

3 Communities and Social Networks in Organizational Knowledge Communication – Conceptual Framework

3.1 Organizational Knowledge Communication

Interpersonal communication is the essence of organization.
(WEICK 1987: 97)

3.1.1 About Theories of Organizational Communication

In his seminal work, Gerhard Maletzke (1963: 18) defines communication as the mediation of meaning between creatures. The complexity and omnipresence of communication is prominently expressed in the first axiom by Watzlawick et al. (1969 (1967): 53) that one cannot not communicate. This postulate has become an established part in studies on interpersonal communication and has been widely accepted as well as misunderstood by communication scientists and scholars. Based on the work of Fisher (1978), Krone et al. (1987) adopt four conceptual approaches to human communication of (1) mechanistic, (2) psychological, (3) interpretive-symbolic, and (4) systems-interaction perspectives as a framework for the study of organizational communication. As an adoption from the study of human communication, these perspectives provide a suitable theoretical framework for introducing the study of organizational communication with a focus on the interpersonal relationships as proposed here.

The mechanistic perspective views communication “as a transmission process in which a message travels across space (a channel) [and time!] from one point to another” (Krone et al. 1987: 22). With regard to organizational communication, especially research of organizational communication networks takes the position of a mechanistic perspective: it puts its focus on the communication flows among individuals. This is also applies for a variety of network studies on organizational communication (see, e.g., Monge and Eisenberg 1987).

The psychological perspective emphasizes specifically “how characteristics of individuals affect their communication”. For the case of organizational communication studies, it “concentrates on explaining the informational environments in

which individuals are located and the range of stimuli to which they respond using a variety of conceptual filters” (Krone et al. 1987: 25). Different from the other perspectives, this approach exclusively conceptualizes organizational communication at the intra-individual level of analysis.

The interpretive-symbolic perspective analyzes organizational communications as consisting of “patterns of coordinated behaviors that have the capacity to create, maintain, and dissolve organizations” (Krone et al. 1987: 27). Thus, it “posits by virtue of their ability to communicate, individuals are capable of creating and shaping their own social reality” (Krone et al. 1987: 27). As Krone et al. recognize as well, this perspective adopts a view that resembles the symbolic interactionism by Mead (1955 (1934)) or Blumer (1969). This approach shows its usefulness for the study of the communication of knowledge from the perspective that knowledge is socially constructed as perceived here.

From the systems-interaction perspective, the locus of communication “is patterns of sequential behaviors or the recurrence of contiguous acts and interacts” (Krone et al. 1987: 31). Unlike the psychological perspective, the focus is not put on the individual but rather on the behaviors that he or she shows in relation to others. Also, this perspective emphasizes the dimension of time in that structure and function of relationships gradually evolve over time.

Following Schenk (1984: 244), from a network perspective communication in organizations can be differentiated according to three dimensions: (1) structure, (2) function, and (3) system. Structure focuses on the repetitive, relatively stable sets of communicative relationships that exist between the members of an organization. Function is the consequences of communications that could be described as production, maintenance of the social relationships and innovation (adaptation) (with reference to Barnard 1951 (1938)). The system level is the aggregation of individuals, which provide the basic units of analysis from dyadic relationships to the whole organization.

3.1.2 Communication of Knowledge in Organizations

Using the network perspective of communication by Schenk (1984: 244) as introduced above, the function of knowledge communication in organizations is learning, innovation, and decision-making with regard to development and management processes as well as with regard to strategic orientation on the individual and organizational levels (on information, knowledge, and decision-making processes see also Sorg 1982). Choo (1996) identifies these three areas in which an organization uses information strategically: (1) to make sense of change in its environment, (2) to create new knowledge for innovation, and (3) to make decisions about courses of action. Choo (1996: 329) considers these apparently distinct

processes as in fact being “complementary pieces of a larger canvas, and the information behaviors analyzed in each approach interweave into a richer explanation of information use in organizations”. Strategic information use “is when organizations create, organize and process information in order to generate new knowledge through organizational learning” (Choo 1996: 330). Therefore, Choo (1996: 332-333) describes organizations as sensemaking communities: “organizational actors have first to make sense of what is happening in their organizational environments [...]. In other words, people in organizations create their own subjective reality”.

From the perspective of socially constructed knowledge creation, the model of Weick (1979) seems to be useful to serve this perception. He “proposes a model of organizations as ‘loosely coupled’ systems in which individual participants have great latitude interpreting and implementing directions” (Choo 1996: 333; with reference to Weick 1979). Since here it is conceived that knowledge resides in the minds of individuals, this personal knowledge needs to be converted into knowledge that can be shared and transformed into innovations. “During *knowledge creation*, the main information process is the conversion of knowledge” (Choo 1996: 338). And these conversion processes must happen for every individual times and again. Therefore, processes of knowledge creation are strongly connected to processes of knowledge transfer and transformation. It seems useful to further explore similarities of and differences between personal, organizational, and network knowledge and the corresponding processes of knowledge sharing in future research.

3.1.3 Structural Theories of Organizations and Communication

Commonly, the social network approach is understood from the perspective of structural analysis. Although in this work social network analysis is treated as conceptual framework on the one hand and as methodical tool on the other hand, this approach is not fundamentally based on the structural tradition itself. Nevertheless, to provide a comprehensive outline, structural theories of organization and their relevance for the communication within organizations from a network perspective are briefly introduced here.

The origins of structural analysis dates back to Spencer (1982) and Durkheim (1950 (1895)) in sociology, to Radcliffe-Brown (1965 (1952)) in anthropology as well as to de Saussure (1972 (1915)) in linguistics. Therefore, “[n]ot surprisingly, this wide range of work has led to numerous competing views of structure” (Monge and Eisenberg 1987: 305, with reference to Blau 1981 and McPhee 1985). Following Monge and Eisenberg (1987), most structural theories of organization can be placed into one of three major schools of thought: (1) the positional, (2) the relational, and (3) the cultural tradition.

According to Monge and Eisenberg (1987), the intellectual roots of analysis of communication structure in organizations can be found in the work by Weber (1980 (1921)), Parsons (1951) and Homans (1958). Their conceptualizations have in common the description of structure as pattern of relationships between social units like the society, the organization, or the group. These conceptualizations basically imply that roles and positions determine communication between these units: "The roles attached to the positions specify the people to whom the person should communicate, the acceptable topics, and the procedural requirements for communication" (Monge and Eisenberg 1987: 306; on the influence of contextual effects on individuals see, e.g., Erbring and Young 1979). This perspective of communication structure has a strong influence on the perception of organization. Organization (whether formal or informal in character) inheres the characteristic that it designates (more or less formally defined) positions to people, and roles are attached to these positions which specify their incumbents (Jablin 1987). The positional perspective has been criticized as being overly simplistic and unable to take personality and action of individuals into account (Monge and Eisenberg 1987: 306, with reference to Burt 1976; Coleman 1973; Nadel 1957; White et al. 1976).

The relational focus of structural theory has been promoted by researchers of organizational behavior (Monge and Eisenberg 1987: 306, with reference to Brass 1984; Roberts and O'Reilly 1978; Tichy 1981). It is also a widespread perspective in the field of structural communication studies (see, e.g., Rogers and Agarwala-Rogers 1976; Rogers and Kincaid 1981). Studies focus on the role of human action in creating and maintaining communication linkages and the development of the related structures. The focus is especially put on emergent interactions between people. The crucial distinction between the two approaches is that the relational focuses on emergence, while the positional does not (Monge and Eisenberg 1987: 306). The shift of emphasis away from a static toward a dynamic perspective raised the interest of researchers "to the role of communication networks in promoting goals other than increased efficiency (such as building morale, supporting innovation), as well as to a more general appreciation for the world-building and sense-making processes central to organizational communication" (Monge and Eisenberg 1987: 306, with reference to McPhee 1985; Richards 1985; Rogers and Agarwala-Rogers 1976; Rogers and Kincaid 1981).

An increasing prominence of cultural perspectives in organizational sciences (see, e.g., Frost et al. 1985) has emerged "due to the assertion that older paradigms (and structural-functionalism in particular) have run their course" (Monge and Eisenberg 1987: 307). Especially the theory of structuralism in anthropology by Lévi-Strauss (1963) has been widely recognized as an approach that takes into account the more surface aspects of social life through the study of underlying mech-

anisms (distinction between surface structures of human action and deep structures of cognitive concepts mostly independent of individual intentions). The cultural tradition puts its focus on the role and importance of “symbols, meanings, and their transmission throughout social systems” (Monge and Eisenberg 1987: 307). The application of the cultural approach to organizational studies (e.g., McPhee 1985; Ranson et al. 1980; Riley 1983) is with little exception mostly based on Giddens’ theory of structuration (Giddens 1979: 1-48; Giddens 1984: 25-28).

3.1.4 About the Concepts of Formal and Informal Organization

The most influential statements on formal organizations is Max Weber’s perceptive theoretical analysis of the principles of bureaucracy. The analysis of formal organizations is part of his theory of authority structures, or systems of legitimate social control. Weber describes the distinctive characteristics of formal organizations as (1) distribution of tasks, i.e. clear-cut division of labor among positions of the members, (2) organization of the positions into hierarchical authority structure, (3) a formally established system of rules and regulations that govern decision making processes and actions, (4) expectation of the organization’s officials to assume impersonal orientation of their contacts within the organization and with stakeholders external to the organization (i.e. especially clients), and (5) officially defined career paths of the members based on employment (see Weber 1980 (1921): 124-127). According to Weber, these organizing principles maximize rational decision-making and administrative efficiency (Weber 1980 (1921): 128-130).

Following Herbert A. Simon (1951), effective administration has its foundation in rational decision making. As a consequence of the incapability of individuals to make complex decisions rationally, the organization plays an important role: the function of the organization is limiting the scope of the individual’s decision making by clearly defining the organization’s members responsibility on the one hand and by setting up mechanisms like formal rules and communication channels that help narrow the range of alternatives in the decision making process on the other hand.

