

Preface

One sign that a research topic has become quite important is the publication of a dedicated encyclopedia full of articles addressing the topic. That is also a clear sign that there is a community of researchers whose work gravitates around the topic in question, which in the case of this volume is the topic of e-collaboration. The publication of this *Encyclopedia of E-Collaboration* is a landmark event in the path toward making e-collaboration an established field of inquiry—a field that can sustain itself and serve as a reference for other fields of inquiry. And, as the reader will certainly notice from the several applied articles contain in this volume, its publication is also a landmark event in the path toward making e-collaboration an established field of industry practice.

E-collaboration has been defined in many ways in the past, and the number of definitions has grown recently. This situation has been intensified by the emergence of an e-collaboration tools industry, with major players like Microsoft Corporation and IBM offering e-collaboration products and services.

Nevertheless, e-collaboration can be broadly defined as collaboration among individuals engaged in a common task using electronic technologies. This definition is broad enough to fit most people's interpretation of what e-collaboration is (and is not), and not to conflict with narrower definitions developed in specific technology utilization contexts.

Based on the definition above we can say safely that e-collaboration is not limited to computer-mediated communication (also known as CMC). We can also say that e-collaboration is not limited to computer-supported cooperative work (known as CSCW). Other electronic technologies exist that are not (strictly speaking) computers and that can be used to support collaboration among individuals engaged in a common task. One example is the telephone, which was one of the main targets of research conducted in the 1970s that led to the development of influential theories in the field of e-collaboration research.

It also follows as a corollary from the above definition that e-collaboration may take place without any computer-mediated communication or computer-supported collaborative work. For example, let us consider the scattered members of an army platoon, using rudimentary electronic devices to indicate their location and transmit basic information to each other while performing a joint reconnaissance task of a certain geographic area. Those platoon members are in fact engaging in e-collaboration, according to the definition of the term presented above.

That is not to say that most instances of e-collaboration will not involve computers. In fact, the opposite is the case. This is reflected in how hardware and software vendors regularly discuss related technologies. Contemporary e-collaboration technology vendors often define e-collaboration with an emphasis on technological support for electronic meetings over a private network or the Internet. Among those vendors are established companies such as Microsoft Corporation and IBM, as well as newer players such as Google and LivePerson. E-collaboration technology support is often presented by these vendors as enabling electronic meetings that incorporate many elements of face-to-face communication but that can be conducted in a geographically dispersed fashion.

Another modern trend in connection with how e-collaboration is perceived is seen in information technology (IT) publications aimed at IT managers and professionals. Those publications, which include *CIO Magazine* and *Computerworld*, often present e-collaboration technologies as tools to support electronic commerce and supply chain transactions involving two or more organizations. This view is more limited yet perfectly compatible with our adopted definition of e-collaboration.

Strictly speaking, e-collaboration could have begun as early as the mid-1800s, with the invention of the telegraph by Samuel F. B. Morse. However, that invention was probably too cumbersome to be consistently used to support the work of individuals engaged in common tasks. Even the invention of the telephone in the 1870s, and its wildfire-like diffusion in the coming years, was not enough to usher in the e-collaboration age.

In fact, e-collaboration did not become a reality with the emergence of the first commercial computers after World War II, either. Those computers were large, expensive, and generally referred to as “mainframes.” At that time, organizations

were very centralized, which inhibited collaborative work. Moreover, mainframes were then seen as too expensive to be used to support communication and collaboration among groups of individuals. The relatively high cost of mainframes, especially when compared with the cost of labor at the time, restricted their use to very specialized tasks conducted by expert technicians. Mainframe use was not distributed. It was highly centralized.

Arguably, one of the first and most successful e-collaboration tools, a version of e-mail, was in fact a spin-off of a large, wide area computer-networking project called ARPANET, sponsored by the U.S. Department of Defense. The project was conducted in the late 1960s. ARPANET's inventors had not envisioned it as an infrastructure to enable group communication or collaboration. At the time of its initial development, ARPANET was seen primarily as a means for researchers and computer scientists to share expensive mainframe resources.

Yet, between the early 1970s and 1980s, e-mail was discovered and used by thousands of those researchers and computer scientists. While its developers did not see it as much more than a toy system, e-mail quickly became an essential e-collaboration technology.

As the ARPANET grew, so did the use of e-mail. At the same time, new computer chip manufacturing techniques enabled the development of large-scale integrate circuits, with much lower cost and physical space demands than the circuitry used up until then in mainframe computers. This, in turn, led to the development of personal computers that were smaller, less expensive, and often more powerful (in terms of processing power) than many of the early mainframes. Soon these personal computers were connected to local area networks (LANs) through LAN operating systems, whose market was initially dominated by Novell Corporation, with its NetWare operating system.

The wide area network infrastructure created by the ARPANET, together with the development of personal computers and LANs, provided the environment in which early e-collaboration technologies flourished in the 1980s. Some of those technologies, such as Information Lens and The Coordinator, extended the functionality of early e-mail systems.

Other e-collaboration technologies, which later became known as group decision support systems (or GDSSs), were aimed at improving the efficiency of same room, same place group meetings through features such as anonymous and simultaneous idea generation and voting. Examples of early GDSSs are GroupSystems, Teamfocus, and MeetingWorks.

Still other e-collaboration technologies, such as Lotus Notes and Domino, allowed users to create asynchronous e-collaboration spaces. These latter e-collaboration technologies have often been referred to as e-collaboration systems development suites. They were in many ways similar to some of the e-learning environments that fueled the growth of distance education (e.g., Blackboard and WebCT).

