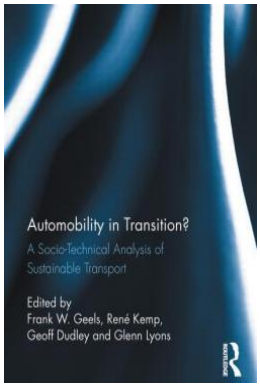
1. Essential Reading



Automobility in Transition? A Socio-Technical Analysis of Sustainable Transport - by Geels, Kemp, Dudley and Lyons

By Javier Caletrío (Sociologue)
20 October 2014

Automobility in Transition examines the tensions between stability and change in the system of automobility. Using case studies from the Netherlands and the United Kingdom, it identifies patterns and mechanisms that help to explain the complex dynamics at play and analyzes how these dynamics may shape the relationship between society and transport in the coming decades.

The century of the car

Everyday mobility in late nineteenth-century western societies predominantly involved walking. Cities were still small by today's standards and pedestrians vied for space with cyclists, horse drawn carriages and electric trams, which were becoming conspicuous features of urban landscapes. Extensive railway networks complemented thriving public transport systems within and between cities. In this context, the motor car hesitantly emerged, first as a luxury item accessible to a few and, following the introduction of the Model T-Ford car in 1908, as a product of mass consumption around which twentieth-century family and working lives, economies, urban infrastructures, and long-term national security strategies unfolded and became sedimented. As a symbol of modernity and freedom, automobile cultures gradually spread elsewhere and are thriving in some developing countries. The number of cars in Brazilian metropoles, for example, has doubled in a decade, reaching more than 21 million in 2012. With more than one billion cars in the world and over 66 million units currently being produced each year, this hegemonic form of individualized mobility shapes the texture and rhythms of cities in every continent. However, car cultures are being increasingly contested for their role in

traffic congestion, traffic related deaths, air pollution and climate change, to name but a few. At the same time, a plethora of civil society groups, businesses and cities are experimenting with social and technological innovations, some improving the design and environmental performance of the automobile (e.g. fuel cell technology), and others seeking a profound transformation in the way transport is realized (e.g. Livable Streets, congestion charging, Intermodal transit, intelligent transport systems and traffic management). What do these simultaneous signs of inertia and change tell us about the future of automobility? Will the twenty-first century also be the century of the car as we know it, or could ongoing processes signal a transition in transport systems on the scale and significance as the one that took place at the beginning of the twentieth century, with the advent of the motor car, the decline of walking and collective forms of transport, and the devitalization of streets?

Aims and scope of the book

Automobility in Transition is an edited collection of essays, which forms a serious attempt to answer these questions by a group of experts on transport and ‘socio-technical transitions’, those rare events in history involving a transformation in the way societal needs such as food, energy and mobility are being met. Using a co-evolutionary and systemic approach to transitions, the book analyses processes of continuity and change in automobility, and suggests that current developments seem to favour a path towards ‘green cars’ rather than a new travel regime involving different mobility modes, patterns and habits. The book ends with policy proposals for moving towards a sustainability transition in the transport system.

Analytical lens

The book takes a ‘socio-technical perspective’ as its conceptual lens. Through this perspective, transitions in socio-technical systems typically result from changes in the wider techno-environmental, socio-economic and geopolitical contexts which create windows of opportunity for radical innovations nurtured in ‘niche spaces’ to transform or displace a dominant regime. A socio-technical perspective on transitions therefore attends to the dynamic relationship between three levels of analysis: protected spaces or ‘niches’ where radical social and technological innovations occur, the regime, and the wider context in which a regime is embedded.