Weber’s principles of bureaucracy and Simon’s conception of administration as a decision making structure conceptualize the formal organization without taking into account the informal structures and interpersonal influences within organizations. Talcott Parsons provides another conception of formal organization, that should be introduced very shortly before taking a closer look at informal structures and social networks of organizations. Parsons derives a formal organization by application of his general theoretical framework to analyze social systems (see Parsons 1960: 19-96). According to Parsons et al. (1953), all social sys-

tems are confronted with four basic problems that they must solve: (1) adaptation, (2) goal attainment, (3) integration and (4) latency (see Parsons et al. 1953: 183-186). Viewing the formal organization as a social system, it has its own set of functional subsystems that are directed toward the solution of these four basic problems. Therefore, Parsons identifies three major types of hierarchical levels in formal organizations, each concerned with the solution of the basic problems through specialized ways. The technical level, i.e. where the actual product is manufactured or dispensed, is mainly concerned with problems of adaptation and goal attainment. The managerial level, who mediates and coordinates between the various sub-units of the organization and their individual efforts, is primarily concerned with integrative problems. And the third level, the institutional level that connects the organization with the wider social system, focuses on latency problems (see also Blau and Scott 1962: 38-39). The modeling of formal organization according to Parsons' scheme of social systems helps to introduce three central aspects for the study of social networks in organizations: (1) the role of social relationships, (2) perspective of multi-level analysis (see also section 5.2.3), and (3) functional interrelations between formal and informal organization. As mentioned in section 2.5.4, Barnard already emphasized the importance of communication as a constitutional aspect of formal organization (and, of course, of informal organization as well). According to Barnard (1951 (1938): 82), the elements of an organization are (1) communication, (2) willingness to serve, and (3) a common purpose.

Informal social relations in organizations have been subject to research since at least the 1930s with the classical Hawthorne studies (Roethlisberger and Dickson, 1947). The studies of the late 1950s considered a large discrepancy between formal and informal social structure as negatively influencing the overall cohesion at the work place as well as the performance of an organization (see, e.g., Coleman 1956; Dalton 1950). Regardless of the direction of impact of the informal network on the formal organization, there is a general consensus that it is impossible to understand processes within the formal organization without taking the influence of the existing informal relationships into account. As Barnard (1951 (1938): 120) wrote in the 1930s: "Formal organizations arise out of and are necessary to informal organization; but when formal organizations come into operation, they create and require informal organizations". Or as Blau and Scott (1962: 6) stated in the 1960s: "In every formal organization there arise informal organizations". And they continue: "The constituent groups of the organization, like all groups, develop their own practices, values, norms, and social relations as their members live and work together. The roots of these informal systems are embedded in the formal organization itself and nurtured by the very formality of its arrangements." This leads to the conclusion that it is not only impossible to understand processes within

the formal organization without taking into account the influence of the existing informal relationships, but that the study of informal relationships within organizations needs taking into account the formal organizational structure as well. The application of social network analysis as a method for knowledge communication as presented in chapter 5 takes this fact into account.

Simon (1951: 148) refers to the informal network as the “interpersonal relations in the organization that affect decisions within it but either are omitted from the formal scheme or are not consistent with that scheme”. According to Barnard (1951 (1938): 122), communication is “[o]ne of the indispensable functions of informal organizations in formal organizations”. Or to describe this function in other words, informal networks assure relatively fast transfer of information and knowledge (see Cross et al. 2002a). Other important functions of informal organizations, i.e. of social networks within organizations, as described by Barnard (1951 (1938): 122), are maintaining “cohesiveness in formal organizations through regulating the willingness to serve and the stability of objective authority” and “the feeling of personal integrity, of self-respect, of independent choice”. Thus, Barnard recognizes in the 1930s already the informal organization not as only destructive of formal organization, but as having an important influence on the individual members of the organization, their social relationships, and on the formal organization as a whole. For studies of the influence of formal and informal organization structure on the structure of the technical communication network and the role of gatekeepers who are supposed to a) be better acquainted with information resources (such as scientific and technological literature) and b) show more contact with technical activity outside of the laboratory (see, e.g., Allen and Cohen 1969). Like many other authors, Krackhardt and Hanson (1993) found that social network analysis is an appropriate tool to provide insight into the de facto authority within the organization.

3.1.5 Informal Knowledge Communication and the Role of Communities and Social Networks

The focus of research and practice on the interpersonal relationships and informal structures in organizations has lead to various conceptualizations of organizational and inter-organizational knowledge communication in communities and social networks. The social perspective has emerged as the dominant paradigm in information and knowledge management studies in the last few years. Such a social constructionist view of knowledge exchange considers not only single individuals and dyadic interpersonal relationships but also social aggregates and their structural patterns. A growing literature studies and describes the concepts of communities and networks from the perspective of knowledge management (see,

e.g., Botkin 1999; Erickson and Kellogg 1999; Erickson and Kellogg 2001; Lesser et al. 2000; Schmidt 2000; Brown and Duguid 1991; Lesser 2001; Wenger 1999; Collinson and Gregson 2003; Liyanage et al. 1999; Powell 1998; Seufert et al. 1999a; Seufert et al. 1999b; for a discussion of the different concepts see also section 3.4). In the knowledge management debates, particularly the concept of communities of practice (CoP) has become an influential approach.

From the background of anthropologically oriented pedagogics, Lave and Wenger (1991) introduced the concept of communities of practice. Central to their concept is the role of “legitimate peripheral participation” that describes how knowledge and skills are transferred in groups through modes of guidance, implicit learning, and growing participation in communities. The importance of communities of practice for processes of knowledge sharing and learning in organizational environments is based on their capacity to wholly integrate knowledge and learning into their social practices without treating them as individually isolated processes beyond everyday life (Lave and Wenger 1991: 47-48). In their concept, knowledge is not localized in the individual person but in the group through forms of socially constructed meaning Lave and Wenger (1991: 50). The concept of communities of practice was quickly transferred from learning theories to the domains of knowledge management, human resource development, and business administration.

In the next sections, community and network concepts in intra- and inter-organizational knowledge communication will be thoroughly analyzed and critically examined. The following arguments present a de-construction of the community concepts and provide the approach of networks instead as a more adequate concept to grasp the informal structures of knowledge communication for conceptual, analytical, and practical purposes.

3.2 The Role of Communities for Knowledge Communication – Expert Views

“We’re running out of time!” At that point, successful groups quickly complete or drop agendas. They cast around for fresh ideas, often with the newly sought input of outside stakeholders. They come up with novel ways to approach their work and new insights on material they had already generated.

(GERSICK 1995: 142)

3.2.1 Perceptions of Knowledge Communities

According to the literature, numerous contributions to conferences, and comments from practitioners, communities are considered as being of high importance for knowledge communication in organizations. To explore their perceptions, importance and role from experts’ views, one central issue of the expert survey held by the author focused on knowledge communities (about the survey see section 2.4.1). The survey participants were asked the following questions about knowledge communities:

So-called knowledge communities (KCs) attract a certain attention in theoretical and practical concepts of knowledge management (KM).

1. What is your understanding of KCs?
2. And how important are they in KM?
3. According to your opinion, which are the roles and tasks of KCs in general?
4. Which role do KCs play for innovative knowledge creation in research and development (R & D)?

According to the participants of the expert survey, “knowledge communities” are characterized through (characteristics listed by frequency of terms mentioned) personal relationships (36.5 per cent), shared goal or interest (32.7 per cent), shared domain of knowledge or topic (28.8 per cent), membership of experts with regard to their shared interest or domain of knowledge (28.8 per cent), knowledge sharing (21.2 per cent), informal character (17.3 per cent), across organizational boundaries (inter-organizational) (15.4 per cent), shared communication platform (based on internet technologies) (13.5 per cent), voluntary involvement (9.6 per cent), spatially distributed (9.6 per cent), identification as a group (sense of community) (9.6 per cent), regular contacts (7.7 per cent), low degree of organization (loosely coupled) (7.7 per cent), personal meetings (face-to-face) (7.7 per cent),

trust (7.7 per cent), shared resources (5.8 per cent), temporary existence (3.8 per cent), inter-disciplinarity (3.8 per cent), and common rules (3.8 per cent) (see figure 3.1). Some participants characterized knowledge communities just as communities of practice (5.8 per cent, see also section 3.1.5) or networks (7.7 per cent).

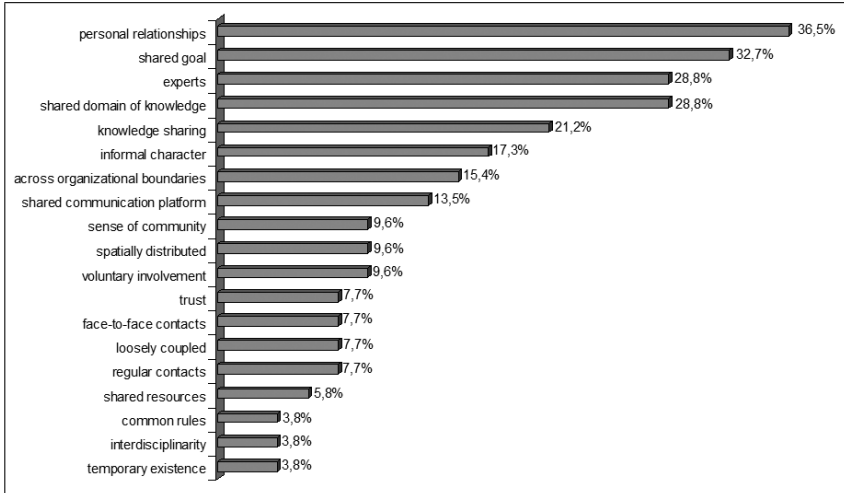


Figure 3.1: Expert Survey: Characteristics of Knowledge Communities

Although the individual perceptions of knowledge communities show a large variety of characteristics and a mix of different features, 92.3 per cent of the survey participants indicated to actually know knowledge communities in organizational practice.

