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CONTEXT AND VIRTUAL COMMUNITIES IN A FIRM

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Abstract. This paper revisits a case study about the consequences on the decision-making process of the introduction of IT in a newspaper firm. We consider the case study in the light of the paradigms of context, social network and virtual community. We point out that it is possible to provide a global picture of the consequence of the IT introduction in a firm and explain the dynamic of the information-management processes in such an enterprise. A first result is that making context explicit-especially shared contexts-improves notably the collaborative decision making processes in the firm. A second result is to show different interests of the simultaneous consideration of the paradigms of context, social network and virtual community.

Keywords: Information technology, decision making, context, shared context, social network, virtual community

1 INTRODUCTION

Facing rapid changes resulting from information and communication technologies (ICT), many organizations extend their collaborative decision-making processes. Decision makers work together but not necessarily at the same time and at the same place. They are supported by communication systems like email or by groupware systems, which constitute a kind of electronic infrastructure superposed on hierarchical organizations. In a collaborative work, this e-infrastructure gives an aspect of virtuality to group works in an organization.

Adam and Pomerol [1] presented the case study of XYZ Publications Ltd., a news organization that publishes two newspapers: a national morning paper and a local

afternoon paper. The study was made to understand the nature of the changes undergone by the firm and to analyze the group dimension of its decision-making processes. Brézillon et al. [7] discuss the explicit consideration of context in the case study.

In this paper, we consider this study in the light of the role that context can play in this transformation if we consider the firm in terms of social network and virtual community. We consider the firm as an "information space" with information fluxes between individuals. Organizations are fundamentally information-processing structures [17]. In this view, an organization is an information processing and communication system, structured to achieve a specific set of tasks, and composed of actors that process information. We do not want to discuss the similarity and difference of social networks and virtual communities with respect to communities in the real life.

Circulation and communication of information and knowledge are at the core of the business in the XYZ firm. Moreover, linkages with the outside are numerous and the diversity of information sources was essential. Thus, in this firm the social network used for collecting and sharing information constitutes a complex and interesting network of data, information and knowledge, and several virtual communities emerge at different steps of the information-treatment process.

In terms of context, one notes a heterogeneousness of contexts (personal context, board context, external source contexts, etc.), which are at different granularities (the firm context, the board context, the employee context, etc.). However, the key point is the complex information fluxes between the contexts at the different granularities. For example, knowledge about an important firm, which is the main sponsor of the newspaper firm (contextual knowledge), may lead to retain only positive information on this sponsor (called proceduralized context later in the paper).

Hereafter, the paper is organized in the following way. Section 2 introduces our position concerning the paradigms of context, social network and virtual community. Section 3 presents the case study in [1] revisited in the light of the paradigms described in the previous section. Section 4 discusses the different types of contexts in the light of the case study and the paradigms of social network and virtual community. We conclude in Section 5 by discussing some challenges that open new perspectives and challenges.

2 THE NOTIONS OF REFERENCES

2.1 External Knowledge, Contextual Knowledge and Proceduralized Context

Brézillon and Pomerol [5] consider three parts for knowledge, namely the external knowledge, the contextual knowledge and the proceduralized context.

At a given step of a decision-making process, one distinguishes the part of the context that is relevant at this step and the part that is not relevant. The latter part is called *external knowledge* (EK). The former part is called *contextual knowledge*

(CK), and obviously depends on the agent and the decision-making step at hand. Always at the given step, a part of the contextual knowledge is proceduralized for being used at the step of the decision-making process. We call it the *proceduralized context* (PC). The proceduralized context is the part of the contextual knowledge that is invoked, assembled, structured and situated according to the given focus. Thus, the decision making and its associated context are interdependent. Figure 1 illustrates our view on context.

