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Facilitating Access to Information through Collaboration: Examination of the Role of Collaborative Technology in Competitive Intelligence

Abstract: Few attempts have been made to establish conceptual links between collaboration, collaborative technology, information access and competitive intelligence. The purpose of this paper is to propose a framework and a number of starting premises for studying collaboration and the role of collaborative technology in the context of competitive intelligence.

Résumé: Peu de tentatives ont été faites pour établir des liens conceptuels entre les notions de collaboration, technologie de collaboration, accès à l'information et veille concurrentielle. L'objectif ici est de proposer un cadre d'analyse et plusieurs prémisses utiles pour l'étude du concept de collaboration et le rôle de la technologie supportant cette activité dans le cadre de la veille concurrentielle.

1. INTRODUCTION

In recent years, *collaboration* as a topic has been increasingly discussed in various disciplines. In the field of computer science, knowledge management (KM) and competitive intelligence (CI), one can find a growing interest for this topic. In the 1980s, computer scientists showed interest for computer-supported cooperative work (CSCW) (Bardram 1998). More recently, collaboration became a central focus in KM because without it, knowledge creation and sharing are seen as being seriously limited (Tsai & Goshal 1998). In the field of CI, numerous CI-related software packages now claim having collaborative functionalities (Bouthillier and Shearer 2003a). In addition, for the first time, at the 2004 Annual Meeting of SCIP (Society of Competitive Intelligence Professionals), a separate track *networks & collaboration* was included in the conference program. Generally speaking, collaboration is seen as a good work practice because it should, by definition, enhance creativity, innovation, creation of knowledge and information access and sharing. For Nardi & O'Day (1999), collaboration, whether formal or informal, might even improve individual's working efficiency. Thus, it is often presented as a condition for success in information-intensive organizations and in knowledge-based activities. Yet, little is known about the value of collaboration in the context of CI. One can ask, indeed, whether these two terms can be linked since the main focus of CI is on competition and competitive information, and collaboration may be difficult to achieve in this context. We want to argue in this paper that, on the contrary, without the collaboration between various organizational members, the CI cycle may be very difficult to deploy. One person working in isolation cannot develop comprehensive

CI strategies, analyses, products and reports. In fact, the transformation of information into intelligence requires a high level of information sharing and analysis as well as a collective effort for interpreting the meaning of information. This calls for a need to examine the role of collaboration and collaborative technology in the context of CI. Is CI a collaborative process? Can collaborative technology such as groupware can facilitate access to competitive information and supports the transformation of information into intelligence?

The purpose of this paper is to propose a framework and a number of starting premises for studying collaboration and the role of collaborative technology in the context of CI. Because the connection between collaboration and CI has not been fully addressed in the CI literature and the investigation of collaboration linked to CI is still in its infancy, our goal is to review various definitions, assumptions and concepts that could be used to conduct research on these topics.

2. COLLABORATION

According to Merriam-Webster Dictionary, the word *collaborate* primarily means "to work jointly with others or together, especially in an intellectual endeavor". It originates from the Latin word *collaboratus* meaning "to labor together". The social need for collaboration can be seen as a consequence of two phenomena: first, the world is becoming increasingly complex and, second, this complexity requires that people cultivate specialties, and then collaborate. According to Schrage (1995, 5), "the new reality is that it will take the collaborative efforts of people with different skills to create innovative solutions and innovative products". Andriessen (2003) echoes this point of view by suggesting that three driving forces contribute to world transformation: (1) technological development (e.g. new information and communication technologies); (2) market changes (e.g. globalization, liberalization); and (3) social changes (e.g. growing educational levels, democracy, individualization), and this generates the need for more interactions. Fowler (2004) also observes that technology is putting more information and more computing power at our fingertips and, as a result, the world is going more mobile, more real-time, and more team-oriented.

