ITS 832
Chapter 8

Value Sensitive Design of Complex Product Systems

Information Technology in a Global Economy

Introduction

- ComplexTechnology
- Smart Meters in the Netherlands
- Smart Meters as Complex Products
- Values in the Design of TechnicalArtifacts
- Conclusion

Complex Technology

- Common in today's society
- Many basic service infrastructures
  - Collection of many smaller systems
- Technology is more than hardware and software
  - Implementing technology always has impact
  - To the surrounding environment
- Many stakeholders
  - Tech development driven by stakeholder needs
- Value sensitive design (VSD)
  - Incorporates impact on stakeholders

Smart Meters in the Netherlands

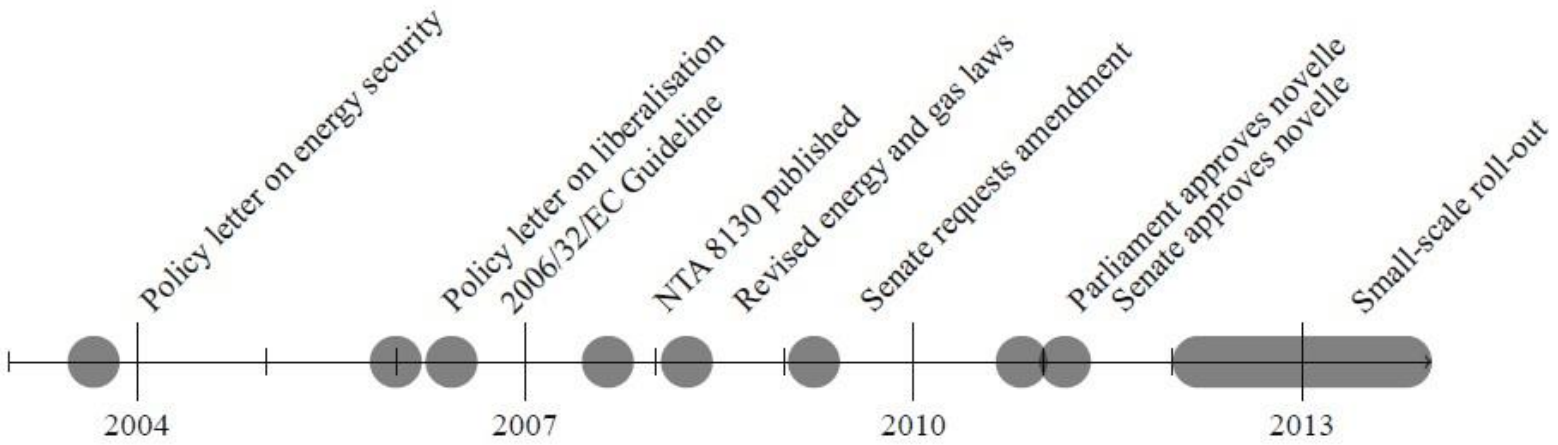

Fig. 8.1 Timeline of the smart meter policy process in the Netherlands

Smart Meters in the Netherlands

- Early smart meters were developed in the 1980s and 1990s
- The Netherlands identified benefits
  - Energy savings
  - Lower utility bills
- Consumers were not included in research
  - Consumer concerns were not taken into account
- Public resistance led to a long delay
  - Required modification and marketing

Smart Meters as Complex Products

- Complex system characteristics
  - Systematic
  - Multiple interactions
  - Nondecomposable
- Competing standards
- Actor or Stakeholder analysis
- Networks of stakeholders
  - Standards organizations

Values in the Design of Technical Artifacts

- Smart meters and Home Energy Management Systems (HEMS)
  - Overlapping technologies
  - Some shared development milestones
- Value drives development and acceptance
- Value sensitive design (VSD)
  - Focus is moral and political implications
- VSD in Smart meter design

Summary

- Complex systems
  - Implementation impacts society
  - Stakeholders are often unable to appreciate full impact
- Ignoring all stakeholders can delay implementation
- Smart meters in the Netherlands is a classic example