
Technologies for supporting human activities

today, tomorrow--insights and prospects

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Employment in Europe 2001

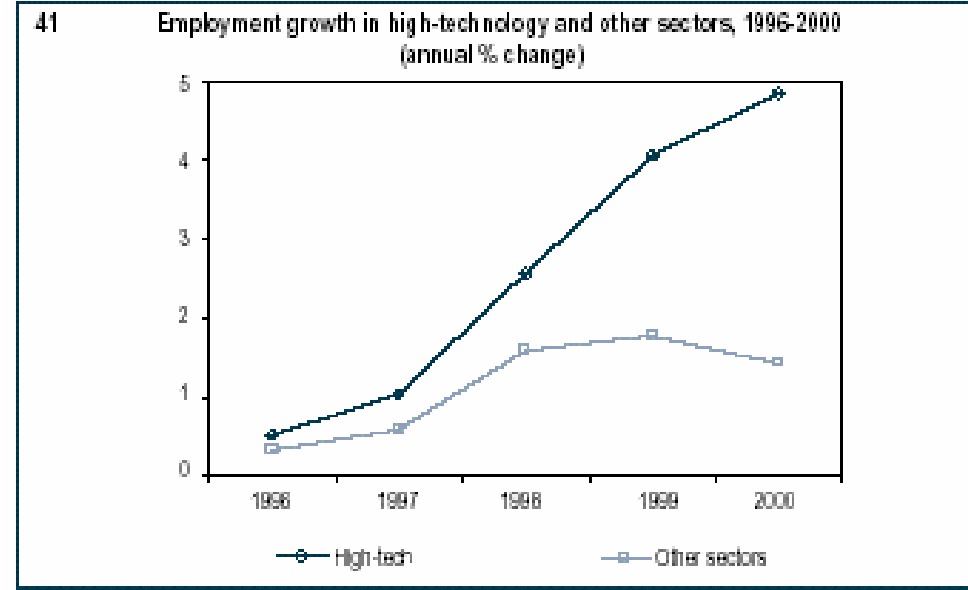
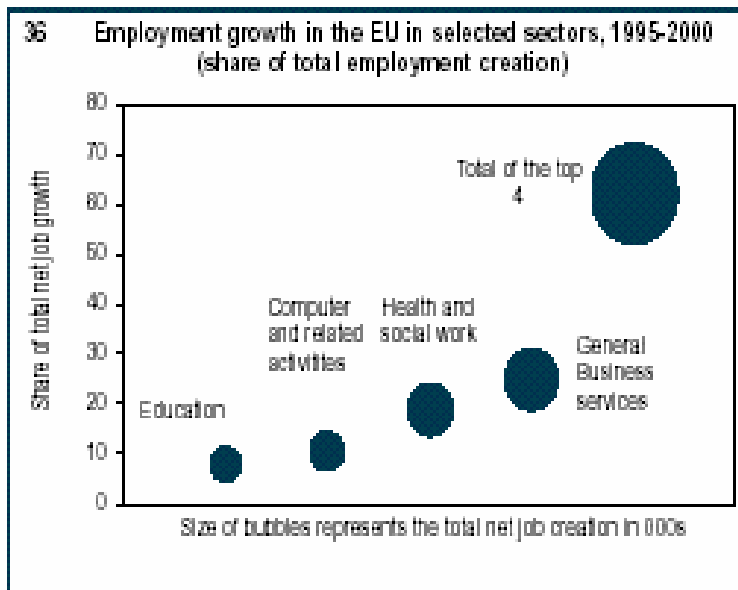
European Commission (2001) [[PDF](#)]:

Innovation and technological change, supported with intense investment in human capital, are driving forces for job creation.

Technological progress and investment in ICT are estimated to have contributed 0.5 to 0.7 percentage points yearly to EU GDP growth of about 2.5% since 1995.

Net job creation has been particularly strong in knowledge-intensive sectors like computer and related services (1 million jobs), business services (2.5 million jobs), and health, education and social services (4 million jobs).