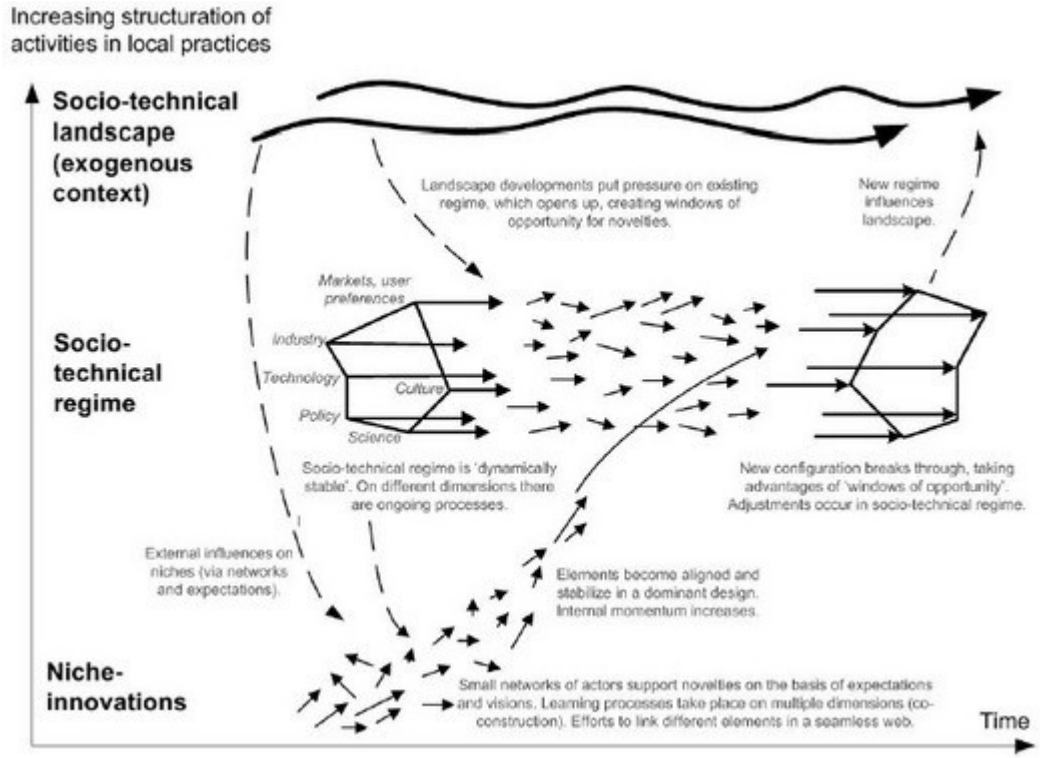


Fig. 1 The three levels interacting

Automobility systems and regimes

The core concept of this analytical lens is that of regime. For the sake of clarity it is important to distinguish between ‘regime’ and ‘system’ as defined by Geels and Kemp in the book. The automobility system is constituted by an assemblage of technologies (e.g. the internal combustion engine), policies and regulations (e.g. traffic norms, speed limits, safely regulations), infrastructures (e.g. roads, car parks), cultural meanings (e.g. car as freedom and status), markets (e.g. price structures), spatial arrangements (e.g. land use and city outline) and practical and mental dispositions. This system is maintained and reproduced through the everyday actions of all actors that routinely bring those elements together. But actors do not act in a random way. Their actions and the ways in which they bring those elements together are guided by a set of tacit normative rules or ‘regime’. These rules are embedded in ways of defining and tackling problems, the development of skills, production process technologies, products and the practices of engineers, planners, scientists, policy makers, end users, interest groups, business people, etc. The regime is embedded in technologies and is performed by actors. However, it does not encompass these actors and technologies. Elements of the regime are aligned in a coherent and self-reinforcing way that confers predictability. Change in the regime does occur but is incremental and takes place within clearly defined parameters due to path-dependent factors such as sunk investment in infrastructure, plants, skills, and people, taken-for-granted beliefs and practice, lifestyles deeply embedded in local and national indentities, such as suburban life in the USA, and vested interests such as the automobile and oil industries.

Landscape

The ‘landscape’ is the environment in which a regime is embedded, encompassing both a literal and metaphorical understanding. It includes the physical environment and material infrastructures that can perform their function in an active or dormant way for decades or

centuries, but also societal values and concerns, the media landscape, macroeconomic trends and long-term geopolitical dynamics. It is both regime stabilizing and regime destabilizing. Stabilizing elements in the landscape, that is factors of inertia, involve physical infrastructures such as highways and social and cultural factors such as individualization, preference for private property and the speed and convenience provided by automobile use which is normalized as freedom, processes of globalization with the emphasis on increasing flows and economic growth in some developing countries. Destabilizing elements in the landscape include climate change, energy scarcity (especially peak oil) and the rise of a digital society. These may gradually put pressure on the regime, creating 'cracks', and causing the realignment of some of its elements. Of the three levels in this 'multi-level perspective', the landscape is the one in which change occurs most slowly.

