The Design Of Computer Supported Cooperative Work and Groupware Systems

edited by Dan Shapiro, Michael Tauber and Roland Traunmüller

Human Factors in Information Technology 12
ELSEVIER SCIENCE. Amsterdam, 1996, 481p.
ISBN 0 444 81998 3

This volume reflects the quintessential production of a lot of reputed universities and research organisations in the world in the very special domain of CSCW, first put forth by their representatives during a specially oriented and interesting workshop held at Schärding , Austria, some years ago, and then steadily extended and refined, to be worth publishing and knowing by large information technology communities.

The book is structured in five Sections , with an Introduction, as suggestive as anyone could desire, made by Dan Shapiro, one of its editors and contributors.

Section 1, convincingly and conspicuously **introduced by Liam J. Bannon**, links ethnography, which is a method of human sciences, to the design of CSCW which is the computer scientists' concern.

Brigitte Jordan, from Xerox Palo Alto Research Center and Institute for Research on Learning, inaugurates this Section with her **"Ethnographic Workplace Studies and CSCW".** Based on her valuable findings from studying various work practices with different social groups, she has been priviliged to understand and let us also understand the very nature and suitability of ethnography for an analytic and systemic research of work situations and settings.

The second contribution to this Section is on **"Paperwork and its Lessons for Database Systems: an initial assessment"** and is made by a team from Centre for Research in CSCW, Lancaster University, UK, including **John Hughes, Val King, John Mariani, Tom Rodden** and **Mike Twidale.** They discuss the production and flow of documents which a CSCW system centres on, and, surprisingly, find some conveniences in maintaining "paperwork" in an office activity. They also show how, if properly done, the design co-operative work of ethnographers and computer scientists could bear fruit.

Section 2, benefiting a remarkable **introductory chapter by Gerrit van der Veer**, addresses requirements and principles for groupware design, and includes four contributions.

Thomas Herrmann, Volker Wulf and **Anja Hartmann** from the University of Bonn, define **"Requirements for the Human Centred Design Of Groupware"** through considering software ergonomic standards under development in both Germany and at international level and discussing the significance of their applicability to groupware systems.

"Approaching Design for Integrated CSCW-DAI Systems", by **Dirk E. Mahling** from University of Pittsburgh, USA, is a proposal of how intelligent co-operative systems can be built to include task-oriented analyses, elements of cognitive science and usability criteria.

In their paper **"Incorporating Multiple Levels of Information Processing in CSCW: An Integrated Design Approach", Kishore Sengupta** from Naval Postgraduate School, Monterey, California, USA, and **Dov Te'eni** from Bar-Ilan University, Ramat Gan, Israel, explain collaborative decision - making as a multilevel structure where individual, interpersonal and collective information are gathered and processed, and which concurrently contributes to designing CSCW systems.

In his paper **" Metaphors as Requirement Analysis Tools: The Market Metaphor in CSCW System Design", Peter Mambrey** from GMD presents the POLIKOM program, an ambitious and strategic R & D program, launched by the German Ministry for Research and Technology, where modern technology is called to assist in coupling distributed ministries and the Parliament , that is coupling Bonn-Berlin, the present and future "Hauptstadt" respectively. The program is viewed as one most significant CSCW

experiment of these last years preceding the year 2000.

Simon Kaplan and Dan Shapiro open the door to the very exciting world of **CSCW Languages and Environments**, which **Section 3** focuses on. They introduce the six chapters (papers) on this domain and let us see how very profound , while convergent, this world may be.

In **"Putting it all Together: Requirements for a CSCW Platform", Kjeld Schmidt**, from Riso National Laboratory, Roskilde, Denmark, and Tom Rodden, from Lancaster University, UK, show how beneficial the association of concepts in sociology and computer science can be and how this association can specifically determine the operation of a CSCW platform.

Igor T. Hawryszkiewycz, from University of Technology, Sydney, Australia presents **"A CSCW Design Tool Based on Generic Objects"** where he discusses a possible architecture and methodology for CSCW system design and provides a set of semantic concepts capable of characterizing generic objects.

In their paper entitled : **"Modelling Cooperative Work Settings with Active Workspaces" , Wolfgang Prinz, Tom Rodden, Anja Syri, Jonathan Trevor** highlight the high necessity for an environment which could embrace heterogeneous applications and make them enter cooperative interworking.

Norihiko Matsuura, Go Fujino, Ken-Ichi Okada and **Yutaka Matsushita** from Keio University, Yokohama, Japan, have been stubbornly prone to overcoming physical distance of work groups and offering them awareness support through imagining opportunities for casual and informal interactions . They conducted successful researches on this, to be finalised in a telecommunication environment called *VENUS* (a Virtual Environment for Natural communication of USers) , and underneath, in a PilotWindow system .Their contribution to Section 3 of the book is just this: **" VENUS: A Tele-Communication Environment"** , a natural yield of their design efforts and implementation attempts.

"Feedback in Computer Supported Cooperation Systems: User Interface Design for a Talk-Like Tool" by **Franz Penz** from Vienna University, and **Pedro Antunes** and **Manuel Fonseca** from Instituto Superior Técnico, Lisbon, is about the support which a talk-like communication tool could and should give to a CSCW system, on letting human gestures be still meaningful and human reaction be active. In this respect, an integrated communicating tool providing face expressions, called FaceTalk, has been designed and new kinds of feedbacks have been enabled in wide area computer communication.