Employment challenges in the knowledge-based economy



[source: European Commission 2001; [PDF](#)]

Internet Penetration in Europe

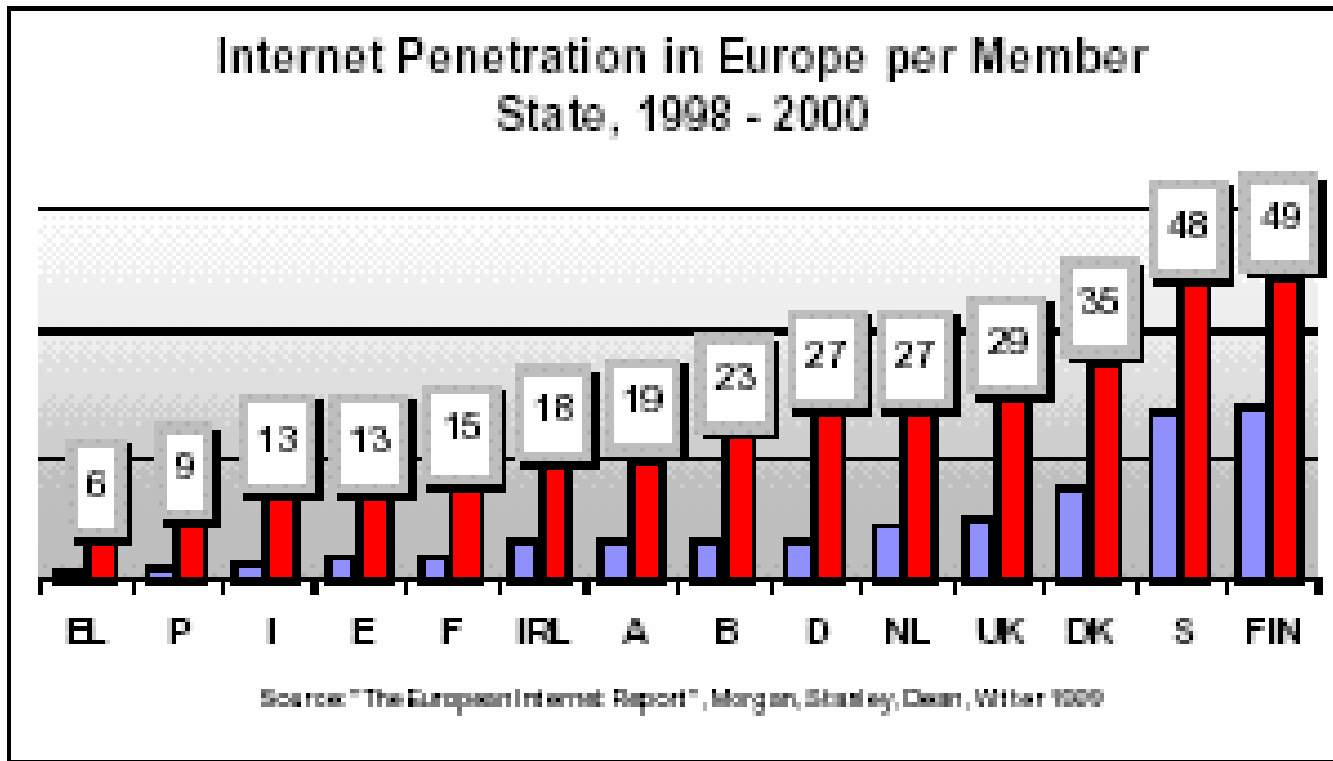


Fig. 1: Internet penetration in Europe per Member State, 1998 - 2000

[source: W. Werdigier & A. Niebuhr (2000) Buero fuer Urbanistik, Austria; [PDF](#)]

Definition of Teleworkers

Box 2 Definition of teleworkers (ECaTT)

Home-based teleworkers are those who:

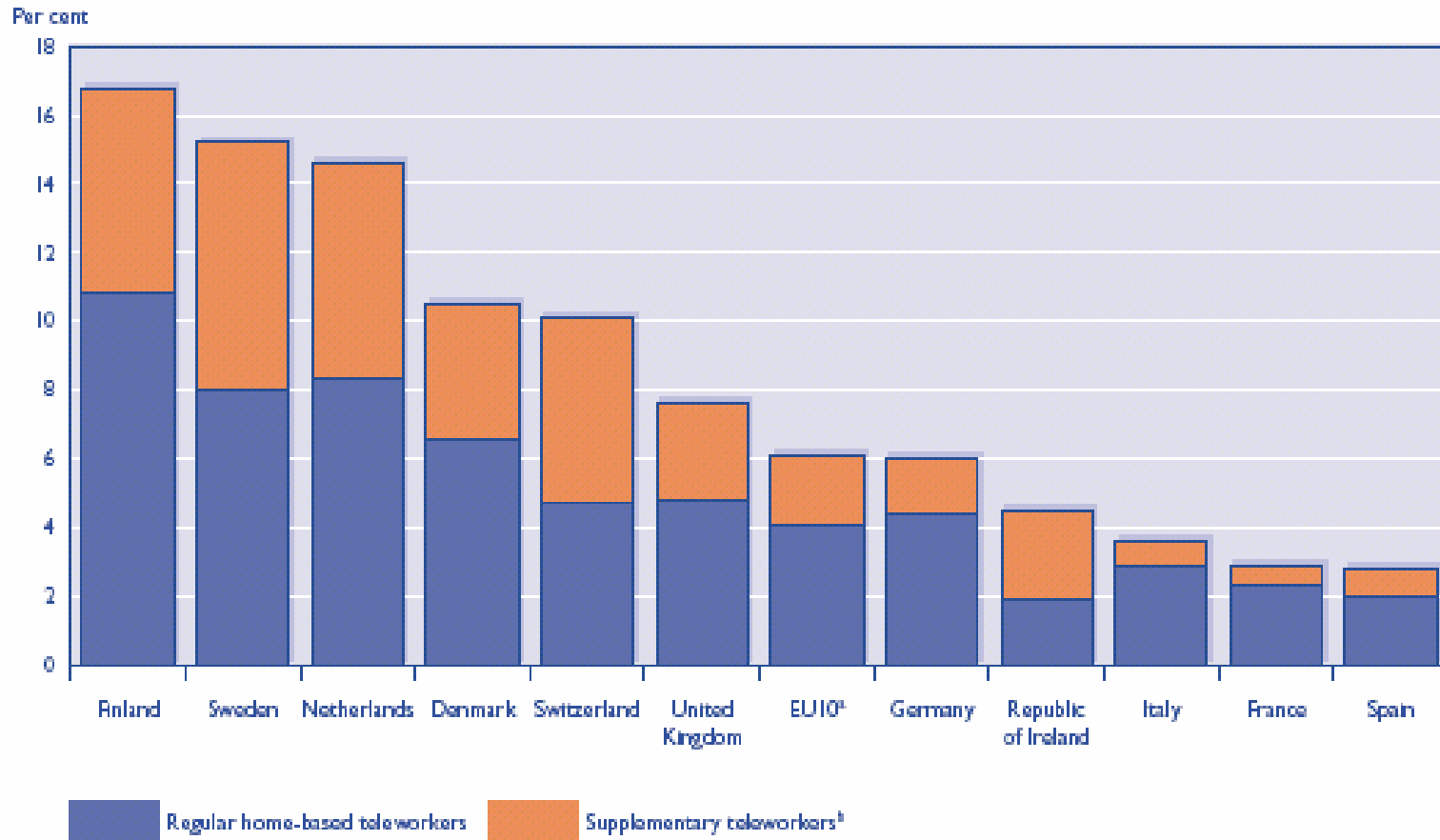
- work from home (instead of commuting to a central workplace) for at least one full working day per week;
- use a personal computer in the course of their work;
- use telecommunications links (telephone/fax/e-mail) to communicate with their colleagues or supervisor during work at home; and
- are either in salaried employment or self-employed, in which case their main working place is on the contractor's premises.

Supplementary teleworkers are those who:

- fit into the home-based category described above except that they spend less than one full day teleworking from home a week. They are called 'occasional teleworkers' to distinguish them from regular teleworkers.

[source: Electronic Commerce and Telework Trends (ECaTT) 1999; [PDF](#)]