The early 1990s saw what once was the ARPANET evolve into today's ubiquitous Internet; a worldwide network of computers made up of many LANs, interacting through the same general communication protocol (i.e., TCP/IP). This, in turn, provided the infrastructure necessary for the emergence of the Web, which is made up of millions of platform-dependent Web servers providing users access to static and dynamic content through platform-independent Web browsers.

Today's e-collaboration technologies are either browser-based (i.e., run on Web browsers) or non-browser-based. The latter are usually Internet-based tools enabling proprietary client software to interact with other clients either directly (peer-to-peer e-collaboration tools) or through servers (client-server e-collaboration tools). Examples of widely used browser-based e-collaboration tools are WebEx and eRoom, as well as many e-learning tools like Blackboard and WebCT. Examples of widely used non-browser-based e-collaboration tools are Groove (peer-to-peer e-collaboration), MSN Messenger, and ICQ (client-server e-collaboration).

A recent search on ABI/Inform containing the term e-collaboration suggested that the earliest articles on the topic dated back to the early to mid-1990s. (ABI/Inform is a widely used database of business and technology articles.) Yet research on topics related to e-collaboration has a long history, arguably dating back to the late 1970s. That research was conducted under different banners, some of which reflect distinctly different research traditions.

Among the main e-collaboration research traditions is that of computer-supported cooperative work (or CSCW). It dates back to the 1970s, and its first dedicated conference (called CSCW Conference) took place in the early 1980s. CSCW research has traditionally involved the search for technological solutions to e-collaboration problems, such as that of increasing social awareness of collaborators through the use of "avatars." These are visual and often metaphorical representation of a user (e.g., a unicorn). The CSCW Conference has been regularly held since its first installment, and is considered the principal meeting point for CSCW researchers.

Another main e-collaboration research tradition, of a more behavioral nature than CSCW research, has been the one targeting the family of technologies known as group decision support systems (GDSSs), and their effects on group behavior. While there is no single conference dedicated to it, GDSS research has grown over the years to become one of the main areas of research in the broader field of information systems. That research has usually focused on the match between GDSS tools and group tasks, particularly decision making tasks conducted by groups of individuals meeting at the same time and in the same room. The communication among the individuals is usually mediated by computers running GDSS software.

CSCW and GDSS research can be characterized as distinct lines of research, which, notwithstanding a tendency to benefit from multidisciplinary contributions, have their own separate and somewhat independent traditions. As with most areas of research where the scope is relatively limited, CSCW and GDSS also have distinct communities of scholars associated with them, and, among those, key contributors that are widely perceived as prominent researchers in those areas. Several of those researchers contributed articles to this encyclopedia.

The advent of the Internet, and particularly of the Web, caught many CSCW and GDSS researchers by surprise, in the sense that it brought in researchers from many other disciplines into the realm of e-collaboration research. Among those disciplines are marketing, accounting, economics, human resources management, clinical psychology, and education, just to name a few. This has led to two separate and opposing trends.

One of the trends has been the development of many subcommunities dedicated to a particular issue in connection with e-collaboration research. Examples are asynchronous learning networks and virtual social networking; the latter having experienced tremendous growth since 2005 with the emergence of social networking technologies (e.g., blogs and wikis). Unfortunately, it seems that many of those subcommunities have been unable to (or are still trying) to identify a small set of key issues that would characterize them as legitimate and to some extent independent communities of inquiry.

The other trend is that of integrating separate communities of inquiry (including the CSCW and GDSS communities) through the identification of broad issues likely to be relevant for e-collaboration research as a whole, and the creation of publication outlets aimed at bringing together scholars of different e-collaboration research traditions. Examples of broad issues that have been presented as relevant for e-collaboration researchers in general are compensatory adaptation and collaborative sense making. Examples of publication outlets aimed at bringing together scholars of different e-collaboration research traditions are the journal *IEEE Transactions on Professional Communication*, published by the prestigious Institute of Electrical and Electronics Engineers (IEEE); and the *International Journal of e-Collaboration*, whose inaugural issue was published by IGI Global in early 2005.

The Encyclopedia of E-Collaboration is one of the newest additions to the existing publication outlets aimed at bringing together scholars of different e-collaboration research traditions. What makes it a unique outlet is that it is by far the most comprehensive compilation of short articles addressing issues in connection with e-collaboration technologies and their impact on users. More than 100 articles have been contributed to this volume of the Encyclopedia by nearly 200 authors from all over the world. Each article provides a focused discussion of a topic related to e-collaboration, as well as seven or more terms and definitions related to e-collaboration. The *Encyclopedia of E-Collaboration* is expected to be a “living document” that will grow over time with the addition of new volumes.

The range of topics covered in this Encyclopedia is certainly broad and representative of the state-of-the-art discussion of conceptual, theoretical, and applied e-collaboration issues. If one looks at the broad literature on e-collaboration, as well as its impact in academic and industry circles, it becomes clear that this Encyclopedia brings together the best in terms of thinking in the field. The authors of the articles in this volume are among the most accomplished and influential e-collaboration researchers in world. I thank them for being contributors to this book, and am honored to have been able to serve as the editor of this volume.

The blend of conceptual, theoretical and applied articles found here makes me confident that the *Encyclopedia of E-Collaboration* will serve both academics and practitioners very well. I hope that this volume will stimulate further research on e-collaboration issues by academics and doctoral students and help practitioners take full advantage of the increasing new forms of work organization and social interaction modes enabled by e-collaboration technologies.

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