As a research topic, collaboration has been examined in various disciplines, such as sociology, education, management, and computer science. Although there is no universally agreed definition of collaboration, a review of some definitions will reveal the essence of the concept. Kraus (1980, 5) regards collaboration as a cooperative venture based on shared power and authority, and as nonhierarchical in nature. Collaboration implies a form of power based on knowledge or expertise as opposed to power based on role or role function. Schrage (1995, 33) defines collaboration as a process of shared creation and/or shared discovery in which "two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own". Andriessen (2003, 7) describes the term *collaborative work* as the situations where two or more people act together to achieve a common goal, [but] the actual extent of *togetherness* can vary substantially". These definitions imply a number of commonalities: collaboration involves at least two or more participants, they must have common objective(s), and there must be a public space for them to enable the sharing of their resources such as information, knowledge, expertise, and skills in order to maximize their communal interests.

Going further in analyzing the nature of collaboration, Schrage (1990) identifies three basic characteristics - collaboration is purposive, dynamic, and value-added - and occurs at two levels, conceptual and technical. Indeed, collaboration exists when individuals desire or need to find a solution to a problem, to create or to discover something. By collaborating, they will add value to existing ideas or projects. According to the same author, conceptual collaboration occurs when people act together to devise concepts, ideas, and themes while technical collaboration happens when people work together to solve the practical problems identified at the conceptual stage or to achieve a number of technical tasks.

In computer science, over the last two decades, one can find several attempts to better conceptualize the idea of collaboration, mainly in conjunction with the development of computer-supported cooperative work (CSCW). In this movement, Kling (1991) has pointed out some nuances between collaboration, cooperation and control which, inevitably, all take place at work. He suggests that "in practice, many working relationships can be multivalent with and mix elements of cooperation, conflict, conviviality, competition, collaboration, commitment, caution, control, coercion, coordination and combat" (Kling 1991, 85). All these c-words describe the variety of social relations that are developed within organizations and the idea that there are various levels of collaboration.

To address these various levels, Bardram (1998) has proposed a conceptual framework emphasizing the dynamics of cooperative work based on Activity Theory (Vygotskij, 1978). The first level, *co-ordination*, implies that individuals act upon a common objective, without necessarily sharing it, and they focus on their assigned tasks, roles and actions. At the second level, *co-operation*, actors genuinely share a common objective and focus, not on their assigned actions, but on the goal of collaborative activity and on the means to achieve it. The third level, *co-construction*, is reached when actors are engaged in a reflection on the objective of the work, or when they collectively construct and re-conceptualize the purpose of their work. Such distinctions are interesting because they suggest that there might be a constant shift between these three levels, and that collaborative work implies various transitions.

Interested to pinpoint the various small-scale actions inherent to collaboration to better evaluate groupware, Pinelle, Gutwin and Greenberg (2000) have developed a conceptual framework, the *Mechanics of Collaboration.* Their framework suggests that there are two major types of work involved in collaboration: teamwork or the work of working together and taskwork or the work that carries the task. These types of works imply two main types of activities (communication and coordination) from which four categories of mechanics are derived: collaborators must be engaged in *explicit communication*, in *information gathering* about the group and the activity, in the *management of shared access* or how objects are accessed and used and in the *transfer of* objects and tools between actors to make sure that they can achieve the task. Using this model, Bouthillier and Shearer (2003a) have suggested that most of the mechanics of collaboration can be viewed as a set of informational mechanics because communicating, gathering, sharing and transferring information continuously take place in a collaborative endeavour.

However, as outlined by Kling (1991), collaboration might co-exist with competition and refusal to collaborate. Sonnenwald and Pierce (2000) use the concept of *contested collaboration* to describe what happens when team members maintain an outward stance

toward cooperation and work for their own interests, sabotaging, at times, the collaborative effort. Therefore, the study of collaborative activities requires an examination of the tensions that might exist between group members. For the purpose of this paper, the following features of collaboration are retained: collaboration is a dynamic process, involving numerous types of activities and various levels of involvement, and requires corresponding levels of information management, access and sharing. In addition, it has a valued-added dimension which means that collaboration is a means to add value to what could be accomplished individually.

