**Ambient Agoras**

# Ambient Agoras -
## Dynamic Information Clouds in a Hybrid World

## Project Aims

To provide situated services, place-relevant information, and feeling of the place ('genius loci') to users, enabling them to communicate for help, guidance, work, or fun. The project aims at turning everyday places into social marketplaces ( 'agoras') of ideas and information where people can meet and interact. This is achieved by means of smart artefacts using information technology in an innovative way, where the computer as a device disappears, but the functionality is available in a ubiquitous and invisible fashion.

## Objectives

To address the office environment as an integrated organisation located in a physical environment and having particular information needs both at the collective level of the organisation, and at the personal level of the worker. The project promotes an approach to designing individual as well as team interaction in physical environments using augmented physical artefacts to support collaboration, informal communication, and social awareness. Ambient Agoras couples several interaction design objectives (disappearance and ubiquity of computing devices) with sensing technologies (active and passive RFID, WaveLAN-based tracking) smart artefacts (walls, tables mobile devices,), ambient displays, and the emerging functionalities of two or more artefacts working together.

### Relation to DC objectives

The project addresses all three objectives of the DC call with the main emphasis on embedding computation into physical artefacts and the architectural environment. The interaction design of the artefacts, e.g., GossipWall, provides an engaging experience for the user not available before. Finally, the aspect of new use emerging from collections of interacting artefacts is approached by the combination of the GossipWall with mobile devices as, e.g., the ViewPort, and the concept of distance-dependent interaction semantics between multiple devices.

## Major results achieved

We developed a conceptual framework that analysed the architectural constraints for the design of future work environments providing us with a better understanding of the role of architecture when designing smart artefacts. In parallel and based on user-feedback, we built design and technology studies of the planned artefacts as well as working prototypes. Examples of the artefacts are:

- InforMall
- GossipWall
- VideoWall
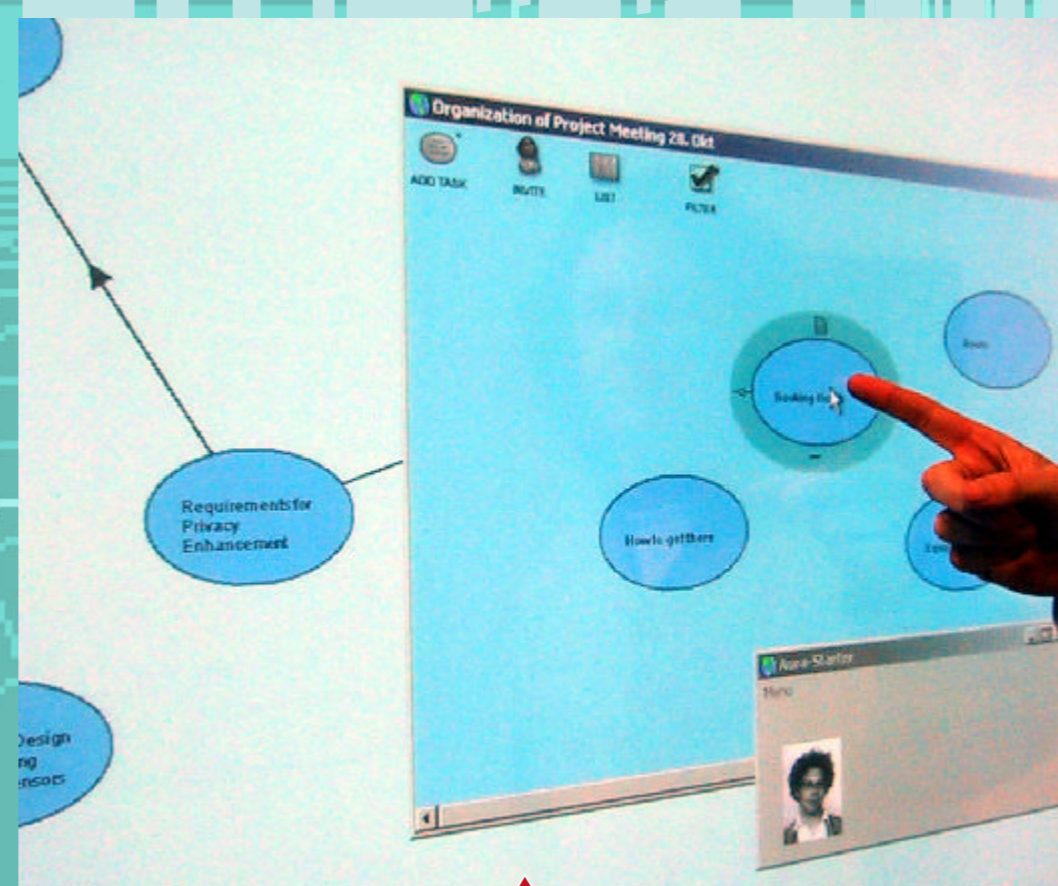- ConsulTable
- ViewPort
- Personal Aura

Apart from specialized software for GossipWall and the ViewPort, we developed different types of software providing functionality and interaction, e.g., the InfoRiver, SIAM (= System for Information and Awareness Mediation), Videomaton. The artefacts were provided with sensing technology (RFID) and specific software bringing life to the artefacts, e.g., the software for generating and controlling light patterns displayed on the ambient display GossipWall. Artefacts and software were used and evaluated in the K1-building of EDF-LDC, in a public event at EDF, and in a distributed scenario set up with a connection between EDF-LDC in Paris and Fraunhofer IPSI in Darmstadt.

