User-System Interaction
a challenge for the present and the future

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Overview

• Why is User-System Interaction important?

• What is User-System Interaction (USI)?

• What are the major challenges for USI?

• How to achieve the challenges in USI?
<table>
<thead>
<tr>
<th>Economical sectors in The Netherlands</th>
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<tbody>
<tr>
<td>[in bln HFL]</td>
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<tr>
<td>Office machines and computers</td>
</tr>
<tr>
<td>Electro-technical products</td>
</tr>
<tr>
<td>Transportation</td>
</tr>
<tr>
<td>Machine building industry</td>
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<tr>
<td>Fine mechanical &amp; optical products</td>
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<tr>
<td>Total</td>
</tr>
</tbody>
</table>

[source: Rapportage Voorstudie IOP-MMI, Berenschot report, 1997, p.16]
Video Clip

• Users difficulties interacting with modern technology
  – Prime minister Kok handling a mouse
  – (ca. 3 min)
Why is User-System Interaction important?

- A good user-interface is crucial for customer acceptance.
- A good user-interface is crucial for safety and reliable operations.
- A good user-interface is crucial for the effective and efficient use.
What are possible working domains?

- Communication / Cooperation
- Financial Sector and E-commerce
- Home Consumer Products
- Knowledge Management
- Medical Sector and Health Care
- Product / Process Industry
- Professional Office Work
- Smart-Home Environment
- Transportation and Logistic

Teaching and learning environments based on the notebook project

The info-table and info-wall for access to the digital world (e.g., library)
What is User-System Interaction?

Working domain

Working system

Science
- perception
- cognition
- inter-action
- emotion

Application
- user-centered design

Engineering
- audio interfaces
- computer vision based input
- speech input / output
- tactile input / output
What is the research approach?

Design relevant knowledge

Empirical evaluation
Challenges in User-System Interaction

Ubiquitous computing and Mobile communication

Ambient rooms and Co-operative buildings
Video Clip

• The BUILD-IT system
  – joint project between ETH and Soudronic
  – (ca. 4 min)
How to meet the challenges?

Co-operation inside TUE

- **Technologie Management**
  - Research in perception, cognition, inter-action and domain analysis

- **Mathematics and Computing Science**
  - Research in speech, interface design and computer graphics

- **Electrical Engineering**
  - Research in signal processing and pattern recognition

Co-operation outside TUE

- **PHILIPS**
- **kpn**
- **océ**
- **simac**
- **ETH**