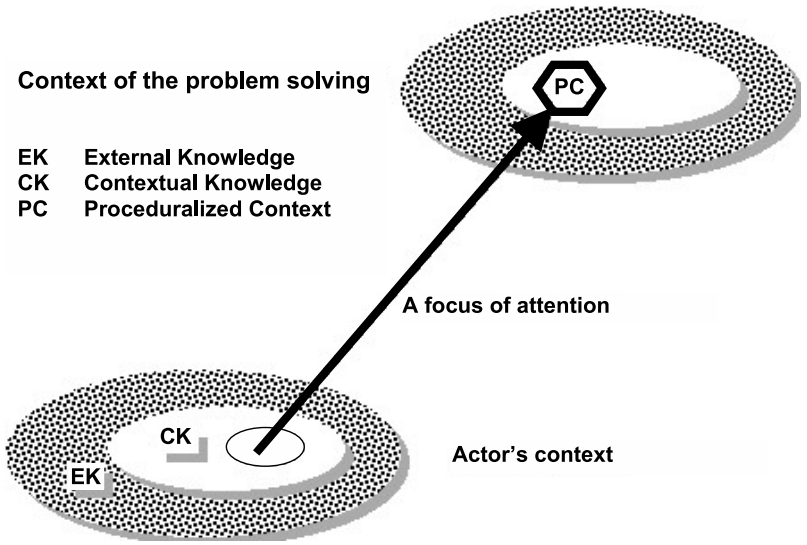

Fig. 1. The three types of context

Contextual knowledge is more or less similar to what people generally have in mind about the term 'context'. Contextual knowledge is personal to an agent and it has no clear limit [19]. Contextual knowledge is evoked by situations and events, and loosely tied to a task or a goal. When the task becomes more precise, a large part of this contextual knowledge can be proceduralized according to the current step of the decision making. Although the contextual knowledge exists in theory, it is actually implicit and latent, and is not usable unless a goal (or an intention) emerges as a focus. When an unexpected event occurs, actor's attention is focused on it and a part of the contextual knowledge will be proceduralized accordingly in order to adapt the decision-making process to this new event.

The context is dynamic [3, 4], and the dynamic dimension corresponds to a movement between contextual knowledge and proceduralized context during the evolution of the decision-making process: From one step to the next one, a piece of contextual knowledge enters the proceduralized context or, conversely, a piece of proceduralized context goes back in the contextual knowledge and becomes a "chunk of knowledge" a la Schank [23] that can be recalled later as a whole in a new proceduralized con-

text. Thus, the more an operator is experimented, the more the operator possesses available structured knowledge (i.e. chunks of knowledge).

2.2 Social Networks

For most of authors, a social network is composed of individuals and ties (e.g. see [14]). Wellman [24] considers a social network such as the connection of people by a computer network. Internet will be the larger social network that we will consider in this paper. The (social) structure does not play an important role in a social network, even if any actor may have different types of relationships with any other. The main characteristic of a social network is its flexible structure, a lack of hierarchy, and weak importance of the emotional dimension [13]. A good metaphor is the rhizome metaphor that is a conceptual framework for the generative possibilities of non-hierarchical networks of all kinds of the Internet [11].

For our purpose, we retain that there is only a "discriminating factor" to differentiate individuals in the social network and individuals in the environment of the social network. For example, registration to a mailing list on a specific topic is to enter a social network where you will find (or may provide) information on the topic. The individuals of the social network are called "actors" for differentiating from other individuals in the environment. There exist different discriminating factors and as many social networks as discriminating factors. A discriminating factor does not imply strong ties among actors because there is no shared goal and the decision making of an actor does not affect the decision making of others. For example, a discriminating factor is "Living in France". Belonging to a social network does not suppose to have an active role for the actor of the social network.

Ties between actors of a social network can be of different natures: family ties, lifelong friend ties, marital ties, business partner ties; they are important for people to obtain the fundamentals of identity, affection, emotional and material support [22], i.e. the recognition of their existence by others. However, the commitment of individuals is superficial, limited to the reasons of the local interaction [13]. As a consequence, ties are "socially-oriented" like in the real life (weak ties), trust does not play an important role, and individuals generally belong to several social networks.

