EnviroInfo 2002 (Wien)
Environmental Communication in the Information Society - Proceedings of the 16th Conference
 ISBN: 3-9500036-7-3

The Contribution of Audio Conferences to the Dematerialization of Meetings in the Age of the Web

Ralf Nikolai[1], Kerstin Buth[1], Timo Koepke[1], Gunter Vogt[1]

1. Introduction

The economic trend of reducing costs in companies and public administrations on the one hand and the renunciation of air travelling after the terror attacks in the United States on September 11th, 2001 on the other hand strengthen the tendencies to run audio, video or web conferences replacing face-to-face meetings. Prerequisite of this development was merging of telecommunication, information, multimedia, entertainment, and security technology – concisely: TIMES – and the deregulation of the telecommunication market. Before high technical and organisational prerequisites by all participants were required; now a growing number of service providers are is offering comfortable and less expensive alternatives.

Apart from the enterprises' and public administrations' opportunities to save costs by teleconferences (instead of face-to-face meetings) another aspect is of great importance: The tiny use of resource by teleconferences is an important contribution to the protection of the environment.

Our article focuses on the most used type of teleconferences: audio conferences. After introducing the key concepts we discuss the value-adding features of Web-based conference. A concrete example shows the possible dematerialization effects.

2. Definition and Delimitation of Key Concepts

Using the phone (as the proven form regarding one-to-one telecommunication) to connect more than two participants means to run an (multi-point) audio conference. A so-called service provider connects the participants. The provider could be in-house (e.g., the telecom department running the service on top of the local PBX) or extern (service company). The voice signals will be transmitted by a network, usually the Public switched Telephone Network (PSTN), alternatively the organisation's own network or (by making use of voice-over-IP) the intranet or Internet.

[1] disy Informationssysteme GmbH, www.disy.net

3. Development of Audio Conference Services

Before the deregulation of the telecommunication markets had been leading to a competitive situation, audio conference services in Europe had only been offered by state-owned telecoms. The conferences had to be booked in advance by phone or fax, established by the provider's operators; they offered almost no comfort and were fairly expensive. By the deregulation private providers developed more innovative and less expensive services. The new TIMES market enabled to develop more comfortable solutions and to lower the obstacles to use audio conferences. When margins at the classical phone business were decreasing the providers discovered value-added-services like audio conferences as promising future markets.

In Germany one of the most important innovator was the telecommunication company operator AG offering Web-browser-based planning and controlling of audio conferences since 2000. Meanwhile there are several innovative service companies (see e.g. www.teleconf.de). The classical, then state-owned telecoms had to adjust their tariffs to market prices but at this time they do not offer any important innovation like conference control via a web browser.

4. Process-orientated View on Audio Conferences

A process-oriented view on audio conferences identifies three phases.

4.1 Preparation of Audio Conferences (Pre-Conference Phase)

Same as organising a face-to-face meeting it is necessary to co-ordinate the date among the meeting's participants. Date finding and date confirmation / invitation could take place by a group date calendar or more simple by e-mail and phone contacts. These media are today used independently of audio conferences. Nevertheless a conference service should be able to invite the participants preferable by e-mail or SMS. Electronic address-books (with import- / export interfaces) offer further support for comfortable conference planning and invitation.

To run a face-to-face meeting it is necessary to book a room. Usually virtual conference rooms can be booked also to guarantee sufficient conference capacities.

4.2 Running a Conference (Conference Phase)

The main dematerializing potential refers to the running of the conference. Bridging the distance by a network instead of transporting persons allows to use resources wisely – simultaneously environmental, time and cost resources.

The unusual communication situation – no visual contact to the other participants, no information on the persons present in the conference room, danger of talking in a

mess - is often stated de-favourably. Not in every case an audio conference is the best way running a meeting in fact. But, if audio conferences which require a minimum and overall existing infrastructure state a real alternative, there are overwhelming advances convincing individually as well as socially and ecologically.

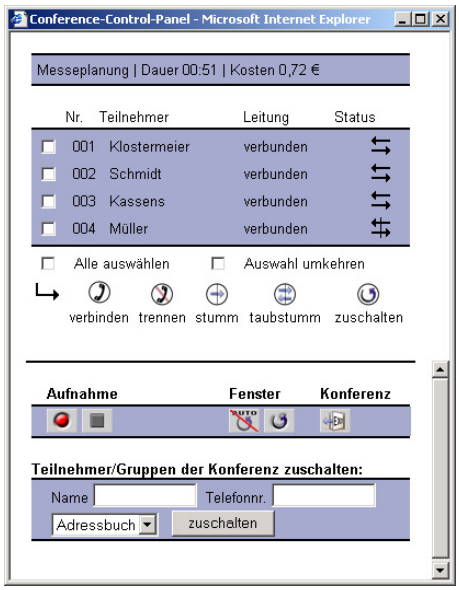

Fig. 1: Example for controlling a conference via a Web browser (www.teleconf.de)

The participants' visibility can be improved by a simple panel indicating their conference state (e.g. being called, welcomed, connected, disconnected) via a web browser. Such a panel can be used as well to control an audio conference: Participants be muted or deaf-muted and excluded from the conference for a certain time span. Additionally participants can have the opportunity to request for a word contribution by pressing a button of the phone's keypad. Further participants can be added when needed 'ad-hoc' to the conference; or, groups could be separated from the conference to discuss special problems. Extra services like recording or holding a poll/voting can be offered.

Some of these additional services had already been included in former audio conference systems. But the difficult interaction (navigating either by the phone's keypad with limited feed-back or by additional communication via the audio conference system's operator) leads to a refusal by the users. The new possibilities controlling a conference via a web browser – or in future by a mobile phone - in connection with the always actual visibility of the participants and their conference status allows to extend the range of potential users running audio conferences.

4.3 After the conference (Post-Conference phase)

An audio conference or a presence meeting is completed by taking down minutes and drawing up the bill. Web-directed conference systems allow to send online bills instead of paper; these electronic bills can be transferred directly to the accounts department. Various eCash technologies allow to pay electronically. The recording of a conference (available as password-secured downloadable audio file) can serve as basis for the minutes. Transporting data carriers such as CDs is unnecessary.

5. Dematerialization Effects

Modern audio conferences could be applied in a great variety of contexts. Business applications extend from crisis management and political co-ordination by co-ordination between offices, project meetings and e-Learning to investor conferences or management board meetings. The following simplified example gives a first impression on positive environmental and cost effects. We assume a 2 hour meeting of 7 European participants, 2 of them coming from the place of the meeting[1]:

	face-to-face meeting	audio conference	dematerialization effects
travelling time	35 h	0 h	(social effect: no travel stress no family separation)
travelling expenses	2000 EUR	0 EUR	energy savings, emission decrease, less usage of infrastructure
accomodation expenses	500 EUR	0 EUR	less usage of infrastructure
meeting expenses	0 EUR	270 EUR	less/smaller meeting rooms, less beamers
meeting expense accounting	3.5 h	1.5 h	less paper consumption

6. Summary and Outlook

The potential of modern audio conferences is still used by a minority only. Due to the advantages presented the authors as well as market analysts of well-known companies forecast an enormous increase in audio conferencing. An increasing degree of knowledge about audio conferences is also desirable because of the dematerializing effects leading to a more sustainable use of resources. Simultaneous application sharing will further broaden the application range of audio conferences.

[1] Audio conference prices from www.teleconf.de. For further infos contact nikolai@disy.net.