Distribution of Teleworkers



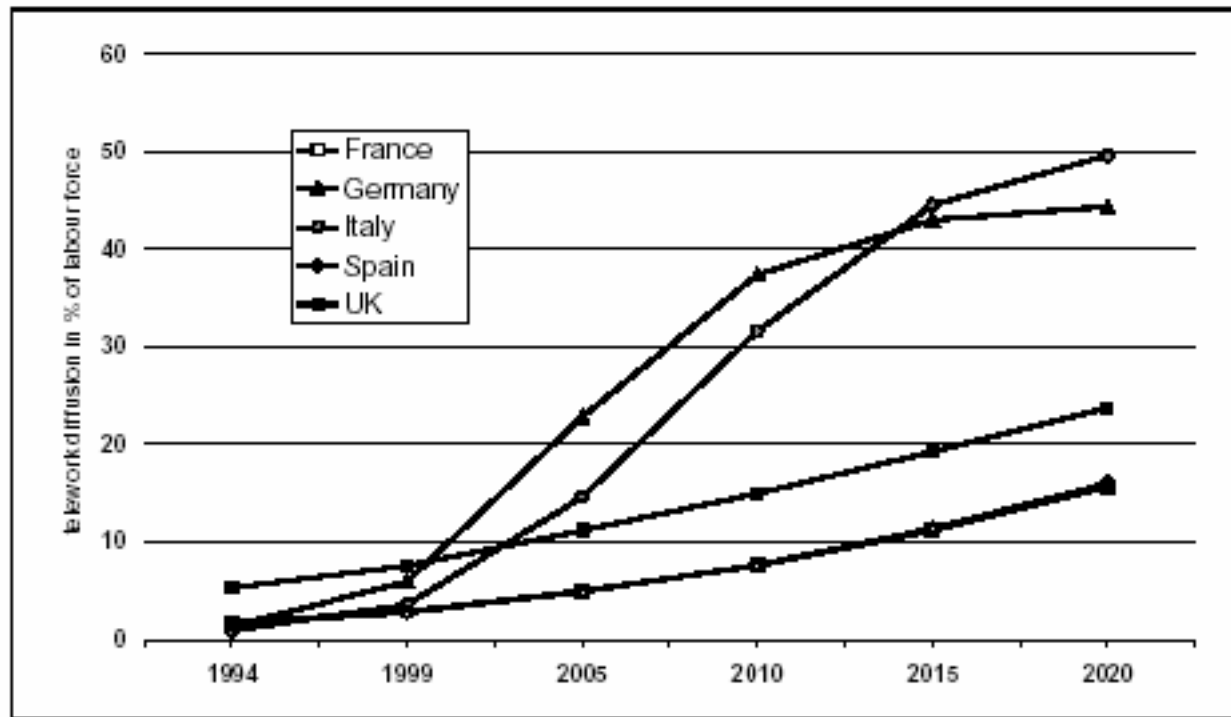
Source: Electronic Commerce and Telework Trends

a. The EU10 figure is an average of the ten EU countries represented in the chart. It does not include Switzerland.

b. Home-based teleworkers who spend less than one full day teleworking from home a week.

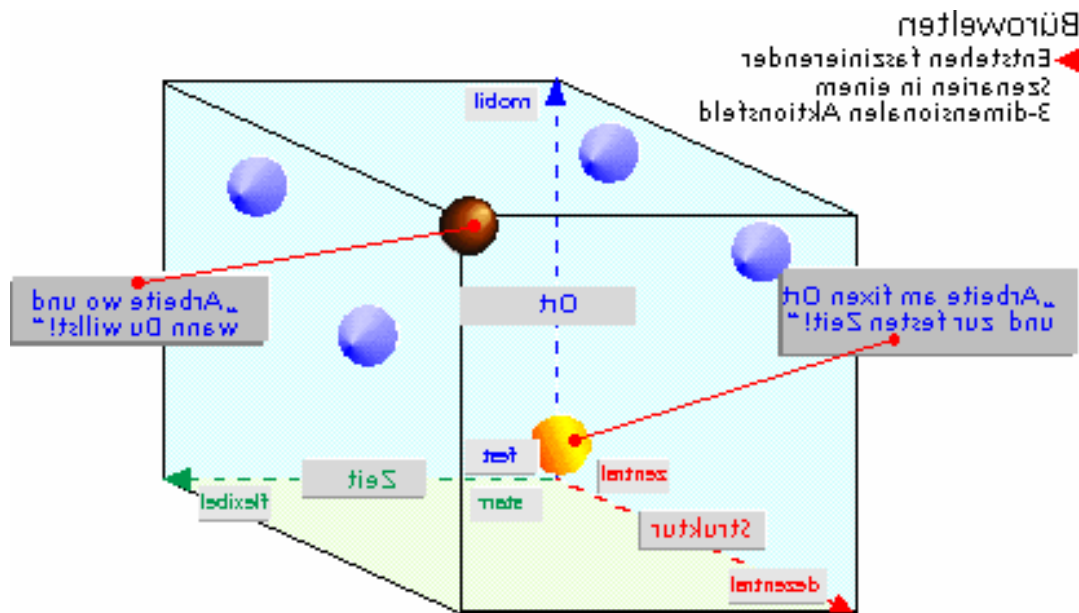
Spread of Telework in 2005

First extrapolation model: results for 5 major European countries (all teleworkers)



