

E-COLLABORATION THE NEW ECONOMIC WORLD

*Costin Aurelian-Răzvan¹
Țolea Eniko²*

Abstract

In this paper we will present what e-collaboration means and how can this concept revolutionize the XXI-th century economy. Our analysis leads to a conclusion that the future of business will be based on technological backgrounds. Breaking time and space frontiers will be the key of success in a hard competitive business environment. In our opinion this goals will be achieved by the implementation of groupware. However, our study shows that this field still needs a lot of normalization as concept of e-collaboration still has no standard approaches and many theoreticians still confuse collaboration with the classical “three c” terms.

Introduction

Over the years many authors tried to define collaboration but in truth a universal definition still is not in place (Johnson, 2001). Even so, a lot of theory exists, nowadays, regarding this issue, so we will try to compile the best definitions which match with our point of view.

Michael Schrage said in his book “Shared minds” that “...collaboration is the process of shared creation”. This is the most concrete explication of its meaning. A lot of controversial appear when theoreticians try to explain what e-collaboration really is. Many tend to use cooperation, coordination and communication interchangeably, to define it, but collaboration is distinct from each of this terms. “The ambiguities reach a higher level when other related terms are considered such as networking, communication, and coordination” (Denise, 1999; Grosz, 1996; Himmelman, 2001; Pollard, 2005).

“Like any winning sports team, an unforgettable ballet or the best theatrical production, collaborative social networks are the source of value creation. This is because they are our most cohesive pattern of social relationships” (Scott, 1991).

Nowadays, there is a new multidisciplinary field called Computer Supported Cooperative Work (CSCW) which studies the opportunity and the way systems that support collaborative working should be implied. CSCW is a design-oriented academic field bringing together social psychologists, sociologists, and computer scientists, among others. Despite the variety of disciplines, CSCW is an identifiable research field focused on understanding characteristics of interdependent group’s work with the objective of designing adequate computer-based technology to support such cooperative work.

¹ Costin Aurelian-Răzvan, Babes-Bolyai University, Cluj-Napoca

² Țolea Eniko, Babes-Bolyai University, Cluj-Napoca

We should percept e-collaboration as a way of using information to create something new, by working together in real time. Collaboration uses the C-Three (cooperation, coordination and communication) as a set of tools to achieve its goal but it should not be confused with these terms.

The CCCs vs. Collaboration

None of this three C's define Collaboration.

Communication refers to the way that people interferes, how they communicate and understand each other.

The main issue about communication is that even if someone is listening and interfering they may not be collaborating because each one has he's one ideas and way of understanding things.

Coordination is all about balance and symmetry. Coordination is a framework used to ensure coordination between central office and field units. It is used to achieve efficiency.

Cooperation is very important in a group, in organizations and even between humans.

If we refer specifically to an organization were a collaborative system is integrated, cooperation is the key of success.

If the members of the organization are communicating and cooperating, and between them exists coordination then we can go further and integrate a collaborative system.

Collaboration is the relation between Communication, Coordination, Cooperation.

Collaboration is, as Michael Schrage says:

„...the process of shared creation: 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. Collaboration creates a shared meaning about a process, a product, or an event. In this sense, there is nothing routine about it. Something is there that wasn't there before.”

Collaboration is distinct from each of the “C” words profiled above.

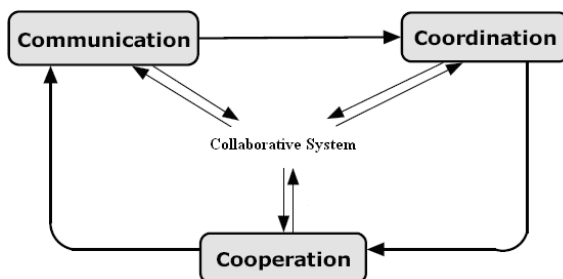


Figure 1. 3C vs Collaboration model

E-collaboration is about space, time and money

The frame work of e-collaboration is the groupware. Groupware is software that can be used by a group of people who are working on the same information but may be distributed in space. It allows people to work together across time and distance. These

applications include shared text editors, design platforms, multi-distributed-player games, etc. A shared design application could allow engineers from different places to plan, view, and manipulate new parts for a manufacturing process. “Similarly, a group troubleshooting system could allow expertise from many locations to be gathered together to investigate a problem and explore possible solutions” (e.g. Steves and Knutilla 1999).

