The roles of business models in sustainability transitions

Citation for published version (APA):

Document license:
CC BY

Document status and date:
Published: 01/06/2017

Document Version:
Publisher’s PDF, also known as Version of Record (includes final page, issue and volume numbers)

Please check the document version of this publication:
• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher’s website.
• The final author version and the galley proof are versions of the publication after peer review.
• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license above, please follow below link for the End User Agreement:
www.tue.nl/taverne

Take down policy
If you believe that this document breaches copyright please contact us at:
openaccess@tue.nl
providing details and we will investigate your claim.
The Roles of Business Models in Sustainability Transitions: Car Sharing in Sydney

L.L.J. Meijer (1), F. Schipper (2), J.C.C.M. Huijben (1)

(1) Eindhoven University of Technology, School of Industrial Engineering, CNT building, P.O. Box 513, 5600 MB Eindhoven, The Netherlands
(2) Eindhoven University of Technology, School of Innovation Sciences, IPO building, P.O. Box 513, 5600 MB Eindhoven, The Netherlands

*Correspondence address:
Lotte Meijer
Eindhoven University of Technology
School of Industrial Engineering
CNT Building 0.06, P.O. Box 512
5600 MB Eindhoven, the Netherlands
l.j.meijer@tue.nl

Keywords
Business Model Innovation, Sustainability, Transition, Car Sharing, Up-Scaling

Extended Abstract: Introduction

New, sustainable business models can address economic, environmental and social issues (Boons & Lüdeke-Freund, 2013). Research on the role of such business models in supporting wider societal change and transition processes is however still in an early phase (Bidmon & Knab, 2014, and Huijben et al., 2016). While it has been acknowledged that business models enable the upscaling of new, sustainable technologies by removing various investment barriers, this has so far not been explicitly considered from a transition studies systemic perspective.

An empirical case study was conducted on business models for car sharing in Sydney, Australia. The Australian government is interested in business models that make large cities more environmentally friendly. The City of Sydney, with problems such as limited parking space and heavy traffic congestion, considers car sharing as an option to make the city ‘green, global and connected’ (City of Sydney, 2015).

Car sharing is thus perceived promising for making the transition to a more sustainable mobility regime. Despite whether its sustainability will be proven or not, car sharing business models are part of a niche that is still under development.
The aim of the research is to identify the regime barriers for an urban mobility transition and to examine the role of new car sharing business models in overcoming these. Here, we define the regime as the mainstream private car transportation system in place consisting of various dimensions: culture, consumer practices, infrastructure, industrial networks, technology and scientific knowledge, and policy (Geels, 2002). This leads to the following research question: how can new (car sharing) business models conquer the barriers imposed by the existing mobility regime thereby enabling the up-scaling of this mobility niche?

**Methodology**

The qualitative research conducted for this study builds upon a comparative case study between two different types of business models in the city of Sydney: peer-to-peer car sharing and traditional car sharing. Both business models were commercially operating at the time of the study (2015). The research involved an iterative process of study, including a desktop and literature study, and interviews with main car sharing stakeholders. The transcribed interviews were coded and structured based on content analysis. Overall, data analysis exploits the constructionist ontology juxtaposing different business models and the regime context (Hardy, Harley, & Phillips, 2004).

**Findings**

With regard to the development of a car sharing system in Sydney, barriers were formed by the dominant logic (i.e. private car use) within the regime. The results of the study are summarized in Table 1. Several regime dimensions and their elements were identified, and for each regime element we found the business models to either align to it or not. For example, there is an initial fit or alignment on the infrastructural regime dimension in the case of the old car infrastructure, since the business models 'borrow' this infrastructure for their own use. When a business model is not aligned, an individual business model can overcome the trust barrier in the cultural regime dimension by managing expectations of their customers and including a feedback reputation system in their value proposition (Business Model Innovation). Additionally, in the policy dimension, there is a lack of parking spaces dedicated to sharing. Traditional car sharing companies have close ties with the government who can assist in overcoming this barrier. A general regulation on dedicated parking spaces for sharing is eventually beneficial for the whole niche.

