PATHWAYS project

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**Deliverable D2.2:** ‘Analysis of stability and tensions in incumbent socio-technical regimes’

**Country report 6:** Regime analysis of the UK land-based passenger mobility system

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Executive Summary

This report analyses the automobility, rail, bus and cycling sub-regimes in the UK which, together, contribute to the socio-technical land-based passenger transport regime. It assesses the degree of lock-in and path dependency of these regimes, the possible cracks and tensions that arise within them and whether each is in decline or ascendancy (see Table 0).

The report’s main findings are as follows:

Although it faces several problems, the automobility regime is still dominant and stable, although less so than twenty years ago. Some tensions and cracks have appeared such as: a) public concerns about Peak Oil and climate change, b) government policies (European CO2 regulations, national innovation programs) aimed at the ‘greening’ of cars, c) some urban policies that restrain cars and encourage alternatives to cars (often for reasons of urban regeneration and quality of life), d) green innovation strategies by automakers, which are mainly focused on incremental innovation, but also explore alternative options ((Battery electric vehicles (BEV), hybrid electric vehicles (HEV), fuel cell vehicles (FCV)), e) decreasing overall car-mobility (Peak car), stagnant car sales, and some indication of less car desires amongst young people. But these tensions are not yet very strong, whereas the mechanisms of inertia and stability are still substantial.

Alternatives to the automobility regime in the UK remain marginal. This is the case even with rail, where passenger journeys have more than doubled since 1994/5, where rail passenger miles have increased by 51% since 2001, but which still accounted for only around 3% mode share of surface transport trips in 2013 and just over 8% of ‘total inland passenger km’ in 2012. Overcrowding and congestion on the railways have highlighted a capacity problem. This capacity problem is not being addressed in a systemic-strategic way. Instead, there is spatially selective prioritisation of parts of the network (e.g. HS2, Crossrail) for large-scale infrastructure investment in corridors and enclaves - notably within London and connecting to London.

Similarly, passenger kilometres and trips by bus remain marginal relative to automobility, as part of a long-term trend of decline that has levelled off and in some cases begun to reverse over the last decade. The neoliberal reformulation of transport, from the 1980s, prioritised the car and portrayed car users as ‘successful’ and bus users as economic ‘failures’. This resonates with the dominance of bus use by ‘lower’ socio-economic classes and the young and elderly. The bus regime has been shaped since the 1980s by the idea and principles of competition, through deregulation and fragmentation. In London, where there was no deregulation and where there was a well-developed range of modal alternatives, bus usage performed well (45% increase in bus trips between 1995/7 and 2013) vis-à-vis other parts of the UK.

Cycling, likewise, remains marginal in a UK context, despite small increases in distance travelled by cycling in recent years. The longer-term trend shows the scale of decline since the Second World War where cycling accounted for 33% of all vehicle miles travelled in 1949 and only 1% by 2009. Though a similar trend affected many European countries, cycle use remains comparatively low in the UK. In the last two decades there has been a developing policy-push around cycling and associated infrastructure particularly through national programmes focused on urban areas, and also the development of a wider UK cycling economy. Realisation of cycling infrastructure has been limited and cycling is still
seen as an ‘abnormal’ activity which is often incongruent with employment, family, leisure or other activities. There is a gap between policy-push and limited realization which can be attributed to policy being embedded in a wider, fragmented governance of multiple private agencies and actors. There are though examples of significant spatial variations in use where, again, cycling in London has grown significantly over the last decade.

Binary oppositions between pro-car and anti-car have been fuelled by neoliberal efforts to frame single modes of transport. Neoliberalism has sought to reduce organising transport to calculable choices competing with one another. This was at its height in the era of predict and provide. Though there was a shift to discussing more integrated forms of sustainable mobility in the 1990s there were only small tangible shifts in actuality. Yet, there has been no large-scale re-assertion of predict and provide.

