# Knowledge creation is safer than sharing in *co-opetitive* communities

**Maura Soekijad**

Vrije Universiteit Amsterdam
msoekijad@feweb.vu.nl

*-Draft paper; please do not quote without permission-*

## Introduction

Recently, organisations as well as academics have increasingly become aware of the need for organisations to co-operate in knowledge networks with partnering organisations that can also be seen as competitors. It is not longer just co-operation that can improve a firm's global competitiveness, but firms will actually meet their competitors in such co-operations. Organisations need to collaborate in order to improve their innovative and learning capabilities (Powell ea, 1996). Knowledge sharing or learning how to improve has evolved into one the most important reasons for networking (Kogut, 1988; Mowery ea, 1996; Kraatz, 1998; Chesbrough, 2003; Lee and Cole, 2003). In particular, because firm-specific capabilities are often based on tacit knowledge, networks have advantages. In networks, professionals are able to work together, so that they can see, access, and experience the knowledge of the others. An additional argument for learning in networks where professionals meet the people within context of the other organisations, is that knowledge is considered situated and can best be 'captured' and used within that (meaningful) context (Lave & Wenger, 1991). Thus, organisations feel a strong need for co-operation in networks, in order to have access to knowledge, as well as be able to internalise this tacit and situated knowledge.

Organisations expect to gain competitive advantage from learning or sharing knowledge and creating new knowledge together. This has caused an enormous increase in various types of collaborative networks, such as strategic alliances, R&D consortia, joint ventures

and several 'knowledge networks' (alliance networks, learning alliances, networks of learning, and learning and knowledge exchange networks, see respectively, Koza & Lewin, 1999; Khanna et al., 1998; Inkpen, 2000; Powell, et al., 1996; Loebbecke & Angehrn, 2002/3). In particular, many of such knowledge networks are created, in which organisations explicitly collaborate in order to have access to each other's knowledge, internalise that knowledge, and create knowledge together. Such collaborations are not always *strategic* alliances, but can also include 'knowledge centres'. These have the aim to develop a certain, often new, field or practice within an established area. Together these organisations can combine and share their existing knowledge, create some new knowledge, and function as a knowledge platform for others to find them (who are in need of their services or knowledge, for instance).

In all of these knowledge networks, that have the explicit goal to share and create knowledge, professionals can be considered as the actual knowledge workers: they co-operate and develop their practice by sharing and creating (tacit) knowledge as their daily business. Their working practices are situated in (informal) groups of professionals, which can be considered communities of practice. Therefore, it seems highly logical to study knowledge sharing processes in knowledge networks from a community perspective. In a community, professional knowledge workers develop a shared practice and situated learning can take place (Lave & Wenger, 1991; Wenger, 1998). There is, however, a lack of literature that studies knowledge processes in inter-organisational networks from such an inter-personal community perspective. In particular, empirical studies are practically non-existent (with historical exceptions of von Hippel, 1987 and Kreiner & Schultz, 1993).

When studying knowledge sharing processes, it has appeared that knowledge sharing can be a difficult process. Even within organisations, several boundaries can exist that make it difficult for people to share their knowledge with people among different business units for example (Carlile, 2004). This can be caused by a lack of shared vocabulary (for new knowledge), by differences in meaning or understanding, or by a lack of shared practice, for instance. Between organisations these boundaries can even be felt harder, because

*"people are more similar within than between organisations"* (Argote & Ingram, 2000: 150). This current study deals with an extra boundary on top of this, since the organisations in the knowledge networks are considered *co-opetitors*. They simultaneously co-operate and compete in the network, so that conflicting interests can become an additional boundary for sharing knowledge.

Therefore, this research aims to open the 'black box' of knowledge processes in co-opetitive knowledge networks. This is in line with the appeal of Salk and Shenkar (2001) and Johnson et al. (2003: 3): to refocus strategy research into *"detailed processes and practices which constitute the day-to-day activities of organisational life and which relate to strategic outcomes"*. It is at the level of actual inter-personal interactions of professionals within a community that knowledge sharing processes are studied, as these interactions are the primary source of knowledge and knowledge processes. General question in this research is: How does knowledge sharing and creation take place in co-opetitive communities within inter-organisational knowledge networks? In order to develop an answer to this question, this paper starts with a theoretical background that describes some of the definitions used and assumptions held in this study. It then continues with a methodological overview and description of three case studies, and discusses the results of these studies, before finalising in a conclusion.

**Theoretical background**

*Communities as vehicles for knowledge processes in networks*
In this paper, knowledge is considered a product of individual and/or social processes that gives meaning to information to those involved so that action can be taken. It is shared and created within a specific context. The context referred to in this paper is the daily work-practice of the professionals (often engineers). Knowledge sharing involves the sharing (exchange or transfer) of explicit, codified knowledge (such as production, specifications, delivery and logistics information, in product based organisations), as well as tacit knowledge (such as experiences, management beliefs, symbols, and situated

practices) (see also Davenport & Prusak, 1998). Knowledge creation involves the development of 'new' knowledge, as seen from the perspective of the 'users' involved.

