

# **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?**

## 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 %
<b>Total</b>	<b>2.157</b>	<b>95,3</b>	<b>4,4 %</b>

[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?



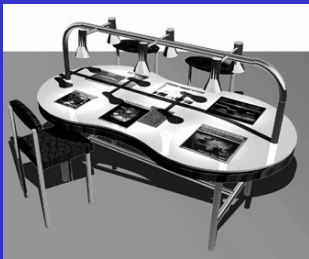
- **A good user-interface is crucial for customer acceptance.**
- **A good user-interface is crucial for safety and reliable operations.**
- **A good user-interface is crucial for the effective and efficient use.**

# 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)

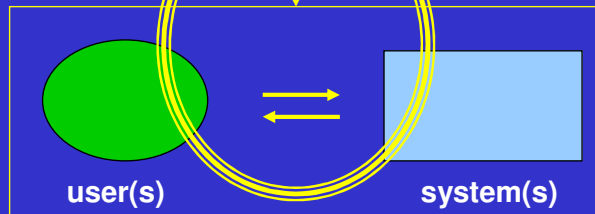


# What is User-System Interaction?

Working domain



Working system



## Science

- perception
- cognition
- inter-action
- emotion

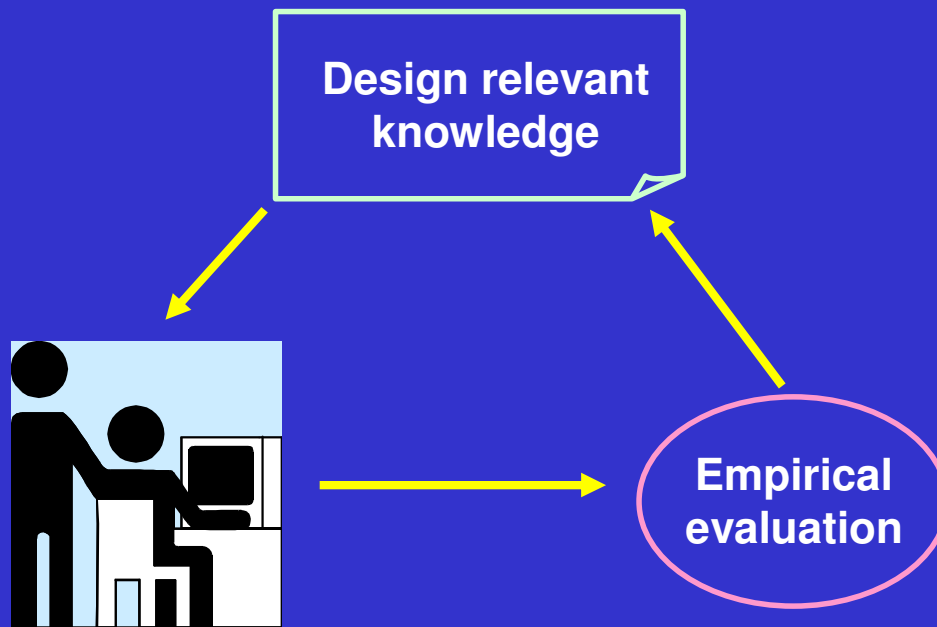
## Application

- user-centered design

## Engineering

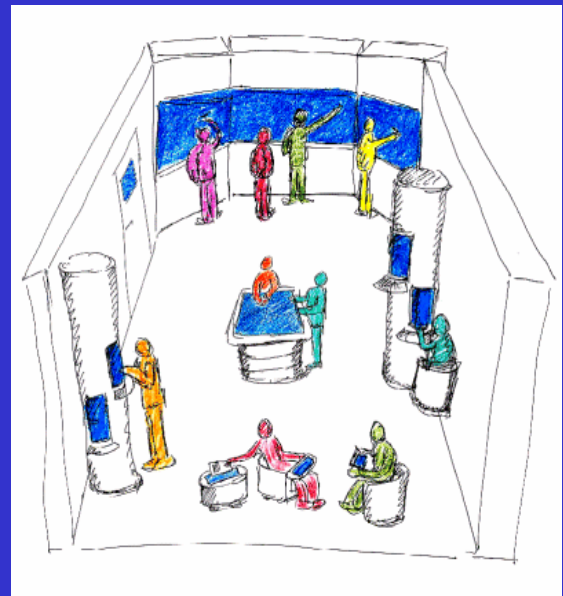
- audio interfaces
- computer vision based input
- speech input / output
- tactile input / output

## 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