**Conclusion**

Results show that there are three types of niche business model and regime interplay. First of all, the study showed that there is some fit between the private car regime and the car sharing business models. Next to this, there are two different strategies for dealing with regime barriers. There is a strategy focusing on the internal organizational part of the
business model (i.e. Value Proposition and Customer Segment). The other strategy is on the contextual level, where the business can use their network to alter the context for the new business models (e.g. lobbying for transformation of regulations). Both strategies can lead to new business opportunities for the entire niche or only the company itself.

Table 1 - Business Model alignment on regime elements

<table>
<thead>
<tr>
<th>REGIME DIMENSION</th>
<th>Regime Element</th>
<th>BM Type</th>
<th>Aligned?</th>
<th>BM Element</th>
<th>Beneficial for</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural meaning</td>
<td>Trust between peers</td>
<td>C2C</td>
<td>Not aligned</td>
<td>Value Proposition</td>
<td>Company</td>
<td>Feedback reputation system + Lock technology</td>
</tr>
<tr>
<td>Property Responsibility</td>
<td></td>
<td>B2C</td>
<td>Not aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Create new kind of insurance</td>
</tr>
<tr>
<td>Car dependency</td>
<td></td>
<td>B2C</td>
<td>Not aligned</td>
<td>Value proposition Customer Segment</td>
<td>Company</td>
<td>Convince customers of sustainability, traffic congestion etc.</td>
</tr>
<tr>
<td>Consumer Practices</td>
<td>Cars are mostly used in weekends</td>
<td>B2C</td>
<td>Not aligned</td>
<td>Customer segment</td>
<td>Company</td>
<td>Extending the customer segment</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>‘Old’ car infrastructure</td>
<td>B2C</td>
<td>Aligned</td>
<td>Value Proposition</td>
<td>Niche</td>
<td>Car sharing highjacks old infrastructure</td>
</tr>
<tr>
<td>Public transport</td>
<td></td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Lobbying for governmental fleet</td>
</tr>
<tr>
<td>Bicycle infrastructure</td>
<td></td>
<td>B2C</td>
<td>Aligned</td>
<td>Value Proposition</td>
<td>Niche</td>
<td>Increasing health by complementing</td>
</tr>
<tr>
<td>Category</td>
<td>Problem/Issue</td>
<td>B2C</td>
<td>C2C</td>
<td>Partnering Model</td>
<td>Niche</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>------------------</td>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Parking lots</td>
<td>Too many parking lots, not necessary to share</td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Too many parking lots, not necessary to share</td>
</tr>
<tr>
<td></td>
<td>Tension between political parties</td>
<td>C2C</td>
<td>Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Being part of community reduces the necessity to become acknowledged</td>
</tr>
<tr>
<td></td>
<td>Tax payment for cars</td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Regulation with government</td>
</tr>
<tr>
<td>Industrial networks</td>
<td>Market share Manufacturers</td>
<td>B2C</td>
<td>Aligned</td>
<td>Value Proposition</td>
<td>Niche</td>
<td>B2C Buying one fleet / C2C Making use of the used cars</td>
</tr>
<tr>
<td>(Markets)</td>
<td>Car rental competition</td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners / Business Model merging</td>
<td>Company</td>
<td>Acquisition by car rental company e.g. Hertz</td>
</tr>
<tr>
<td>Technology</td>
<td>Car sharing website</td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Partnership with Metavera</td>
</tr>
<tr>
<td>Science (Knowledge)</td>
<td>Car lock technology (expensive)</td>
<td>B2C C2C</td>
<td>Not Aligned</td>
<td>Value Proposition Resources</td>
<td>Company</td>
<td>Developing own car locking technology</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------</td>
<td>--------</td>
<td>-------------</td>
<td>----------------------------</td>
<td>---------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Knowledge on sharing</td>
<td>B2C C2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Marketing through partnerships</td>
<td></td>
</tr>
<tr>
<td>R&amp;D on driverless cars</td>
<td>B2C</td>
<td>Not Aligned</td>
<td>Partners</td>
<td>Niche</td>
<td>Knowledge institutes for autonomous shared fleet</td>
<td></td>
</tr>
</tbody>
</table>

**References**