Niches

Pressures on the regime can also come from below. At any one time there is a myriad of social and technological innovations emerging in relatively protected spaces or 'niches'. In the case of transportation, niche development is taking place in areas such as intermodal travel and public transport, user innovation in information and communication technologies, demand management practices, intelligent transport systems and green propulsion technologies for cars. In deviating from the existing regime or even questioning its underlying logic, niche innovations constitute seeds for systemic change. Niche actors hope that their innovations will be used by the regime or perhaps even replace it. However, the low frequency of transitions attests to the difficulties in achieving this. Yet sometimes changes in the landscape do favour the germination of those seeds of change, leading to the transformation of the regime or the emergence of a competing regime.

Taking this relatively simple analytical framework, the chapters in this book collectively provide a rich and nuanced account of stability, by emphasizing lock-in mechanisms and path-dependent factors, and of change, by attending to the co-evolving relationship between multiple elements within and between each level. In so doing, the account presented here helps to prevent thinking about the evolution of automobility as driven by a single factor or of private car use as a fossilized reality whose future will not be significantly different from its present form. Rather, the analysis shows an ongoing, non-linear and rather messy process made of multiple and often contradictory interactions between many factors that are triggered by, or gain expression as, tipping points, hype cycles and transition pathways. Of particular significance is the way the analysis shows how ongoing trends make it necessary to examine automobility in relation to other systems such as electricity and Information and Communication Technologies due to the growing convergence between transport, surveillance and military technologies and regimes.

The future of automobility

The contributions convincingly demonstrate that the automobility regime is changing, although the direction of this change it is not yet clear. The final chapter of the book outlines three possible paths. The first presumes a reconfiguration of automobility around 'green' cars and intelligent transport systems, through the adoption of radical innovations by the automobile industry. This would imply a restructuration of the regime around these new technologies but a continuation of current mobility patterns. The second path presumes a new travel regime that combines different modes of mobility such as bus,

cycling, walking and trains, with new mobility habits. In this scenario the car would play a less dominant role than today, possibly even a marginal one. This transition path would take two or three decades to materialize and would require a willingness to change daily routines, a strong involvement of local governments and a decisive investment strategy by public transport actors. The third path presumes the ongoing dominance of the combustion engine car but within a context of accelerating climate change due to a failure to reduce carbon emissions. Accompanying this would be energy and security-related crises which would reduce mobility patterns and standards of living.

All three paths are open at this moment. Which one becomes most likely will depend, Geels and his colleagues argue, on how the regime is destabilized (which 'cracks' in the system become bigger) and which strategies the actors adopt. Ongoing developments do suggest, however, that automobility may evolve along the first path –this path is the one being favoured at the moment by the automobility industry and ICT actors, and it is where most investment and effort is being directed. The second path seems less likely. Although most of the required social and technological innovations already exist and many have been around for decades, the necessary social and political support is lacking. Especially problematic is the implied change in mobility habits, something often resisted given current patterns of land use, the strong inertias of daily family and working lives, and cultural association of the automobile with individual freedom and status.

Policies for a sustainability transition in transport

Geels and his colleagues argue that the desirable future is not one of 'green' hypermobility but a transition towards a travel regime based on non-motorized forms of transportation and new forms of social organization. In order to achieve this, policies should focus, first, on increasing pressure on the automobility regime (especially through taxation and other economic tools) and, second, encouraging the emergence and propagation of niche-innovations. Working with both strategies in tandem would increase the probability that the most is made of any window of opportunity.

