

Innovations for Sustainable Transport

A journey through success and fail factors

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Characteristics of innovation

- Innovation is qualitative change in
 - technology, ways of organisation or public institutions

- Theoretical perspectives
 - Many types of innovation
 - products, processes or services
 - factor saving (vehicle kms) or quality enhancing (emissions)
 - incremental or radical
 - codifiable or tacit
 - Innovation system: combination of changes; spatial dimension
 - Bounded rationality: routines/habits & imitation - firms & consumers
 - Innovation phases / life cycle: interactive model with feedback



How to measure success?

- Potential criteria
 - Plan objectives realised?
 - Result judged positively? (and by whom?)
 - Unintended negative side effects?
 - Related questions:
 - Which time horizon? Are there multiple objectives?
 - An innovation may receive good scores on these criteria, but score negatively in a social cost-benefit analysis
- => Identifying success is not as easy as it seems**
... this is a potential cause of ultimate failure



Success and fail factors – typology

→ Technological

- knowledge, expertise, complementary technologies, technical standards

→ Administrative and legal

- policy context, procedures, rights, responsibilities & competencies

→ Political and process oriented

- image politicians, role interest groups, power distribution

→ Socio-cultural and psychological

- perceived risks and interests of firms, consumers and civil servants

→ Economic

- net benefits for market agents, subsidies, lock-in due to increasing returns



Key findings

- Are many factors responsible for success & is one factor causing failure?
 - Some failures have many success factors
 - All failures have multiple fail factors
 - All successful projects had at least one fail factor, and some had many
- Political/process & social-cultural/psychological factors decisive for successes and failures: **emphasis on technical & economic factors misplaced**
- Common success factors more frequent than common fail factors
 - Factors that play a role in multiple projects
 - fitting in existing system or infrastructure (success)
 - legislation and regulation (success or fail factor)
 - enthusiasm and passion of core players (success)
 - media attention (success or fail factor)
 - subsidies (success) - **factor in many projects**



The complexity of social-political dynamics

→ Beware of lock-in in a broad sense

- ‘Once a car user, always a car user’
- Providing free public transport becomes a ‘right’

→ Small events have large impacts

- Historical accidents (HOV lane - route to Hilversum)

→ ‘Dangerous feedbacks’

- Media, influential individuals and organisations, legal procedures and image politicians => temporally inconsistent policy

=> Communication & ‘marketing’ of innovations

- **Manage social dynamics:** create social-political acceptance for ‘good ideas’
- Anticipate media attention, communicate benefits, organize winners



Sustainability innovations: challenges

- Often effects on sustainability/environment marginal
- Many benefits arise as reductions in negative externalities
 - Few large losers, many small winners; losers organize themselves better
- Lack of interest from private sector long run returns, uncertainty
- Privatisation, liberalisation and decentralisation:
 - Problems due to separated budgets, budget cuts, unclear responsibilities/competencies, and lack of standards
- Social acceptability => political support:
 - Avoid normative approach, but involve stakeholders in an early phase



Closing comments

- We should learn systematically from the past to deal with **complex innovations for sustainability**
- Much is uncertain, but ... a lot can be learned !
 - We are still at the beginning of the learning curve
- Larger database: additional & more robust insights
 - **Make learning easily & widely available**





Dutch transport innovation initiatives

Case	Existing concepts, techniques or ways of organisation that are being combined	Succes/ failure
Alternating HOV lane	Road infrastructure & limited entry (& car pooling)	- -
Car sharing	Public parking lots & rental cars	+ +
Catalytic converter	Chemical technology & car engine	+ +
Public transp. inform. system	Travel information & digital data + computer software	+ +
Public transport student pass	Scholarship stipend & public transport subscription	+
Road pricing	Road use, price & congestion information	- -
Train taxi	Travel by train & travel by taxi	+
Transferium	Parking close to highway & public transport to city centre	+

Note (lesson):

- *foster diversity*: implies more combinations
- *brainstorm and experiment*: combine existing elements