Advancing Collaborative Knowledge Environments: New Trends in E-Collaboration

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Chapter 1
From Collaborative Tools to Collaborative Working Environments ................................................................. 1

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In this article we introduce the main research lines concerning CSCW and groupware, which are forming the core foundation of Collaborative Working Environments (CWE). Furthermore, we introduce the problematic aspects in CWE and the features and recommendations for the integration of CWE in organizations. Through this issue readers will learn new paradigms for the building of CWE as well as directions for measuring and planning the implementation of collaboration within enterprises with the aim of obtaining the best performance. Finally, a brief introduction of the three articles of this special issue on CWE is presented.

Chapter 2
Towards a Reference Architecture for Collaborative Work Environments ......................................................... 11

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In this article the authors provide an overview of the Ecospace reference architecture which constitutes a reusable high-level representation for building Collaborative Work Environments that are interoperable, context-aware and highly personalised. Based on this architecture they have already developed a number of prototypes that at the same time use and validate the proposed design. Here they present an example, specifically a prototype that demonstrates interoperability and context-awareness as important features of the Ecospace architecture.
Chapter 3
Emerging Collaboration Routines in Knowledge-Intensive Work Processes:
Insights from Three Case Studies

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This article aims to identify how knowledge workers develop their own collaboration strategies and techniques for getting their work done in complex, dynamic knowledge intensive work environments. Three case studies have been conducted to explore the nature of routines in different collaborative working settings as they provide sufficient detail to better understand the actual state and problems regarding collaborative work processes among knowledge workers. Evidences from these cases show that coordination and control of projects, tasks, information, and little support by collaboration tools in all work patterns seem to be the biggest issues and there is a need for better understanding of collaboration culture as well as harmonious and integrated redesign of collaboration routines with new collaborative working environment technologies. The analysis of the cases also shows that there are considerable differences in ways of how actors communicate and coordinate their work which leads varying degrees of quality in knowledge intensive work. The results can be used to achieve a smoother collaborative working phase through innovative technical developments.

Chapter 4
Collaborative Performance: Addressing the ROI of Collaboration

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Collaboration is gaining attention as a key driver of overall business performance, innovation capabilities and productivity. However, there is a discrepancy between the perceived importance of collaboration and the extent to which companies approach collaboration in a structured manner. Few companies methodically evaluate how well they perform in the area of collaboration, and few have implemented management and leadership principles to systematically improve collaborative performance. This article explains how businesses can benefit from systematic, structured investment in tools and methods supporting collaboration, and concludes with a few governing principles and a list of specific action points for businesses that are interested in improving their collaborative performance and obtaining a higher Return on Investment (ROI) on their collaboration initiatives.

Chapter 5
Collaborative Distance: A Framework for Distance Factors Affecting the Performance of Distributed Collaboration

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This paper introduces the topic of “Collaborative Distance” within Distributed Collaboration as being an introduction to this Special Issue on Collaborative Working Environments 1 (CWE). In this paper, the authors discuss various related concepts, identified during an extensive literature review, on both
proximity and distance in distributed collaboration. Then, a Collaborative Distance Framework (CDF) is proposed in deriving its four dimensions and related factors from the existing body of knowledge. The following section discusses the interest of such a CDF and introduces the articles published in this special issue. The concluding section discusses the articles’ contributions, limitations and future work as well as recommendations for future research in this area.

Chapter 6
Socio-Technical Influences on Virtual Research Environments ................................................................. 89

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A number of socio-technical aspects that influence interorganizational research collaboration are embedded in local work contexts. Thus, they should be a main concern for the design of virtual research environments. A review of forty papers from different research fields provided an understanding of the influence of eleven socio-technical aspects grouped according to the following categories: nature of work; common ground; collaboration readiness; management style and leadership; technology readiness. There are five main implications for the design of virtual research environments. Emphasis is placed on the importance of consulting the stakeholders so that they suggest solutions and ideas, and imbue the collaborative environment with the values required for it to be sustainable.

Chapter 7
An Integrated Collaboration Environment for Various Types of Collaborative Knowledge Work ............................................................. 102

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In knowledge work, different types of collaboration can be distinguished. Because of close relationships between these collaboration types, it is necessary to support them together in an integrated collaboration environment. Using case studies, in this paper, the authors describe various types of collaboration practice and demonstrate the necessity of their integrated support. Based on this work, the concept of the incorporation of different types of collaboration in an integrated environment is presented. Furthermore, a prototype implementation of such an integrated environment is offered.

Chapter 8
Communication Genres for Dispersed Real-Time Collaboration (RTC): The Role of Presence and Awareness ......................................................................................... 114

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In this paper, the author examines RTC and its implications on people’s lives. This paper analyzes the production and reproduction of presence and awareness through (RTC-mediated) communication genres. Specifically, the author argues that presence and awareness are two interrelated concepts. Four communication genres are presented, which people intentionally or unintentionally draw on in dispersed settings to create awareness. Furthermore, presence, understood as a person’s sensation of being perceived by others in whatever he or she is doing, is influenced by the information imparted through communication genres. The author argues that the sensation of presence shapes the characteristics of communication genres and that RTC technology modifies existing or enables new communicative practices. Consequently,
emerging RTC technologies may affect the sensation of presence in dispersed settings. The line of argument is developed by presenting the working conditions and communication practices of a university professor, working on several projects with both dispersed and co-located colleagues.