2.3 Virtual Communities

The main difference generally pointed out in the literature between a social network and a virtual community relies on the role played by computer-mediated communication in the virtual community. The ICT gives an electronic infrastructure on the organization, which is supposed to reinforce the coherence of the virtual community. However, we think that there is more than a difference of infrastructure between a social network and a virtual community. A virtual community is a group of individuals who have regular contact with one another in cyberspace, with shared interests, problems or ideas, independently of space and time. A main characteristic

of virtual communities is that (1) they are homogeneous and organized networks of individuals with similar attitudes and life-styles [12], and (2) they are intentional formations [15].

Thus, if a social network is identified by a discriminating factor, a virtual community can be characterized by a focus of interest that is shared by all the actors of the virtual community and is responsible of the coordination of their decision making. The focus of interest acts such as an internal engine to impulse the virtual community. Actors have then a strong motivation in the realization of the decision-making process and each actor assumes an active role to satisfy this process. Thus, actors in a virtual community are more "socially interdependent" [2] than "socially-oriented" like in a social network. In the domain of decision making, one may observe only a diluted decision making in a social network, and a collaborative decision making in a virtual community.

In a virtual community, the decision making affects actors more as a glue force than the discriminating factor in a social network, and ties are stronger (directly connected to the decision making and the related roles that actors have to play) than ties in a social network. The focus at each step of the decision-making process imposes a structure on the virtual community because all actors are connected together through an organization of roles and tasks [6]. The structure of the virtual community also takes into account the context in which actors must deal with the focus.

We consider that a virtual community emerges from a social network to realize a collaborative work in order to satisfy a given focus of interest. Maybe the most interesting difference between a social network and a virtual community is that the virtual community can be compared with a dissipative structure in living systems [21], i.e. a structure that maintains an organization using the flux of energy (the information) that crosses it.

2.4 Information Processing

Thus, our position about the paradigms of social network and social community is as follows. There exist different social networks in association with possible discriminating factors more or less important. There is no real structure in a social network (amorphous structure that can be compared to a Brownian movement) and information circulates among actors at random, each actor using or not the information for its personal goal without correlation with the goals of other actors.

When an unexpected event occurs, a focus appears in a given context. Both focus and its context have to be considered jointly. Focus and context will concern a group of actors in a social network that have a same concern for the focus and are sensible to its context, and jointly can make a decision. An organization of tasks to accomplish and of roles that actors of the group must play appears. The actor group becomes assembled, organized and structured in a virtual community. As a virtual community, actors will be able to realize a real collaborative work.

Consider the example of a group of students enrolled in a communication class at a university. Students have been on campus and probably have already taken courses together given that they all belong to another closely related social network, that of university students. They bring with them existing social ties with other students, a social network that overlaid upon the temporary virtual community of the class [8].

The emergence of a virtual community from a social network based on computer-mediated means as discussed in the literature needs to be clarified. Divisibility of social networks into cooperative subgroups (virtual communities) that do not cooperate with each other is an old idea [10]. We consider here that the key point is the distinction between the computer-mediated communication concerning either individuals (e-mail, chat, blogs, etc.) or collaborative work (writing, designing, etc.). Clearly the collaborative decision making is ascribed in this second realm, and then the "focus-oriented" aspect is more important than the "computer-mediated" one. Indeed, Livet [18] explained that the term virtual in a virtual community by the aspect of collaborative work cannot be described only from the specific work of each actor.

3 THE CASE STUDY REVISITED

3.1 Information Fluxes in the Firm

An essential characteristic of the news business is the lack of formal aspects in communication inside and outside the firm despite of the hierarchical structure of the firm. Newspapers deal with news in real time and must acquire information from a wide variety of sources in order to keep up to date. Thus, it is important to acquire the information and its context for a correct understanding of the information. Information and its context must be considered jointly because the information takes a meaning within its context, and, conversely, this context is identified with respect to the information.

The XYZ firm is organized around a number of loosely coupled clusters or groups of actors specialized in the different aspect of the business. Leadership is provided by (1) the editor-in-chief for the news part, (2) the sales manager in charge of selling the advertising space without which no newspaper can exist, and (3) the managing director. The finance department plays an arbitration role, quite important, but particularly difficult when it comes to editorial decisions that are sometimes very costly and have an uncertain impact on the success of the newspaper.