A very good example for a groupware is the Halo project created by HP in collaboration with DreamWorks. Halo creates a new conferencing experience that exceeds any previous attempts to replicate face-to-face meetings (Halo white paper). The idea of building the Halo system resides on the fact that people do their best work in collaborative social networks (Sandow & Allen, 2005). It is used by large companies to create a meeting platform for their employees that work in different places. HP says that collaborative systems “are about time and space” to which I would add money. The success this project had is denoted by the great deal of interest that it raised among big multinational companies like PepsiCo, Advanced Micro Devices or DreamWorks.

Companies had been investing in alternative work places since the 80s and groupware might be what they are looking for (Carr, 1999). Potential benefits of such systems are clear: no more need for offices, no more traveling, improving productivity, as Carr said “virtual employees tend to devote less time to office routines”. So a company could save millions due to the use of such a system.

In today’s business world there is a saying: “time is money”. E-collaboration has another perspective on this issue. IT specialists came with a solution to reduce costs inner an organization. This solution is the groupware, which is a compilation of breaking space borders, going behind time limits and nevertheless saving money.

Challenges for e-collaborative systems

The first obvious challenge for groupware is how to make distributed work as effective as face to face interactions. The correct approach of this challenge is to percept groupware as an alternative medium that allows remote interaction. E-collaboration will not replace face to face communication but it may actually be preferable in some situations for some groups because certain difficulties, inconveniences, and breakdowns can be eliminated or minimized. For example, distributed interactions allow participants to access other relevant information, either via the computer or in a book on the shelf, without interrupting the interaction flow. This is analogous to findings on the use of telephone, electronic mail, and other technologies. While none of these replace face-to-face interaction, each has a niche where it is a unique and useful mode of communication. The challenge, then, is to apply appropriate technological combinations to the classes of interactions that will benefit the most from the new medium (Ellis, Gibbs, Rein 1991).

Companies engaging in e-collaboration must participate in external business relationships by using computer interactions (Damanpour, 2001). Implementing e-collaboration strategy can require many sophisticated technologies and systems such as EDI, XML, eCRM (Zhao, 2008). So, another great challenge e-collaboration is confronted with is re-engineering IT strategies and resources. The following constitutes some of the key technological issues facing e-collaboration:

- Process and system alignment and integration;
- Interoperability of systems;
- Accessibility, security and compatibility of inter-organizational information systems;
- Traffic in collaborative e-commerce activities;
- Sustained IT support and resources;
- Transferring and sharing information and data;
- Building and sustaining an effective virtual network structure amongst e-partners;
- Quality and effectiveness of networking and communications (Zhao, 2004).

Collaborative systems could be used to create communication canals between different companies to. But this type of collaboration “stresses sharing risks and responsibilities towards a jointly defined goal ... It increases the likelihood that the goal can be met. However, three powerful, common barriers that might impede collaborative efforts or working together of agencies are time, trust and turf” (Himmelman, 1995).

1. **Time:** Developing on collaborative systems could cost more time and effort than providing services independently; however, on the long term it will save time.
2. **Turf:** Turf issues surface when an imbalance, perceived or real, of benefits to the collaboration partners occurs. For example, one agency might see that another agency reaps more benefits from the collaborative effort; or, one agency takes on less responsibility, or has more decision making power. Partners do not see each other as equally involved in benefiting of the collaboration.
3. **Trust:** Lack of trust becomes a barrier in collaborative efforts. Trust can be influenced by prior or current troubled working relationships, or by lack of understanding on how agencies or disciplines operate, or by personal factors such as personality or temperament of an agency representative. (Himmelman, (1995).

Last but not least, of the challenges, is managing cultural discrepancy. When establishing a virtual team, a manager should be very careful on the cultural compatibility of its members. This brings us to another issue. We can view the cultural problem from another angle to. What organizational-culture should an organization have to permit the implementation of an e-collaborative system?