We have seen over the last decade an increasing tension between this competition-based market model and a gradual development of tools by national policymakers for local transport authorities to build coordination. With pressures for further significant transport devolution to regional and metropolitan authorities there remain possibilities for ‘pockets’ (‘niches’) of more inter-modal forms of localised transport system to be developed.
Table 0: Conclusions about stability and tensions in the UK Auto-mobility regime, Rail, Bus and Cycling

<table>
<thead>
<tr>
<th>Automobility</th>
<th>Lock-in, stabilising forces</th>
<th>Cracks, tensions, problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>External landscape pressures</td>
<td>- Financial-economic crisis - has resulted in a defence of the automobile industry by the state</td>
<td>- Financial-economic crisis - declining sales</td>
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<td></td>
<td>- Fiscal-economic crisis - declining sales</td>
<td>- Climate change - requirements for large-scale transport CO2 emissions reductions</td>
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<td>- Climate change - requirements for large-scale transport CO2 emissions reductions</td>
<td>- Rising oil prices (Peak oil), although weakened with recent price decline</td>
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<td></td>
<td>- Rising oil prices (Peak oil), although weakened with recent price decline</td>
<td>- ICT development and information society - growth of alternative modes of home-working/shopping/leisure</td>
</tr>
<tr>
<td>Industry</td>
<td>STRONG</td>
<td>WEAK</td>
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<tr>
<td></td>
<td>- Sunk investments in machines, people, factories, knowledge</td>
<td>- Economic problems (cut-throat competition, stagnant sales in Western countries) lead to focus on core business and entrenchment</td>
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<td></td>
<td>- Commitment to internal combustion engines</td>
<td>- Aware of climate change and peak oil (which are expected to get worse in long-term)</td>
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<td></td>
<td>- Firms believe that the ICE still has substantial technical development potential for incremental improvement in green directions - CO2 emissions have fallen annually in new vehicles for the last 16 years and a 30% fuel efficiency improvement in new petrol vehicles 2000-2013.</td>
<td>- Development of radical technical alternatives, but as hedging strategy not as full reorientation strategy</td>
</tr>
<tr>
<td>Consumers</td>
<td>STRONG</td>
<td>WEAK/MODERATE</td>
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<tr>
<td></td>
<td>- Car embedded in lifestyles and mobility patterns (shopping, commuting, bringing children to school).</td>
<td>- Depressed car sales after crisis, with some recent signs of picking up</td>
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<td></td>
<td>- Many consumers prefer the car as a mode of transport in terms of speed, time, convenience - except perhaps in the centres of large cities, where parking problems may hinder car use.</td>
<td>- Some dissatisfaction about fuel prices, congestion and parking problems - though overall costs of motoring are claimed to be falling while those for rail and bus passengers are steeply rising</td>
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<td>- There was a reduction in the average number of trips by car, average distance travelled and time spent travelling on average 1995-2013 (‘Peak car’)</td>
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<tr>
<td><strong>Policy-makers</strong></td>
<td>MODERATE</td>
<td>MODERATE/WEAK</td>
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<td></td>
<td>- Policymakers supportive of cars (although less than 20 years ago)</td>
<td>- Some climate change pressure from EU policymakers (CO2 regulations not yet technology-forcing, but could get stronger)</td>
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<td></td>
<td>- Policymakers are constrained by electorate (many of whom prefer cars), lobby groups, and economic importance of car industry</td>
<td>- Limited climate change pressure from national policymakers (no targets, regulations, etc.), but support for green technology development/deployment</td>
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<td>- Some pressure from local policymakers, who introduce some car-restraining measures and stimulate alternatives (bus, cycling)</td>
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<tr>
<th><strong>Public debate and opinion</strong></th>
<th>STRONG</th>
<th>WEAK</th>
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<tbody>
<tr>
<td></td>
<td>- Many positive cultural associations with cars (freedom, individuality, excitement, success, power).</td>
<td>- Long-standing presence of an anti-car discourse, which has drawn attention to negative side-effects of car use</td>
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<td></td>
<td>- Powerful pro-car lobby groups</td>
<td>- ‘Sustainable mobility’ emerged as a phrase, but with limited concrete effects (less strong discourse than ‘renewable energy’)</td>
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<td>- Enduring (though weaker) neoliberal view of single, competitive modes of transport governed by ‘choice’</td>
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<tr>
<th><strong>Pressure from social movements, NGOs, scientists</strong></th>
<th>MODERATE</th>
<th>WEAK</th>
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<tr>
<td></td>
<td>- There are powerful - often industry-linked - pro-car lobby groups</td>
<td>- Anti-roads protesters had success in curtailing a road-building programme in the 1990s. Weakened by fuel protests in the 2000s. There may be windows of opportunity following announcement of new road-building programme</td>
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<td>- Road and car safety groups contribute to incremental improvements in automobility</td>
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<tr>
<th><strong>Overall assessment</strong></th>
<th>STRONG</th>
<th>WEAK/MODERATE</th>
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<tr>
<td></td>
<td>- Still fairly stable automobility regime (although perhaps less than 15 years ago)</td>
<td>- Some cracks and tensions from: a) hedging car industry, leading to development of technical alternatives, b) less car-based lifestyles amongst younger generation, c) EU and local policy (which do not yet provide strong push for alternatives), d)</td>
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<tr>
<td></td>
<td>- Alternatives to automobility remain marginal.</td>
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<tr>
<td>Rail</td>
<td>Lock-in, stabilising forces</td>
<td>Cracks, tensions, problems</td>
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<tr>
<td>Industry</td>
<td><strong>MODERATE</strong></td>
<td><strong>MODERATE</strong></td>
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<td></td>
<td>- UK train system privatised and fragmented since 1994</td>
<td>- Political rows since 2011 over whether state should prioritise UK train manufacturer in awarding contracts - mixed results - New train capacity being built by Japanese-firm Hitachi in new English facility</td>
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<td></td>
<td>- Infrastructure, train operations and rolling stock separated into multiple units with no system controller</td>
<td>- Prioritisation of premium parts of the system (HS2 and Crossrail) and ‘alternatives’ of light rail plans for other urban areas</td>
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<td>- Last train maker in Britain, the former state-owned operation in Derby, owned by the Canadian engineering company Bombardier</td>