3.2.2 General Importance and Role of Knowledge Communities

42.3 per cent of the participants mentioned that knowledge communities play a very important role in knowledge management. They described them as a fundamental pillar of knowledge management. Only 7.7 per cent of the participants view knowledge communities as unimportant or as an overrated concept in knowledge management.

According to the view of the participants, knowledge communities play the most important role in knowledge management with regard to the facilitation of knowledge sharing, to exchange experiences and to foster knowledge diffusion (61.5 per cent) as well as to connect people (21.2 per cent) (taken together, 67.3 per cent).

21.2 per cent of the participants see a superior role of knowledge communities for innovation, especially as creators of creative spaces, creative chaos and productive environments for innovative knowledge (15.4 per cent) as well as a social form to actively influence innovative processes (9.6 per cent). Knowledge communities also play an important role for processes of knowledge creation in general (34.6 per cent), for the exploitation and application of implicit knowledge (19.2 per cent), and for the creation of a common understanding of knowledge management (5.8 per cent) (see figure 3.2).

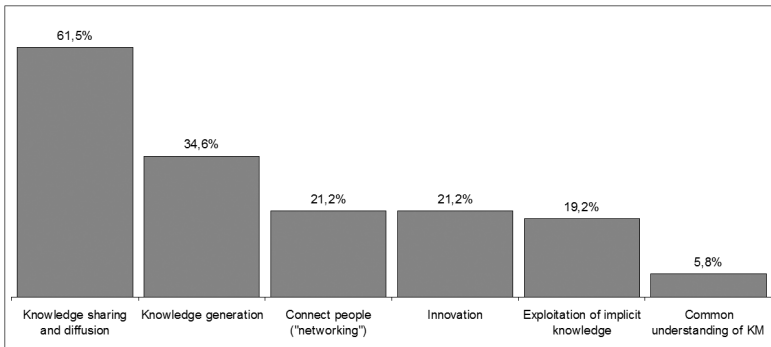


Figure 3.2: Expert Survey: The Role of Knowledge Communities in KM

3.2.3 The Importance and Role of Knowledge Communities in R & D and Innovative Knowledge Creation

With regard to research and development (R & D), knowledge communities are of overall importance as well (42.3 per cent), especially with regard to knowledge exchange across departmental, organizational and geographical boundaries (21.2 per cent) and with regard to open sharing of knowledge and open discussions (17.3 per cent). According to 15.4 per cent of the participants, trust and a sense of community are created through knowledge communities, which are a prerequisite for open knowledge exchange. Moreover, the importance of knowledge communities for the creation of an interdisciplinary understanding of the shared domain of knowledge and for exchange of knowledge between disciplines, respectively, were mentioned by 13.5 per cent of the participants. Their role for customer orientation, customer feedback and identification of customer needs and consumer trends was mentioned by 7.7 per cent and their impact on general improvement of communication processes was mentioned by 7.7 per cent as well (see figure 3.3).

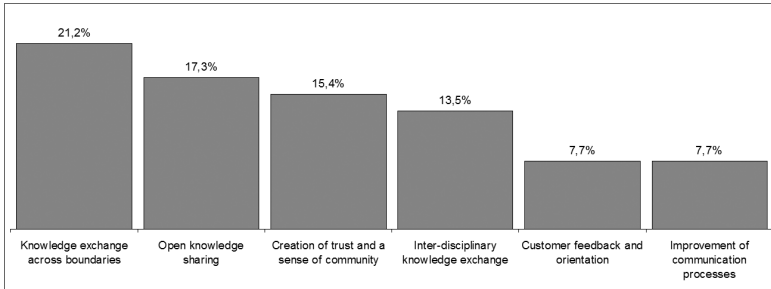


Figure 3.3: Expert Survey: The Role of Knowledge Communities in R & D

While according to a majority of the survey participants the role of knowledge communities in knowledge management in general is clearly focused on knowledge sharing and diffusion, their role in R & D and for innovative knowledge creation is less focused on a single role or task. Nevertheless, their importance for R & D was mentioned by nearly half of the survey participants (42.3 per cent), the same percentage of participants that mentioned their fundamental role for knowledge management in general. Taking a closer look at the role of knowledge communities in R & D and the answers given by the survey participants, we find that almost all aspects mentioned with regard to their role can be summarized as a role of knowledge sharing and facilitation of knowledge exchange (knowledge exchange across various boundaries and disciplines, open knowledge sharing, customer feedback, creation of trust and improvement of communication processes). Since results of the expert survey indicate a clear shift away from technical solutions to social aspects of knowledge management (see section 2.4), knowledge communities could serve as means for the purposeful integration of these aspects into knowledge management practices in R & D organizations and environments. Especially in R & D, knowledge communities could contribute to the facilitation and support of all kinds of inter-personal communication processes and intra- and inter-organizational knowledge transfer. Corresponding to these findings on the diffuse, but nevertheless fundamental role of knowledge communities for processes of knowledge transfer and communication, 84.6 per cent of the survey participants mentioned networks and communities as the most important methods of knowledge management in R & D (see section 4.2).

3.3 Sociological Perspectives and Limits of the Community Concept – “Classics” revisited

[T]he word ‘community’ sounds sweet. What that word evokes is everything we miss and what we lack to be secure, confident and trusting.

(BAUMAN 2001: 3)

3.3.1 About Perceptions and Conceptualizations of Communities

The popularity of approaches to organizational knowledge creation and transfer through the outline of a variety of community concepts make it necessary to take a closer look at the sociological foundations of theories about community. To come to the point, the term “community” is difficult to be sociologically defined as a distinct form of social organization. On the one hand, the community concept is rarely to be distinguished from other concepts of social aggregations. On the other hand, the term of community is used to describe different forms of social aggregations, “depending upon who is using it and upon the context in which it is used” (Nelson et al. 1965 (1960): 1). Thus, the term “community” inheres a tendency of being useless for scientific purposes (see Poplin 1979 (1972): 4). Nevertheless, manifold uses of the community concept or community “metaphor” are flourishing in social sciences, political debates, or management strategies nowadays.

So to speak, the community term holds a paradox position in sociology: on the one hand there is consensus that community is a fundamental unit of social organization, on the other hand there is little agreement on how best to describe it as a sociological entity (see, e.g., Poplin 1979 (1972): 11-12). From a sociological perspective, community is often defined with relation to the two concepts of society (“Gesellschaft”) and “social group”. Other approaches try to gain a new perspective by analyzing communities as networks of interactions.²⁶ This perspective lays the ground for the conceptualizations of communities as social networks and will be outlined in more detail in the next sections. Here, a brief abstract of the

²⁶Throughout the work presented here, community is perceived as a unit of social organization. Poplin, for example, introduces the conceptualization of community as a “Unit of Social Organization” as only one facet of a sociological perspective on community among the other approaches of “Community as a Territorial Unit” and “Community as a Psychocultural Unit” (see Poplin 1979 (1972): 8-22). But here the position is taken that territorial social units can be more precisely described by using distinct concepts than that of community. Moreover, territorial unity is only one characteristic among others of a special form of community, but not a defining characteristic of community in general (see section 3.3.2). The perspective of community as a psychocultural unit does not provide a distinct sociological focus on community, however, it is one aspect of community among others that play an important role and is critically discussed in later sections.

sociological study of communities lays the foundation to develop a network perspective from a theoretical view on communities and their role for organizational knowledge communication.

The (“classical”) definitions and perceptions of community presented below are often implicitly assumed by (not only sociological) authors who deal with communities or virtual communities, but they are rarely mentioned or systematically outlined. For this reason, we take a closer look at conceptualizations of community by revisiting the classical authors. Later studies and recent approaches to define and analytically structure the community concepts are always based on this basic literature and its modifications. Secondary literature is introduced to the discussed only when providing additional perspectives to the subject.

The sociological conceptualization of community as a distinct type of social organization dates back to the differentiation of “Gemeinschaft” (community) from “Gesellschaft” (society) in the seminal work by Ferdinand Tönnies (1920 (1887)).²⁷ Not identical, but in a similar way, Max Weber differentiates “Vergemeinschaftung” versus “Vergesellschaftung”. “Vergemeinschaftung” means for Weber a social relationship that builds on a subjective (affectual or traditional) feeling of belonging together (Weber 1980 (1921): 21). The sociological conceptualization and empirical analysis of the social groups was introduced by Leopold Wiese (1966 (1924/1928)) and has been further developed by George C. Homans (1968 (1951)). During the 1950s, definition of community was subject to numerous studies, especially by Anglo-American researchers. Hillery (1955) for example, analyzed 49 definitions of community in his paper “Definitions of Community: Areas of Agreement” (as cited by Jones 1997). In the last decades, the analytical perspective deals with community and society as two poles of a continuum (see the critical remarks by Otnes 1990). But still the idealistic transfigurations of community arise time and again, like the discussions about communitarism and virtual communities in the late 1980s and early 1990 vividly illustrate.

3.3.2 “Gemeinschaft und Gesellschaft” (Community and Society)

Tönnies (1920 (1887)) tries to identify the basic types of social relationships and their development over time. According to Tönnies, the differences between community and society are based on fundamentally different modes of social relationships between individuals. He considers a social relationship as being based on mutually affirmative human wills (as opposed to negative wills; see Tönnies 1920 (1887): 3).²⁸ Tönnies, then, distinguishes two modes of human wills: an

²⁷With his work, from the point of Poplin’s view, Tönnies is the “father of the typological tradition in sociology” (Poplin 1979 (1972): 125).

