What does an issue life-cycle analysis tell us about the process of electrification of the car?

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Presentation based on Penna & Geels (2012), for the workshop:
Electrification of the car: will the momentum last?
OTB Research Institute for the Built Environment
Delft University of Technology
Delft, 29th of November, 2012
Overview

1. Introduction
   - The DILC-model as an ideal-type
   - Two omissions in the original model
   - Summary
3. Analysis
   - Pattern-matching between case study and DILC-model
4. Conclusion
   - Future assessment
What is issue lifecycle?

Issue lifecycle models embody the sequential stages that issues undergo in their ‘lifetime’.

Two key criticisms:
- Strong emphasis on civil society and policy and relative neglect of industry strategies – little attention to innovation strategies and technological solutions;
- Assumption of linear progression through stages.

Source: Rivoli & Waddock (2011)
The Dialectic Issue LifeCycle (DILC) model

**Phase 1**
Problem Definition and Framing Struggles

**Phase 2**
Rising Public Concerns & Defensive Responses

**Phase 3**
Political Debates & Industry Hedging

**Phase 4**
Political Regulations & Diversification

**Phase 5**
Spillover to Task Environment & Strategic Reorientation

An ‘ideal-typical’ pattern of issue lifecycle, in which pressures evolve in the ‘right’ direction (i.e. towards change).

Shifting pressure-response dynamics: from cultural to political to economic and technical dimensions.

Linear view of technology strategies: from incremental through hedging to radical innovations.
Two omissions in the original model

Technology hype-cycles

Symbolic use of technologies

GM ELECTROVAN
(Fuel Cell concept-vehicle from 1966)

Source: Geels (2012)

Source: Hydrogen Cars Now
(http://www.hydrogencarsnow.com/gm-electrovan.htm)
Case study summary: The climate change problem and American car industry strategies (1979-2012)

Public attention to climate change


- With substantive mentions to 'automotive industry'
- With mentions to 'automotive industry'
- With climate change/ global warming/ greenhouse effect in the headline

Congressional Attention

Number of issues of Congressional Record citing Climate Change*, Fuel economy* or Flex-Fuel/Biofuel

(* and synonyms)

- Climate Change & Fuel Economy
- Climate Change (not Fuel Economy)
- Fuel Economy (not Climate Change)
- Flex-Fuel/Biofuel & Climate Change

Source: Penna & Geels (2012)
The climate change problem and American car industry strategies (1979-2012)

1979-1988: Scientific activism & industry indifference

1988-1997: Rising public concern & creation of closed industry-front

1997-2002: Political debate & technology hedging

2002-2007: Political stalemate & many competing technologies

2007-????: Initial (weak) regulation & (still) many competing technologies
### Analysis: Pattern-matching between case study and DILC-model

<table>
<thead>
<tr>
<th>Ups &amp; downs in attention</th>
<th>Multi-level governance processes</th>
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<tbody>
<tr>
<td><strong>Case’s complexity</strong></td>
<td></td>
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<tr>
<td>Competing technologies</td>
<td>Wider industry contexts &amp; other issues</td>
</tr>
</tbody>
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Phase-sequence of the climate-change issue lifecycle:

1 – 2 – 3 – 3 – 3½

- Industry front opened up without emergence of a single technological option around which automakers reorient (with coexistence of multiple hype-cycles).

- Incremental and radical innovations developed already in early periods, but early engagement with radical innovation motivated primarily by symbolic reasons.
### Conclusion: future assessment

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<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Policy and innovation strategies</strong></td>
<td>• Without stronger policy, we do not expect major industry commitment to radical green options in the next few years.</td>
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<tr>
<td><strong>Policies and public opinion</strong></td>
<td>• Public support for tougher climate-policy likely to remain low while American economy does not recover.</td>
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<tr>
<td><strong>Industry fight-back</strong></td>
<td>• The industry probably to oppose tougher regulations, because these might threaten current compliance investments.</td>
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<td><strong>Market demand</strong></td>
<td>• If market demand for electric drive vehicles remains low, industry likely to call for rollback of long-term standards in mid-term review (2018).</td>
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<td><strong>New entrants</strong></td>
<td>• Dynamics may speed up if new entrants are successful, but some are currently facing setbacks.</td>
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