Chapter 51
Revision of the Groupware Users Interface Development Methods

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ABSTRACT

Complexity inherent to groupware systems implies a considerable effort in design and development because of the need of multi-discipline collaboration work and the technical difficulty involved in the task (shared data, complicated collaborative activities, task distribution, group awareness, feedthrough, etc.). A key element for usability is the groupware user interface disposed to the enhancement of the group work quality in such aspects as coordination, communication, collaboration, etc. Different fields of computer science, HCI (Human Computer Interaction), CSCW (Computer Supported Cooperative Work), UCD (User Centered Design), and SE (Software Engineering), have contributed with the methodology, process, and tools model, which facilitates and improves different aspects of user interface development for collaborative environments. Still, the analyzed proposals do not completely cover the development process of a complete groupware system where interactive aspects are integrated with collaborative issues, not only in the interface but also in the application itself. Methodological proposals are analyzed in this chapter to detect how far they go in covering the development issues and trying to detect the strong and feeble points of every one, identifying the relevant aspects not yet covered in the fields dedicated to user interface development in this kind of system.

INTRODUCTION

Currently, in organizations, people commonly work in groups or teams, constantly interacting to achieve more productivity and better performance. On the one hand, the development of technology has prompted the creation of systems with the capability of providing the organizations with better work environments, to improve and facilitate the interaction, communication and group work, and in such a way to attain the proposed goals. Group-work-oriented systems are more and more
common and necessary, due to the increasing user demand of this modality and to the development of a solid network technology and infrastructure.

This kind of system is developed in the CSCW (Computer Supported Cooperative Work) field and is known under the term of groupware.

Complexity inherent to groupware systems implies a considerable effort in the design and development, because of the need of multi-discipline collaboration work and the technical difficulty that is involved in the task (shared data, complicated collaborative activities, task distribution, group awareness, feedthrough, etc.). A key element for usability is the groupware user interface which helps the enhancement of group work quality in such aspects as coordination, communication, collaboration, etc.

In this field different methodologies and process models have been proposed, allowing it to develop the user interface. Some of them have united the interactive with the collaborative aspects, but not totally covering the whole groupware system development process in an integrated way. This chapter is oriented to the exploration and analysis of the existing methodologies for the interface development in collaborative applications, also called groupware.

Methodological proposals have been analyzed according to the way the development is approached, the field from which they emerge, and the language and notations for their own specification, for the purpose of detecting the strong and feeble points of each proposal.

GROUPWARE

The software for CSCW systems is called groupware (Ellis, Gibbs, & Rein, 1991). Groupware is defined as ‘a computing-based system, able to support groups of users implicated in common tasks or goals, which supplies an interface to a shared environment’. It is also known as collaborative system because it allows multiple users to concurrently work on the same project (Bannon & Schmidt, 1991). The term CSCW is used to define the research educational area, while groupware defines the technology of this educational area.

CSCW, as a discipline, describes how to develop groupware applications, aiming at studying, practically and in theory, how people work in cooperation, and how groupware application affects the group behavior. The purpose is to understand the way in which people interact and collaborate with each other in order to propose a technological development able to assist the communication, collaboration and group coordination process. A group is defined as a ‘complex social system which develops multiple and interdependent functions in multiple concurrent projects.’ The specific features of a group process, which contribute to the groupware application development, are versatile: they are related to the individual work patterns (skills, knowledge styles, modes, behavior restrictions), which contribute to the group work and to the human communication characteristics (way of speech to take commitments and actions); they are related to the group, including issues related to the design of the group work (environment, participant commitment, group awareness, distributed cognition) and also items related to the group dynamics (collaborative processes, group performance and behavior); and lastly, they are related to the organization including the knowledge representation areas (organization structure and role of each participant), the organization design (capacity to develop support tools for the group work, integrating specified goals) and issues related to the management (activities, persons and resources).

In order for the groupware to fulfill the goal of increasing the efficacy of the group work, three basic activities will be brought up:

1. **Coordination**: Oriented to manage the dependency links of the group activities to attain a defined goal (Larson, 1992).
   In general, an organization operates using