

A Basic Definition of E-Collaboration and its Underlying Concepts

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INTRODUCTION

Electronic collaboration (e-collaboration) is operationally defined here as collaboration using electronic technologies among different individuals to accomplish a common task (Kock & D'Arcy, 2002; Kock, Davidson, Ocker, & Wazlawick, 2001). This is a broad definition that encompasses not only computer-mediated collaborative work but also collaborative work that is supported by other types of technologies that do not fit most people's definition of a "computer." One example of such technologies is the telephone, which is not, strictly speaking, a computer—even though some of today's telephone devices probably have more processing power than some of the first computers back in the 1940s. Another example of technology that may enable e-collaboration is the teleconferencing suite, whose main components are cameras, televisions, and telecommunications devices.

The above operational definition, which I will use as a basis to discuss other related issues in this article, is arguably very broad, yet it is probably clearer than the general view of e-collaboration in industry, which some may also see as a bit unfocused. For example, some developers of e-collaboration tools, such as Microsoft Corporation and Groove Networks, emphasize their technologies' support for the conduct of electronic meetings over the Internet. There seems to be a concern by those developers with offering features that make electronic meetings as similar to face-to-face meetings as possible.

Industry information technology publications such as *CIO Magazine* and *Computerworld*, on the other hand, often tend to favor a view of e-collaboration technologies as tools to support business-to-business electronic commerce and virtual supply chain management over the Web. These are business activities that are arguably substantially different from electronic meetings, both in terms of scope and main goals. The primary audiences of industry information technology publications are information technology managers and

professionals, who are the consumers of e-collaboration technologies. Given that, one can imagine the possible misunderstandings that may take place when those managers and professionals get together with developers' sales representatives to discuss possible e-collaboration technology purchases.

BACKGROUND

As far as buzzwords are concerned, *e-collaboration* is still in its infancy, even though the technologies necessary to make e-collaboration happen have been around for quite some time. Strictly speaking, e-collaboration could have happened as early as the mid-1800s, with the invention of the telegraph by Samuel F. B. Morse. The telegraph allowed individuals to accomplish collaborative tasks interacting primarily electronically. If one assumes that the telegraph was too cumbersome to support e-collaboration, it may be more reasonable to argue that the birth of e-collaboration could have been soon after that, in the 1870s, with the invention of the telephone by Alexander Graham Bell.

Yet, for a variety of reasons, true e-collaboration had to wait many years to emerge. Did the commercialization of the first mainframe computers in the 1950s, following the ENIAC project, help much in that respect? Not really, and that was not necessarily due to technological obstacles to developing e-collaboration systems for mainframes. The real reason seems to have been the cost of mainframes (Kock, 1999, 2005), which was then seen as too high for them to be used (a) by anyone other than very specialized workers, who often dressed like medical doctors; or (b) for anything other than heavy data-processing-intensive and/or calculation-intensive applications. Of course, e-collaboration was not seen as one of those applications. Moreover, worker collaboration was not even a very fashionable management idea by the time the mainframes hit the market big time in the 1960s (Kock, 2002).

A Basic Definition of E-Collaboration

Then the ARPANET, the precursor of today's Internet, happened in the late 1960s. The ARPANET Project's main goal was to build a geographically distributed network of mainframes within the United States that could withstand a massive, and possibly nuclear, military attack by what was then known as the Soviet Union. By that time, mainframes were used in ballistics calculations, without which intercontinental missiles would not be as effective in reaching their targets as they were expected to be. The Project was motivated by the Cold War between the United States and the Soviet Union, which reached a tense stage in the early 1960s. The main sponsor of the ARPANET Project was the U.S. Department of Defense.

One of the tools developed to allow ARPANET users to exchange data was called "electronic mail" (e-mail). E-mail was initially perceived as a "toy" system, which researchers involved in the ARPANET Project used to casually interact with each other. This perception gave way to one that characterizes e-mail as the father (or mother) of all e-collaboration technologies (Sproull & Kiesler, 1991). To the surprise of many, serious use of e-mail grew quickly, primarily as a technology to support collaboration among researchers, university professors, and students—the primary users of the ARPANET while it was in its infancy.

So, in spite of the fact that other technologies already existed that could have been used for e-collaboration, e-mail was arguably the first technology to be used to support e-collaborative work. Interestingly, e-mail's success as an e-collaboration technology has yet been unmatched—at least in organizational environments (college dorms do not qualify). This is somewhat surprising, given e-mail's granddaddy status as far as e-collaboration is concerned. Helping it hold that enviable position is e-mail's combination of simplicity, similarity to a widely used "low-tech" system (the paper-based mail system), and support for anytime-anyplace interaction.

E-COLLABORATION, CMC, AND CSCW

What I refer to in this article as e-collaboration research is in fact made up of several research streams, with different names and traditions. One such research stream is that of computer-mediated communication, also known as CMC, which has been traditionally concerned with the effects that computer mediation has on individuals

who are part of work groups and social communities. One common theme of empirical CMC research is the investigation of the effects of computer mediation on group-related constructs by using as a control condition the lack of computer mediation—what some prefer to simply call "face-to-face interaction."

E-collaboration is not the same as computer-mediated communication. Earlier in this article, I defined e-collaboration as collaboration using electronic technologies among different individuals whose goal is to accomplish a common task. I would argue that, following from that definition, e-collaboration research should be seen as encompassing traditional CMC research as well as other lines of research that do not necessarily rely on computer-mediated communication to support collaborative tasks. One example would be the study of telephone-mediated communication. This argument also applies to another area of research normally referred to as computer-supported cooperative work (CSCW), for similar reasons. That is, e-collaboration research should also be seen as encompassing traditional CSCW research.

Another distinction that I would like to point out, and that may be seen as controversial by some, is that e-collaboration may take place in situations where there is no communication per se, much less computer-mediated communication. Let us consider for example a Web-based e-collaboration technology that allows different employees of an insurance company to accomplish the same collaborative task, namely the task of preparing a standard insurance policy for a customer. Since we are assuming that the collaborative work is on a standard insurance policy, it is not unreasonable to picture a case in which different employees would electronically input pieces of information through the e-collaboration technology that will become part of the final product (i.e., the policy) without those employees actually communicating any information to one another. In this case, the e-collaboration system would pull together different pieces of information from different individuals into what would in the end become an insurance policy, and in such a way that the individuals may not even have been aware of one another. Some, of course, will argue that this is not "really" e-collaboration. But it fits our definition of e-collaboration, presented earlier in this article: "...collaboration among different individuals to accomplish a common task using electronic technologies."

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