To accomplish the virtual team collaboration, employees must be involved from the start of the project. Organizations must promote cooperation and teamwork, and provide training. It is required to develop and publish policies and procedures. They have to offer incentive programs for participants. Because all these activities are related with change, a plan is required, and key performance indicators must be in place before the project begins. Tools like Balanced Scorecard can help integrate different departments involved in the process, and keep track of cultural change plan success. So, it takes a lot of management effort to create the right work environment, in order to accommodate all diversity aspects, technology challenges, cultural differences, and get all the best of virtual team workers. The management philosophy and style needs to be more informational, rather than industrial, in order to give room to alternative workplaces arrangements. Informational organizations operate mainly through voice and data communications. They are not necessarily high tech, but employees style are flexible,

informal, change when necessary, have a sense of respect for personal time and priorities, and are committed to use technology to improve performance. Industrial, in this context, means that organization's structure, systems, and management processes are designed for intensive face-to-face interaction and that employees remain rooted to specific workplaces. Thus, a dynamic, nonhierarchical, technology driven organization is more likely to adopt alternative workplaces programs than a highly command-driven one, because its culture is more open and fosters proactive ways of doing a job (Fernandez, 2008).

Virtual teams and collaboration in technology based environments requires a transition from industrial to a knowledge mindset, where physical presence is not really necessary, but only employees' knowledge and skills matter. It means that there will be an organizational cultural change that may impact on personal cultural beliefs. We have to understand that collaboration only happens over time because it requires participants to develop trusting relationships (Fernandez, 2008).

Types of groupware

If we analyze the behavioral patterns of the members involved in a collaboration process we would observe a set of characteristics in the paradigm of these patterns and so we could make a categorization of e-collaborative systems.

Katzy (2005) divided e-collaboration systems in three types, in terms of structure as follows:

1. Chain topology, typical for manufacturing industries or supply chains.
2. Star topology, which, in fact, is the most spread. This form of collaboration is typical for automotive industry.
3. General network topology used more often in knowledge industries.

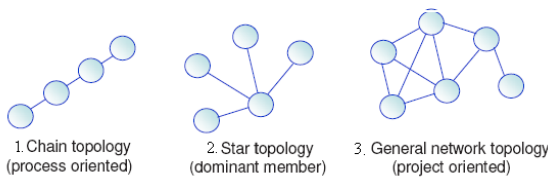


Figure 2 – Examples of topologies of collaborative networks

In a chain topology, the partners' interaction pattern mainly follows a value-chain. In a star topology, partners interact with one central hub or strategic center, while partners in general network topology have multiple relationships among all nodes without hierarchy. In the last case we can have not only a peer-to-peer kind of interaction but also a more general form involving several partners, or even all of them.

In terms of duration, we can find short-term networks, typically triggered by a collaboration opportunity, as the case of a virtual enterprise, and long-term networks, as

the case of strategic alliances or supply chains. Furthermore, applications in different domains introduce specific terminology for that domain, what increases the difficulties of mutual understanding in an area that is of a multidisciplinary nature. In order to cope with such situation, this chapter tries to clarify the basic concepts and introduces taxonomy of collaborative networks forms.

Even if there are a lot of types of e-collaborative systems, all groupware have the same purpose.

Information sharing is the core element of all forms of e-collaboration.

Conclusion

As shown, e-collaboration is not just about communicating and information- exchange. Groupware could assure a way of making business in a turbulent environment. Therefore, we strongly believe, e-collaboration will develop to a main tool in future business world.

With the fast development of the area of collaborative networks, showing in a diversity of application domains, theoreticians say that it is becoming crucial to systematize and consolidate the knowledge in this area.

“Groupware research and development should proceed as an interdisciplinary endeavor. We use the word interdisciplinary as opposed to multidisciplinary to stress that the contributions and approaches of the many disciplines, and of end users, must be integrated, and not simply considered. It is our belief that in groupware design, it is very difficult to separate technical issues from social concerns and that the methods and theories of the social sciences will prove critical to groupware's success” (Ellis, Gibbs 1991).

So, it takes a lot of management effort to create the right work environment, in order to accommodate all diversity aspects, technology challenges, cultural differences, and get all the best of virtual team workers. And it takes a lot of developing work to create a solid groupware that could actually be an asset for a company. And lastly it takes a lot of study until e-collaboration will be correctly value.

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