



DistTrust 2006

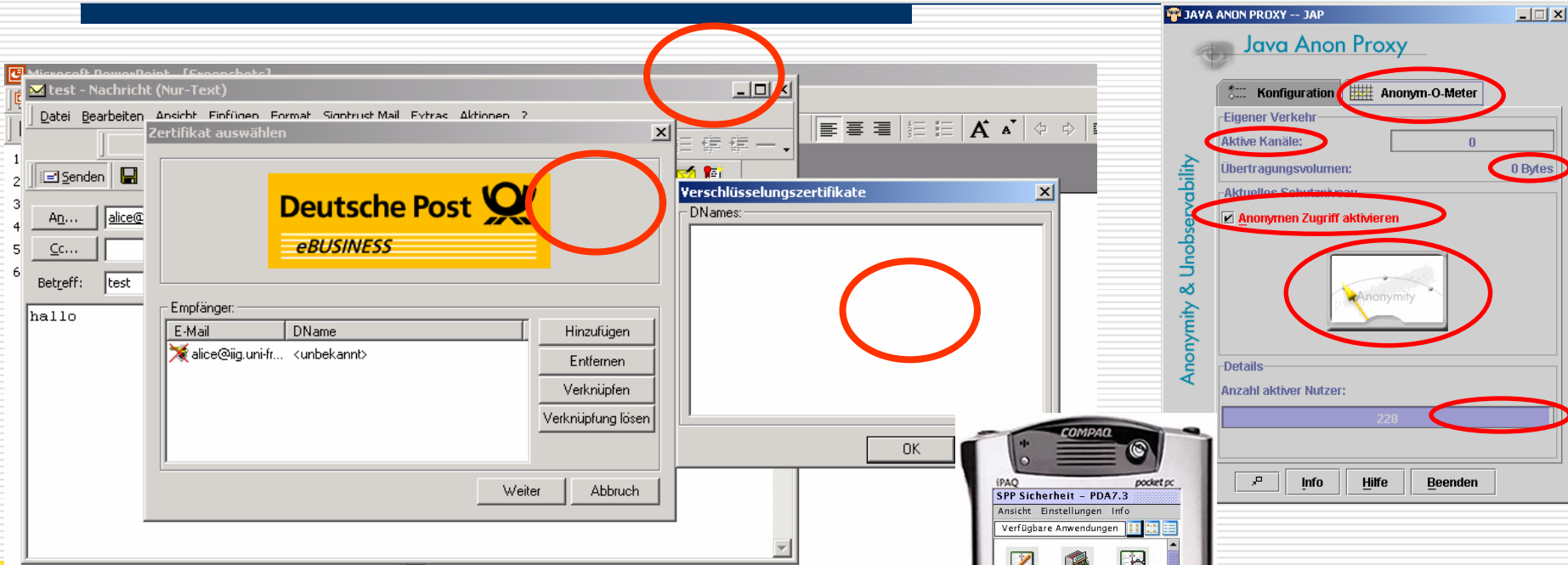
# ★ Usable Security in Dynamic Systems

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# Usability: Security's Unsolved Issue?

