exchange of tacit knowledge in a more efficient way. Although this is a cost intensive factor, it enable the community to perform better.

4.4.5 Asking Communities of Practice

Within a community of practice, a group of people is qualified to answer complex questions better than individuals. Therefore, the KBN portal ranks expert communities higher than experts. The question is now: How to ask a community? Standard communication methods such as telephone and email are not sufficient. Lessons learned based on internet communities show that a forum might be a possible solution, because of possible many to many communication and asynchronous communication. To avoid

that community members have to view several forums, notification mechanisms can be used to integrate that form of communication within the KBN portal. Another possible solution is the market place approach as described in Section 4.2.6.