[source: K. Gareis & N. Kordey (2000) empirica GmbH, Germany; [PDF](#)]

Flexible Work in the Future



Information-processing jobs will play the central part in the future.

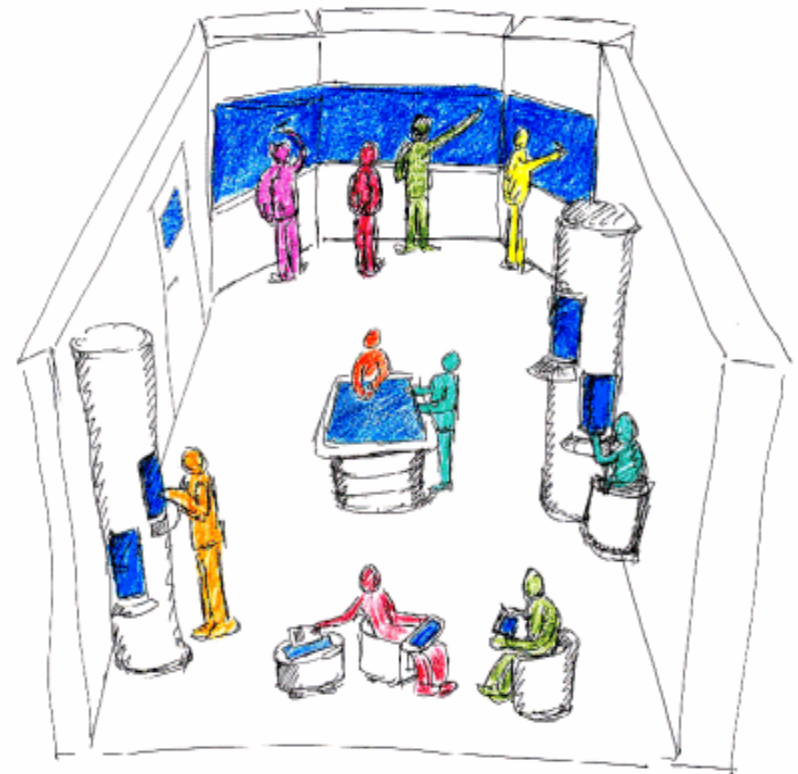
Office users of the future will come mainly from the so-called TIME-sectors - telecommunication, information technology, the media and entertainment.

[[source](#)]