As a consequence, there is a heterogeneous population of work groups in the firm, each group having its own context with its rules, laws and constraints. The workspace in which interact these groups is mainly composed of an electronic infrastructure that (1) provides a support for the context of their interaction, and (2) leads to assimilate each group to a virtual community.

It is by externalizing pieces of information from their individual contexts to the interaction context that actors can share elements to build the solution collabora-

tively. Sharing elements does not mean to develop an identical view of the solution for all actors, but to make compatible actors' views on the solution [16].

The firm acquires information from different sources outside of the firm. Each external source of information has its own context, which accounts for the personal reasons and motivations of the information provider, the emergency of the situation, the impact that can have the information, etc. In a second time, the different pieces of information collected from outside are analyzed in the context of the firm. In the firm context, the information is assimilated in the rich body of information and knowledge of the firm. Here, the importance of the information is judged with respect to its intrinsic value, but also with respect to its context and how the information could fit with other information to be published in the newspapers that are in preparation (length, page, etc.). Thus, from the event to its presentation in the newspaper, the information crosses different contexts at different levels: provider context, firm context, editorial-board context, newspaper context, etc.

3.2 The Firm as a Social Network

The production of a newspaper supposes the availability of information, its selection and organization, and a lot of exchanges of ideas for the negotiation of the content of the papers. The content of the newspapers is the focus of interest of the key organizational actors and the editorial team is at the centre of the organizational network.

The firm is considered as a place where collaborative groups interact through an electronic infrastructure. This leads to a possible reinterpretation with paradigms introduced in the previous section, such as context, social network and virtual community for describing a firm.

First, the organizational network of the firm is a kind of social network in which all actors have a role in the firm. However, at this general level, only the fact of belonging to the firm is a "discriminating factor" between actors and individuals outside the firm, i.e. the environment of the social network. It is difficult to have a clear picture of the coordination of all individuals' actions, and it is not the objective too. All actors are working to produce two newspapers daily. An individual (of the environment of the social network) can enter the social network by giving, treating, or managing information on an exceptional event. The frontier between the social network and its environment is porous. Conversely, we will see that a virtual community concerns a set of actors organized and assembled in an entity for addressing a specific focus.

The collaborative aspect of the production process rests on an electronic *diary of current events* that can be accessed and updated by everyone in the team. Newspapers sell as much information as they buy. Thus, *networking* – i.e. creating webs of contacts (or social networks in the terminology introduced in Section 2) in order to trade information – is the most fundamental aspect of the work of senior managers at XYZ. Beyond the 300 employees inside the firm, XYZ is also connected outside the firm to dozens of free lance journalists, international agencies (for foreign reports),

etc. Thus, several social networks can be identified for the information management in the XYZ firm according to different discriminating factors.

Second, the editorial board is a collaborative group inside the firm with a specific focus of interest on the negotiation of the content of the newspapers, and a need to interact and coordinate actions inside the group for that. Such a focus-oriented group is a virtual community because the focus-oriented aspects impose a type of structure on the collaborative group, e.g. for the sharing of roles and tasks [6].

3.3 Emergence of Virtual Communities in the Firm

Consider now the production of an article in the newspaper (the focus of interest) on a given event. The focus evolves along a process with a series of steps that require each a particular treatment (e.g. a sub-problem solving). At each step, a virtual community emerges for a limited duration for applying a specific treatment on the article production. Such a virtual community meets different actors, which interact in a collaborative way, such as the witness of the event, the information gatherer, an actor of the firm, the editorial board, etc. Thus, a series of virtual communities emerge, acts and disappears in the social network "information management". An interesting observation is that, once a sub-problem is solved, the corresponding virtual community disappears but the ties developed between the actors intervening during the problem solving stay, even when actors go back to the social network.

At the upper level, newspapers creation goes through a series of formal steps (key meetings and key deadlines), but also daily unstructured decisions (about items of news that must go in the paper or not). The latter ones are often made by people free from interference from top management or the stakeholders. This implies that the organization of actors in a virtual community does not correspond necessarily to the hierarchical organization of the firm. Actors' actions in a virtual community are coordinated in order to make the collaborative work more efficient, thanks to the focus-oriented structure of the virtual community and a large number of contextual clues.