3. COMPETITIVE INTELLIGENCE

Simply put, competitive intelligence (CI) refers to the process by which an organization collects, organizes, analyzes, and distributes the information about external environment, including its competitors, in order to gain or maintain a competitive advantage. CI is highly associated with the concepts of strategy, planning, decision-making, and organizational culture. Effective CI is supposed to support an organization's strategy formulation and decision-making; while organizational culture plays an important role in determining quality of CI (Moffatt & Fleisher 2003). According to Miller (2000), information sharing is a critical factor that determines the success of a CI program. Prescott (2001) asserts that the creation and use of CI is a *social process*, because CI practitioners not only need to coordinate strategic and tactical intelligence, build trust and credibility with intelligence users, but also need to develop human networks and mechanisms to facilitate information flow. Fleisher (2001) points out that CI can be understood as a staff-oriented organizational function, and it will cut across and overlap with other functions (e.g. marketing, planning). The staff-orientation and the overlap may imply numerous levels of coordination, cooperation and collaboration. CI can also be described as a value-adding process. Bouthillier & Shearer (2003b) have proposed an information-processing model of CI cycle to identify which values can be added to information or how information is actually transformed into intelligence. Their model includes six basic steps: (1) identification of CI needs, (2) acquisition of competitive information, (3) organization, storage and retrieval, (4) analysis of information, (5) development of CI products, and (6) distribution of CI products. They have suggested (Bouthillier and Shearer 2003a) that at each step, the mechanics of collaboration are operating.

How can collaboration be relevant in the context of CI? CI is a process involving various actors – CI professionals, other types of professionals, members of departments (marketing, strategic planning), decision makers and is also a purposeful activity requiring the sharing of a common objective from all collaborators (e.g. to make the organization competitive in marketplace). As suggested by Prescott (2001, 11-13) "intelligence activities [should] be integrated into the daily tasks of everyone" and "virtually all employees can be trained to provide information to the CI group". CI has a dynamic nature: business issues or marketplace events are the primary catalysts for launching a CI effort. Therefore, CI activities are not static but are changing depending on the needs of the organization. Because the needs for intelligence are numerous and varying, an organization cannot rely solely on the efforts made by one person in a CI department to adapt adequately to turbulent changes on the market. A collective effort is required in such a context. Finally, CI is a value-adding process, and value is added partly through collaboration. The goal of CI is to add value to raw data and information to

generate intelligence, and this calls for creativity and collaboration. This transformation of information into intelligence cannot be done in optimal conditions without the input of various actors and without solid networks of exchanges between them, especially in large, complex, and geographically dispersed organizations. Therefore, the importance of collaboration in the context of CI cannot be ignored.

4. INFORMATION ACCESS AND SHARING: PREREQUISITES TO COLLABORATION AND CI

Interestingly, while the CSCW and the CI literatures emphasize various information-handling activities, there is little discussion relating to the importance of information access and sharing. The ways in which people organize and use information are largely covered in the CSCW literature (Kling 1991), however information access and sharing are not specifically discussed. In the CI literature, there is a consensus that information collection and interpretation are the essential steps for generating intelligence (e.g. Dutka 1999; Pollard 1999; Walle 2001), but the need for accessing and sharing information before, during and at the end of the CI cycle is not explicitly raised. Access to information is almost taken for granted and not seen as a major issue.

In this paper, we want to argue that collaboration is critical in the context of CI and that information access and sharing are prerequisites to both collaboration and CI. We distinguish information access from information sharing because organizational actors may have access to information without sharing it. When information is available on an Intranet or, in other words, when access to information is established, this is not a guarantee that information sharing will occur. Thus, information access usually precedes information sharing. The need for collaboration should encourage information sharing, and vice-versa, information sharing should contribute to collaboration. Similarly, the CI cycle should be facilitated when collaboration is sustained with appropriate information access and sharing. But when exactly information access, sharing and collaboration are critical in the CI cycle? Potentially, at every stage of the cycle simply because accessing the right information at the right time remains the most challenging dimension intrinsic to any CI program.

In the context of CI, access to competitive information could be very subtle because it involves access to various types of sources: internal, external, primary and secondary information sources. Collaboration between many internal and external actors who may be aware of primary and secondary information sources would therefore enable organizational actors and CI practitioners to access relevant information. With collaboration, access to competitive information will be strengthened and optimized as illustrated in the following example (Prescott 2001, 13).