Three types of knowledge are distinguished, based on what it is concerned about. Firstly, know-what is concerned with the content of a profession, such as technical knowledge. This resembles declarative knowledge, and can consist of descriptions of, for instance, facts, models, or propositions (Anderson, 1980/3). Know-how is consists of well-practiced skills, routines, or competences, and relates to knowledge about processes (of how to do things). In Anderson's typology, it resembles procedural knowledge, or the ability to perform. A third type of knowledge is distinguished as know-who, or network or relationship knowledge (Borgatti & Cross, 2003). It refers to both knowledge about the network in which people find themselves, or aim to be in, and knowledge about the market. It thus refers to knowing relations. Although these three types of knowledge interrelate, a conceptual distinction can be useful and helpful in order to develop insights on knowledge processes.

As mentioned, this paper is about knowledge networks. These multi-actor networks concern relatively enduring inter-organisational co-operative agreements between autonomous organisations. These co-operations involve flows of exchange, sharing, or co-development (following Gulati, 1995: 621 and Parkhe, 1993: 795). Additionally, these networks have a specific, explicated, formal goal to share, create, and 'distribute' knowledge in a specific practice or field. The participating organisations can be characterised as knowledge-intensive, *"where most work can be said to be of an intellectual nature and where well-educated, qualified employees form the major part of the work force"* (Alvesson, 2000: 1001, following Starbuck, 1992). Since knowledge is often embodied and embrained (Blackler, 1995), there is a heavy reliance on the individual professional and his/her knowledge. More precisely, knowledge-intensive organisations that sell services are said to *"rely on professional knowledge or expertise relating to a specific technical or functional domain"* (Tether & Hipp, 2002).

Communities are considered vehicles for knowledge sharing and creating processes, in particular within organisations (Barley, 1986; Orr, 1990; Wenger & Snyder, 2000). The group of professionals that acts within the knowledge network can be considered as a community of practice or occupational community. It is at this community level that knowledge concerning a professional practice is actually shared and developed (Brown & Duguid, 2001). In this way, a 'black box' of knowledge processes in inter-organisational networks could be opened, which can develop valuable understanding of knowledge processes in knowledge networks. This community level of analysis however, is not yet often taken in inter-organisational settings (Quelin & Moingoin, 2005). As said, an extra difficulty for knowledge sharing in inter-organisational settings, could be the tensions that derive from a co-opetitive setting.

*Co-opetitive tensions in knowledge networks*

When competing organisations co-operate together in networks because they want to learn from each other, a situation of *co-opetition* exists (Brandenburger & Nalebuff, 1996). This increasingly occurs in knowledge networks, because both competition and co-operation can have advantages for organisations (Lado et al., 1997; Harbison & Pekar, 1998; Afuah, 2000; Gnyawali & Madhavan, 2001). Metaphorically speaking, co-opetition combines the creation or enlargement of a pie (co-operation) as well as the division of the pie (competition) together. Co-opetition is a concept that implies simultaneous co-operation and competition, although the organisations do not necessarily have to be in the *act* of competition constantly. These can be dynamic processes through time, for instance. It might be that interchangeably through time, an organisation first collaborates (pre-competition), and then competes with another. Or, after two organisations had competed for the same clients/projects at one time, they later have found grounds for co-operation within one large project.

Although Dagnino and Padula (2002) distinguish co-opetition between dyads and networks, most empirical research on co-opetition has only focused on dyads. This study, therefore, aims to add some insights on co-opetition literature, as it studies cases of network co-opetition. Co-opetition in networks implies additional variations. It might be

that an organisation in a knowledge network has some competing and other collaborative parties: *"Firms that exhibit syncretic rent-seeking behaviour can compete intensively with rivals while they simultaneously co-operate like crazy with other firms"* within the same network (Lado et al., 1998: 123). Or, the competition and co-operation may take place across different contexts (Gnyawali & Madhavan, 2001: 433). All of these forms are considered as a co-opetitive setting in this research.

In such co-opetitive settings knowledge can be subject to strategic 'games', in which organisations sometimes feel the need to 'protect' their valuable knowledge from leaking to their network partners (Norman, 2002). Alternatively, in order to stay ahead, some organisations aim to win a learning race (Hamel, 1991). These co-opetitive settings can lead to at least three tensions or dilemmas that can have an effect on knowledge sharing processes (Soekijad, 2005). A learning dilemma implies that the collective knowledge development and mutual learning in the network are limited (or, can even be destroyed) by (natural) opportunistic behaviour of organisations (Larsson et al., 1998). An external replication dilemma can occur because internal replication requires more codification, whereas external imitation protection requires less (to prevent leaking). And, a value assessment dilemma or tension appears when an organisation needs to 'reveal' knowledge in order for the other party to assess it, making it less valuable at the same time (because it is revealed).

In sum, this research aims to develop understanding of how knowledge sharing and creation processes occur in co-opetitive knowledge networks, by looking at communities consisting of professionals in a particular practice. How this is done is explained in the following section.

**Methodology and case descriptions**

The general research strategy of this study consisted of the qualitative analysis of three case studies of co-opetitive communities in inter-organisational knowledge networks. Goal was to develop new theoretical insights and understanding into how knowledge sharing and creation processes take place in such settings. Knowledge processes are

studied within their context, as it is hard to isolate them from it (Langley, 1999: 692). A qualitative approach is suitable when interested in understanding the meaning of events, situations, actions, routines, or a particular context within which actions are undertaken (Maxwell, 1996). This fits this research as well.

