Ambient Intelligence
A normative framework
1. Presenting the Rathenau Institute
2. Publication Ambient Intelligence
3. Trends in healthcare
4. Towards a normative framework
5. Applying the framework: case study
6. Conclusion: shared vision
1. The Rathenau Institute

- Dutch think tank on science and technology
- Task: Informing and advising (a) the Dutch parliament & (b) the Dutch citizens
- Two departments: (1) Science System Assessment (SciSA) & (2) Technology Assessment (TA)
2. Publication Ambient Intelligence

October 1, 2009

Technology Assessment

• ‘Ambient Intelligence. Viable future or dangerous illusion?’

• Report can be downloaded from RI website

• Flyer with webpage in conference bag
3. Trends in Healthcare

• Global trends in healthcare (WHO):
  ➢ Decentralization and self-care
  ➢ Prevention and increasing comfort
  ➢ Treatment vs. Enhancement

• Socio-economic trends:
  ➢ Ageing
  ➢ Individualization
3. Trends in Healthcare

October 1, 2009

• Technological innovations
  ➢ Medical devices for self-care
  ➢ Robotics (surgery, social)
  ➢ Intelligent environment: Ambient Intelligence
4. Towards A Normative Framework

• Ambient Intelligence: viable future…

Personal healthcare in a professional care network
4. Towards A Normative Framework

October 1, 2009

• …or dangerous illusion?

Personalizing healthcare requires information exchange in a care network

Interest of patient may conflict with interest of actors in care network

• Basic idea: Formation of care network is both condition & obstruction
4. Towards A Normative Framework

• Ambient Intelligence: 5 layers of intelligence
  ➢ Embedded (physical and social)
  ➢ Context Aware
  ➢ Personalized
  ➢ Adaptive
  ➢ Anticipatory
4. Towards a normative framework

• Cases and scenarios

- Embedded (physical and social): Live-care area
- Context Aware: Future hospital
- Personalized: Children physiotherapy
- Adaptive: Cancer aftercare
- Anticipatory: Sports
4. Towards a normative framework

• How to judge a vision?

➢ Which functional improvements are offered?
➢ Which normative issues emerge?
➢ To what extent can care be automated?
5. Case study

- Case: ‘live/care area’
- Mrs. P, 85 year old widow, living alone:
  - Moves to a homecare department
  - Receives an alarm system (necklace)
  - Starts wandering at night
  - Moves to a nursing home
  - Takes of her alarm system and disappears
  - Alarm system is attached on her back
  - But she takes the employee exit door
5. Case study

• Assessment of Mrs. P’s case:

➢ Which needs are not sufficiently met?
  ✓ Providing help in time
  ✓ Integration of care services
  ✓ Adaptation of care services
  ✓ User friendliness
  ✓ Making allowance for resistance
5. Case study

• Every technology demands:
  ➢ Patient skills
    ▪ What do I need?
    ▪ How do I use it?
    ▪ What do the results mean?
  ➢ Social network
  ➢ Professional network
6. Conclusion: shared vision

- Shared vision needed, requires checks and balances
- How to reach a shared vision?
• Thank you for your attention!

• Download our publication (see flyer in conference bag)

• Find our other publications on www.rathenau.nl:
  - Medical Devices
  - Healthcare robotics in Japan

• Or email: m.besters@rathenau.nl