Patterns and Paths of Socio-Technical Innovation

How to construct a vision of the society’s future mobility and communication

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1. Model-based Vision: Beyond Prognosis and Prophecy

- Short term (5 years) – Long term (25 years)
  - critical events, breaks

- Single elements – complex systems
  - interdependency, interferences

- Technical systems – Social systems
  - reflective actors, unintended consequences

- Closed systems – Open hybrid systems
  - mutual stimulation and restriction

**Model for society`s future:**
- paths of socio-technical change and
- patterns of socio-technical constellations
2. Paths of Socio-technical Change

- **Evolutionary:** accumulative, small variations, continual adaptation (quicker, safer, bigger, more diversified) 80%

- **Revolutionary:** break with dominant design, paradigm or practice (deviant, different, destructive) 1%

- **Innovation:** new elements or new architectures in recombination with old ones (technological and institutional innovations) 19%
3. Pattern I: Many Novelties, but only some Innovations

- **Novelty**: new idea, design, invention, practice, mode of organisation (customized car production, car sharing; cloud computing, social web)
  - „pools of variants”

- **Innovation**: broadly practiced, diffused and acknowledged
  a) in one institutional sphere (industry, arts) or
  b) all over the society
  - „individual and institutional selection”

Novelties rise from diverse creative activities (prophets, pioneers, pirates, freaks, bohemians), but innovations are by definition a societal phenomenon.
4. Pattern II: The Potential of Social and Cultural Innovation

- **Institutional innovations:** patent law, safety and environmental regulations, free markets, crash tests, protection of privacy…

- **Organisational innovations:** TÜV, public transportation agency, open source, lead-user-markets, networks of innovation

- **Cultural innovations:** Changes of life style, values and practices
  
  protestantic ascetic – conspicuous consumptive
  
  achievement orientied – self-realisation/identity
  
  generation „golf“ – generation „internet“

**Social innovations stimulate, orientate, frame and legitimate technical innovations.**
5. Paths of Society’s Future Mobility and Communication

• **Evolutionary:** path continuity with small variations and adaptations of the infrastructure, more diversity of technical and social novelties 80%

• **Revolutionary:** event of a crash or oil crisis and a massive intervention (China), an unexpected scientific discovery or technological breakthrough 1%

• **Architectural or institutional innovation:**
  - an open multiple system with a **portfolio of vehicles**
  - a diversified **mixture of car cells, container, and transport media**
    for short and long distance, persons and goods
  - a variety of **intermodal traffic agencies**
  - an **internet-based paying and control system** 19%