An interpretive research strategy is chosen to build theory from looking in-depth at the processes, and by building rich descriptions. It is about understanding and interpreting practices, which can best be studied in real life, with a holistic perspective that leaves room for interpreting interaction within the context in which processes take place. In an iterative process, the cases are analysed with theory and new insights are developed. The use of a logbook with notes (on things that happened during visits and observations, and on thoughts, considerations, questions, and realisations) that the researcher kept reflects this iteration (Eisenhardt, 1989: 539). As such: *"theory evolves during actual research, and it does this through continuous interplay between analysis and data collection"* (Strauss & Corbin, 1994: 273). In this way, it reflects a better understanding of the setting, which heightens the internal validity of the study (Huberman & Miles, 1994: 431).

The cases were chosen for comparability on several characteristics. Networks were chosen when they consisted of more than two knowledge-intensive, services-based organisations that were potential competitors, so that indeed could be spoken of a co-opetitive situation. The organisations were services-based while assuming that these organisations were highly dependent on (highly specialised) knowledge and expertise, as they sell 'knowledge' as their product (see also Dawson, 2000). They all formed knowledge networks in that they had a formal goal to share, create, and distribute knowledge within a particular practice or field. All practices involved technical fields of engineering: InfoChain in knowledge management facilitation, WaterWork in hydraulic engineering (such as the Closure Dike in the Netherlands), and MultiSpace in multiple and intensive land and space use. The unit of analysis is the community of practice in which professionals act, as their ways of working and their interactions were core interest in this research.

Data were collected that could provide a better understanding of the process, so a prerequisite was to have full access to all written data, meetings and people during the full research period of (not fulltime) between 5 months (InfoChain) and 18 months (WaterWork and MultiSpace). In total, 65 semi-structured interviews were held with community participants, of which all were face-to-face at the workspace of the respondent, except for 7 that were telephone interviews, and all were taped and fully transcribed. Several types of (plenary) meetings were visited for 35 times, and 4 days were spent to go through the archives of documents together with a key informant. During all of these fieldwork visits in the participating organisations, the researchers could undertake participant observation of the professionals ways of working. This supported the interview data and collected documents (such as flyers, brochures, contracts, agreements, regulations, formal policy statements or statutes, website info, diagrams/figures, proposals, (financial) plans, reports, presentations, e-mail traffic when possible, letters/faxes, and minutes of meetings). During several meetings and interviews, two researchers were present. All of the rich data could be used in the construction of a thick description of the cases (Geertz, 1993). Instead of using this paper for a presentation of these tales, I will shortly introduce the three cases in the next section, after which I will discuss how comparative analysis led to some insights in relation to the above mentioned theory.

*InfoChain*

People from various organisations, who had some common experience in a former network, saw potential business growth for the future in the practice of knowledge infrastructures and KM facilitation. Therefore, they decided to initiate a network that was facilitated by an organisation (FACTA). Their common goal was to encourage (accelerate and enlarge) research, collaboration, and consultancy within their common practice. Some 20 professionals from 12 organisations formed a community. As soon as they started, it was clear that the participants had many different goals in mind as to what the network was supposed to achieve. The actual daily business of the participating organisations ranged from training or consultancy for KM, to the selling of ICT products

or services for knowledge infrastructures. Their common idea was to develop their practice, but they held different ideas on what that practice contained. Some professionals from large organisations had already left the network at an early stage, leaving one dominant party and several other organisations, including some new ones. Only a few professionals within the community were active, but all of the community members started out with high ambitions and plans.

Only a few people knew each other beforehand, so, in order to get to know each other, they organised a few InfoChain meetings at which organisational presentations were held. These meetings soon stopped, as they were not focused on content but on organisational procedural issues. Only a small group of people sometimes initiated other activities (such as the InfoChain Consult), but these activities caused some problems and tensions such as bad experiences, diminishing trust, etc. Some larger activities they undertook, such as the InfoChain book and the conference, caused even more problems and dissatisfaction. It appeared that the professionals were not able to develop a common practice in which they could be considered equal peers. And, already at the start, the group, supported by FACTA, had defined many formal rules and regulations in case some partners would behave opportunistically, misusing others. Even though they had never reached a point where things could get 'nasty', they already had formed inter-personal rules for how to handle situations like that. The activities were not followed up by others, and no new initiatives were undertaken. A growing group of people adopted a 'hesitant attitude', waiting for something to happen and hoping to take their opportunities when it would happen. At the end, even the active people became disillusioned.

There had been an initiative once to develop new knowledge during meetings, but conclusions from these meetings were that there was not enough eagerness for developing common knowledge such as developing new definitions. Near the end, there was a new initiative suggested by FACTA, but at that time nobody showed up at the planned meetings anymore. People often said that they could not make time to go to InfoChain meetings, or they used the argument that they did not receive any new or relevant knowledge or information during the meetings. So, at the end, there was little

knowledge shared, no knowledge created, and few lessons learned (in particular involving facilitation of InfoChain), but several 'taboos' still existed and people were not willing to talk about them.