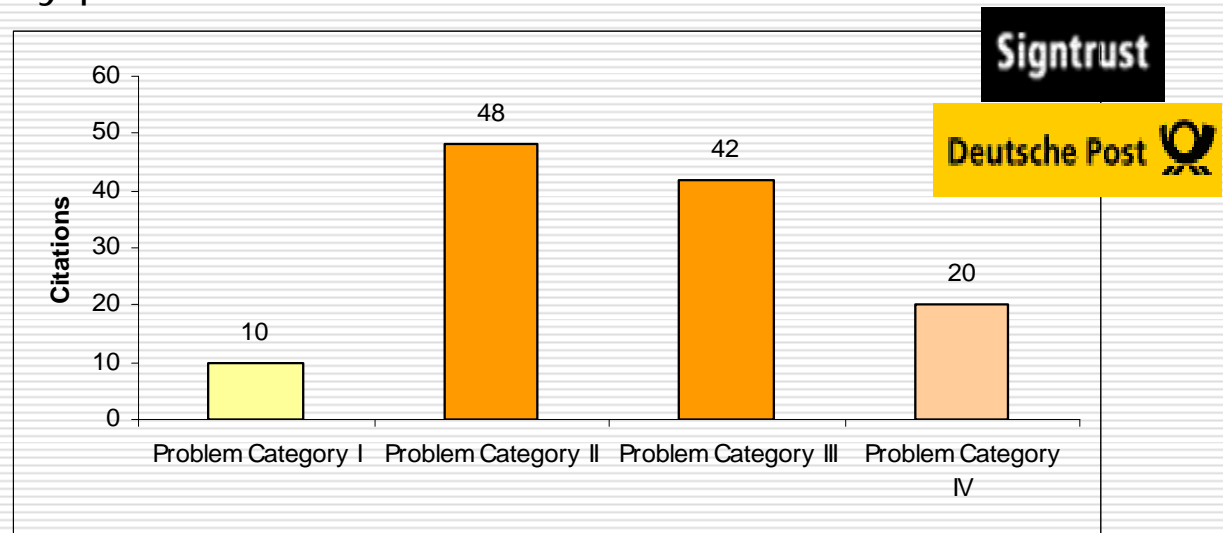


**It's not the user's fault**  
→ Improve interfaces

# Freiburg's Problem Categorization



- PC I:** Usability problems, no effects on security
- PC II:** Security relevant, security concept is comprehensible and familiar
- PC III:** Security relevant, security concept is unknown
- PC IV:** Technical security problems



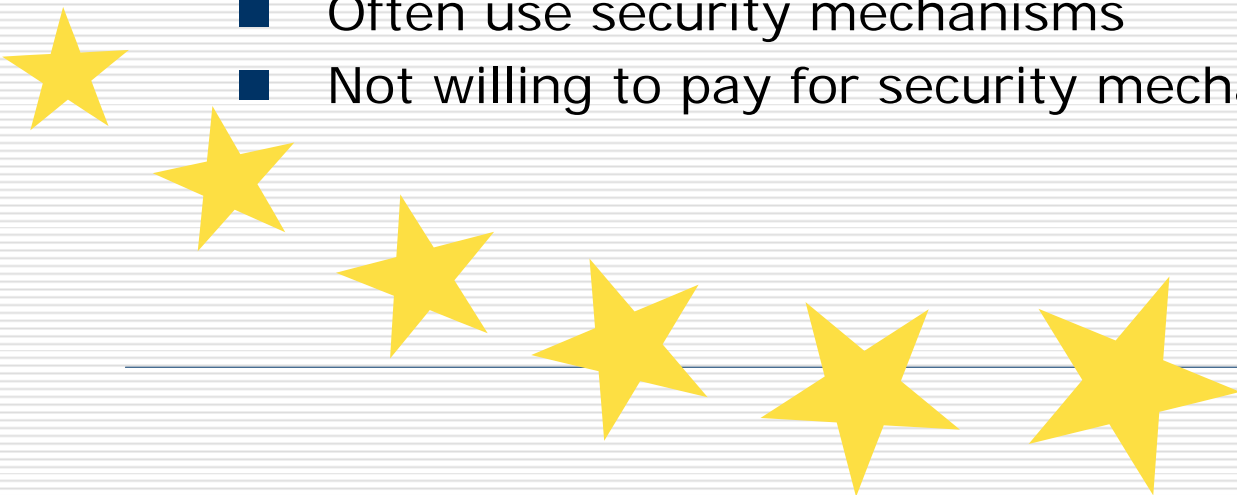
→ 75% of the usability problems have negative impact on the user's security



