

Chapter 1.2

e-Collaboration Concepts, Systems and Applications

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INTRODUCTION

The need to support collaboration among users for the facilitation of everyday tasks, communication, work, and training has been identified since the early stages of computer usage. This need became more critical when computer networking became available. The wide expansion of computer networks, the Internet, and the World Wide Web are some of the main reasons that have accelerated the creation of applications, technologies, standards, and systems that can support communication and e-collaboration. These technologies along with the wide expansion of the Internet led the application designers to rethink the way of exploiting information and communication technologies (ICT) for supporting groups of users. This fact has affected the design and the provision of e-collaboration services, which allows geographically dispersed

users in companies and/or organizations to communicate and collaborate in order to learn (computer supported collaborative learning—CSCL) or to work (computer supported collaborative work—CSCW) together.

Today there are many tools, standards, and technologies available that could be used for developing collaborative systems and applications according to the end users' requirements and specific needs.

E-collaboration is an important research topic with a great number of researchers contributing on many aspects. The main reason for this major research activity is the broad topic's scope, which involves not only technological but also social and psychological issues. As a result, there are multiple interpretations about what e-collaboration is. More specifically, we definitely can say that e-collaboration has been defined in many ways

in the past, and the number of definitions has grown recently. The next section presents the main terms in this area.

BACKGROUND

With the development of new technologies, and particularly ICTs, teams have evolved to encompass new forms of interaction and collaboration. This team could be called virtual teams. As defined by Lipnack and Stamps (1997) a **virtual team**, like every team, is a group of people who interact through interdependent tasks guided by a common purpose. Unlike conventional teams, a virtual team work across space, time, and organizational boundaries with links strengthened by webs of communication technologies. The members of virtual teams can collaborate and cooperate in order to interact with each other. Collaboration and cooperation are very similar terms and they are often used interchangeably. **Collaboration** is the act of working together on a common task or process. **Cooperation** is the joint operation toward a common goal or benefit. Biuck-Aghai (2003) stated that we can better understand the difference between collaboration and cooperation by considering their antonyms: the antonym of collaboration is “working independently,” while that of cooperation is “competition.” Therefore, we think that collaboration is a better term to describe the mode of interaction among the members of virtual teams.

According to the previous, we can consider the broad and descriptive term of **virtual collaboration** introduced by Biuck-Aghai (2003), which is defined as collaboration, which is conducted without face-to-face interaction, enabled by technology.

A similar definition has been introduced by Kock, Davison, Ocker, and Wazlawick (2001), who stated that e-collaboration is “collaboration among individuals engaged in a common task using electronic technologies.”

This broad definition regards e-collaboration as a term, which is not limited to computer-mediated communication (CMC) or CSCW. **CSCW** is computer-assisted coordinated activity carried out by groups of collaborating individuals. So it should be clear that CSCW is a generic term, which combines the understanding of the way people work in groups with the enabling technologies of computer networking and associated hardware, software, services, and techniques. Until the introduction of CSCW, the majority of computer systems were based on the wrong hypothesis that the persons work alone and there is no reason to use systems that could support their collaboration. Kock and Nosek (2005) believe that e-collaboration should be a broad term because many other electronic technologies that are not (strictly speaking) computers and that can be used to support collaboration among individuals engaged in a common task. According to this definition, e-collaboration may take place without any CMC or CSCW.

We could agree with this definition. However, we can say that today we observe a trend where the communication devices are (in a broad sense) computers—either they are personal computers (PC), mobile phones, or embedded systems and portable devices. Furthermore, the most instances of e-collaboration involve computers and computer networks and also the trend today in tele-communication networks is to go on all-IP networks.

Therefore, in this article we focus on **e-collaboration** defined as “collaboration, which is conducted without face-to-face interaction among individuals or members of virtual teams engaged in a common task using ICT.”

Groupware (or collaborative software) refers to application software that integrates work on a single project by several concurrent users at separated workstations. Groupware is software that accentuates the multiple user environments, coordinating and orchestrating things so that users can “see” each other, avoiding the conflicts

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