> "An employee at a utility company has received basic CI training. She was driving to work one day when she noticed a train carrying many carloads of piping. When she arrived at work, she called the CI group and reported her sighting. After a little digging, the CI group discovered that a competing utility company was building a pipeline into a new residential development. As a result of her observation, the firm was able to initiate a competitive response that saved significant revenues."

In addition to the collection of information, collaborative work seems to be inherent to the interpretation of information, or its analysis, which is essential to transform information into intelligence. CI involves the interpretation of disparate pieces of information. The meaning of a company acquisition or the understanding of a new merger can be derived if various actors each having their own corporate perspective (finances, marketing, planning) can collaborate to share their views, opinions and interpretations. Collaboration is key for providing rich analyses to decision makers. Finally, CI is useless if it is made available only to a small number of organizational actors. Again, collaboration is critical to ensure the distribution of intelligence throughout the organization, and to guarantee that the CI cycle remains dynamic and oriented toward the needs of specific groups of CI users.

Information technology has been seen as a critical means for ensuring the information flow in organizations (Prescott, 2001). In recent years, collaborative functions have been introduced in some CI software applications. But what exactly is collaborative technology and what could be its function in the context of CI? These questions are addressed in the next section.

5. THE ROLE OF COLLABORATIVE TECHNOLOGY IN CI

Collaborative technology refers to the technological tools which support collaboration. The concept is defined in a variety of ways. Munkvold (2003) defines it as all types of information and communication technologies that enable collaboration at various levels, from two persons co-authoring a document to inter-organizational collaboration where several organizations are engaged in common tasks. Andriessen (2003) defines it as a set of applications that support communication, co-ordination, co-operation, learning and/or social encounters through facilities such as information exchange, shared repositories, discussion forums and messaging.

The term *collaborative/collaboration technology* is closely associated with such terms as groupware and CSCW. The word *groupware*, coined by Peter and Trudy Johnson-Lenz (Johnson-Lenz and Johnson-Lenz 1982, 47), primarily refers to the networked computer software and hardware that enables synchronous and asynchronous collaboration for increased productivity (Englebart, 1992, cited in Neilson, 1997). The distinction between groupware and collaborative technology is very subtle. The two terms are often interchangeably used. However, the scope of collaborative technology is regarded as wider than groupware (Andriessen 2003; Munkvold 2003). The notion of CSCW first appeared in 1984 and refers today to a field of study of computer-based technologies used to facilitate cooperative work. The field has incorporated various disciplines such as computer science, human computer interaction, anthropology, psychology, and sociology and seeks to examine social interactions in cooperative work settings (Bannon & Schmidt 1991; Greif 1988; Kuutti 1996a).

As indicated in Table 1, collaborative technology encompasses various types of functionalities. Communication (interpersonal communication through audio, text, and video), information sharing (creation and manipulation of shared information objects),

and coordination (managing interdependencies between participants and their activities) are presented as fundamental categories of collaborative technology. In fact, the three categories are also basic collaborative tasks. Regarding the category of cooperative systems in Andriessen's classification, it has been included in the category of shared information space technology in Munkvold's classification. In addition, three additional categories have been identified: social encounter systems (the systems developed to make socializing possible at a distance), meeting support technologies (tools to make meetings more effective) and integrated products (software packages that incorporate several functionalities, typically some combination of communications, shared information space and coordination technologies).

Andriessen (2003)	Munkvold (2003)
1.Communication Systems ● e-mail ● chat system 2.Information sharing system ● document sharing systems 3.Co-operation systems ● document co-authoring ● shared whiteboard e.g. Microsoft NetMeeting ● shared word-processor 4.Coordination systems ● group-calendaring ● shared planning ● shared workflow management systems 5. Social encounter systems e.g. Media Space at EuroParc	1. Communication technologies ● e-mail ● instant messaging 2. Shared information space technology ● document management systems ● Web-based team/project rooms ● data conferencing / application sharing ● electronic bulletin boards 3. Meeting support technologies ● electronic meeting systems e.g. GroupSystem.com 4. Coordination technologies ● workflow management systems ● calendar and scheduling systems 5. Integrated products ● collaboration products suite e.g. Lotus Notes, Microsoft Exchange

Table 1. Categories of Collaborative Technology

Groupware is viewed as a technology that can support CI (Hohhof 2000). Several CI software packages (e.g. Knowledge.Works™) have incorporated collaborative technologies such as e-mail and workflow management. However, given the lack of empirical data, we have little knowledge on the extent to which these functions are utilized.