# Know Your User's Intentions

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- **Category 1 (65%):**
  - Not willing to learn
  - Not realizing threats
- **Category 2 (20%):**
  - Seldomly apply security mechanisms
- **Category 3 (15%):**
  - Often use internet
  - Often use security mechanisms
  - Not willing to pay for security mechanisms



# Unsolved Security Usability Issues



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## Current issues:

- Interface design (Freiburg: Error Classification, Guidelines and Test Methods (USE))
  - User Modelling (Freiburg: User Survey)
  - User-centered security engineering (Freiburg: UCSec)
- not perfect, but promising approaches exist

## Future issues:

Ambient Intelligence and Embedded Systems

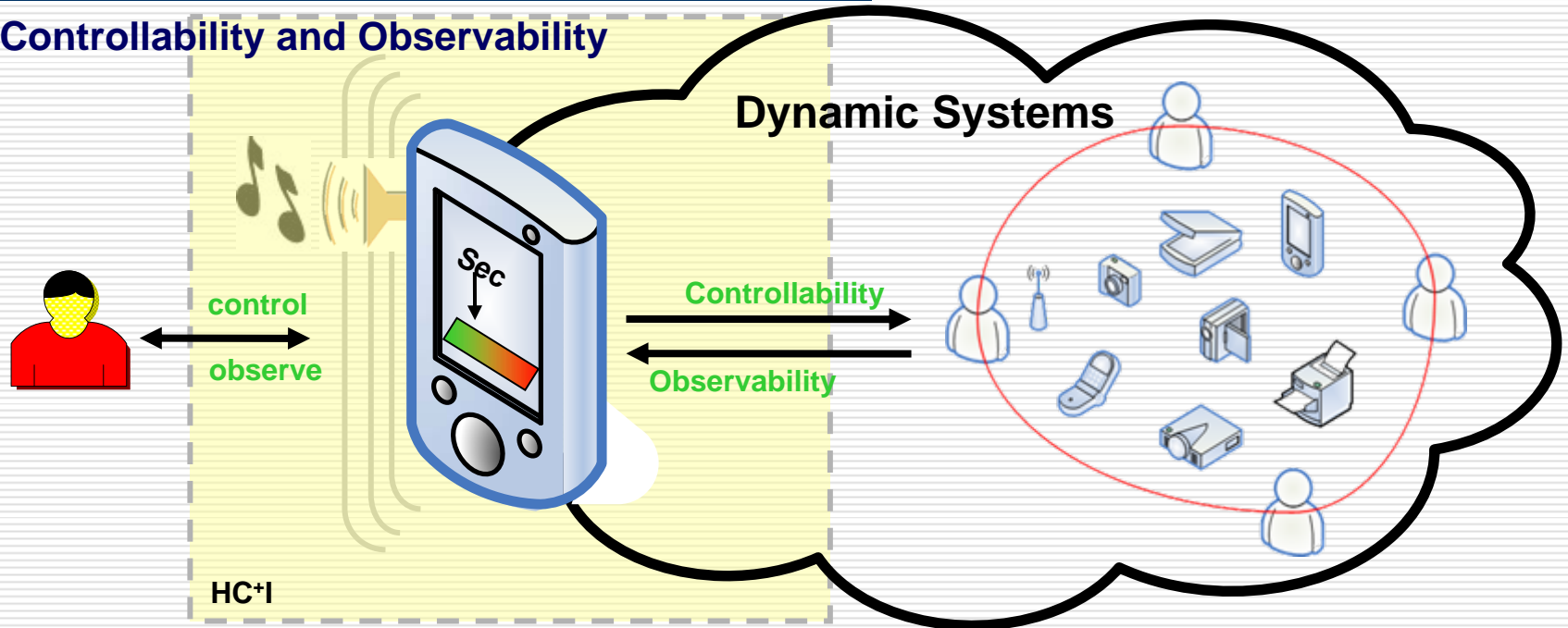
- Disappearing Computers
- Spontaneous Networking
- Self-Organization