Jan Rekers and **Ida Sprinkhuizen-Kuyper** from Leiden University, The Netherlands, discuss in their paper entitled: **"A LOTOS specification of a CSCW tool"** about the highly investigating effort made by the MOCCA group (Modeling Of Coordinated Collaborative Activities) at their University on the appropriateness of a specification language like LOTOS (Language of Temporal Ordering Systems) for being used as a communication protocol in a CSCW system. How deep should they go in writing new specifications for this and if it worth doing so instead of developing a specification formalism of their own, were the primarily assessed aspects.

Section 4 is about **"Combining Approaches". Betty Hewitt** from University of Teesside, UK, took the mission of summarizing the subject and she was exact in revealing the common preoccupation of all four contributors to this Section with proving how efficiently different disciplines can concur on eliciting requirements for CSCW systems and on their design.

In his paper entitled: **"Coping with active subjects: the emergence of CSCW from IS and HCI traditions", Kari Kuutti** from University of Oulu, Finland, analyses two domains where a paradigm change seems to be represented by CSCW: information systems and human-computer interactions (Grudin's model) and evolutionary development of computer systems (Friedman's model). The radicality of such a change for human actors and its repercussions on work organisation are the main topics dealt with.

Dan Shapiro contributes this Section with a substantial inquiry in the multidisciplinarity of CSCW, called **"Ferrets in a Sack? Ethnographic Studies and Task Analysis".** His paper is about sociology and psychology possible relation with computer science for designing CSCW systems .and about how contrastive behavioural task analysis and

ethnographic studies can be if chosen to conduct on air traffic control.

"A Contingency Model for Groupware Design" by **Dave Bell** and **Peter Johnson** from Queen Mary & Westfield College ,University of London, includes a set of guidelines for identifying technology requirements for group working.

Thomas Schäl from RSO Spa, Rome, Italy , writes about: **"Information Systems in Public Administration: From Transaction Processing to Computer Supported Cooperative Work".** Schäl tells about public administration at the hour of organisational change and improvement. It is the concept of process working and the workflow management technology which do achieve this change. They can realize the computer supported co-operative space within which communication and information sharing turns into reality.

The volume concludes with four chapters on **"Re-evaluating CSCW Systems".** In introducing this **last Section, Kjeld Schmidt** succeeds in a so precise and attractive capturing of ideas pervading the articles to come, that one's curiosity is immediately pushed to the source and attention is kept high.

Thomas Schäl contributes the first chapter titled: **System Design for Cooperative Work in the Language Action Perspective: A Case Study of THE COORDINATOR"** to this last Section of the book . This chapter , as much interesting as his previous one, discusses the usefulness of a language/action paradigm in designing systems for well-defined applications, and exemplifies by THE COORDINATOR, a workgroup productivity system running on IBM PC-compatible computers. He chose this CSCW application because , as difficult as it might be, it most adequately answered the call for advanced e-mail functionality, therefore for high-level communication standards.

Douglas Bogia, William Tolone, Celsina Bignoli and Simon Kaplan approach **"Issues in the Design of Collaborative Systems: Lessons from ConversationBuilder".** Considering some critical points which designers and developers of CSCW environments should always overcome, the authors propose a generic framework , called ConversationBuilder, for open, active and flexible support for collaboration. They address to the designers of domain-specific systems , offering them such a facility as CB kernel and interface tools stand for.

Liam J. Bannon from the University of Limerick, Ireland, talks about **"Use, Design and Evaluation: Steps towards an Integration"** , as they apply in system design. He encourages that evaluation studies of the design process should proceed from informal to formal ones and consider "the work needs of specific people in a specific context". He pleads for conducting evaluative studies for as many times as the design process would require, and for taking an integrating look at such activities.

On writing: **"Social Learning and CSCW: Lessons from Innovation Studies", Rob Procter** and **Robin Williams** from Edinburgh University, Scotland, try to make the designers' community aware of the fact that a good mastering of social learning processes , which should accompany the implementation of organizational IT systems , that is of CSCW systems, is even more important than the design processes in such an innovative domain.

As a general impression, the most expressive qualification of this book is its unicity in diversity. Topics, approaches, results or contact points, so diverse as they may appear from these presentations, are nevertheless highlighting one single domain: Computer Supported Cooperative Work. This makes a consistent and well-structured penetration of the domain, based on remarkable intuitions and significant research efforts. This reviewer has had the chance of reading it while taking pains himself to stir his fellow researchers' interest in the cooperative technologies field. This fact revealed him once more that, in the era of "everytime and everywhere", ephemeral connections and references, the contribution of a basic book could hardly be overestimated.

In addition to the high scientific appreciation which he owes to the book, the reviewer wants to appreciate its artistic look, with a splendid cover design and pleasant page lay-out. He wishes to thank North Holland, Elsevier Science B.V. in Amsterdam for their kind gesture of offering a review copy of this most valuable book.

Gabriel Neagu