Trends in User Interface Technology

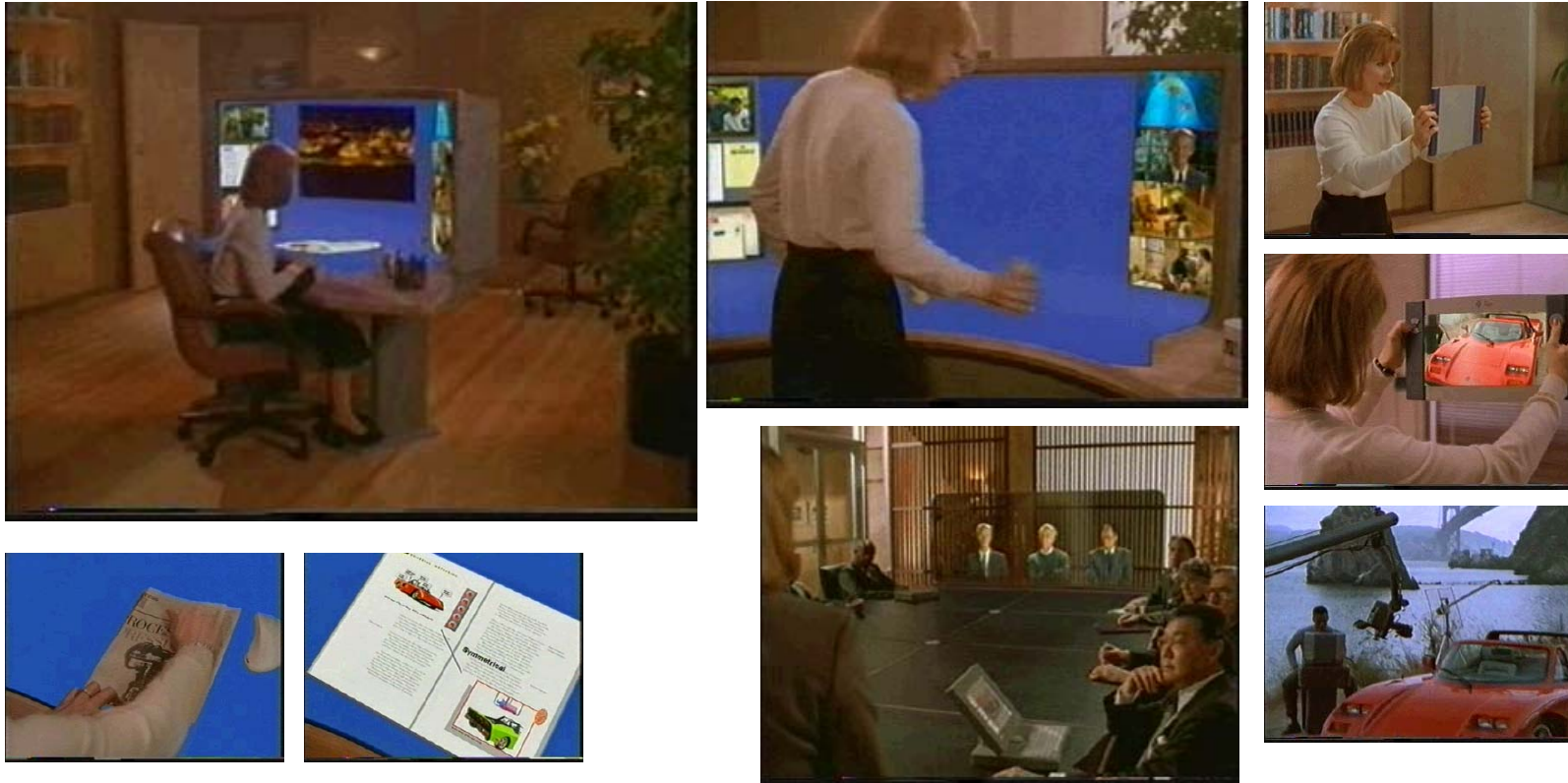


Mobile computing



Ambient rooms and
Cooperative buildings

SUN Starfire Office Vision 1995



Starfire, the Movie, showing a day in the life of a knowledge worker in the year 2004...

[\[Video-1\]](#)
[\[Video-2\]](#)

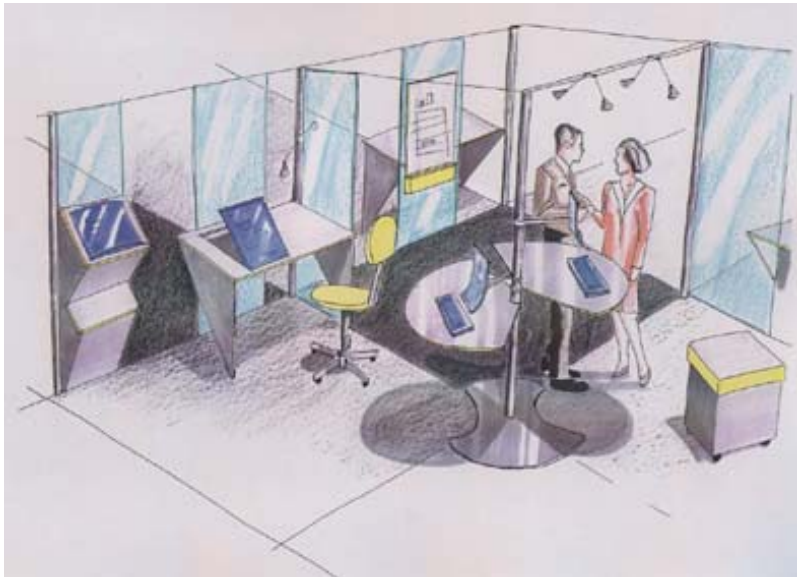
PHILIPS Ambient Home 1999



[background material [PDF](#)]