Mobilities research and sustainability transition theories

Automobility in Transition is the best example thus far of the growing signs of convergence between the fields of transport and mobilities and transition studies. In strictly academic terms, the book should be praised for giving visibility to transition theories and the multi-level perspective within mobility and transport studies where these perspectives are still not sufficiently known. Likewise, transport does not figure as prominently as other sectors such as water and energy in transition studies, and existing research tends to focus on technological innovations such as the electric vehicle at the expense of, for example, social innovations. In this respect the book is an exemplar of the kind of comprehensive approach and inter-disciplinary cooperation needed to understand the dynamics of mobility transitions. Although the book is a collection of case studies, the writing of each chapter benefited from a workshop in which all authors were brought together. This is reflected in the way the chapters speak to each other and give coherence to the whole volume. The multi-faceted nature of socio-technical transitions implies that no matter how comprehensive a book is, there will always be areas which remain less developed. In this respect, a wider analysis of the ways in which transport co-evolves with other sectors would have been valuable. Despite the emphasis on co-evolution as a defining trait of transition studies this is an overlooked aspect not just of this book but of the field as a whole. Another issue that perhaps should have received further attention is the way unsustainable activities decline and die, which may be as important as

understanding how sustainable ones become normalized. Nonetheless, this is a great contribution to the convergent fields of mobilities and transitions studies and a highly recommended book for anyone interested in social futures.

Appendix

Case studies

The analytical framework is outlined in Part I of the book and serves to structure the rest of the text. Part II focuses on inertias in the automobility regime and the processes which are destabilizing it. Case studies focus on: policies challenging, albeit still with very weak and uneven results, the hegemony of the car in the UK (Chapter 4 by Dudley and Chatterjee); governance of transport policy in Scotland and London, highlighting the significance of local context in the way governance affects policies (Chapter 5 by Doherty and Shaw); the factors that explain the persistence of the combustion engine and steel body in the automotive industry (Chapter 6 by Wells, Nieuwenhuis and Orsato); socio-spatial developments that sustain the dominance of the car and the tendency to adopt strategies of delay (due to political costs) when it comes to translating principles into concrete actions (Chapter 7 by Goodwin); and the emergence of new cultures of mobility with a specific discussion of the Transit Oriented Development regime in the city of Philadelphia (Chapter 8 by Sheller).

Part III focuses on existing innovations that are gaining momentum and could play a role in the transition towards a different mobility regime if windows of opportunity emerge. It begins with a discussion of the difficult trajectory of electric mobility in the last three decades and the potential it has for transforming, not so much automobility, but the automobile industry (Chapter 10 by Orsato, Dijk, Kemp and Yarime). This is followed by a chapter on the efforts by German industry and government to develop hydrogen and fuel-cell vehicles (FCV). In this clear example of ‘strategic niche management’ aimed at destabilizing the dominant regime, Ehret and Dignum show FCV as Janus-faced entities, capable of both changing and reinforcing the dominant regime. In Chapter 12 Pel, Teisman and Boons focuses on the creation of traffic information products and Chapter 13, by Lyons, Jain, Mitchel and May, examines niche developments in ‘Intelligent Transport Systems’ and the prospects for a regime transition. In Chapter 14, Harman and his colleagues explore innovations in public transport systems and the challenges of meeting the different demands of both commuters and people dependent on public transport. It notes that the Netherlands has been more successful than the UK in developing integrated transport systems and public transport-based spatial planning. In Chapter 15 Parkhust, Kemp, Dijk and Sherwin focus on the development of intermodal travel in Europe.

Automobility in Transition? A Socio-Technical Analysis of Sustainable Transport
Geels, F., Kemp, R., Dudley, G., and Lyons, G. (eds.)
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Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

En savoir plus x

Transition studies

Transition studies are concerned with long-term processes of radical and structural change to sustainable patterns of production and consumption. It involves different conceptual approaches and adherents from a wide range of disciplines.

En savoir plus x

Associated Thematics :

Lifestyles

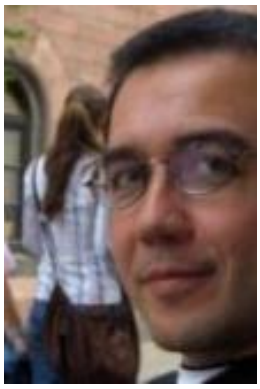
- Cars / motorcycles

Policies

- Cars
- Ecological transition

Theories

- Concepts



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