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<tr>
<td>Consumers</td>
<td><strong>MODERATE</strong></td>
<td><strong>MODERATE</strong></td>
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<td>- Long-term decline in rail use reversed in the UK in the last two decades - approximate doubling of passenger KMs travelled – yet rail’s contribution to overall transport share remains small</td>
<td>- Post-privatisation (between 1997 and 2014) fares increased on average by 102%, a 23% increase in real terms</td>
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<td>- Majority (62%) of all rail journeys started or ended in London with implications for system investment</td>
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<td>- Capacity a serious issue (including sharing of lines between local / inter-city trains)</td>
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<td>Policy-makers</td>
<td><strong>MODERATE/STRONG</strong></td>
<td><strong>MODERATE</strong></td>
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<td>- Unitary control of the railways abolished in 1993 when policy promoted fragmentation of rail system to create market economies</td>
<td>- Though passenger numbers have increased post-privatisation public subsidy has risen sharply, counter to a key objective of privatisation</td>
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<td></td>
<td>- Numerous government reviews have not fundamentally rejected the post-privatisation organisation of railway system</td>
<td>- Assessments of privatisation as policy response suggest a mixed record of success</td>
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<td>- Policy is selectively prioritising parts of the rail system, primarily into and through London</td>
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<tr>
<td>Public Debate</td>
<td><strong>MODERATE</strong></td>
<td><strong>MODERATE/STRONG</strong></td>
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<tr>
<td>and Opinion</td>
<td>- Rail passenger use has seen significant increases - this is in tension with debates about the costs of use</td>
<td>- Increasing debates about cost of rail to public purse and passengers</td>
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<td>- Growth of rail use has emphasised capacity and congestion issues</td>
<td>- The development of high-speed lines and their costs, focus on London and local effects of new lines has become and is likely to increase as an issue</td>
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<td>- Some debate about whether rail should be in private or public hands and also about refranchising of train operators</td>
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<td></td>
<td>- Campaigning groups appear to have moderate influence on government and subsequently the rail system. Groups exist to champion passengers, to campaign on fares and to oppose privatisation- there is a mix of insider and outside groups</td>
<td>- Limited downward influence on fares</td>
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<thead>
<tr>
<th>Overall assessment</th>
<th>MODERATE</th>
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<td></td>
<td>- There is no great challenge to the privatised rail system. It is expensive, congested but also heavily used by passengers</td>
<td>- Modest cracks and tensions in relation to: a) congestion, b) costs, c) the private organisation of the rail system</td>
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<tr>
<th>Bus</th>
<th>Lock-in, stabilising forces</th>
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<tr>
<td>Industry</td>
<td>MODERATE</td>
<td>WEAK</td>
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<td></td>
<td>- Complicated landscape of bus operators across the UK - local variety. But three operators - through mergers - together account for almost half of market share</td>
<td>- Relatively settled operator landscape after series of mergers in the 1990s.</td>
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<td></td>
<td>- There are nine bus and coach manufacturers in the UK and the number of buses/coaches in Britain has stayed reasonably steady over the decade to 2014 at around 52,000 vehicles</td>
<td>- Incremental moves to bring more control over the bus operating companies through local authorities</td>
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<tr>
<td><strong>Consumers</strong></td>
<td>MODERATE</td>
<td>WEAK/MODERATE</td>
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<td>- Bus use remains significant at around 30 billion passenger KM a year and remains used for a wide range of purposes from commuting, to shopping, education and leisure activities</td>
<td>- Bus use has been in long-term decline outside of London but this has levelled off. There is though geographical variation to bus use with London seeing significant growth in passengers but rural areas showing significant reductions</td>
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<td>- Buses are disproportionately used by the poor, the young and elderly and bus fares have increased faster than inflation. Furthermore, significant usage by pensioners is through concessionary travel which may come under threat in times of austerity</td>
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<th><strong>Policy-makers</strong></th>
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<th>WEAK/MODERATE</th>
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<tbody>
<tr>
<td>- Deregulation and privatisation since 1985 shifted ownership and operation of the buses from public to private bodies and enshrined the general principles of competition law in the operation of the bus system</td>
<td>- The tension between competition law and a greater role for local policymakers in the governance of the bus system has incrementally increased in the 2000s</td>
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<th><strong>Public debate and opinion</strong></th>
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<tbody>
<tr>
<td>- The overarching narrative of the bus system in the UK remains wedded to the effects of deregulation, almost three decades on</td>
<td>- Bus use suffers some negative perceptions. This can be traced to the binary debate of the 1980s between the desirability of automobile ownership and use and the perceived personal economic ‘failures’ associated with bus use.</td>
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<td>- The political power of the over-60s remains strong and has implications for the continuation of concessionary bus passes</td>
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<th><strong>Pressure from social movements, NGOs, scientists</strong></th>
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<tr>
<td>- There are numerous groups, working with government and operators incrementally</td>
<td>- Campaigning groups appear to have limited influence on the bus system and its operation</td>
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<tr>
<th><strong>Overall assessment</strong></th>
<th>MODERATE</th>
<th>WEAK</th>
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<tbody>
<tr>
<td>- The dominant organisation of the bus system remains shaped by the privatisation and deregulation of the 1980s.</td>
<td>- Incremental change means that cracks in the system - for example, efforts to bring more local authority control of the bus system - are addressed slowly over a long period of time</td>
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<td>- There have been incremental changes in ownership of operators</td>
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since then and a period of relative stabilisation of operating companies, passenger numbers and fleets