²⁸Tönnies’ construct of “human will” strongly reminds us of Max Weber’s construct of “social action”.

“ideal mechanical” and a “real organic” mode.²⁹ Following Tönnies, the social organization of society is based on ideal and mechanical relationships between individuals, while the social organization of community is based on real and organic social relationships (see Tönnies 1920 (1887): 4).

Tönnies considers community as an enduring social organization that results from social divisions of joy and labor through reciprocal relationships (Tönnies 1920 (1887): 10, 16-17). The members of a community are used to each other, their common memory helps to resist against tendencies of separation (Tönnies 1920 (1887): 7-8). A common language is a means for reaching mutual consensus (Tönnies 1920 (1887): 16-18).

As opposed to community, Tönnies considers society as a social form of organization that is limited in time and strongly characterized through the division of action, power, etc. (see Tönnies 1920 (1887): 33). Societal relationships are merely based on exchange in return for some other good or service (see Tönnies 1920 (1887): 33-43). While this mode of exchanges is based on expectations of direct returns, reciprocity of community is not direct, but diffuse and indirect between all members of the community.

From Tönnies perspective, the general societal will is not identical with common consensus, because it is a construct of purely mechanical relationships, while consensus is a mode of organic social relationships. Not identical to Tönnies’ dichotomy, but in a similar way, Max Weber differentiates “Vergemeinschaftung” versus “Vergesellschaftung”. “Vergemeinschaftung” means for Weber a social relationship that is build on subjectively felt (affectual or traditional) identity (Weber 1980 (1921): 21). “Vergesellschaftung” means for Weber a social relationship that is build on rationally (i.e., rational with regard to individual ends or to an absolute value) motivated exchange or relations of individual interests (Weber 1980 (1921): 21).³⁰ To put it clearly, society is supposed to be constituted on social relationships that are based on rational interests and calculations (see Quesel 1999: 365).

The conceptualization of community and society by Tönnies is undertaken in the framework of an evolutionary normative theory of social change. In his analysis, Tönnies states the continuous destruction of community as the dominant type of

²⁹Tönnies does not refer to Durkheim, but the terminology used by Tönnies strongly reminds us of Durkheims concepts of mechanical and organic solidarity.

³⁰In a footnote, Max Weber notes that his terminology reminds us of Tönnies’ dichotomy of community and society, but that Tönnies’ concepts have a much more specific content than it would be necessary for Weber’s purposes (Weber 1980 (1921): 22, footnote 1). The fact should be pointed out that Weber considers “Vergemeinschaftung” and “Vergesellschaftung” as ideal types of social relationships based on social action; however, as he writes in the next footnote, the majority of social relationships has the character of a mix between “Vergemeinschaftung” and “Vergesellschaftung” (Weber 1980 (1921): 22, footnote 2). For Tönnies, community and society are mutually exclusive types of social organization. Nevertheless, what he describes are ideal models as well since they can be rarely found in their pure forms (see Poplin 1979 (1972): 130).

social organization and the development of an individualistic, functionally differentiated society. Tönnies' influential study has led to various forms of romantic idealizations of community (e.g., as promoted by the German Nazi regime) and a cultural-pessimistic lament of its disappearance. And although, as mentioned above, the analytical perspective of a continuum between the two poles of community on the one side and society on the other has become widely accepted in the last two decades (see the critical remarks by Otnes 1990), the idealistic transfigurations of the community concept gain popularity time and again. Examples can be found in the communitarism movement (that considers community as a prerequisite for society, see, e.g., Etzioni 1995 (1993)) or the debates about virtual communities (see, e.g., Rheingold 2000 (1993); Smith 1992; Turkle 1996) that both came up at the end of the 1980s.

Territorial closeness has been considered as a fundamental characteristic of community for a long time. The research field of US-American sociologists known as "community studies" is mainly based on the spatial dimension as defining characteristic of (local) communities (many authors follow the definition of community by Hillery 1955: 118; see also Poplin 1979 (1972): 9-11).³¹ But Tönnies already distinguished between three types of community, and only one of them is fundamentally based on territorial organization: the "territorial community".³² The debate about the spatial dimension and its relevance for community, as it came up with the discussions about virtual communities (see above), was strongly influenced by the tradition of these so-called "community studies" and could probably have been more fruitful and lead to more satisfying results with an early return back to the work of Tönnies. For the debates about virtual communities the central focus is better not put on the spatial dimension of community, but on the dimension of shared spirit or, maybe even better, shared interest instead. The same is true for the research presented here: shared interest is considered a fundamental characteristic of knowledge communities (see section 3.4). Following Nelson et al. (1965 (1960): 10-12, 33-54), the confusion of space with the community itself is a result of the strong influence of space upon human relations. Or as Bernard (1973: 183) puts it: "The distribution of people in dispersed social systems is not only spatial but mental. [...] The bodies of people might be in one spatial area, but not their social worlds. The concept of locale has little meaning in this context. The

³¹To cite, for instance, Dennis E. Poplin: "In this book [...] we shall use the word *community* to refer to those social units of social and territorial organization that [...] may also be called hamlets, villages, towns, cities, or metropolitan areas" (Poplin 1979 (1972): 3).

³²As distinguished from "community of blood", i.e. family and other relatives, characterized through shared time (not in the meaning of simultaneous time, but in the meaning of a common memory in time), and from "community of spirit", based on shared "work and will" (see Tönnies 1920 (1887): 12-13).

concept of communality was once proposed to refer to these locale-independent relationships” (as cited by Jones 1997).

It must be noted that, from the perspective of Tönnies, shared interest is a characteristic to distinguish the “community of spirit” from the other two types of community. Nonetheless, it is hypothesized here that shared interest is a fundamental characteristic of every community and, according to the relative importance of shared interest within a particular community, it is at the same time a characteristic to distinguish different types of community. This note should be kept in mind when the dimension of shared interest is discussed as a basic feature of communities in later sections—due to the fact, that the focus of this study is put on knowledge communities and not on other types of community.

To put it briefly, community as outlined already by Tönnies is characterized through:

- permanence (stability in time),
- (indirect, diffuse) reciprocity,
- shared interest.³³

Knowing the work of Tönnies well, Max Weber developed a typology of community relationships.³⁴ He was also probably the first one to study economic aspects of the community types. Alfred Vierkandt developed a dichotomy of community types almost at the same time as Weber, distinguished through the degree of emotional relationships between the community members.³⁵ Theodor Geiger (1959 (1931)) perceives Tönnies distinction as a definition of the “group”. From his perspective, community is the “inner aspect” of a group (connected through a shared consciousness), while society is the “outer aspect” (connected through a shared order).

3.3.3 The Social Group

In 1940, E.T. Hiller (1941) presented a conceptualization of community as a special form of social group at the Mid-West Sociological Society. His conceptualization was based on sociological discussions of community, but did not refer to the studies on the social group that existed already, like those by Leopold von Wiese (1966 (1924/1928)), for example. Nevertheless, Hillers conceptualization

³³These basic characteristics can be found as well in the Brockhaus encyclopedia, for instance (see Drosdowski 1995: 1279).

³⁴Weber (1980 (1921)) distinguishes six types of community relationships: household community, neighborhood, the clique of relatives (Sippe), and forms of ethnic, political and religious communities.

³⁵Vierkandt distinguishes the personal community from the de-personal community (see Diemers 2001: 139, with reference to Bickel 1990: 21).

of community as a social group has influenced the sociological definitions of community until today. Therefore, this section presents a brief abstract on the concept of the social group first, then it outlines the relationships between the concepts of the social group and community.

The foundations of sociological studies on the social group were elaborated by the works of Leopold von Wiese (1966 (1924/1928)) and George C. Homans (1968 (1951)). Von Wiese describes in “Lehre von den sozialen Gebilden” (Wiese 1966 (1924/1928): 384-609) the basic characteristics of the social group (Wiese 1966 (1924/1928): 447-451)³⁶ that persist through numerous subsequent studies on the social group. According to von Wiese (1966 (1924/1928): 449), the ideal model of the social group is characterized through

- (relative) stability and continuity,
- organization,
- self-identity of the group,
- traditions and habits,
- mutual relationships to other units of social organizations,
- normative role model (“Richtmass”).

Following von Wiese’s perspective, the social group is different from mass due to its organization. The organization of the social group plays a crucial role for the division of functions between the members especially in larger groups. Through stability and continuity, the group develops its own traditions and habits. Self-identity creates an image of the group by its members (although not necessarily all individual members have a consistent, i.e. exactly identical image of their group). Von Wiese expresses a systemic perspective by introducing the group and their relationships to other units of social organization (i.e. their environment). He notices the fact that a group is never completely self-determined but is always influenced by mutual relationships to other social aggregates. Finally, a social group is characterized through a normative role model (normative guidelines). According to von Wiese, these role models can become manifest in people, material things, or behavior patterns.

Furthermore, von Wiese focuses on size and its role for social groups. According to von Wiese, size is not a constituent character of the social group, but a characteristic to distinguish different types of a social group.³⁷ The characterization as outlined by von Wiese laid the foundations for the analysis of the social

³⁶Basically, von Wiese distinguishes the concept of the social group from the concept of “mass” (Wiese 1966 (1924/1928): 407-446) and “Körperschaften” (Wiese 1966 (1924/1928): 508-535).

³⁷Von Wiese basically distinguishes small groups such as groups of two people and three people (called “A-groups”) and larger groups with four or more people (called “B-groups”) (see Wiese 1966 (1924/1928): 397-398, 462-503). Size is also a central characteristic in the studies of quantity (size and density) and quality (structural stability) of groups by Simmel (1992 (1908): 63-159).

group. Later sociological studies on the social group always draw back on these foundations, sometimes with only little modifications.