3.4 Context as a Unifying Paradigm

Different contexts are associated with elements such as the context of the social network, the contexts of the virtual communities, the contexts of actors, the context for each problem-solving, the context of the firm, etc. Each context presents two aspects depending on an internal or external viewpoint. For example, let us consider the context of a virtual community. From an internal viewpoint, this "group context" contains contextual knowledge such as the general policies, roles and tasks to accomplish, rules, constraints, objectives. This contextual knowledge is proceduralized for the given problem-solving and strategies applicable by the actors (within their "individual contexts") participating in the virtual community. From an external viewpoint, the virtual community interacts with other entities (virtual

communities, actors, etc.) and it has an "individual context" in a larger group (e.g. a market, an European project, etc.), that is a proceduralized context corresponding to the contextual knowledge in the group.

From the social network to the actors through virtual communities, there is a hierarchy of context from the more general one to the more specific one. However, this hierarchy is not a "is-a" hierarchy. In the XYZ firm, each actor owns his sources. As such, the networking activity is primarily individual and contacts provide information to their usual source, not to anyone indiscriminately. Collaboration in creating the newspaper does not mean sharing linkages with key sources. In other words, the group context cannot be deduced from individual contexts. For example, the "address book" of each editor (a contextual cue in the individual context of the editor) is his/her private asset. Thus, if the virtual community must be a competitive entity in its group, it is important that the virtual-community context be as consistent as possible. A condition is the existence of a strong shared context among the actors of the virtual community.

3.5 The Dynamic of the Organization in the Firm

In the XYZ firm, the editorial activities were deeply affected by the IT introduction. It was observed that "one of the consequences of the implementation of the new system has been a shift in power and control over the process of production of the newspapers". Up to 1994, there was a group of 80 individuals – the compositors – whose unique expertise meant that they could decide on a daily basis whether the newspaper would be in the streets or not. This situation reminds of Crozier and Friedberg's [9] analysis of how a group possessing a unique and crucial expertise can create uncertainty for the people both below and above it in the hierarchy. In the XYZ firm, the compositors were a strong, heavily unionized clique who negotiated its terms and conditions of employment fiercely. This resulted in high levels of pay and short promotion paths. The rift between compositors and other organizational actors was accentuated by the physical layout of the plant because this group was isolated from the other stages in one "composition" room.

The change brought about by the new computer-mediated system in the XYZ firm was simple: it eliminated the composition room. The newspaper can be composed directly in the computer package by the editorial team and, when ready, merely sent to the presses in electronic format. This eliminated the powerful group of compositors, and the decision making power swung back to the editorial team and the focus shifted entirely to the creation of the product. The Editor who operated under both systems explained that his control over the production process has increased drastically as a result of the smaller number of people.

An e-infrastructure transforms a hierarchical organization into a more flexible (dynamic) organization by the introduction of temporary entities (the virtual communities) that last as long as the specific problem exists. Another effect of introducing an e-infra-structure in an organization is to reinforce ties between actors. In a virtual community, ties are developed on different basis (not imposed), not like

in a hierarchical organization. IT has been used to increase communication, whilst reducing the opportunities for conflicts between the different groups (virtual communities) that collaborate in creating the paper. The reliance on a smaller group may have been a great help in achieving this. IT appears to reinforce the internal cohesion of the newspaper firm – the shared context – by simplifying the internal (or individual) organization contexts.

However, the cognitive load for decision makers (especially for collaborative decision making) is then heavier: they must remember more information that change very frequently. Systems developed for supporting group decision making in distributed asynchronous situations must then be adapted by aiding users in structuring the global goal to reach, the context of this goal becoming more dynamic and evolutionary. This discussion in terms of social network and virtual community points out the need to have a better understanding of what context is, the different types of context and the dynamics of the context. There is also emphasis on the importance of the shared context and its management.