<table>
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<tr>
<th>Cycling</th>
<th>Lock-in, stabilising forces</th>
<th>Cracks, tensions, problems</th>
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<tbody>
<tr>
<td>Industry</td>
<td>MODERATE/WEAK</td>
<td>MODERATE</td>
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<tr>
<td>- The vast majority of bicycles bought in the UK are manufactured outside of the UK. Bicycle manufacture in the UK has become specialised and niche</td>
<td>- The UK has no mass producer of cycles</td>
<td>- There has been a growing cycling economy - but a view that this growth may have peaked</td>
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<td>- Growth of a wider cycling industry of associated products (clothing, accessories)</td>
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<tr>
<th>Consumers</th>
<th>WEAK/MODERATE</th>
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<tr>
<td>- The long-term trend of cycle usage in Britain is one of decline since the Second World War - but with an increase in cycling KM of around 20% between 1998 and 2013</td>
<td>- There is a poor understanding of the cultural dimensions of cycling and hence limited congruence between cycling and some practices, such as travelling to school for example</td>
<td>- There are huge variations in use by age and gender and notably by geography. This links to the cultural dimension of cycling</td>
</tr>
<tr>
<td>- Around 43% of the UK population owns or has access to a bicycle. Yet, cycling is seen as an ‘abnormal’ activity in the UK and low by comparative EU standards</td>
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<tr>
<th>Policymakers</th>
<th>WEAK/MODERATE</th>
<th>WEAK</th>
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<tr>
<td>- No real national cycling policy prior to the 1990s</td>
<td>- Cycling policy emerged in a neo-liberal state that means capacity is outsourced and fragmented and policy is difficult to realise locally</td>
<td>- Individualisation of cycling policy underpinned by notions of ‘active’ and ‘responsible’ citizenship has presented cycling as perceived as being peripheral to the main business of ‘transport’</td>
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<tr>
<td>Public debate and opinion</td>
<td>WEAK</td>
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<td>- Views that people hold of cycling are often ambiguous and sometimes contradictory</td>
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<tr>
<td>- Cycling remains a marginal activity</td>
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<thead>
<tr>
<th>WEAK/MODERATE</th>
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<tbody>
<tr>
<td>- There is significant geographical variety in use with Greater London, for example, seeing relatively large growth since 2000</td>
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<tr>
<td>- There is some challenge to reductionist, ‘derived demand’, rational, cost-based, quantitative approaches to transport use decision-making. More expansive understandings of the meaning of cycling mobility focusing on the immaterial embodied and sensory have begun to emerge</td>
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<thead>
<tr>
<th>Pressure from social movements, NGOs, scientists</th>
<th>MODERATE</th>
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<tbody>
<tr>
<td>- Variety of NGOs working to promote different elements of a cycling agenda but with ad hoc connections between them</td>
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<thead>
<tr>
<th>WEAK/MODERATE</th>
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<tr>
<td>- Cycling at local authority level requires a statutory response but there is limited in-house capacity. This creates some possibility to build capacity through NGOs and social movements, although this may be constrained through lack of finance and institutional barriers</td>
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<table>
<thead>
<tr>
<th>Overall assessment</th>
<th>WEAK/MODERATE</th>
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<tbody>
<tr>
<td>- Cycling remains marginal in a UK context, despite small increases in distance travelled by cycling in recent years</td>
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<tr>
<td>- In the last two decades there has been a developing policy-push around cycling and associated infrastructure particularly through national programmes focused on urban areas, and also the development of a wider UK cycling economy</td>
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<tr>
<td>- Realisation of cycling infrastructure has been limited and cycling is still seen as an ‘abnormal’ activity</td>
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<tr>
<th>WEAK</th>
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<tbody>
<tr>
<td>- There are examples of significant spatial variations in use where, for example, cycling in London has grown significantly over the last decade – these present exemplars of ‘alternative’ cycling cultures</td>
</tr>
</tbody>
</table>
1. Introduction
This report analyses the UK automobility, rail, bus and cycling sub-regimes which, together, contribute to the socio-technical land-based passenger transport mobility regime. The purpose of this analysis is to assess the degree of lock-in and path dependency of these regimes, the possible cracks and tensions that arise within them and whether these different sub-systems and regimes are in decline or ascendancy.