*WaterWork*

In WaterWork, pressures from external parties made it 'necessary' to form a network. A number of different types of organisations in the same practice of hydraulic engineering, therefore, started a co-operation. These 15 organisations included knowledge institutes, such as universities or research centres, commercial engineering and consultancy bureaus, and (semi)governmental institutes. The participating 75 professionals were specialised in construction, infrastructure, environmental or ecological issues, and safety, for example. Together they even also saw an opportunity to join forces in order to receive external funding for their activities, within the context of a larger consortium (Delta). As a knowledge network, they had the goal to become a knowledge centre for sustainable development of densely populated river and coastal delta areas. As a group, WaterWork had the overall goal to develop the shared practice of hydraulic engineering.

Within WaterWork, most organisations, as well as several professionals, knew each other well beforehand. It appeared that there were many overlapping structures in which, through time, they had grown familiar with each other and the common practice (e.g. in terms of language, ways of working, and concepts). Because of this existing overlap and the desire, as well as the need to co-operate, there were possibilities of continuing existing activities (projects) within the network. At the same time, there were other activities that were newly initiated, thereby aiming to achieve a broader integration of people and activities.

Some of the new initiatives, it appeared, could meet difficulties such as developing common definitions of concepts and bridging geographical distances. For the existing activities, they saw the advantages of the existing overlaps, whereas they met difficulties in co-ordination. There were several instances at which professionals were able to share their knowledge and create new knowledge. The practice was of a conservative nature in

10

terms of innovation, since it involved the safety of inhabitants of the country (floods are a high risk). When the end of the Delta consortium was a fact after four years, the professionals of WaterWork still had their common activities and shared interest, in order to continue co-operation.

*MultiSpace*

An umbrella consortium (Globe) brought together professionals from various organisations, such as municipalities, developers, and consultancy agencies, to form MultiSpace. These people all expected that the practice of multiple space and land use would become increasingly important in the Netherlands in the (near) future, and they aimed to develop this practice. They particularly concentrated on developing sustainable, existing industrial areas. A CoreTeam was formed, which had an important place in the community, being facilitators and participants. They did not all know each other beforehand. They organised and facilitated the group with informal, social activities, as well as formal, plenary sessions. They created a community of around 35 professionals from 25 organisations and tried, in extensive brainstorming sessions, to stimulate participants to create new concepts and concrete solutions to existing problems (in cases).

After a certain time, when the team had formed an idea of where to go, they needed to introduce people from their own network of customers into the community, in order to grow and develop the group. This process was performed in an incremental way. Another sensitive issue concerned the openness to discuss all 'problems' in a case, and thus adopting a vulnerable attitude towards each other in the sense of exposing ignorance. These issues were explicitly addressed among the participants, as well as potential spin off activities that resulted from the network. In discussing these issues, they showed commitment to the group as such.

During the co-operation, the CoreTeam had initiated several activities that were positively valued among the participants and were considered successful by the CoreTeam itself. They explicitly 'marketed' their enthusiasm among each other, as well as towards the rest of participants. Globe played a particular role in the activities of

MultiSpace, in the sense that they were increasingly considered as the 'bad enemy' (although they could provide a small financial support). This role was 'used' by the CoreTeam to create a common community with all the MultiSpace participants. Globe also stimulated the group to deliver results. They particularly stimulated the group to explicate their lessons learned so that it could be used by more people than the MultiSpace participants. This made it possible to see what they had learned, shared, and created.

**Analysis and discussion**

Whereas the above section has presented the separate cases shortly, the current section will compare the cases along the theoretical 'sensitising concepts' as presented earlier. In this way, patterns are developed that lead to a more grounded understanding of how knowledge sharing and creation processes take place in co-opetitive communities. Figure 1 provides an overview of case characteristics mentioned earlier, and also presents a 'summary' of how the concepts as described in the section on theoretical background were found in each of the cases.

*Figure 1. Overview cases*

| Cases: Characteristics: | InfoChain | WaterWork | MultiSpace |
|---|---|---|---|
| Practice | Knowledge infrastructures and KM facilitation | Hydraulic engineering in densely populated delta areas | Multiple space and land use in sustainable industrial areas |
| Size network | 12 organisations | 15 organisations | 25 organisations |
| Size community | ± 20 profs | ± 75 profs | ± 35 profs |
| Duration | 3 years | >4 years | 2,5 years |
| 'Success' | Dissolved, frustration | 'successful' | 'successful' |
| Knowledge not shared | Clients, customers, prospects >know-who | | |
| | Market plans, leads, | Market plans, | |

| | | | |
|---|---|---|---|
| | tenders >know-how, know-who | tenders >know-how, know-who | |
| | Stories on current projects >know-what, know-how, know-who | Plans, unpublished publications on current projects, developments >know-what, know-how, know-who | |
| | Concepts, instruments >know-how | Instruments, efficiency 'tricks' >know-how | |
| *Knowledge shared* | Existing, published reports, presentations with successful stories >know-what | Experiences, reports from past projects >know-what, know-how | Experiences from past projects >know-what, know-how |
| | News items (from papers, websites) > Publicly available >know-what | Proven solutions from past projects, cases >know-what, know-how | Role/perspective experiences >know-how, know-who |
| | | | Customers, clients >know-who |
| | | | Plans, unpublished publications on current projects, developments >know-what, know-how, know-who |
| *Knowledge created* | Lessons on facilitation >know-how | Lessons on facilitation >know-how | Lessons on facilitation >know-how |
| | Book on KM facilitation (not commonly) | Reports, presentations | Report, presentations |
| | | e.g. sand suppletion to prevent erosion of a coastline | e.g. municipalities that rent cubic metres |
| *Tensions from co-opetitive dilemmas* | Learning dilemma | Some learning dilemma, but reciprocity | No learning dilemma |
| | External replication | Some external | Some external |

| | | | |
|---|---|---|---|
| | dilemma | replication dilemma | replication dilemma |
| | Value assessment dilemma | No value assessment dilemma | No value assessment dilemma |