4 THE DIFFERENT CONTEXTS

4.1 Building of a Proceduralized Context

In our previous discussion, the transformation of contextual knowledge in a proceduralized context corresponds to a transfer of contextual clues from a context at one level (e.g. the actor's context) to the context at a lower level (e.g. the interaction context). This supposes a process of communication between different levels in a virtual community. Figure 2 shows how the proceduralized context (PC) is built from contextual knowledge (CK) in individual contexts of two (or more) actors during their interaction for a problem solving at a given focus of interest. The interaction context contains the pieces of contextual knowledge that each actor (i.e. from their individual contexts) puts in the interaction context to make them visible and shared with the other actor, and finally assemble and structure jointly by all the actors during their interaction to constitute the proceduralized context needs at the given focus of interest. The proceduralized context results of a co-construction by the actors belonging to the same virtual communities. Once the proceduralized context has be used, it becomes then a piece of actors' shared context. A longer discussion on this topic can be found in [4].

As a consequence, a strong tie is established between the actors of this virtual community through this proceduralized-context construction and its final movement into their shared context. This tie will persist between them, even once the virtual community will disappear and the actors will return into their initial social network of origin. If we refer to Figure 2, the social network would be at a (non-represented) level below actors' context level. Thus, the social network context will be modified by what the virtual community will have done.

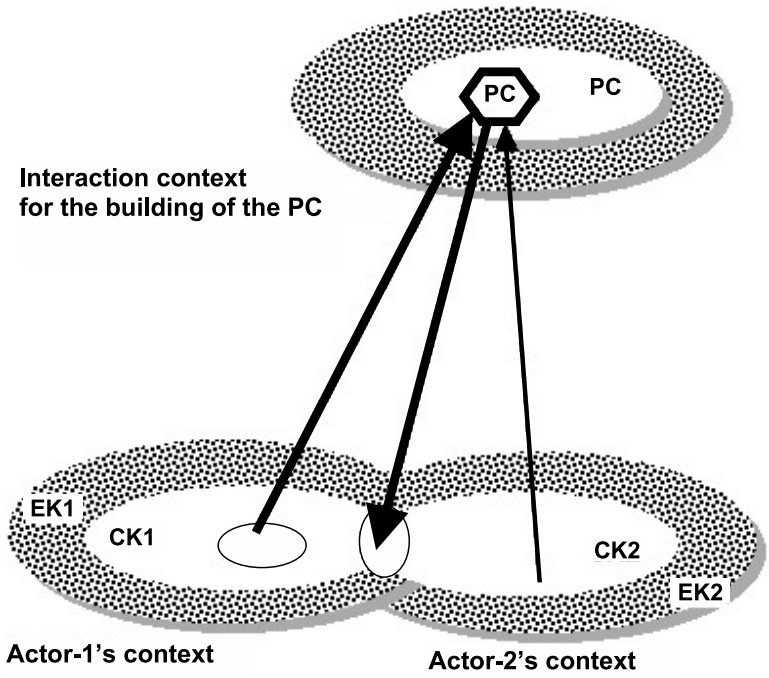

Fig. 2. A representation of the interaction to build the proceduralized context

4.2 Context Granularity

As said previously, information is transferred between contexts. At a general level, we distinguish the group context, the individual contexts of the actors at an intermediate level, and at the more specific level, the context of the focus (interaction context) on which actors are working in cooperation. Figure 3 illustrates the situation.

According to our definition of context, the contextual knowledge at one level is transformed in a proceduralized one at the level that is above (more specialized). For example, contextual information of the group context could be "find a compromise between a relevant information for the readers of the newspaper and the notoriety of the sponsors of the newspaper." This contextual knowledge in the group context will be interpreted at the individual contexts of the actors writing the article in a proceduralized context to give the information, say, without links with the sponsors.

At an upper level, the newspaper firm evolves in an arena with other newspaper firms and individuals. This supposes that the firm context is as robust as possible in order to survive and win in the arena. This implies that the firm context (i.e. the group context before) becomes a robust individual context from an external viewpoint.