Our research focuses on land-based passenger transport, which means that aviation, shipping and freight are excluded from the analysis. We conceptualise land-based passenger transport as consisting of a dominant car-system, and several sub-ordinate other systems (bus, train, cycling) (see Figure 1).

Figure 1: Land-based Transport and its Sub-Systems
Transport domain (land-based)

Data in this report is from a mixture of primary and secondary sources. Statistics from various sources, including the Department for Transport, the National Travel Survey, Transport Statistics Great Britain and others, are referenced within the document. The report also draws on articles and documents from Transport Studies, sociology, urban studies, socio-technical transitions and other areas of the social sciences, the use of which is referenced within the report and in a reference list at the end of the report.

The structure of the report is as follows: in the next section we provide an overview of trends in environmental performance in the land-based passenger transport system. The following section sets out the main landscape developments influencing the land-based passenger transport system. Sections 4-7 assess developments in the car system and regime, the rail system and regime, the bus system and regime and the cycling system and regime. Section 8 sets out conclusions.

2. Overall land-based passenger transport system trends in environmental performance

Overall Environmental Performance
In 2012, UK, domestic transport CO2 emissions were 116.9 MtCO2 (25% of total UK CO2 emissions). Total CO2 emissions fell by 11.9% from 2007 to 2012, but only 0.2% in 2013 (Figure 2).
Surface transport CO2 emissions are responsible for the majority of domestic transport emissions with domestic aviation and shipping accounting for 3%. Road transport accounts for the majority (96%) of surface transport, with cars being the largest contributor (58%), vans 14% and heavy goods vehicles 22% (Figure 3).

These relative data (%) look a bit different if international aviation is included (Figure 4), but still show that cars are the biggest category.
Figure 4: UK greenhouse gas emissions by transport mode in 2011

![Diagram showing greenhouse gas emissions by transport mode in 2011.]

*Non road transport consists mainly of domestic aviation and shipping and rail.

