Chapter 11
E-Collaboration Systems: Identification of System Classes using Cluster Analysis

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ABSTRACT

E-Collaboration systems have become the backbone infrastructure to support virtual work in and across organizations. Fuelled by recent technology trends the market today offers an abundance of systems that often support a wide range of communication and collaboration features. In this article I present a study that aims to shed light on the market for E-Collaboration systems by structuring the range of available systems into meaningful classes. To this end, a sample of 94 E-Collaboration systems were characterized using a classification approach. A cluster analysis led to the identification of five system classes and a range of sub classes. I describe the system classes and discuss trends of systems integration and convergence. The results should be equally helpful for researchers who deal with E-Collaboration systems as their objects of interest, as well as for business executives, who need to gather information to support buying decisions.

INTRODUCTION

More and more enterprises react to the challenges of turbulent markets with engaging in collaborative ventures such as strategic alliances or business networks (Ebers, 1999). Many people today work in teams that are distributed across space and time with participants coming from different organizations (Bélanger, Watson-Manheim, & Jordan, 2003). Increasingly, these virtual teams are used to organize knowledge-intensive work in projects where the best experts are distributed across the

DOI: 10.4018/978-1-60960-466-0.ch011

globe (Lavin Colky, Colky, & Young, 2002). To this end, e-collaboration systems, that is, software for supporting communication, coordination and cooperation processes in groups, have become the backbone infrastructure for contemporary e-work carried out within and across organizations. Fuelled by recent trends such as the maturing of Internet technology, the increase in network bandwidth, and the emergence of novel ways of communication (e.g., IP telephony), numerous new e-collaboration systems have made their market entrance. Hence, today a large number of systems exist that often support a wide range of collaboration features. Following the recent attention, even large IT companies such as IBM, Microsoft, Oracle, and Siemens are devoting to the sector; the market for e-collaboration systems presents itself as fast-growing, diversified, and complex.

In this article I present a study that aims to shed light on the e-collaboration market by structuring the range of available systems in meaningful classes. To this end, a cluster analysis approach has been used. In the following section I motivate the study and introduce its methodological approach. The third section provides an overview of the criteria that were derived in order to characterize e-collaboration systems. The forth section introduces the cluster analysis, while the fifth describes the system classes that emerged from the data analysis. The sixth section discusses the results and gives an overview of ongoing market trends. Finally, in the last section I reflect on the research approach and provide a brief outlook on future research endeavors.

STUDY OVERVIEW

Motivation and Context

The e-collaboration system, that is, the IT artifact used by groups in real-life contexts, represents one of the conceptual elements that are of interest to e-collaboration researchers (Kock, 2005). In order to fully understand the impact of such systems in groups and organizations, one has to have a good understanding of its typical features, as well as of alternative systems and emerging new technologies available to people in context. According to Orlikowski and Iacono (2001), in many studies in the IS field the IT artifact is only poorly understood or articulated. Consequently, the authors call for research to refocus on the IT artifact as the relevant subject matter. In the same way, Markus (2005) emphasizes the importance of understanding better the nature of e-collaboration technology. Researchers must pay "attention to differences in technology's material features" (Markus, 2005, 9), since the existence of a feature in a particular type of e-collaboration system can have strong effects on how the system is actually used by groups in order to perform joint tasks (DeSanctis & Poole, 1994; Kock, 2005). Hence, when researching the use and impact of particular e-collaboration systems it is important to know what features these systems offer. Markus (2005) comments, "A small difference in features could mean a noticeable difference in social outcomes for companies choosing between [E-Collaboration] packages" (p. 14).

According to the taxonomy of theories presented by Gregor (2006), my study aims to develop a type 1 theory, that is, a theory for analyzing. The purpose of this type of theory is to explain "what is," by providing classification schema, frameworks, or taxonomies; the particular value of such theories lies in "providing clear delineation of the uniformities of classes of phenomena to be studied" (Gregor, 2006, p. 623). The particular aim of my study is to contribute to a better understanding of the e-collaboration artifact by providing a classification of systems that is grounded in the real-life complexity of the marketplace. To this end I classify systems using a catalogue of criteria and use cluster analysis to finally identify system classes and thus to explain the nature of system diversity in the marketplace.