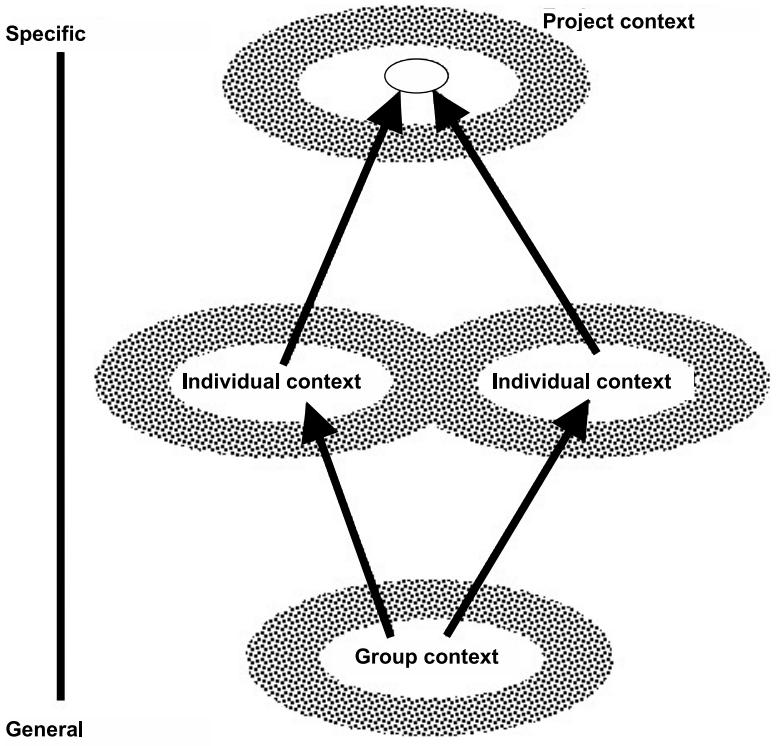

Fig. 3. Different granularities of context

Thus, an element of a context at one level is, at the same time, contextual knowledge with respect to the more specific level and proceduralized context with respect to the more general level.

The discussion shows that the notions of context, social network and virtual community as intertwined at the level of the virtual community, because the proceduralized context is built in a collaborative way by several actors at this level. The decision-making process appears such as the construction of a proceduralized context at each step of the process. The saving of the proceduralized context in each actor's context implies that there is a shared part of the individual contexts developed progressively, and thus the actors develop a tie that will persist even when the virtual community will end and the actors will go back into their initial social network.

4.3 A Context-Based Representation of the Virtual Community

The joint consideration of the paradigms of context, social network and virtual community gives a new insight on groupware. The emergence of virtual communities

from a social network corresponds, on the one hand, to the development of strong ties among actors resulting to the construction of proceduralized contexts during a problem-solving, and, on the other hand, to the construction of a proceduralized context from contextual knowledge.

In the previous section, we point out that it is possible to classify contexts from the more general one (the group context) to the more specific one (the project context). The granularity of contexts depends on the degree of their structure and organization, with contextual knowledge at one level converted to a proceduralized context at the more specific level.

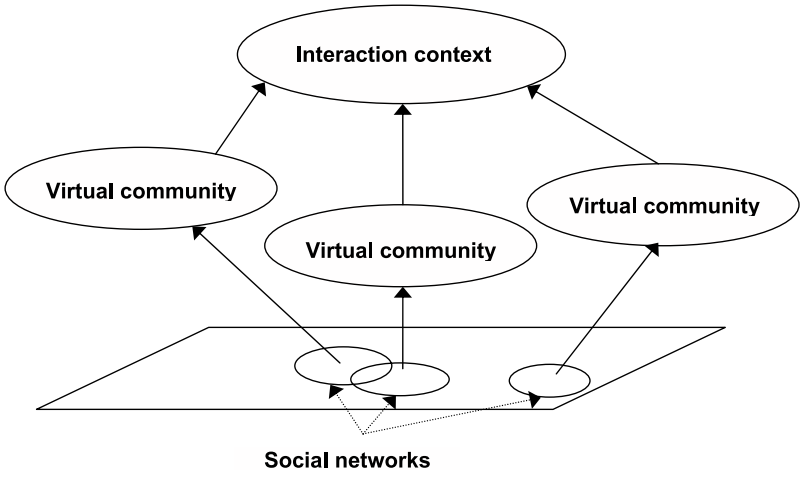

Fig. 4. Parallel between social network and virtual community, and context

We observe the same phenomenon with social networks and virtual communities. Figure 4 gives an illustration of the situation. One observes an evolution of actor organization from the social network (the more general one) to the virtual community (the more specific one). The granularity of the organization at each level can be measured in terms of ties among actors: The importance of ties between actors is weak at the level of the social network and strong when actors enter a virtual community. Another parallel between contextual knowledge versus proceduralized context and social network versus virtual community concerns the elaboration of ties, which corresponds to the construction of proceduralized contexts.