The three cases as introduced earlier, distinguish themselves in one thing that is important for the analysis: the 'success' of the co-operation in terms of goal achievement, according to the participating professionals. This variation was not developed in advance in the research design, but could provide extra insights when trying to look for patterns across the cases. When put into a time frame, it could be that respondents would have valued the 'success' differently than was the case now. If the research was done in an earlier phase of InfoChain, people might still have been more positive, whereas in several years time, professionals in WaterWork and MultiSpace would become frustrated about their co-operation and goal achievements. However, by following the cases for a long time period, and using retrospective accounts on previous activities and developments, a (more) complete picture could be drawn of the whole process. Additionally, the accounts of respondents were also supported by more 'objective' information (deliverables for instance).

Comparing the cases, and trying to develop commonalities, figure 1 shows the types of knowledge that were shared and created, and that were not. For instance, in InfoChain they wanted to write, edit, and publish a book with all collected and developed knowledge on KM facilitation. Although the book should have been a joint product, it was actually primarily composed by people from one large organisation: *"it was a small core of writers"* (KM manager of Tele-IT). In this way, through smart task division, community members did not have to share their existing knowledge. This was also the case when they organised a conference together: *"Look, we have organised a seminar together, but that does not tell me much about the parties 'content-wise'. That was merely about procedural stuff..."* (Senior manager of Global-IT). At few or none of their meetings, they actually shared knowledge that was related to their practice. In this case, it appeared that knowledge was extremely difficultly shared among community members.

In most of the cases, professionals did not want to share their knowledge about clients or markets. This know-who seemed most risky to share, as illustrated in some comments: *"Names of people you speak with are (top)secret!"* (Director of Know-IT in InfoChain). One respondent exclaimed: *"of course we are not going to share our market knowledge! (know-who)"* (Techn-Edu in WaterWork), as this was where they would get their competitive advantage from. Another topic that was 'taboo' in most cases was the leads to new projects or tenders: *"I think we are somewhat reserved (…) to signal and share leads for future projects"* (Director of Consult-IT in InfoChain). This was shared in WaterWork: *"If you are both in regional water systems and you have discovered something (…) the other can use very well in its tenders, you tend to be a little reluctant"* (Ecolon consultant). Finally, instruments that have taken a long time to develop within the own organisation, like underlying assumptions or calculations of models, were not simply shared either. This know-how was valuable because it had cost much time and effort, and people did not want others to safe those costs: *"What I have developed or invented here in the course of five years, will be lost in one minute"* (Share-IT in InfoChain).

In InfoChain, professionals were primarily keen on sharing information that was already publicly available, such as in published reports or at websites. In presentations, they often told the same (familiar) stories, which were usually about successfully finished projects or cases: *"Consult-IT always brings in and discusses the same case in this respect"* (director of Try-IT). In WaterWork, some reports were not always publicly available, but via 'the backdoor', people could still have access to them: *"you just have to know someone who will take the report from the library"* (researcher at Techn-Edu). But, in both cases, they did not want to tell too many informative stories about current projects and developments, or plans for the near future. Only in MultiSpace, it was possible to discuss current projects as well as 'mistakes' people had made earlier, or even share new leads (only if there was added value in combining parties). Whereas in the other cases clients were a 'risky' topic, in MultiSpace, the CoreTeam brought in their own clients as new members. Together they formed a community. Although this was done carefully, it also added value in the end.

Figure 2 illustrates the 'sensitivity' of the three types of knowledge in co-opetitive communities.

*Figure 2. 'Sensitivity' of knowledge types when sharing*
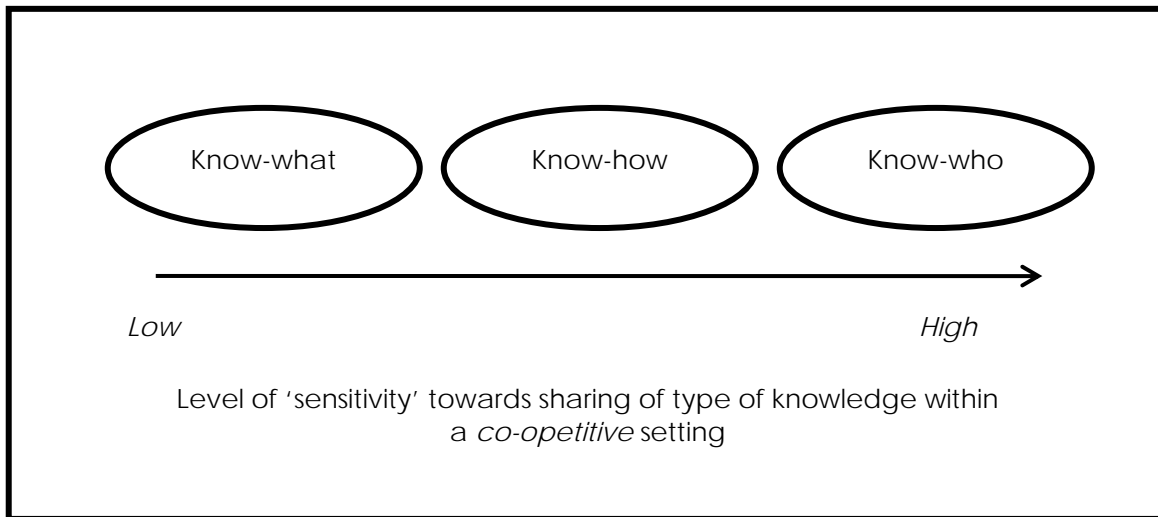