Chapter 9
Self-Regulation in Instant Messaging (IM): Failures, Strategies, and Negative Consequences ....... 136

Anabel Quan-Haase, University of Western Ontario, Canada

Despite the advantages of using instant messaging (IM) for collaborative work, concerns about negative consequences associated with its disruptive nature have been raised. In this paper, the author investigates the mediating role of self-regulation, using a mixed methods approach consisting of questionnaires, focus groups, and interviews. The findings show that these concerns are warranted: IM is disruptive, and multitasking can lead to losses in productivity. Despite these negative consequences, users are active participants in IM and employ a wide range of self-regulation strategies (SRS) to control their overuse. The study found three key SRS: ignoring incoming messages, denying access, and digital or physical removal. The study also found two different approaches to self-regulation. The preventive approach, consisting of creating routines and practices around IM use that would help regulation, and the recuperative approach, consisting of changing behaviors after overuse had occurred. Communication via IM helps in the development of social capital by strengthening social ties among users, which can be useful for information exchange and cooperation. These positive effects provide a balance to the potential negative impact on productivity. Implications for theories of self-regulation of technology and for managerial practice are also discussed.

Chapter 10
Instant Messaging in Global Software Teams................................................................. 158

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Instant Messaging (IM) has been strictly forbidden in some companies as an unproductive use of time and exists in others via unsanctioned employee actions without explicit approval or directive from upper management. This paper examines a set of globally distributed software teams in a company that has explicitly installed and integrated IM capabilities with its collaboration management tools. Through a set of semi-structured interviews and the application of adaptive structuration theory, this study finds that because of the unique characteristics of global software development, IM is a highly useful tool for maintaining team cohesiveness and supporting team communication. Although the study finds strong support for the value of IM, it also identifies that the time distributed nature of the work, the informality of the medium as it interacts with different cultures and the productivity loss from IM’s interruptive nature are problematic. A set of recommendations is made to address these problems. The paper concludes that IM is a useful tool for global software development and its advantages outweigh its problems.
Chapter 11
Using WarpPLS in E-Collaboration Studies: An Overview of Five Main Analysis Steps
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Most relationships between variables describing natural and behavioral phenomena are nonlinear, with U-curve and S-curve relationships being particularly common. Yet, structural equation modeling software tools do not estimate coefficients of association taking nonlinear relationships between latent variables into consideration. This can lead to misleading results, particularly in multivariate and complex phenomena like those related to e-collaboration. One notable exception is WarpPLS (available from: warppls.com), a new structural equation modeling software currently available in its first release. The discussion presented in this paper contributes to the literature on e-collaboration research methods by providing a description of the main features of WarpPLS in the context of an e-collaboration study. The focus of this discussion is on the software’s features and their use and not on e-collaboration study itself. Particular emphasis is placed on the five steps through which a structural equation modeling analysis is conducted through WarpPLS.

Chapter 12
Scaffolding Solutions to Business Problems: Trust Development as a Learning Process
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Teams whose interactions are mediated entirely via internet-based communication, virtual teams, are becoming commonplace in businesses. Although trust has been identified as key for virtual teams to work effectively, researchers have not developed scalable methods that consistently promote trust. This study examines the formation of trust perceptions, which is inherently a learning process. Strategies employed to promote more traditional definitions of learning can be used to promote trust development. In this paper, the authors investigate how a strategy of modifying the design of the communication system for virtual teams can be used to promote perceptions related to trust. The authors conduct an experiment to examine the impact of a template-driven messaging system to scaffold the development of the three antecedents of trust—integrity, benevolence, and ability—within a virtual team environment and communication activity. The study shows that participants who used the template-driven messaging system perceived their team members as having a higher level of ability than those who used the regular system. Moreover, users of the template-driven environment authored more messages and read a greater percentage of the messages, suggesting that messaging scaffolds were successful in improving the flow of information and fostering an environment favorable to trust development.

Chapter 13
Mapping the Need for Mobile Collaboration Technologies: A Fit Perspective
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With the growing popularity of mobile technologies and the increasing use of groups within organizations, it is important to understand the collaboration contexts where mobile collaboration technologies (MCTs) are essential. This is especially critical given the high cost associated with the acquisition and implementation of MCTs and the need to make an informed decision regarding the appropriateness of MCTs. In this paper, the authors address this issue by first drawing on real life-based collaboration scenarios and examining the technology requirements of groups; second, comparing the features offered by MCTs with those of FTF and two types of CMCTs; third, proposing a collaboration environment-technology fit perspective in realizing optimal usage of a collaboration technology; and fourth, creating the Group Collaboration Technology Repertoire Grid, which maps the “ideal” collaboration technology(s) repertoire for each type of collaboration environment. The grid highlights the collaboration environments that would need MCTs and provides managers or organizational group leaders the ability to map their collaboration environments into a specific category and thus more easily decide on the particular collaboration technology repertoire that would be most beneficial.

Chapter 14
Improved Information Connectivity and Visibility throughout the Global Supply Base .................. 234

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Although the literature frequently examines achieving an integrated supply chain and participating in information sharing with supply chain partners, there is little guidance given to firms on how to progress to a state where these goals can become reality. This paper examines the struggles of one firm in moving toward information sharing with its suppliers and its hopes of achieving an integrated supply chain. This paper reveals lessons learned from the difficulties the firm encountered during the integration process. Despite putting an information system in place, the company discovered that people issues matter as much, if not more, than technology issues.

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