George C. Homans (1968 (1951)) focuses in his conceptualization of the social group on a characteristic that has been completely omitted by von Wiese. Homans (1968 (1951): 84) defines a group by the interactions of its members. By this definition, a primary group is defined as a group where all members interact with each other.

Homans points to the boundary definition problem of social groups. From his perspective, social groups are units of relative social organization since they are defined by the frequency of their members' interactions. Therefore, the social organization as a group becomes dependent on the level of analysis: “Note also that our definition of the word *group* is relative: the meaning depends on what persons and groups one chooses to consider outsiders to the group in question. [...] The decision, then, as to what will be called a group and what a subgroup depends on the level at which we wish to make the analysis” (Homans 1968 (1951): 85). On a general analytical level, the conceptualization of the social group dissolves with regard to its distinctiveness without taking into account other constitutive criteria.

Friedhelm Neidhardt (1979) provides a definition of the social group that includes the perspectives of both von Wiese and Homans. He defines the social group as a social system that is determined through direct and diffuse relationships between its members and relative continuity.³⁸ Neidhardt's systemic perspective helps to pay attention to the important external relationships and the environment of social groups which play an essential role for the case of knowledge communities in the later sections. The conceptualization of groups as social systems (as

In addition, von Wiese distinguishes between natural versus artificial and obligatory (“normierte”) groups versus groups of free choice (see Wiese 1966 (1924/1928): 398).

³⁸System theory and its application is not subject to this thesis and will not be introduced to further detail here. However, sometimes system theory can provide additional perspectives and, therefore, will be included with single remarks if they are of substantive value. As Poplin notes: “In reality, the social system approach is probably most accurately viewed as a refined version of the ‘community as a social group’ approach. [...] The application of social system theory to the community does not appear to be an entirely new innovation as it might first be thought. Rather, social system theory incorporates the social group approach into a more comprehensive frame of reference.” Nevertheless, “it does make clear the importance of the community as a unit of social organization” (Poplin 1979 (1972): 13). In Luhmann's system theory, systemic linkages are provided through communication and not through action (Luhmann 1984: 191-241), i.e. social systems basically consist of communication, and by the attribution of communication they exist of action. To consider communication as a basic element of social systems is a necessary result of the central position of an “observer” within Luhmann's theory of social systems: since social action always involves intentions, and intentions can only rarely be observed, Luhmann focuses on the observable characteristic of communication. Here, the theory of social systems provides a framework that is not really suitable for analyzing processes of knowledge communication with a focus on human individuals and social linkages since human individuals are widely neglected by system theory (with the exception of “psychic systems”, or, at its best, as “persons”).

basically outlined by von Wiese already) makes a distinction between the group and its environment through boundaries, i.e. by creating and stabilizing differences with regard to the environment. The widely recognized contribution by Neidhardt is his elaboration of the double nature of the group's boundaries: a social group is limited by an internal and by an external boundary. The external environment ("Außenwelt") of a group is the environment as commonly understood, i.e. the total of people, institutions and events external to the group's membership. The internal environment ("Innenwelt") of a group describes the feelings, needs and moral values of the group's members that do not belong to the context of the group but, nonetheless, do individually persist at the same time. Thus, not only the groups are mere situational systems that show the ability of latency, but the group's members also persist as individual persons (or, from the perspective of system theory, rather as "psychic systems") due to their relative continuity and do not dissolve into the social aggregate of the group. From a theoretic perspective, Neidhardt outlines basic characteristics of the interplay between the individual person and the social group that are often neglected in discussions about the role of communities for organizational knowledge communication. They are not only of overall importance in general, they are of central relevance for knowledge management in practice as well.

The systemic perspective can also be found in the work by Hiller (1941: 191), when he writes that the members of the group as agents construct the system in which they are means and objects of valuation to one another. According to Hiller (1941: 191), these aspects constitute the social aspect of the group as a system, and members are viewed from the standpoint of their actions or functions which they perform in the given system, not from the standpoint of their total mental life.

Hiller introduces the concept of locality to distinguish community from social group. He speaks of habitat, locality, or area: "the habitat or locality as a datum in a social reference, must be hypothecated as an analytical element differentiating the community because it either is valued as a collective possession and symbol or serves as means to ends" (Hiller 1941: 198). Like Hiller, other authors also focus on the territorial dimension as the central feature to distinguish community from other forms of social group (see, e.g., Reiss 1959: 127; Lowry and Rankin 1969: 366-368). As already outlined above, the spatial concept as a defining criterion for community inheres some basic difficulties. But when Hiller (1941: 198) writes with regard to community that "the locality becomes identified as a social possession and 'place' is experienced as a 'social space' within which certain duties and rights and other normatively defined relations obtain", we can, indeed, perceive locality more as a social space than as a territorial area (although there is little doubt that Hiller means the territorial locality).

3.3.4 Limits of the Community Concept

The separation of the economic sphere (“Arbeitswelt”) and the private sphere (“Lebenswelt”), as described by Max Weber, is a basic characteristic of modern capitalism. At the same time, this development inheres a separation of the producers from the sources of their livelihood, as Karl Polanyi added invoking Karl Marx’s insight (see Bauman 2001: 29). The separation between economic sphere and private sphere, between public sphere and private sphere, between business and private household, is—in the terminology of Weber—above all a separation of spheres of values. Today’s debates about processes of community building in the organizational context, like communities of practice or knowledge communities in the field of knowledge management, mean to transfer values from the private sphere into the economic sphere. This is the basic limit of the application of the community concept in the sphere of business management and organization studies.

To cite Bauman (2001: 1-5),

“Words have meanings: some words, however, also have a ‘feel’. The word ‘community’ is one of them. It feels good: whatever the word ‘community’ may mean, it is good ‘to have a community’, ‘to be in a community’”. “[C]ommunity is a ‘warm’ place”. In a community “we can count on each other’s good will”. In a community, “[o]ur duty, purely and simply, is to help each other, and so our right, purely and simply, is to expect that the help we need will be forthcoming”. “[T]he word ‘community’ sounds sweet. What that word evokes is everything we miss and what we lack to be secure, confident and trusting”. And, after all, “[t]here is a price to be paid for the privilege of ‘being in a community’”: “Being human, we can neither fulfil the hope nor cease hoping. [...] We cannot be human without both security and freedom, but we cannot have both at the same time and both in quantities which we find fully satisfactory.”

According to Bauman, Robert Redfield (1971) would agree with Tönnies that within a community there is no motivation toward reflection, criticism, or experimentation. But as Bauman continues, Redfield “would hurry to explain, this is the case because community is true to its nature (or to its ideal model) only in as far as it is *distinctive* from other human groupings (it is apparent ‘where the community begins and where it ends’), *small* (so small as to be all within view of all its members), and *self-sufficient* (so that, as Redfield insists, it ‘provides for all or more of the activities and needs of the people in it. The little community is a cradle-to-the-grave arrangement’)” (Bauman 2001: 12).

Referring to Tönnies, Bauman points to the characteristic that community means a shared understanding of a “natural” and “tacit” kind, and thus it would not survive the moment in which understanding turns self-conscious. Although a basic feature of community is commonly defined as having a self-identity of the community by its members, that of a shared feeling of belonging to the community, “[s]poken of” community (more exactly: a community speaking of itself) is a contradiction in terms” (Bauman 2001: 12). And an idealistic orientation toward community inheres a reduction of the distance between the individual human beings through their strong organic bonds (Plessner 2002 (1924): 28).

As Eric Hobsbawm (1994: 428) observed, “never was the word ‘community’ used more indiscriminately and emptily than in the decades when communities in the sociological sense became hard to find in real life”. To conclude with Raymond Williams, the remarkable thing about community is that “it always has been” (as cited by Bauman 2001: 3). And Bauman (2001: 3) adds to Williams: “or that it is always in the future. ‘Community’ is nowadays another name for paradise lost”.

3.4 Knowledge Communities, Communities of Practice, Knowledge Networks – Expert Views³⁹

With hundreds of miles open to habitation, people still tend to build their houses close to the houses of other people. No matter the continent, no matter the culture, no matter the era, this is what we do. And to find an individual choosing to live completely alone in the world is so rare as to confirm that human beings need to live amongst each other; indeed we are compelled from within ourselves to group together. Humans are social animals; it is our nature to be so.

(YEATTS 1997)

3.4.1 Background

In the last few years the social perspective has emerged as the dominant paradigm in information and knowledge management studies. First generation knowledge management, characterized by a technical and technological process view, has given way to new approaches that examine social dimensions of knowledge creation, transfer and management (see also sections 2.3 and 2.4). This shift of focus takes into account the perspective that the majority of individual knowledge transfer does not follow formal hierarchies or processes but is instead driven by personal and informal communications. Such a social constructionist view of knowledge exchange considers not only single individuals but also social aggregates and their structural patterns. Even so, despite a growing literature on the socially-derived related concepts of knowledge communities (see, e.g., Botkin 1999; Erickson and Kellogg 1999, 2001; Lesser et al. 2000; Schmidt 2000), communities of practice (see, e.g., Brown and Duguid 1991; Lesser 2001; Wenger 1999) and knowledge networks (see, e.g., Collinson and Gregson 2003; Liyanage et al. 1999; Powell 1998; Seufert et al. 1999a,b), there is confusion over their conceptual and applied distinctiveness. Could it be, for example, that they are just different labels for the same phenomenon? Or are there justifiable and valid differences that demand a more careful and reflective use of terminology? This section provides basic steps to the exploration of similarities and differences between the concepts of knowledge communities, communities of practice, and knowledge networks.

Despite the existence of concise theoretical constructs that enable us to identify the unique concepts of communities of practice, knowledge communities and knowledge networks, there remains a great deal of definitional misinterpretation

³⁹An earlier version of this section has been published as Müller-Prothmann (2006a), Copyright 2006, Idea Group Inc. Reprinted by permission.

and misapplication in both the literature and in practice. Below the three concepts are introduced before examining some of the most common of misconceptions and practical inconsistencies.