The information-processing model of CI developed by Bouthillier and Shearer (2003b) suggests a number of activities that would require collaboration and, by definition, information access and sharing. Premises regarding the role of collaborative technology for each step are discussed below in the light of the dynamics of collaborative activity (Bardram 1998) as described in section 2.

(1) Identification of CI Needs. This first step consists to identify CI clients, topics, and the analytical techniques should meet the needs of the client. At this level, actors might be engaged in *co-operative* work because they would focus on a common objective and not necessarily on specific tasks or roles. Communication and information sharing technologies may support the activities. For example, e-mail, instant messaging, data conferencing (e.g. shared whiteboard), electronic bulletin boards could help CI users and providers exchange text-messages and relevant background documents in both synchronous (real-time) and asynchronous modes.

(2) Acquisition of Competitive Information. The second step in the CI process includes the following activities: identification of relevant internal and external sources, conducting an internal information audit, monitoring information sources, targeting specific information, information filtering, and information evaluating. These sub-processes imply many social interactions: the CI unit, department or team must identify the information gaps, the strategies to fill them, the appropriate sources, and the roles and schedules of each team member for collecting and acquiring information. Here, actors would need to operate in a *co-ordinated* fashion because they can divide the work and focus on their assigned tasks and roles. Information collection implies a certain degree of routinization (e.g. tracking specific information sources). Almost all the categories of collaborative technologies mentioned in Table 1 seem relevant to undertake these tasks.

(3) Organization, Storage, and Retrieval. This step consists in organizing the information system in such a way that information is easily retrievable by the CI team members. It may lead to key activities such as indexing information, storing various types of information resources, and establishing appropriate links between these resources (hierarchical, cross-topic). Here, information sharing and coordination technologies are particularly useful because actors will have to shift between two levels of collaborative work: the *co-operative* level to agree upon the organization of information and the *co-ordinated* level because, once the decisions are made and the objectives of the information system established, tasks and roles can be assigned and divided between each member. At this stage, document management systems are particularly essential because they assist in storing and managing the incoming information systematically (Munkvold 2003).

(4) Analysis of information. This is the most demanding step in the CI cycle. It involves, among others, brainstorming, problem solving and discussion of scenarios. A high level of interaction between CI team members is required to generate rich analyses. This step probably represents the highest level of collaborative work, the *co-construction* aspect, because CI team members must interact to construct collectively various interpretations of competitive information and, in this process, they have to re-conceptualize the objective of their work (providing actionable intelligence), the needs of their CI clients, the problems encountered in acquiring the information, and etc. Sharing information, meeting support, and coordination technology categories are expected to play a positive role in this creativity and innovation process.

(5) Development of CI Products. The packaging of CI is a very important step in the CI cycle. An effective format is expected to capture CI users' attention and to facilitate their understanding of CI. Similarly to step 4, creativity and innovation are critical here. CI team members can be seen as being engaged in a *co-constructive* collaborative activity since they have to conceptualize the work that must be done. Therefore, sharing information, meeting support, and coordination technology categories would be useful.

(6) Distribution of CI Products. The key issue for this step is to ensure that all those who could benefit from the intelligence products, reports, and memos have efficient and timely access to these products. Communication and information sharing technologies may support such a goal. The collaborative work would be characterized by the *co-ordinated* aspect since CI team members would have planned at the beginning of the CI cycle who should receive what types of CI products, and then they would have to follow these plans without much rethinking of such plans or the tasks to be performed. The

appropriate distribution of CI products is a condition for the pursuit of CI efforts. Without such information sharing, the value of CI cannot be appreciated.

From the previous discussion, we can see that collaborative technology plays certainly an important role in the context of CI. Various levels of collaborative work can be linked to the CI cycle and the value of various types of technologies can be established to support the diversity of levels and of CI activities.

