

User-System Interaction

a challenge for the present and the future

Prof. dr. Matthias Rauterberg
IPO--Center for Research on User-System Interaction
Eindhoven University of Technology

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?**

Economical sectors in The Netherlands

[in bln HFL]	Europe	The Netherlands	Percentage of NL in EU
Office machines and computers	131	19,7	15 %
Electro-technical products	622	34,0	5 %
Transportation	834	23,2	3 %
Machine building industry	506	16,6	3 %
Fine mechanical & optical products	64	1,8	3 %
Total	2.157	95,3	4,4 %

[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?



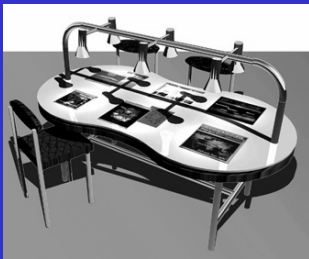
- A good user-interface is crucial for customer acceptance.
- A good user-interface is crucial for safety and reliable operations.
- A good user-interface is crucial for the effective and efficient use.

What are possible working domains?



Teaching and learning environments based on the notebook project

- **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**



The info-table and info-wall for access to the digital world (e.g., library)

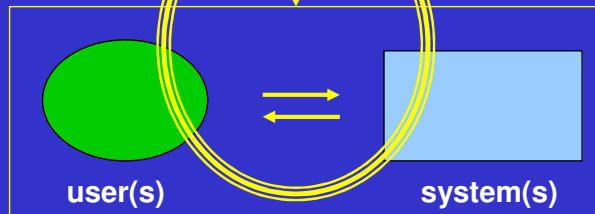


What is User-System Interaction?

Working domain



Working system



Science

- perception
- cognition
- inter-action
- emotion

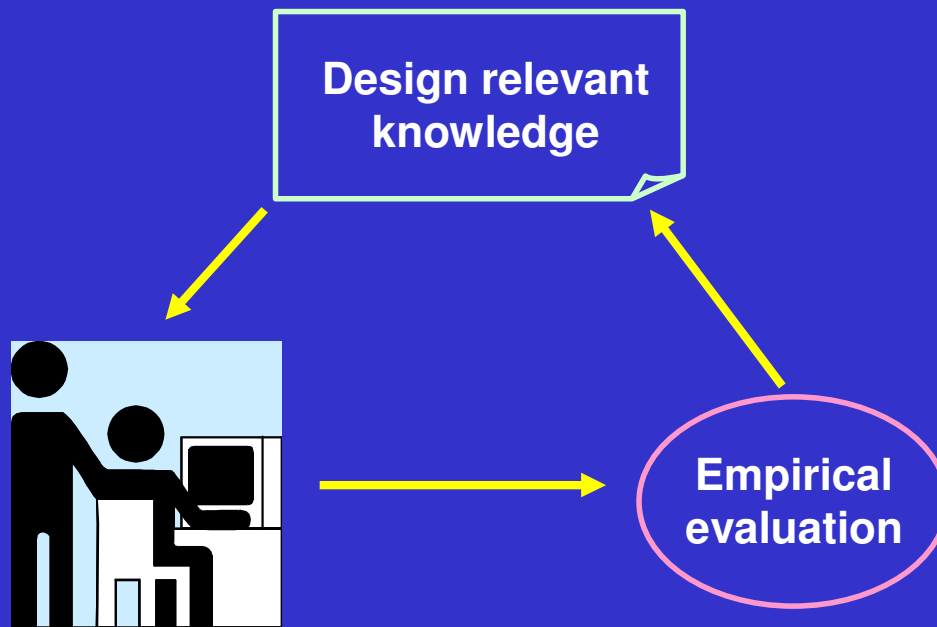
Application

- user-centered design

Engineering

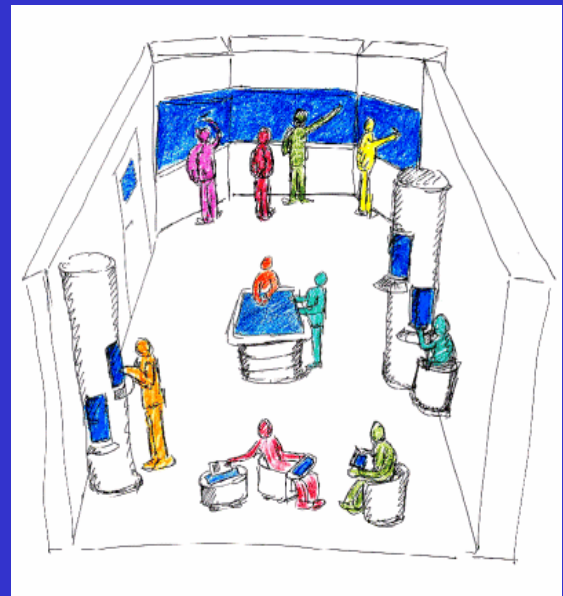
- audio interfaces
- computer vision based input
- speech input / output
- tactile input / output

What is the research approach?



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



Research in perception, cognition, inter-action and domain analysis



Research in speech, interface design and computer graphics



Research in signal processing and pattern recognition

Co-operation outside TUE