[[Video](#)]

Creativity Rooms for the Information Society



Working in the future is tightly connected to the office of the future as the place for processing information and knowledge. Modern information and communication technologies change the office world. Electronic interaction will become increasingly multimodal: video-conferences combine image and sound, holographic effects combined with audio and video sensors allow a telepresence, exoskeletal systems with data gloves, artificial robotic limbs, an "intelligent 2nd skin" etc. will be able to feel touching and to transmit this to haptic output devices. Research activities leading to miniaturized electronic products, which can be replaced and worn with ease and which are connected to man's organs by exonerves are still a vision. All individual personal electronic devices like headphones, mobile phone, dictating machine, satellite navigation system, medical monitoring systems etc. are seamlessly woven into a wireless body network and link man, who will become a cyborg, to the worldwide digital network. For instance he may have his current locative coordinates displayed through a navigation system or e-mails by "intelligent glasses" through laser projection.

Advanced Office Tele-communication



[University of North Carolina USA, 2002]

[[Video](#)]



Roomware Components at FhG IPSI



The Roomware® components were developed in the AMBIENTE®-division at GMD-IPSI in Darmstadt as part of the i-LAND environment (Streitz et al, 2001). Roomware® results from the integration of information technology into room elements as, eg, walls, doors, and furniture.



[[Video-1](#)]

[[Video-2](#)]



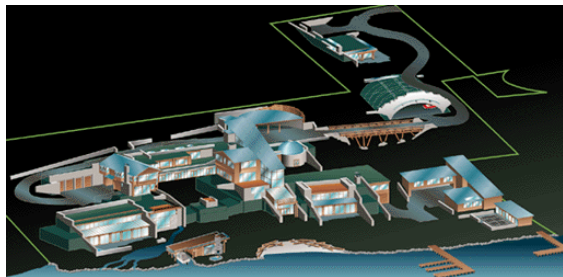
New Display Technology at Microsoft

Microsoft uses the Center for Information Work (CIW) to explore advances in software development, in combination with prototype technology developed by CIW technology participants Sony, Acer and Intel. The Center offers a hands-on illustration of how these innovations will advance management of information fatigue, mobility and data analysis, as well as unify business processes and collaboration.

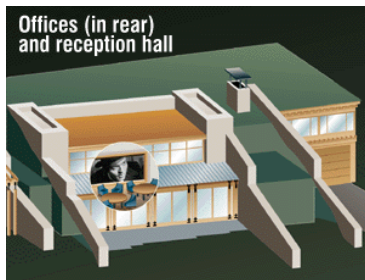


In the CIW model and prototype work environment, each employee workstation includes Sony 15- and 18-inch (viewable area, measured diagonally) flat-panel LCD monitors (models: SDM-S51/B and SDM-S81/B), lined up side-by-side across the desk to form a large display screen. Visitors can view content -- e-mail on one screen, documents on another, and video on the other. Microsoft BroadBench software allows them to drag-and-drop files from one Sony screen to the next to help multi-task, and manage the information flow and exchange.

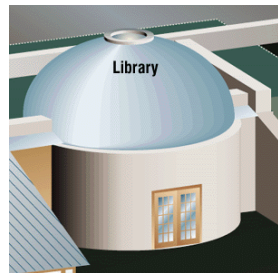
Office and Home of the Future



[[Video](#)]



Offices (in rear)
and reception hall



Library

Bill and Melinda Gates' \$97 million house

- **Main characteristics:**
- Home automation can link lighting, entertainment, security, **tele-communications**, heating and air conditioning into one centrally controlled system.
- Miles of communication cable, largely fiber optic, run throughout the house, linking computer servers powered by the Windows NT operating system. In each room, touch-sensitive pads control lighting, music, and climate. Visitors will wear small electronic pins, which will let the computers know who and where they are. Lights and other settings will adjust automatically. Floors throughout the house (and the driveway) are heated.

Initatives Worldwide...

The In-House in Germany: [URL](#)

High-tech Homes showing up in Japan: [URL](#)

The Smart Home in The Netherlands: [URL](#)

The Future-Life House in Switzerland: [URL](#)

The Aware Home in USA: [URL](#)

and further readings: [Smart House Web Survey](#)