In terms of tensions related to a co-opetitive situation, in all of the cases people were aware of this specific situation. This can be illustrated by some remarks that were made: *"Sometimes you make connections for a specific project, and other times you are competing"* (Consultant at Hydr-Edu in WaterWorks); and *"That environmental TopTech department gives us a hard time sometimes, so there are parts of that organisation with which we are regularly in competition"* (EcoTech's consultant in MultiSpace). However, not in all cases the tensions related to the dilemmas as mentioned earlier occurred 'evenly'. It appeared that the more specialised and precise the practice (which was not the case in InfoChain), the less co-opetitive tensions were felt. This could have to do with the amount of complementarity of the parties. In this way, there was a higher necessity to use each other in order to develop the practice.

The cases provide several reasons why professionals did not want to share their existing knowledge. Related to time, in InfoChain, many mentioned the lack of time they could spend on community activities, because it was considered 'an extra activity'. Even people

who worked for an organisation that formally provided them time for community participation, or who were directors themselves, were complaining about this. Likely, this is a more stringent problem in an inter-organisational setting, because the 'own' organisation will often get priority. However, whereas InfoChain professionals often saw it as 'extra', professionals in MultiSpace were better able to integrate community activities into their daily activities. Both MultiSpace and WaterWork showed they were able to get some financial support for their activities in the network. Existing knowledge had often taken quite some time to develop. This was one of the reasons why people were not keen on sharing it with co-opetitors. They felt it was unfair in a way, to provide them with this knowledge 'for free'. They rather developed new knowledge together, since that would be 'more fair' in terms of time spending and effort.

Another reason why knowledge was not easily shared was that they did not seem to have a real need. Although knowledge sharing was the main reason for everyone to collaborate, it appeared that in several of the cases, knowledge was not shared. In some cases they even explicitly stated that co-operation was better done with existing network partners: *"I know the organisations I would want to do this with (…) and I would approach them directly, I don't need InfoChain for that"* (Tele-IT). In this case, some organisations were satisfied with the publicity that the network would generate (through the book and conference), which would make it possible to not share their knowledge. The fact that these knowledge networks did not cost much money (in terms of organisational participation) seemed to have caused a 'reluctance' in making a clear decision to break up. InfoChain existed over three years before this was done.

Several ways could explain how professionals were able to share and create their knowledge. Whereas in InfoChain, the participating professionals were not keen on sharing anything, in MultiSpace, they had created a way that enabled them to create new knowledge. They simulated a practice (as explained in more detail elsewhere, Soekijad et al., 2004). This made it possible to overcome co-opetitive tensions and discussing concrete cases that could generate solutions for commonly felt problems. In WaterWork, many of the professionals considered each other as actual peers and although they were

17

not all familiar with each other individually beforehand, they shared the same educational or professional background: *"It's such as small world (…) in the last twenty years I have worked for a number of employers and departments, but I am still in this network"* (researcher from Techn-Edu). Here, the practice is highly specialised, contrary to that of InfoChain.

In their seminal work on knowledge creating companies, Nonaka and Takeuchi (1995: 83-89) argue that before any knowledge can be created, the first and most crucial step is to share tacit knowledge (such as experiences and situated practices). It is only through knowledge sharing that a base of jointly held knowledge, necessary for mutual understanding, can be created and maintained. When relating it to project team members, it is said that the sharing of such tacit knowledge is possible through the deep socialisation of these members. In this way, they can come to understand their definition of shared situations and of how to act in such a situation. For instance, as von Krogh and colleagues (2000) describe, project team members meet to share their tacit knowledge of a given product area, such as customer needs (know-who), information about new technologies (know-what), and personal skills required to perform complex tasks (know-how). *"Based on its ability to share such tacit knowledge, the team creates a new product concept"* (p. 7). So, in this perception, knowledge is only created after it is shared. This current study provides some reasons why knowledge creation is sometimes 'preferred' in a co-opetitive setting and how professionals were able to do so.

In accordance with findings of Bengtsson and Kock (2000), it appeared that knowledge was most difficultly shared close to commercial activities, as was illustrated: *"If commercial interests come into play, tensions can arrive"* (Director of Global-IT in InfoChain). In particular during a commercial conference of InfoChain, this could be seen. Also, in all of the cases it appeared too strategically risky to share knowledge about new projects, tenders, clients, or potential customers. In MultiSpace however, the professionals quickly acknowledged that they needed their own networks for enlarging the community, and for additional knowledge. This made them decide to bring in customers and clients from their own networks, making it possible to share know-who.