Knowledge communities are “groups of people with a common passion to create, share, and use new knowledge for tangible business purposes” (Botkin 1999: 30). After Botkin, they are characterized through shared values and a common commitment that create a sense of belonging, trust and openness amongst their members. Thus, knowledge communities provide a context for the sharing of knowledge. Moreover, “they are based primarily on the sharing of knowledge rather than practice” (Scarbrough and Swan 2001: 13). Indeed, while Scarbrough and Swan’s analysis of knowledge communities in innovation management distinguishes between IT based and community based approaches, most authors focus on knowledge communities as communities based on (or at least supported by) IT systems, often known as virtual knowledge communities (see, e.g., Diemers 2001; Erickson and Kellogg 1999; Schmidt 2000).

Communities of practice are commonly constituted through shared work practice over a period of time (see Brown and Duguid 1998). Often, they are compared to an apprenticeship model where soft knowledge is transferred through the situated learning that takes place in apprenticeship environments. But the central communities of practice concept of “legitimate peripheral participation” is not restricted to apprenticeships alone. Rather, communities of practice “imply participation in an activity about which all participants have a common understanding [...]. The community and the degree of participation in it are in some senses inseparable from the practice” (Hildreth et al. 2000: 29). From this perspective, communities of practice are a social context for “learning as legitimate peripheral participation” (Hildreth et al. 2000: 28). According to Lave and Wenger (1991), communities of practice may be oriented toward hierarchy or collegiality. Hierarchical communities of practice allow for socialization of novices through expert masters into local understandings of the meaning of the work through opportunities for “legitimate peripheral participation” (Lave and Wenger 1991). In collegially based communities of practice, “informed dialogue among members is central to the on-going co-evolution of meaning and capabilities” (Liedtka 1999: 7).

While one of the defining characteristics of a community (of a knowledge community as well as of a community of practice) is its bounded nature (it has a boundary in terms of social interaction and membership), networks (and, of course, knowledge networks as well) are not characterized through clearly defined boundaries, but either through defined attribute data (address space) or through relationships wherever they may go (depending on the conceptual framework and/or the empirical approach that are used for a specific case; on the boundary specification problem in network analysis see, e.g., Laumann et al. (1989) and also sections

3.5.2, 4.6.3 and 5.3.5). Discussions of network structures in management literature were influenced for example by Drucker (1989) and Savage (1990). Networks can be seen as a third form of organization (Powell 1990) or as a hybrid form of organization between market and hierarchy (Thorelli 1986). All these discussions state the increasing importance of networks. Networks can be distinguished according to their level as between individuals, groups, communities, organizational units (departments), organizations (companies), collectives of organizations or even between societies. Networks in knowledge management tend to stress the importance of informal networks (as opposed to formalized networks) and have a long history of study. Often also, the network perspective in knowledge management focuses on the activity of “networking” (see also section 3.5.2). Seufert et al. (1999b: 184) “use the term ‘knowledge networking’ to signify a number of people, resources and relationships among them, who are assembled in order to accumulate and use knowledge primarily by means of knowledge creation and transfer processes, for the purpose of creating value.” They also distinguish between emergent and intentional knowledge networks: “Intentional knowledge networks are seen as networks that are built up from scratch, whereas emergent knowledge networks already exist but have to be cultivated in order to become highperforming” (Seufert et al. 1999b: 184).

Although the unique dimensions of the three distinctive concepts of knowledge communities, communities of practice and knowledge networks can be clearly discerned, such distinctions are rarely found in the literature. Following Botkin, the difference between communities of practice and knowledge communities is that communities of practice “are informal groups, shaped by circumstances, visible mainly to social anthropologists”, whereas knowledge communities “are purposely formed [...] and their purpose is to shape future circumstances. They are highly visible to every business person on the organization.” (Botkin 1999: 31) Scarbrough and Swan try to distinguish knowledge communities from communities of practice in that they are based primarily on the sharing of knowledge rather than practice, however, they are able “to interface” with existing communities of practice (see Scarbrough and Swan 2001: 13). Moreover, bringing into play a network perspective, Swan et al. develop a “networking community” perspective on knowledge management: “Networking as a social communication process, which encourages the sharing of knowledge among communities” (Swan et al. 1999: 263).

For a systematic categorization on communities of practice, formal work groups, project teams, formal networks and informal networks see the snapshot on types of network-like structures in table 3.1.

Form of organization	Purpose	Membership	Cohesion	Lifetime
Community of practice	to develop members' capabilities; to build and exchange knowledge	self-selection	passion, commitment, identification with the group's expertise	as long as there is interest in maintaining the group
Formal work group	to deliver a product or service	formal affiliation	job requirements and common goals	until the next reorganization
Project team	to accomplish a specified task	formal assignment (by senior management)	milestones and goals of the project	until the project has been completed
Formal network	to accomplish a specified task within a certain domain of knowledge	formal assignment (by senior management)	job requirements and common goals	until the next reorganization or until the task is completed
Informal network	knowledge exchange within a certain domain of knowledge	voluntary involvement (colleagues, business acquaintances, friends)	mutual needs and individual interest	as long as people have a reason to connect

Table 3.1: Types of Network-Like Structures: A Snapshot
(following Wenger and Snyder 2000: 142 and Seufert et al. 2003: 109)

3.4.2 An Expert View

From December 2003 until January 2004, the author held the second round of the expert survey (about the survey see also section 2.4.1). The second round focused on explorative study of the views and interpretations that expert knowledge management academics and practitioners have of the three distinct concepts of knowledge communities, communities of practice and knowledge networks. In the study, the experts were asked to define the three concepts and to outline the differences between each other.

The criteria used to distinguish the three concepts were initially derived from a study of the literature on communities and social networks. They were then tested for validity using a qualitative survey of expert knowledge management academics and practitioners. Using this approach, the central criteria that distinguish the different concepts were identified as follows:

- goal orientation,
- organization,

- shared practice,
- size,
- identity,
- cohesion.

Goal orientation focuses on whether the network/community is oriented towards a defined target or whether the common intention is more diffuse. Organization of the network/community can be formalized or informal. The members of the network/community may share practice or not, that is they work together or do not necessarily work together. The number of participants of the network/community is its size, large or small. Identification of the network/community members as a group and their sense of community is a matter of strong or weak identity. The network/group can be densely knit or loosely coupled depending on intensity, frequency and type of the members' contacts and the continuity of the network/community. This is expressed by cohesion. The next section uses the derived criteria and a qualitative analysis of the expert survey to summarize the similarities and differences between the concepts of knowledge communities, communities of practice and knowledge networks.

3.4.3 Similarities and Differences

First of all, the results demonstrate that the concept of communities is distinctive from knowledge networks. According to the experts' views, knowledge communities as well as communities of practice:

- try to achieve a common purpose, that is with specific tangible focused goals (relatively high goal orientation),
- are more formal (than networks) and can be recognized as such (relatively formal organization),
- are active and exchange driven, the members share practice (strong shared practice),
- consist of a relatively small number of members and membership is relatively clearly defined (small size),
- members know that they belong to the community, they share a stronger sense of identity, which at its best can be broadcasted by a clear name, logo or organization (strong identity),
- are densely connected, show a high rate of interactions and personal affiliation in form of (at least partial) face-to-face communication, develop mutual commitment and trust (high degree of cohesion).

Knowledge networks on the other hand are characterized by the survey participants as

- emergent structures of organizing knowledge across the organization, with participants who contact each other in current cases, driven by “finding the right expert” (diffuse goal orientation),
- informally organized (since they are an emergent structure of organizing knowledge) and thus cannot be recognized as such; in addition, they build a structure that might surround and interlink a number of communities (relatively informal organization),
- passive, without continuous participation of its members (without or only with little shared practice),
- with a relatively high number of participants, open membership (the network border is not clear) (large size),
- without (or with little) sense of belonging and identification of the participants with the network (weak identity),
- characterized by a low rate of interactions and low continuity, sparsely connected, loosely coupled (“I know someone who...”) (low degree of cohesion).

Using the criteria of goal orientation, organization, shared practice, size, identity and cohesion, communities and networks can be described quite clearly as different social entities. One participant of the survey illustrated their relative distinctiveness with regard to the appropriate internet tool for communication: the tool for a community is the discussion forum, while a mailinglist is the tool for a network. In figure 3.4, communities and knowledge networks are illustrated with regard to goal orientation, (formal) organization, shared practice, (large) size, (strong) identity, and (high degree of) cohesion. These criteria build the vertices of a hexagon that represent the (extreme) poles for each mentioned criterion.

Knowledge communities and communities of practice are much more difficult to distinguish. While only very few participants do not distinguish between the different concepts of knowledge communities, communities of practice, and knowledge networks (especially practitioners who even ask about the usefulness of a precise definition of the different concepts), nearly half of the participants do not see any differences between knowledge communities and communities of practice. Instead, they consider a knowledge community as a kind of community of practice (or vice versa). Nonetheless, analysis of the answers still identifies important differences between knowledge communities and communities of practice:

- *Goal orientation:* while communities of practice are focused on a specific topic, like for example the development of a concrete product (that is they are linked to a specific business process with a relatively clearly defined target), the domain of knowledge communities is more general.