6. AN INTEGRATED MODEL TO STUDY COLLABORATIVE TECHNOLOGY IN CI: A PROPOSAL

Given the definitions of collaboration, CI and collaborative technology, to study relationships between these concepts, four major questions seem relevant for potential research projects.

(1) Does collaboration support, enhance or hinder access to competitive information?
(2) How and to what extent collaborative technology facilitate access to competitive information?
(3) Which types of collaborative technology best support the various levels of collaboration?
(4) In the context of CI, are organizational actors more informed with collaboration and collaborative technology or are informed actors more inclined to collaborate and use collaborative technology?

To address such research questions, Activity Theory (AT) is an interesting framework for analyzing the role of collaborative technology in the context of CI. AT is rooted in the cultural-historical school of psychology initiated by Vygotskij, Leont'ev, and Luria in Russia since 1920s. It takes the object(ive)-oriented, artifact-mediated collective activity system as its unit of analysis, thus bridging the gap between the individual subject and the societal structure (Engeström, Miettinen and Punamäki 1999). As an interdisciplinary approach, AT experienced evolution and modifications (Engeström 1996 cited in Hill, Botha and Capper 2002), and now the theory has been frequently applied in human-computer interaction (HCI) and CSCW research (Andriessen 2003).

AT is broadly defined as a philosophical framework for studying different forms of human practices as development processes, with both individual and social levels interlinked at the same time (Kuutti 1996b, 25). In the theory, human activity is framed in a social *community*; mediated by *artifacts* (e.g. instruments, machines, laws), community *rules* (norms, culture) and *roles* (division of labor). A *subject* (e.g. a human actor, a group) is motivated by certain *object* (in the sense of objective) to perform a series of *actions* (conscious, goal-oriented processes) and *operations* (routinized actions, unconscious with practice) to fulfill the object; through these social interactions, the subject transforms the total setting, resulting in certain *outcome* (Andriessen 2003, Engeström 1996, Kuutti 1996b, Nardi 1996). Activity theorists strongly emphasize the following viewpoints: (1) human activity is shaped first and foremost by motivation and purposefulness; (2) the relationship between the elements are not direct but mutually mediated; (3) human activities are fluid and dynamic instead of static; each activity is in a historical continuum; parts of older phases of activities often stay embedded in them as they further develop; therefore, historical analysis of the development of activities is very

important to understand the current situation (Kuutti 1996b, Nardi 1996). These statements are exactly the attractive aspects of AT toward collaboration and collaborative technology research. As mentioned earlier, with the theory, Bardram (1998) successfully analyzes the dynamics of cooperative activities. In this regard, the author provides some empirical support that the theoretical framework is suited for analyzing cooperative work. Andriessen (2003) considers that AT draws attention to notions of contradictions and conflicts in communities; these notions may initiate breakdowns and thereby new developments, so the attention may benefit collaboration technology research. Based on AT, an integrated model to study the role of collaborative technology in CI is proposed (see Figure 1).

First, we conceptualize the collaborative work in CI as target activity. The activity occurs in an organization. The subject could be one CI practitioner or a group of CI practitioners. The overall object could be to provide accurate, efficient, timely intelligence through undertaking a series of information-processing tasks, and each task could be a particular object such as identification of CI needs. Because the information-processing model of CI cycle (Bouthillier and Shearer 2003b) represents all six goal-oriented CI tasks, it is integrated here as the overall object of the activity. People who may be involved in the activity comprise the organizational community. The community maintains its own rules such as the corporate culture or departmental culture. Given the object of the activity, different actors in the community may have different roles to play. The roles may include CI user(s), competitive information providers, or CI project managers. In addition, individuals may play multi-roles, for example, one may be both CI user and information provider. Collaborative technology here is viewed as the artifact, which primarily mediates the relationship between collaborators, namely CI practitioners and existing or potential collaborators in the organizational community. The artifact will also provide a shared space for individual collaborators. In addition, during the collaborative work, Bardram's (1998) three levels of collaboration (co-ordination, co-operation, and co-construction) may occur on varied occasions. Eventually, through all the social interactions in the collaborative environment, CI practitioners are expected to achieve their overall object, and bring their parent organization with competitive advantage.

