Technology Assessment for Pervasive Computing

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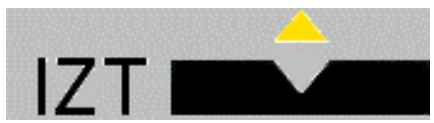
Project

The Precautionary Principle in the Information Society: Impacts of Pervasive Computing on Health and the Environment

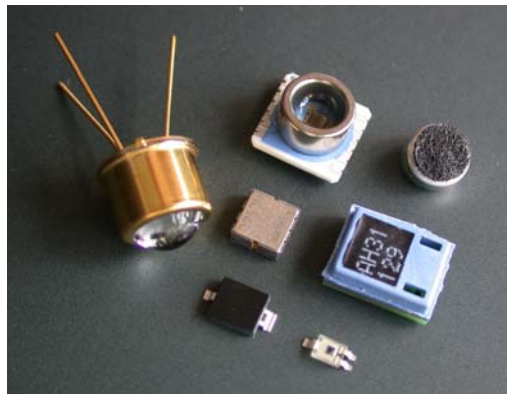
Funding:

Partners:



Five Properties of Pervasive Computing

- Miniaturization
- Embedding
- Ubiquity
- Wireless networking
- Context sensitivity



~ ubiquitous computing
~ ambient intelligence

How did we proceed?

Phase I:

- Scenarios of technological and market development for selected application fields: housing, traffic, work, health
- Health and social impact assessment (qualitative)
- Environmental impact assessment (qualitative)
- Assessment of the impacts of higher efficiency (rebound effects)

Identified Opportunities (Examples)

- Health:
  - More safety and autonomy for patients due to personal health monitoring
- Environment:
  - Pervasive Computing is an enabling technology for a product-to-service shift
- Society:
  - New services such as location-based services and augmented reality

Identified Risks (Examples)

- Health:
  - Non-ionizing radiation (NIR): Biological effects are uncertain, fears and conflicts are certain
- Environment:
  - Increasing power consumption of ICT infrastructure
  - E-Waste: Higher number of devices compensates for miniaturization
- Society:
  - Threats to privacy – the feeling of being under ubiquitous surveillance

How did we proceed?

Phase II:

- Qualitative assessment of the risks identified in **Phase I** by applying a risk filter, yielding risk clusters
- Formulation of recommendations to political, economic and educational actors (not reported in this presentation)

The Risk Filter:
A Set of Qualitative Risk Assessment Criteria

- Socio-economic irreversibility
- Delay effect
- Conflict potential
  - Involuntary exposure
  - Unfairness
- Burden on posterity

Result:
The Five Most Relevant Risk Clusters

- Conflict potential of non-ionising radiation
- Stress, threats to privacy and high-tech crime can affect the quality of life
- Consumers and patients may have to pay for things they don‘t want to use
- Backlashes for ecological sustainability (electricity consumption of networks, “dissipation“ of e-waste)
- Causation principle as a basis of our legal system is increasingly difficult to implement

More information

Full study (TA 46A/2003) and short versions available free of charge at:

ta@swtr.admin.ch (print)
www.ta-swiss.ch (download)

The full study (350 p.) is only available in German so far. It is being translated to English by the STOA team of the European Parliament.