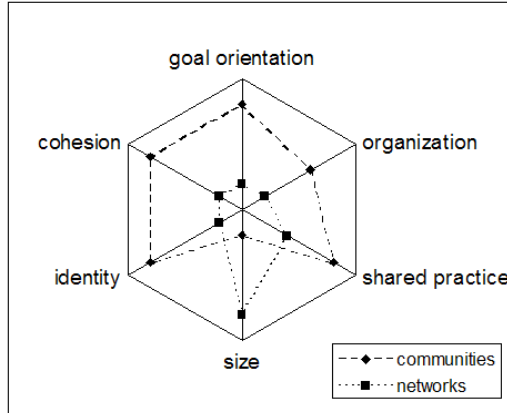


Figure 3.4: Expert Survey: Communities versus Knowledge Networks

- *Organization*: in many cases, communities of practice are formally established in organizations, or at least they are officially supported, with a specific target. Knowledge communities are in most cases self-organized, more general, with a more altruistic motivation of the participants.
- *Shared practice*: communities of practice are organized for the purpose of practical implementation of knowledge derived from experience, knowledge communities are organized for research, development and innovation, that is, for the generation of new knowledge. Members of a community of practice work together; knowledge community members do not necessarily have to work together. Focusing on practice means “how to” (communities of practice), while knowledge is more general (knowledge communities).
- *Size*: size is not a distinguishing criterion between knowledge communities and communities of practice (some experts mentioned that the latter is smaller in size).
- *Identity*: while a strong sense of community develops through shared work practice in the case of communities of practice, identification with the community in case of knowledge communities is based on the awareness of the collective knowledge and on keeping the collective knowledge.
- *Cohesion*: cohesion is viewed as being identical for communities of practice and knowledge communities by nearly all survey participants; only few viewed communities of practice as being based on more personalized relationships than knowledge communities.

The study shows that there are some qualitative differences between communities of practice and knowledge communities. One practitioner expert put their distinctiveness in the context of organizational levels. In his view, communities of practice are a form of organization on a meta level above the baseline organization, while knowledge communities are a form of organization on a meta-meta level. In figure 3.5, communities of practice and knowledge communities are illustrated in the hexagon with regard to their orientation toward the (extreme) poles of each criterion.

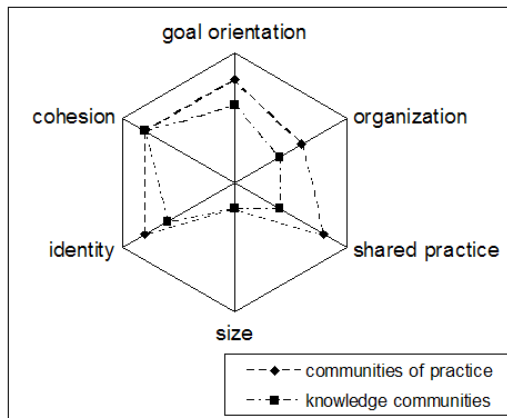


Figure 3.5: Expert Survey: Communities of Practice versus Knowledge Communities

3.4.4 Conclusions

The results of the study show that knowledge networks are considered as relationships of a large number of loosely coupled participants with a diffuse common domain of knowledge and without clearly defined boundaries. Communities of practice are understood as relatively small groups of people who are strongly bound together founded on core concepts of trust, shared work practice and a common goal. Knowledge communities on the other hand are defined as relationships of trust between people within a wider domain of knowledge, but are difficult to distinguish precisely from communities of practice.

This section suggests that a greater theoretical foundation is necessary to facilitate the development of a common language and greater understanding of the popular concepts of knowledge communities, communities of practice and knowledge networks. From a theoretical perspective, a comparative focus on the dif-

ferent concepts and the relationships between them is necessary. Moreover, future attention is required to the “divide” that presently exists between well-founded theoretical conceptualizations on the one hand and the use and interpretation of these concepts in the knowledge management practitioner community on the other. To resolve these inconsistencies, new forms of research that integrate theoretical distinctions, empirical studies, and practical relevance are needed. The expert study described here is a first step in this direction and no more than an exploration of this subject and a basis for further research and discussions. Further research into theoretical foundations, empirical studies and practical relevance could lead to a revised set of conceptualizations in theory and applications in practice of knowledge communities, communities of practice and knowledge networks.

3.5 Social Network Perspective and Knowledge

Network thinking is poised to invade all domains of human activity and most fields of human inquiry. It is more than another helpful perspective or tool.

(BARABÁSI 2003: 222)

3.5.1 Knowledge Community and Its Critiques

The brief outline of sociological perspectives of community and its limits in section 3.3 and the exploration of similarities and differences between the concepts of knowledge communities, communities of practice, and knowledge networks in section 3.4 leads to the question, whether it really is of scientific value to conceptualize any type of social aggregates within organizations, even in the field of informal knowledge communication, as a community. On the one hand, much is to be gained by pinpointing the similarities among what may at first glance appear to be dissimilar units of social organization. On the other hand, if we refer to the community in the context of organizational knowledge communication, we may be stretching the term community to the point where it loses much of its conceptual power. Then, the term loses its usefulness for purposes of scientific communication as well. And indeed, as outlined in the previous sections, the term community is not only of limited value from a strictly sociological perspective of its definition, moreover, we have to be very careful to transfer values from what Max Weber called the private sphere into the economic sphere since they are spheres of values that are completely separated in character.

Basically, knowledge communities are assumed to provide a social context for the sharing of knowledge. In the literature, knowledge communities are commonly described as groups of people that share norms and values and are connected through mutual permanent relationships and interactions with a common interest to create, share, and use new knowledge for tangible business purposes (see, e.g., Botkin 1999; Diemers 2001; Erickson and Kellogg 1999, 2001; Lesser et al. 2000; Schmidt 2000). This definition strongly reminds us of the sociological focus on community and its basic features of permanence, reciprocity, and shared interest as outlined above. Whereas the transfer of the community concept is problematic from a general point of view (see section 3.3.4), the critical points can be put in concrete terms with regard to the basic features of community as well:

- The widely assumed reciprocity of community can be neither adopted for social organization within formal organization in general nor in so-called

knowledge communities in particular. Since a knowledge community is defined with regard to exchange of knowledge, relationships of its members are organized around this knowledge. Then, community relationships are no longer indirect and diffuse, but directly and one-dimensionally related to a specific domain of knowledge. The relationships between community members are goal-oriented, purpose-related, and based on (more or less) direct returns.

- The shared feeling of belonging to the community and sense of shared identity must be seriously doubted for the case of so-called knowledge communities. Due to the “natural” and “tacit” kind of community, not only is a community speaking of itself a contradiction in terms (see section 3.3.4), but even more is the establishment and management of a community, as it has become a popular approach in organization and management literature for the case of so-called communities of practice (see also sections 3.1.5 and 3.4).
- Finally, the permanence, i.e. stability in time, has to be considered as a critical issue of community especially within formal organizations. In this case, belonging to the community is bound to belonging to the formal organization. The diffuse mutuality of permanent relationships assumed for community is replaced by a very clear and simple exit option: to leave the organization means to leave the community. The case might be somewhat different for the case of inter-organizational communities—but even here as well, the two critical points outlined above still apply and this type of inter-organizational social organization can be conceptualized much better in terms of social network and social capital as outlined below (see section 3.5.3).

What remains of the features of community for the case of so-called knowledge communities, after all, is the characteristic of shared interest. The interest shared by the members of a knowledge community is to create, exchange, and use knowledge for tangible business purposes, or more generally speaking: within a specified domain of knowledge. This leads to the insight that it is of more scientific value—as well as more useful for business practice—to speak of knowledge networks rather than of knowledge communities.

3.5.2 Network Definitions and Social Network Perspectives

A network is defined by its nodes and relations. Network nodes are clearly identified by labels, which allow to distinctively address them (therefore, we talk of “addresses” and a network can be defined as an “address space”). Formally, the set of network nodes N is defined by $\{n_1, n_2, n_3, \dots, n_g\}$ (see also section 5.1.3).

A social network refers to social entities as nodes, like people, organizations, nations, etc. (see also Wasserman and Faust 1994: 17-18). Social network analysts usually refer to these social entities as so-called actors. This use of the term actor “does not imply that these entities necessarily have volition or the ability to ‘act’” (Wasserman and Faust 1994: 17). Most often, social network analysis puts its focus on a collection of actors that share a special attribute (see below), i.e. that are all of the same type. These kinds of collections of network actors are called one-mode networks.

The linkages between the individual network nodes, i.e. actors, are called ties. Ties are the links, contacts, and connections which relate one actor to another. “The defining feature of a tie is that it establishes a linkage between a pair of actors” (Wasserman and Faust 1994: 18). A relationship on the basic level of two actors is also known as a dyad, a linkage between three actors as a triad, consisting of three potential pairings. Network analysis is mostly concerned with the examination of relationships not only between dyadic or triadic actors, but among a larger set of actors. These larger sets of actors are the collection of all actors on which ties are to be measured. Then, a relation is the collection of ties of a specific kind among a set of actors (see also Wasserman and Faust 1994: 20). Relations of a network “cannot be reduced to the properties of the individual agents themselves. Relations are not the properties of agents, but of systems of agents; these relations connect pairs of agents into larger relational systems” (Scott 1991: 3) (see also table 3.2).

Based on the definitions of actors and relations, a social network can be defined as “a finite set or sets of actors and the relation or relations defined on them” (Wasserman and Faust 1994: 20). Taking a closer look at networks, we need to include attribute and affiliation data in a next step.

Specific characteristics of network actors are described by attributes. “Attribute data relate to the attitudes, opinions and behaviour of agents [or: actors], in so far as these are regarded as the properties, qualities or characteristics which belong to them as individuals or groups” (Scott 1991: 2). Attribute variables (also known as composition variables), “are of the standard social and behavioral science variety, and are defined at the level of individual actors” (Wasserman and Faust 1994: 29).⁴⁰

Studying social networks, network actors are commonly identified by a special kind of attributes, better known as affiliations. Affiliations include, for instance, membership in an organization or organizational (sub-) unit, participation in an event, etc. Affiliation variables can be used to model an affiliation network, i.e. a set of events to which the actors belong (see also Wasserman and Faust 1994:

⁴⁰In addition to attribute and relational data, Scott (1991: 3) distinguishes ideational data, “which describe the meanings, motives, definitions and typifications themselves”.