It is possible to make a parallel between Figures 3 and 4, except that Figure 3 deals with knowledge (through contexts) when Figure 4 deals with actors (through social networks and virtual communities). In both cases, what is unstructured elements (contextual knowledge and actors) becomes at the upper level a chunk of knowledge as a proceduralized context (a la Schank, [23]) and a "chunk of actors" in a virtual community.

From an external viewpoint, an entity as an "individual context" or a "virtual community" is considered as interacting with other similar entities. As such, the initial "individual context" becomes a "group context", and the "virtual community" becomes a "social network" for its child "virtual community". Different types of interaction can be considered among virtual communities. At one edge of the spectrum, there is a sequential series of virtual communities. We give in a previous section the example of a problem solving (the XYZ firm case study) with a community for solving each step of the problem. At the other edge of the spectrum, there are virtual communities living in parallel. We give the example of the work packages taken in charge by several virtual communities in an European consortium, each work package having a part of the problem to solve.

Moreover, what is found at one level (e.g. individual contexts and virtual communities) cannot be deduced from the level above: The "whole is more than the sum of the parts." See the example of the address books of employees in the XYZ firm.

As another parallel, the organization of "group context" versus "individual contexts" or the organization of "social network" versus "virtual communities" concerns the focus of interest. The flexibility of these organizations is due to different situations, depending on the focus of interest. The focus of interest can be specific to each "individual context" or "virtual context", and entities are independent from each other, although arising from a same "group context" or "social network". The focus of interest can be common to all "individual contexts" or "virtual communities". This is the case, say, in the consortium of an European project with its different "work packages" working each on a part of the global product of the project.

5 CONCLUSION

Until now studies on collaborative work, context, social network, virtual community have been performed separately with any cross-references. In this paper we show that context can play a central role in order to, on the one hand, give a global and coherent view on social network and virtual community, and, on the other hand, replace collaborative work, and especially collaborative decision making, in a new framework providing a new insight on interrelationships between groupware participants (all coming from the same social network): creating ties being equivalent to build a proceduralized context and the development a large shared context. This new insight into collaborative work comes from the choice to consider an enterprise as a structure of information fluxes. This leads to a problem of knowledge management, in which the important point is the management of all the transitions between all the different states of the knowledge such as tacit, implicit, individual, collective, etc. [20]. Putting all together seems to be a new challenge in groupware area.

As a virtual community, a groupware has a birth, a life and an end. However, ties created during the life of a work group among actors persist once actors are going back to the original social network. Thus, on a more general scale, work

group will benefit from the reuse of actors having worked together previously. We introduce the notion of "chunk of actors" to make a parallel with the notion of chunk of knowledge a la Schank [23] and introduces a dynamic dimension to work group apparently not considered explicitly before.

Even in the unique domain of social network and virtual community, the view presented in this paper is a challenge. First, the view of virtual communities emerging from social network is not frankly usual. The main support here is the parallel with the notion of context. Indeed, a virtual community appears as a kind of contextualization of a social network to address a given focus of interest. This is shown in another domain [3] with practices being represented as contextualization of the procedures established by the enterprise in order to address the specificity of the contextual clues of the situation. Second, a problem solving is described as the emergence of a series of virtual communities for dealing with different steps of the problem solving. Three, a large project (e.g. an European project) can lead simultaneously to the birth of several virtual communities acting in parallel on parts of the problem to solve (e.g. the work packages). Four, this view gives a dynamic behavior to a social network as an enterprise that was not considered until now, thanks to a description of an enterprise as a net of information fluxes.

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