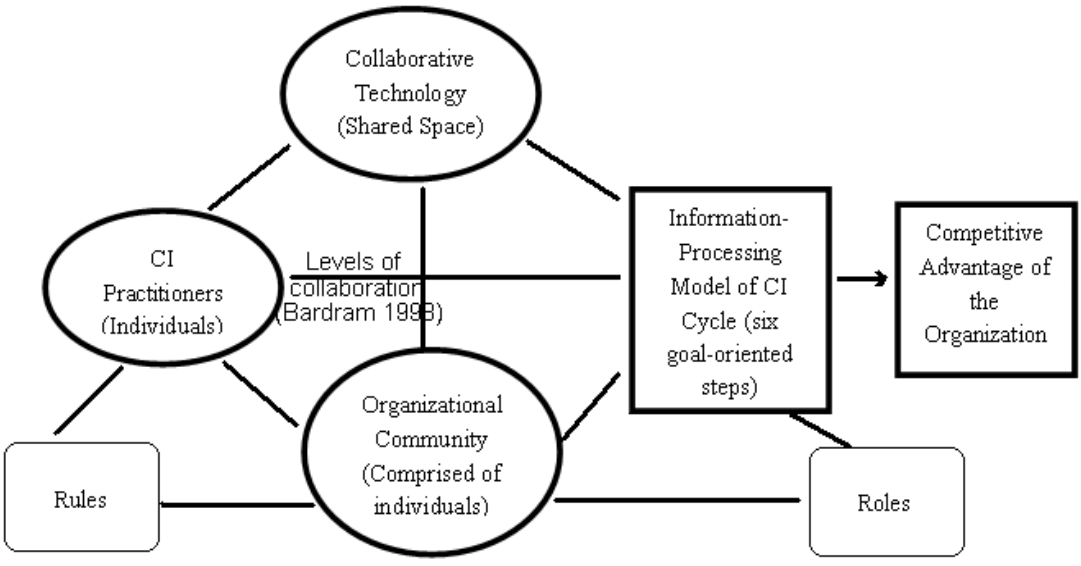

Figure 1. An Integrated Model for Studying the Role of Collaborative Technology in CI

The proposed model involves analyzing CI practitioners' motivations and tasks, the external and internal individuals with whom CI practitioners interact; and how the practitioners and their collaborators perceive their joint activities and goals. In any particular situation, these relationships are also mediated by other factors such as rules and roles, which both have cultural and historical dimensions. Informal and formal rules and roles will influence the extent to which information is shared in the organizational community and the technology will determine the capability to access and share information. Within this framework, all the developmental transformations and dynamics of collective activities can be examined and analyzed and, in particular, conflicts and contradictions.

In summary, Activity Theory offers a holistic approach and integrates individual/group behaviors with their social contexts. Therefore, the overall activity system, rather than the individual CI professional, becomes the unit of analysis for research on collaborative technology in the context of CI.

7. CONCLUSION

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In the previous sections, by examining the CSCW and the CI literature, we explored the conceptual links between collaboration, collaborative technology, information access, and competitive intelligence. Interestingly, what we have found so far suggests that, at the conceptual level, it is highly probable that collaboration can facilitate information access at the various stages of the CI cycle. On the other hand, there is evidence that collaborative technology is evolving and encompasses a variety of software applications that seem very attractive in the context of CI. However, the exact role and value of collaborative technology for CI purpose is not supported yet by empirical data, thus there is a need to conduct research in this area. We proposed a number of starting premises and a framework based on AT to investigate such a role and value. As Schrage (1995) mentions the study of collaborative technology is not aimed at automating collaboration but should seek to improve and to enhance the way collaboration performed in organizations. Collaboration as well as CI do not rely anymore solely on human-to-human interactions. They both integrate sophisticated human-to-machine interactions, and gaining knowledge on the nature of these interactions is essential to identify the ways information is processed both by humans and technology. Such a knowledge should be beneficial to design of better technology and to improve current CI practices.

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