## Focus

We investigated the following three major issues, looked at their interaction and combination and presented results on arriving at solutions for these issues. The issues are: 1) supporting informal communication and atmosphere in organisations, 2) the role and potential of ambient displays in future work environments, and 3) the combination of more or less static artefacts integrated in the architectural environment with mobile devices carried by people. We applied a scenario-based approach, starting out with a large number of "bits-of-life", aggregated them to scenarios and presented them to focus groups, e.g., via video-mock-ups, for user-feedback. This served, in combination with the conceptual framework, as the basis for the development of different hardware and software prototypes and their evaluation. Design, development, and evaluation followed an iterative approach with different milestones and usage phases of pilot installations during the course of the project.

## Impact

The approach and the results of the project were publicized in numerous presentations and publications at scientific conferences as well as commercial events in Europe, the US, and Japan. The project received also substantial coverage in the media in different countries and were cited as an example of innovative approaches to information technology.



*SIAM = System for Information and Awareness Mediation*



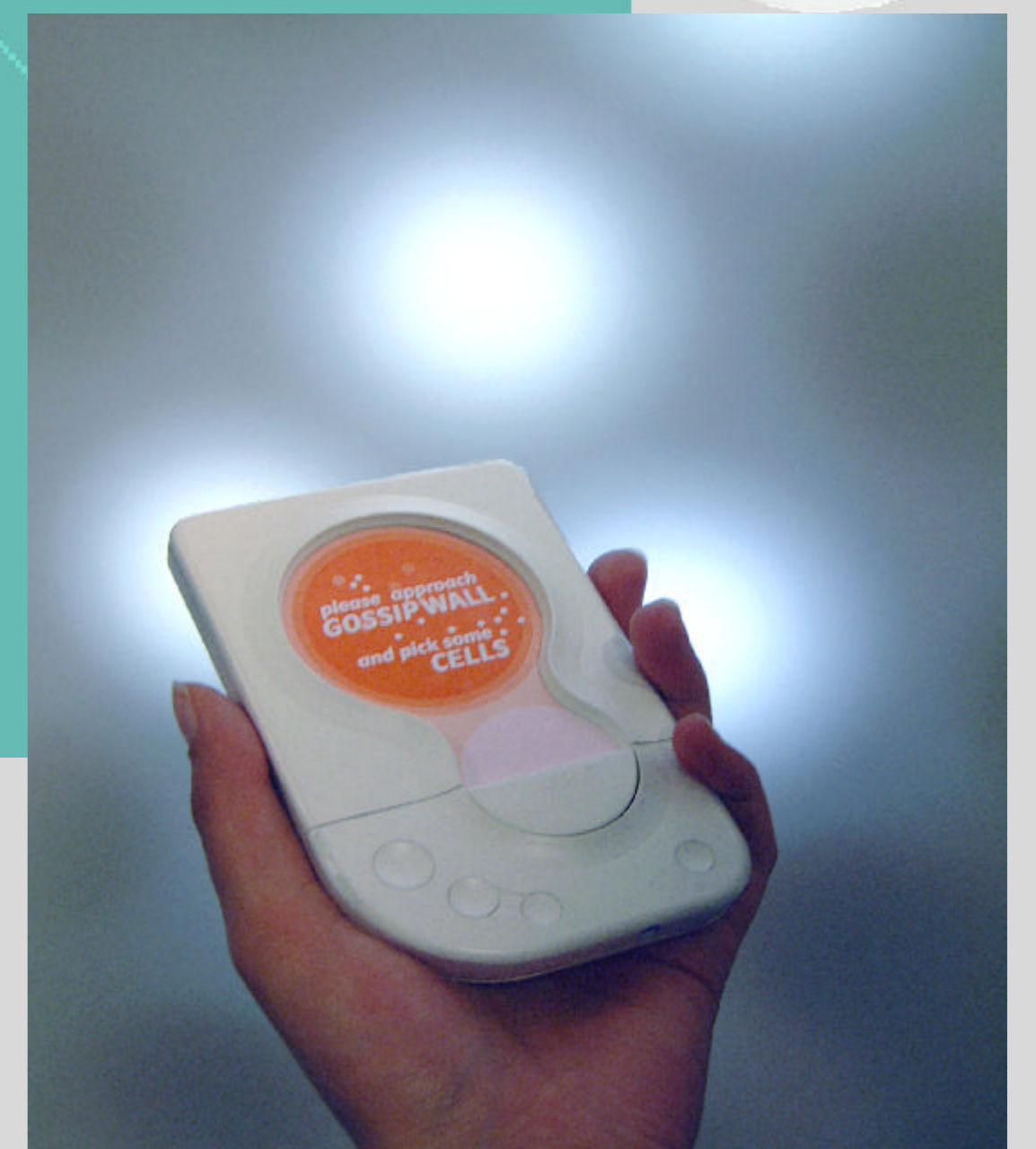*InfoRiver at the InforMall*

*Design Model of the ViewPort*



*Interaction between ViewPort and an InformationCell of the GossipWall*



*Interaction with the GossipWall*

*Informal communication in front of the GossipWall*





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disappearing computer, smart artefacts, ambient displays, mobile devices, sensor-based interaction,
zones of interaction, public space, personal space, informal communication, social architectural space