→ **New approach for usability: Extend HCI to HC+I**



# Future Security Usability Challenges: HC+I

## Controllability and Observability



**Interface:** Making the invisible comprehensible

**Goals:**

HCI: Reduction of learning time

HC+I: Avoidance of Loss of Control

# The Task: Extending HCI to HC+I

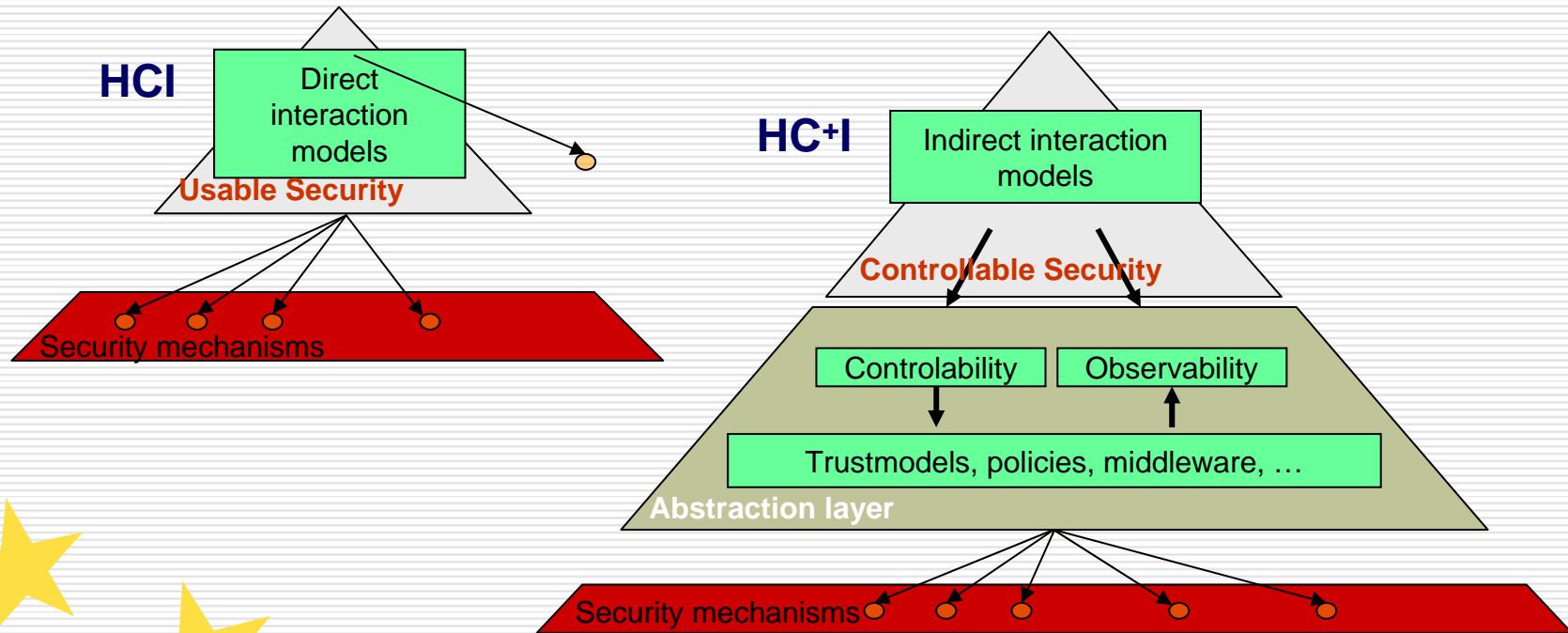


	Cognition	Engineering	Representation	Systems
<b>HCI</b>	Ergonomics	User centered design	Graphical User Interfaces	Direct 3-layer architecture
<b>Extended to</b>				
<b>HC+I</b>	Adaptive recognition	„Network“-centered design	Multi modal interfaces	Indirect multi-layer architecture



# Potential Cooperation in EU 7th Framework

## Building HC+I Systems







# Conclusion

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Usable security is  
essential!



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