In general, the activities in WaterWork (and MultiSpace) could be characterised as less commercial activities. These activities often involved research and development projects in which new knowledge needed to be created. Only during a later stage, this could be commercialised in concrete services. However, a clear distinction is hard to make here, since it involves knowledge-intensive, services-based organisations. In this type of organisations, knowledge is their main commercial asset.

**Conclusions**

In light of the growing importance for organisations to network for knowledge, and the role of professionals as community members in sharing and creating knowledge, this paper has provided some insights into how these processes take place in co-opetitive inter-organisational communities. It is (often) said that people (first) need to share existing knowledge, so that they can develop a common understanding and meaning, before they can actually create new knowledge. The three case studies, however, show that professionals rather create new knowledge together, when they find themselves in a co-opetitive situation. Creation of new knowledge seems safer in light of the tensions that can occur in a co-opetitive setting. It is not said that this means no knowledge is shared in such settings, but the cases showed that it is not always necessary to develop a common understanding with all of the community members first. The cases present several ways to create a shared understanding, without necessarily having to share existing know-what, know-how, or know-who.

This paper has contributed in several ways to OLKC theory, in relation to inter-organisational settings where there is a co-opetitive situation. It employs a community perspective, that enables to look into the inter-personal daily working practices of the actual knowledge-workers in knowledge-intensive organisations. As earlier empirical studies have not yet done this, this current study fills an important gap. Moreover, the studies showed that a clear and shared practice among professional peers is important to be able to cross inter-organisational boundaries. Although it is said that people can have a shared practice that can cross professional disciplines (Brown & Duguid, 2001), this

research (InfoChain) shows that it can be difficult to cross such boundaries when co-opetitive tensions occur. This seems in line with, and adds the co-opetitive aspect to, some recent results in the health sector (Ferlie et al., 2005). Finally, by distinguishing between know-what, know-how, and know-who, it was found that in these co-opetitive communities, professionals consider know-who the least 'safe' to share with co-opetitors. Interesting future research in this area will be a multi-level study of the role of the inter-personal communities in networked innovations, and the impact of interest-boundaries, such as co-opetition on that.

## References

Afuah, A. (2000). How much do your co-opetitors' capabilities matter in the face of technological change? *Strategic Management Journal, 21*, 387-404.

Alvesson, M. (2000). Social identiy and the problem of loyalty in knowledge-intensive companies. *Journal of Management Studies, 37*(8), 1101-1124.

Anderson, J. R. (1980/3). *Cognitive psychology and its implications.* San Francisco, CA: WH Freeman & Company.

Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes, 82*(1), 150-169.

Barley, S. R. (1986). Technology as an occasion for structuring: Evidence from observations of CT scanners and the socialorder of radiology departments. *Administrative Science Quarterly, 31*, 78-108.

Blackler, F. (1995). Knowledge, knowledge work and organizations: An overview and interpretation. *Organization Studies, 16*(6), 1021-1046.

Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science, 49*(4), 432-445.

Brandenburger, A. M., & Nalebuff, B. J. (1996). *Co-opetition.* New York: Currency-Doubleday.

Brown, J. S., & Duguid, P. (2001). Knowledge and organization: A social-practice perspective. *Organization Science, 12*(2), 198-213.

Carlile, P. R. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science, 15*(5), 555-568.

Chesbrough, H. (2003). *Open Innovation: The new imperative for creating and profiting from technology.* Boston: Harvard Business School Press.

Dagnino, G. B., & Padula, G. (2002). *Coopetition Strategy: A new Kind of Interfirm Dynamics for Value Creation.* Paper presented at the EURAM Conference, Stockholm.

Davenport, T. H., & Prusak, L. (1998). *Working Knowledge. How Organizations Manage What They Know.* Boston: Harvard Business School Press.

Dawson, R. A. (2000). *Developing Knowledge-Based Client Relationships: the future of professional services*. Boston: Butterworth Heinemann.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. Academy of Management Review, 14(4), 532-550.

Ferlie, E., Fitzgerald, L., Wood, M., & Hawkins, C. (2005). The Nonspread of Innovations: the Mediating Role of Professionals. Academy of Management Journal, 48.

Geertz, C. (1973). The Interpretation of Culture. New York: Basic Books.

Gnyawali, D. R. & Madhavan, R. (2001). Cooperative networks and competitive dynamics: a structural embeddedness perspective. *Academy of Management Review, 26*(3), 431-445.

Gulati, R. (1995). Social Structure and Alliance Formation Patterns: A Longitudinal Analysis. *Administrative Science Quarterly, 40*, 619-652.

Hamel, G. (1991). Competition for Competence and Interpartner Learning within International Strategic Alliances. *Strategic Management Journal, 12*, 83-103.

Harbison, J. R., & Pekar, P. j. (1998). *Smart alliances*. San Francisco: Jossey-Bass.

Huberman, A. M., & Miles, M. B. (1994). Data Management and Analysis Methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks: Sage.

Inkpen, A. C. (2000). Learning Through Joint Ventures: A Framework of Knowledge Acquisition. *Journal of Management Studies, 37*(7), 1019-1043.

