A System to Support Collaborative Mobile Electronic Meetings

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Abstract. In this article we focus on the meetings that according to different aims are held in organizations. In these work meetings the participants share information, discuss ideas, make decisions and produce documents. Specifically, we approach a type of meeting in which the participants are at distance and make use of mobile devices on wireless networks. Along this line, we have developed a system to support these new kinds of electronic meeting settings. The system design was informed with our observations of real meetings, the analysis of some EMSs and other information collection techniques. The system, called REMO, follows a three-stage model (pre-meeting, meeting and post-meeting) and includes a wide set of collaborative tools. REMO can be used both from a central meeting place, with video-projectors and interactive whiteboards, and from remote locations.

1 Introduction

The areas of CSCW and Ubiquitous Computing are being developed with growing speed in the last years, attracting the interest of many researchers. In the future, software systems will incorporate ubiquitous and collaborative facilities in a more natural and transparent way for the user. But at the moment, it is necessary to investigate how traditional work settings can be supported and enhanced using these technologies.

In this article we focus on the meetings that, with different aims, are held in organizations. In these work meetings the participants share information, communicate, make decisions, and produce documents. A technology-supported meeting seeks for increasing participation, innovation and problem solving capability [16]. The systems used in these meetings are called Electronic Meeting Systems (EMSs). But society demands more flexible organizations. These trends result in teams whose members are scattered over large geographic areas [15]. We approach a meeting in which the participants do not have to be necessarily present in the same physical space nor be static but they will be able to move and therefore they will use mobile devices.

From this perspective, we aim at developing a software system to support users to hold mobile electronic meetings (MEMs). We call such a system Mobile EMS. A

Y. Luo (Ed.): CDVE 2006, LNCS 4101, pp. 200 – 210, 2006.

Mobile EMS gives response to the demands of society and organizations in terms of mobility and productivity in meetings. The devices that people will use to participate in these meetings will be very different, ranging from desktop PCs, laptops and Tablet PCs to more mobile devices such as PDAs (Personal Desktop Assistants) and mobile phones. Wireless technologies for their inter-connection will be used. Other interaction devices such as video-projectors or interactive whiteboards complete the MEM configuration.

The design of this kind of systems requires not only technical considerations but also social and psychological ones, since it is necessary to study the people's behaviour and how they collaborate during a meeting held by means of a technological environment supporting work at distance. Along this line, a series of interviews and questionnaires have been carried out to collect user requirements of the meetings that take place in different organizations. This has allowed us to outline the system functionalities. Some tools for preparing the meeting (objectives, participants, documents, agenda, etc) must be offered. These are pre-meeting tools. Also other tools for holding the meeting from any location are required. Among them we can mention communication, voting and edition tools. In a post-meeting stage the participants need access to the artefacts produced and the decisions made.

After describing the results of a questionnaire presented to potential users of these MEM settings (Section 2), this article continues with the study of some related systems (Section 3). Then, in Section 4, the system developed to support MEMs, called REMO, is described. Finally, we draw some conclusions and outline the future work in Section 5.

2 Analyzing Electronic Meetings

In the design of the REMO system we first considered the study of organizations and the meetings they hold. Although there are many types of organizations and meetings, our objective was to design a generic and flexible system able to give support to the greatest possible number of meeting types.

In order to collect user requirements we elaborated a questionnaire that was filled out by two different collectives: workers from organizations who participate in meetings using or not using computer technologies, and Computer Science (CS) engineers. The former answered the questionnaire in the context of the meetings they hold more frequently, expressing necessities and contributing their professional experience. The latter, by means of the same questionnaire, contributed solutions to model a MEM.

The workers (N=33) were from enterprises such as banks, software factories, business companies, insurance companies, etc., and from research and academic organizations. They were general managers (9.1%) as well as department directors (18.2%) and operative employees (69.7%). In relation to the computer-supported cooperative work tools they used, they considered the electronic mail as the most useful groupware tool in their work. This was followed by the instant messaging (chat) and by the audio conference. Tools such as shared whiteboards, video conference and group document editors are also used but with less frequency.