Niche innovations and socio-technical storylines: personal land-based mobility in the Netherlands (D2.5)

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Context
Niche momentum and potential
Scenario overview
Transitions challenges
Storylines – some issues
Conclusions
Method - overview

Socio-technical:
D2.1: niches
D2.2: regimes
D2.3: breakthrough potentials

Modelling:
D1.1: preliminary scenarios
D1.3: Improved sets of scenarios

D2.5: Socio-technical storylines
Deeply entrenched **automobility** (w/ some ‘greening’)

Co-existence of regimes and transportation modes:

- integrated & innovative **public transport** (ticketing, multimodality…)
- substantial and stable embedding of **cycling** (infrastructure, lifestyle)
# Niche momentum & potential

<table>
<thead>
<tr>
<th>Niche</th>
<th>Momentum</th>
<th>Drivers of momentum (techno-economic, socio-cultural, policy)</th>
<th>Pathway</th>
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<tbody>
<tr>
<td>Hybrid electric vehicles (HEVs)</td>
<td>High</td>
<td>Important market share, stable design features&lt;br&gt;Stepping stone towards electric mobility&lt;br&gt;Tax incentives</td>
<td>A</td>
</tr>
<tr>
<td>Carsharing</td>
<td>High</td>
<td>Rapid growth (urban), diversification, multiple innovations&lt;br&gt;Positive cultural meanings (environment, congestion)&lt;br&gt;Central to strategic mobility visions</td>
<td>B w/ A</td>
</tr>
<tr>
<td>Battery electric vehicles (BEVs)</td>
<td>Moderate</td>
<td>Market deployment, high innovation /no dominant design&lt;br&gt;‘range anxiety’ slowly overcome&lt;br&gt;Strong policy support for infrastructure and rollout</td>
<td>A</td>
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<tr>
<td>Biofuels</td>
<td>Moderate</td>
<td>Hype/disappointment, 1G→2G, Focus on blending (≠ flexifuel)&lt;br&gt;Controversies w/ competition for land/agriculture blending policy/targets (&gt;5%)</td>
<td>A</td>
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<tr>
<td>Compact cities</td>
<td>Moderate</td>
<td>Momentum and instalment in 1960s-90s, then abandoned&lt;br&gt;Strong national political push, inconclusive results</td>
<td>A/B</td>
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<tr>
<td>Hydrogen fuel cell vehicles</td>
<td>Very low</td>
<td>Experimental stage, high costs, considered option from 2030&lt;br&gt;Doubts because multiple hype cycles</td>
<td>A</td>
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A: BEV
car-based mobility prevails
(BEV+HEV, then BEV)

B1: Public transport
away from individual
mobility (carshare+public, then public)

B2: Slow modes
slow modes prevail
(HEV+public, then slower and shorter)

All: rapid phase-out of ICE
<table>
<thead>
<tr>
<th>Scenario requirements</th>
<th>Transitions challenges</th>
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<tbody>
<tr>
<td><strong>A: Electric mobility</strong></td>
<td></td>
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<tr>
<td>ICE</td>
<td>Sharp reduction from 2020, phase out by 2040</td>
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<tr>
<td>HEV</td>
<td>Key role (to 2030)</td>
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<tr>
<td>BEV</td>
<td>from 2020, mass rollout from 2025</td>
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<tr>
<td><strong>B1: Public transport</strong></td>
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<tr>
<td>ICE</td>
<td>halving 2015-30, plateau 2030-40, phase out by 2050</td>
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<tr>
<td>PT</td>
<td>Substantial steady increase throughout</td>
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<tr>
<td>CS</td>
<td>2015-20 to make up for ICE decline</td>
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<tr>
<td><strong>B2: Slow modes</strong></td>
<td></td>
</tr>
<tr>
<td>ICE</td>
<td><strong>Very rapid</strong> phase out by 2035</td>
</tr>
<tr>
<td>HEV</td>
<td>Rapid initial roll out (2015-20)</td>
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<tr>
<td>SM</td>
<td>Strong increase from 2030</td>
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</table>
Storylines – some issues

‘Forcing’ societal and political dimensions:
- deliberate destabilisation (struggle with car industry, ‘special concessions’)
- overcome cultural reticence (BEVs pathway A)
- civil society (B2 role of hyper-localist movement, B1-2 experimentation)
- persistence w/ low-carbon agenda (not too many distractions)
- large infrastructure investments (A:BEV charging, B1: rail, B2: cycling)

Opportunities: alignment of issues (e.g. democratising EV w/LWEVs)

Multiple targeted instruments (including ‘transitional’ provisions)

Imaginative innovation trajectories to deal with emergent issues:
- LWEVs as affordable & versatile (vs. high-end BEV)
- stepping stones, e.g. carsharing to support electrification or phase out
Conclusions

NL: Interesting context (subaltern and ‘test-bed’)

Challenging pathways (even in NL), ‘forcing’ needed

Deliberate strategies, interventions, and consistent low-carbon agenda

Supporting variety (B1, B2) vs. technology priorities (A)

Multiple sources of tension and conflict btw. actors

Twists, turns, devptal patterns (e.g. stepping stones, recombinant innovation

Branching points where significant shifts occur