Johnson, G., Melin, L., & Whittington, R. (2003). Guest Editors' Introduction: Micro Strategy and Strategizing: Towards an Activity-Based View. *Journal of Management Studies, 40*(1), 3-22.

Khanna, T., Gulati, R., & Nohira, N. (1998). The dynamics of learning alliances: Competition, cooperation, and relative scope. *Strategic Management Journal, 19*(3), 193-210.

Kogut, B. (1988). Joint Ventures: Theoretical and Empirical Perspectives. *Strategic Management Journal, 9*, 319-332.

Koza, M. P., & Lewin, A. Y. (1998). The Co-evolution of Strategic Alliances. *Organization Science, 9*(3), 255-264.

Kraatz, M. S. (1998). Learning by Association? Interorganizational Networks and Adaptation to Environmental Change. *Academy of Management Journal, 41*(6), 621-643.

Kreiner, K., & Schultz, M. (1993). Informal Collaboration in R&D. The formation of Networks Across Organizations. *Organization studies, 14*(2), 189-209.

Lado, A. A., Boyd, N. G., & Hanlon, S. C. (1997). Competition, cooperation, and the search for economic rents: a syncretic model. *Academy of Management Review, 22*(1), 110-141.

Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review, 24*(4), 691-710.

Larsson, R., Bengtsson, L., Henriksson, K., & Sparks, J. (1998). The Interorganizational Learning Dilemma: Collective Knowledge Development in Strategic Alliances. *Organization Science, 9*(3), 285-305.

Lave, J., & Wenger, E. (1991). *Situated Learning. Legitimate Peripheral Participation*. Cambridge: University Press.

Lee, G. K. and R. E. Cole (2003). From a firm-based to a community-based model of knowledge creation: The case of the Linux kernel development. *Organization Science, 14*(6), 633-649.

Loebbecke, C., & Angehrn, A. A. (2002). Coopetitive Learning and and Knowledge Exchange Networks ('CoLKENs'): Insights on Strategic Management, Governance Structures, ICT-Usage and Measurable Impacts. *Society for Information Management (SIM) Academic Workshop, Barcelona, Spain.*

Loebbecke, C., & Angehrn, A. A. (2003a, April). *Investigating Coopetitive Learning and Knowledge Exchange Networks (CoLKENs) as Emerging Concept in Management Literature and Practice.* Paper presented at the Fourth Conference on Organizational Knowledge, Learning and Capabilities (OKLC), Barcelona, Spain.

Loebbecke, C., & Angehrn, A. A. (2003b). *Opensource Platforms Under Coopetition: A Comparative Analysis of SourceForge and 'CodeX' (Xerox) as Two 'Coopetitive Learning and Knowledge Exchange Networks' (CoLKENs).* Paper presented at the 11th European Conference of Information Systems (ECIS), Naples, Italy.

Maxwell, J. A. (1996). *Qualitative research design: an interactive approach* (Vol. 41). Thousand Oaks: Sage.

Mowery, D. C., Oxley, J. E., & Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal, 17*, 77-91.

Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.

Norman, P. M. (2002). Protecting knowledge in strategic alliances. Resource and relational characteristics. *Journal of High Technology Management Research, 13*, 177-202.

Orr, J. E. (1990). Sharing knowledge, celebrating identity: Community memory in a service culture. In P. Middleton, D. Edwards & Companions (Eds.), *Collective remembering: memory in society* (pp. 167-189). London: Sage Publications.

Parkhe, A. (1993). Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm cooperation. *Academy of Management Journal, 36*(4), 794-829.

Powell, W. W., Koput, K. W., & Smitt-Doerr, M. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly, 41*(1), 116-146.

Quelin, B. and Moingeon, B. (2005). *The inter-organizational communities of practice (IOCoPs): New insights and knowledge strategies*. Academy of Management 2005, Honolulu, USA.

Salk, J. E., & Shenkar, O. (2001). Social identities in an international joint venture: an exploratory case study. *Organization Science, 12*(2), 161-178.

Soekijad, M. (2005). *Dare to share: Knowledge sharing professionals in* co-opetitive *networks*. Doctoral Dissertation at TU Delft. Delft.

Soekijad, M., Huis in 't Veld, M. A. A. & Enserink, B. (2004). Learning and knowledge processes in inter-organizational Communities of Practice. *Knowledge and Process Management, 11*(1), 3-12.

Starbuck, W. H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies, 29*(6), 713-740.

Strauss, A., & Corbin, J. (1994). Grounded Theory Methodology: An Overview. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks: Sage.

Tether, B. S., & Hipp, C. (2002). Knowledge Intensive, Technical and Other Services: Patterns of Competitiveness and Innovation Compared. *Technology Analysis & Strategic Management, 14*(2), 163-182.

von Hippel, E. (1987). Co-operation between rivals: Informal Know-How Trading. *Research Policy, 16*, 291-302.

von Krogh, G., Ichijo, K., & Nonaka, I. (2000). *Enabling knowledge creation*. New York: Oxford University Press.

Wenger, E. (1998). *Communities of Practice; Learning, Meaning, and Identity*. ?: Cambridge University Press.

Wenger, E., & Snyder, W. M. (2000). Communities of Practice: The organizational frontier. *Harvard Business Review*(jan-feb).