

# MEDIA FOR THE NEXT MILLENIUM

## RESEARCH AT THE INSTITUTE FOR MEDIA COMMUNICATION

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Media change the world. Ever since the printing press brought books to citizens, a number of media revolutions took place - Newspaper, Photography, Movie, Radio and TV just to mention a few. Each Revolution changed society in a profound way. Today, we are in the midst of a new media revolution - we can only guess where the journey will lead us.

It is not easy to give a crisp definition of media. Media systems have the following characteristics:

They transport information objects satisfying people's needs for information, education and entertainment

They have a dissemination channel like distribution of magazines, radio broadcast or data networks

They have a producer running the medium as business

They have a user group

They have a content producer or author group.

Media may be grouped into mass/single, public/private and open/closed.

Until a few years ago, Media businesses were quite stable. The following megatrend changed all that:

*Digitization:* digital production, storage and dissemination of contents has reached a high penetration and will be 100% completed soon.

*Convergence:* The difference of the PC and the digital TV set disappear. The Internet is a new broadcast medium whereas traditional broadcast systems become two-way data nets.

*Interaction:* While in traditional media, user interaction was minimal, the new media incorporate the user. He or she is a consumer and a producer at the same time while directly interacting with the medium, e.g. ordering goods from catalogues, participating in interactive shows etc.

The megatrends completely shake up the business landscape and make media a key strategic issue for every company today.

At the heart of the new media revolution is the technology engine. Impressive computer graphics, a few years in the category of 1M\$, is now on every desktop. Broadband Internet will reach most homes of the developed world soon.

The Institute for Media Communication (IMK) has the goal, to provide research and technology to the media industry. In this talk, key results from the following areas will be highlighted:

1. *Interactive Broadcast Systems:* we develop software solutions to bring radio and TV stations into the Web and expand the scope of settop boxes and Web TV systems.

2. *Virtual TV production:* We use fast graphics computers to generate virtual sets in TV productions. A challenging problem is camera tracking, the precise determination of camera position and viewing angle. A pattern-based tracking system is described. IMK has developed a complete virtual studio with an advanced tracking system that is used in an actual production studio.

3. *Virtual Environments:* This new medium explores the dream of generating artificial world that cannot be distinguished from reality. The CAVE, a display room in which the viewer immerses into the artificial scene marked a breakthrough in this field. GMD developed a "Virtual Workbench" which is used in many scientific visualization projects and is viewed as the CAD engineering station of the future. It is shown, how virtual objects can be made "real" by physical simulation.

IMK is developing the niche business for VE applications through cooperation with the oil industries and car manufacturers.

4. *Media Art and Contents:* Are virtual studios just replacing plywood with pixels? We think not and research in art and novel content production seems to support our view. Media Artwork and an innovative life virtual TV production will be shown with short videos.

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