30). Based on an affiliation matrix, we can re-arrange data to form an actor-by-actor matrix, i.e. relationships of actors who participate in the same event. An actor-by-actor matrix is known as an adjacency matrix (see also section 5.1.3).

While addresses of network nodes (like “names”) must be distinctively defined within a specific network, not every single network actor must know all network addresses. Network actors can be indirectly connected, i.e. indirectly linked through other actors. Neither do network nodes necessarily need to be connected with each other, nor do network nodes or even sets of network nodes need to be connected to the rest of the network; i.e., relations (and whole sets of relations) may be empty. “The restriction to a *finite* set or sets of actors is an analytical requirement. Though one could conceive of ties extending among actors in a nearly infinite group of actors, one would have great difficulty analyzing data on such a network. Modeling finite groups presents some of the more problematic issues in network analysis, including the specification of network boundaries, sampling, and the definition of the group” (Wasserman and Faust 1994: 19-20; on the boundary specification problem in social network analysis see also section 4.6.3).

The network concept can be distinguished as three different approaches:

- First, as primarily understood in this work, social network analysis in a narrow sense explores network structures, i.e., for our purposes here, communication of knowledge in social and organizational networks. It provides the theoretical framework to conceptualize knowledge communication and generation of innovations (see section 4) as well as a method for empirical analysis and a practical tool for leveraging organizational knowledge communication (see chapter 5).
- Second, networks are subject to research as a distinct type of organization, i.e. networks as a third form of organization beyond market and hierarchy (see also section 4.4.1).
- Third, networking can be understood as an activity. Particularly entrepreneurship is often studied with regard to networking activities (see also section 4.5).

The value of a social network perspective for knowledge communication within and between organizations can be expressed in terms of social capital (see below). This has the advantage of making a conceptualization by using the approach of social network analysis itself rather than introducing explanations external to the concept.

3.5.3 Social Networks and Social Capital

From the perspective of social network analysis, social capital is “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal 1998: 243). The term social capital has its origins from community studies, again, in that it stresses the importance of personal relationships. Personal relationships that have developed over time are assumed to provide the basis for trust, co-operation, and collective action (Jacobs 1961). The concept of social capital has been widely recognized in its application by Coleman (1988) and his studies on the role of social capital in development of human capital, and the cultural-pessimistic studies by Putnam (1993, 1995, 2000, 2002), who suggests a decline in social capital within US-American communities.

Following Pierre Bourdieu (1983, 1987 (1979)), the central proposition of social capital is that networks of relationships constitute an important resource for social action and the conduct of social affairs due to the granting of access to various resources. Bourdieu examines how social capital can be derived from membership in specific networks where there is control of access.

According to Burt (2000: 3), the common core of all definitions of social capital is that social capital is considered as a metaphor of advantage: “Better connected people enjoy higher returns”. But, as Burt (2000: 4) continues, “[d]isagreements begin when the metaphor is made concrete in terms of network mechanisms that define what it means to be ‘better connected’”. From a network perspective, the two mechanisms most often cited for their influence on social capital are protection within closed networks and brokerage across structural holes (see Burt 1992; see also sections 5.1.4 and 5.7). While commonly the focus is put on the network mechanisms responsible for social capital effects rather than on trying to integrate across metaphors of social capital, Burt (2000) states that social capital is more a function of brokerage across structural holes than closure within a network, but that nonetheless certain contingency factors exist.⁴¹ He calls his hypothesis “complimentary” in that closure can be a significant contingency factor for the value of brokerage, and structural holes are the source of value added, but network closure can be essential to realizing the value buried in the holes. So, “beneath the general agreement about social capital as a metaphor lie a variety of network mechanisms that make contradictory predictions about social capital” (Burt 2000: 2).

Following Burt, one aspect of social capital in terms of network structure is based on the facilitation of trust. “Replacement happens when market information is so ambiguous that people use network structure as the best available informa-

⁴¹Structural holes are the weak connections between groups (clusters, cliques) of densely connected actors. Closure of networks means high network density, i.e. a high global level of linkage.

tion” (Burt 2000: 4). His explanation is focused on the role of information in economic arrangements. In the argumentation of White (1981), information is so ambiguous for firms that competition is more accurately modeled as imitation through observation. In Podolny’s concept, information quality is also the problem of status as market signal (Podolny 1993; Podolny et al. 1997; Benjamin and Podolny 1999). According to Burt, the two mechanisms of closure and brokerage “do not assume that networks replace information so much as they affect the flow of information and what people can do with it” (Burt 2000: 6). But “[b]oth mechanisms begin with the assumption that communication takes time, so prior relationships affect who knows what early” (Burt 2000: 6). Thus, closure affects access to information (Coleman 1990: 310; Coleman 1988: S104) and, as emphasized by Coleman, “it facilitates sanctions that make it less risky for people in the network to trust one another” (Burt 2000: 7). This leads Burt (1999, 2000, 2001) to the conclusion that network structures facilitate trust.

The central aspect of social capital in terms of network structure as outlined by Burt (2000: 8-12) is his argumentation of structural holes, i.e. of brokerage as social capital. While the closure argument puts its focus on social capital from a static perspective, brokerage is about change. He argues that information diffusion underlies the social capital of structural holes (Burt 1992). Social capital is described as a function of brokerage opportunities. It draws on network concepts that emerged in sociology during the 1970s, such as those of Granovetter’s strength of weak ties (Granovetter 1973), Freeman’s betweenness centrality (Freeman 1977), Cook and Emerson’s benefits of having exclusive exchange partners (Cook and Emerson 1978), and his own structural autonomy creation through complex networks (Burt 1980b). As he admits, “[m]ore generally, sociological ideas elaborated by Simmel (1955) and Merton (1957 (1949)a) on the autonomy generated by conflicting affiliations are mixed in the hole argument with traditional economic ideas of monopoly power and oligopoly to produce network models of competitive advantage” (Burt 2000: 9).

In contrast to the closure argument, which is “about advantage that go to people in a cohesive group”, the hole argument is “about advantages that go to people who build bridges across cohesive groups” (Burt 2000: 12). Therefore, Burt considers brokerage as the more difficult strategy, so that “[t]he greater cost of brokerage must be off-set by greater gains” (Burt 2000: 12). The concept of brokerage will be elaborated in more detail as a central concept for the use of social network analysis as a knowledge management method (see section 5.7).

3.5.4 The Social Capital of Knowledge

Nahapiet and Ghoshal (1998) explore the role of social capital in intellectual capital generation. They suggest considering social capital with regard to three dimensions: structural, relational, and cognitive. These three dimensions are strongly interrelated, of course.

- The structural dimension of social capital focuses on the ability of the individual person to make connections with other people within an organization due to the existing network structure. (Informal) communication channels are assumed to reduce the efforts to get certain information. This dimension relates to the aspects of network ties (access through who you know), network density and hierarchy as well as the existence and facilitation of weak ties, and on appropriate organization (organizational links for knowledge transfer between different contexts).
- The relational dimension of social capital focuses on the importance of developing and ensuring interpersonal relationships. This dimension relates to trust (the predictability of another persons actions in a given situation), norms (shared set of values), obligations (reciprocity and commitment), and identification with the related network members (or the whole network).
- The cognitive dimension of social capital focuses on the role of a shared cognitive context between people. Meaningful communication is an essential part of social exchange in general and for knowledge sharing and combination processes in particular. As outlined by Boisot (1995) or Boland and Tenkasi (1995), for example, meaningful communication requires at least some sharing of context between two people to share knowledge. Thus, this dimension relates to shared codes, shared language⁴², and shared narratives (see, e.g., Wenger 1999; Orr 1990).

3.5.5 Definition and Concept of Knowledge Networks

Following the definition of (social) network given above (see section 3.5.2), a knowledge network is a social network based on the relation of knowledge within a specified domain (see also section 5.1.3). With regard to organizational network studies, identification of network members is mainly through the use of specific affiliation data (like organizational membership, specific knowledge or expertise, for example) and the kind of relationship is primarily communication. Communication between members of a knowledge network can be of all kinds, as, for

⁴²“To the extent that people share a common language, this facilitates their ability to gain access to people and their information. To the extent that their language and codes are different, this keeps people apart and restricts their access” (Nahapiet and Ghoshal 1998: 253).

example, oral or written communication, visual communication, computer mediated communication, etc. (see also table 3.2).

network	nodes	relations	attributes	affiliations
social network	social entities (e.g., people, organizations)	links, connections (e.g., communication, collaboration)	properties, attitudes (e.g., age, gender)	participation in the same "event" (e.g., club membership)
knowledge network	people (or social aggregations)	knowledge sharing (e.g., communication)	properties, attitudes (e.g., knowledge, expertise)	participation in the same "event", esp. organizational membership

Table 3.2: Basic Network Definitions

The value of social networks for knowledge communication within and between organizations can be expressed in terms of social capital as outlined above. This has the advantage of a conceptualization by using the approach of social network analysis itself rather than introducing explanations external to the concept (like the community concept). Of course, community can be viewed as social capital as well. But as outlined above, if we refer to community in the context of organizational knowledge communication, we are stretching the community concept to the point where it loses much of its conceptual power. This is not the case for the social network approach. It comes with the advantage of providing a plain theoretical framework as well as a method for empirical analysis (see chapter 5).

The primary statement of the social capital concept in terms of social network theory is that network ties facilitate access to resources and foster social action. From the perspective of knowledge creation, sharing, and conservation in knowledge networks, the social capital concept is at the same time both substitute and complement of knowledge itself. Taking into account a multi-level perspective (see section 5.2.3), on the aggregated level of an organization we can consider organizational knowledge capital as the knowledge held both individually and collectively by its members in terms of inter-personal and inter-organizational relationships.