Source: Department for Transport, 2013a, p.6

**Land-Based Transport and its Sub-systems**

Figure 5 shows how cars have become (by far) the dominant transport mode since the Second World War, accounting for 83% of all distance travelled (including vans and taxis) in 2013\(^1\). Interestingly, however, car travel seems to have peaked by 2005 and declined since, a development that has given rise to the ‘peak car’ debate. Rail travel increased substantially since the mid-1990s (Figure 6), suggesting that some modal shift may have occurred (from cars to trains). In comparison to car-travel, however, rail travel is still small, accounting for about 8% of passenger kilometres in 2012 (Figure 7). A full modal shift would thus require rail travel to increase ten-fold, which is highly unlikely, given heated political debates about the construction of new rail lines since the announcement of a plan for a new high-speed link from London to the north. Cycling has also increased significantly since about 2005, increasing passenger kilometres by about 35% to 2012 (Figure 8). Nevertheless, cycling accounted for only 1% of overall passenger kilometres in 2012 (Figure 7), which means that even a doubling or tripling of cycling would have very limited effects on greenhouse gas emissions and modal shift.

\(^1\) Department for Transport Statistics, Table TSGB0101 [accessed 21/04/2015]
Figure 5: Passenger transport in Great Britain for different modes

Source: Department for Transport, 2014

Figure 6: Rail passenger mileage in Great Britain

Source: Le Vine and Jones, 2012, p.3

Figure 7: Averaged distance travelled per mode in UK, 2012

Source: Department for Transport, 2013b, p.5
3. The main external landscape developments that influence the land-based passenger transport system

For the UK land-based passenger transport system, the following landscape developments have been, and are likely to be, of importance:

1) The financial-economic crisis of 2007-8 and subsequent austerity programmes reduced people’s spending power, which, in turn, caused a sharp decline in UK car sales (Figure 9). Although sales have increased in recent years, the market is still depressed, causing strong competition between car manufacturers and dealers. There are also complicated consequences of austerity for local transport systems where operational transport budgets are being cut but where there is some capital investment in new transport infrastructure.

Figure 9: New UK car sales

Annual rolling totals for all car registrations

2) Climate change is a landscape development that is recognized by most regime actors (policymakers, car manufacturers, NGOs). The sense of urgency has varied over time, however, with high attention from 2005-2009, and some weakening since then, because the political struggle that followed the financial-economic crisis resulted in changed priorities. The EU first agreed on voluntary emission targets with the car industry. When these targets were not met, the EU introduced binding CO2 regulations for new cars. European regulation 443/2009 stipulated a fleet average target of 130 grams of CO2 per kilometre for new cars in 2015. This target is not ‘technology-forcing’, because it can be met through incremental innovations. A tougher 2021 target of 95 grams CO2 per kilometre may require more radical innovations. Climate change has begun to be addressed at the European level. The UK Climate Change Act (2008) contains general ambitions for CO2 reductions from cars, but no binding targets, which limits UK domestic pressure. Local transport policy has produced strategies and visions for lower carbon transport but action on these strategies has been limited (Bache et al, 2015). Pressure from climate change is expected to increase in the future, but it is uncertain when and how fast.

3) Rising oil prices from the mid-2000s gave rise to concerns about Peak Oil, which refers to the peaking of maximum rates of conventional oil production. Since then, however, unconventional oil (e.g. shale oil, tar sands) production has increased, especially in the US, giving rise to substantial price decreases in the last half year (combined with OPEC politics). Despite this recent reduction, most analysts expect that the price of oil and gasoline is likely to rise in the coming decades, which is likely to affect mobility behaviour (e.g. less car use, acquiring more fuel-efficient vehicles, finding a job closer to home or switching to alternative transport modes) or lead to stronger policy action with regard to renewable alternatives.

4) The diffusion of ICT and the possible shift towards an information society with ubiquitous computing are pervasive landscape trends that are likely to give rise to Intelligent Transportation Systems (ITS), i.e. the integration of ICT devices into cars and highway systems. The promise of ITS is that ‘cybercars’ (vehicles enhanced with data processing, information transmission, and mobile communications capacities) and digitally enacted environments may enhance the efficiency of the transport system (i.e. improved traffic flows). At its most developed: ‘What is being sketched here, in patchy but hopeful fashion, sometimes resembles what might be called a paradigm shift…what is suggested seems to imply a transformation of the mode of production, consumption and private ownership of the automobile, which remains a central (if slowly declining) pillar of global consumer capitalism…’ (Howe, 2013).

4. Development in the car system and regime

4.1. Developments of the main tangible system elements
In the land-based passenger transport system, given its dominance, we present an analysis of the automobility-system (see Figure 10 for a schematic representation).

Environmental performance of the automobility network/entire fleet
Direct emissions from surface transport (road and rail vehicles) were responsible for 24% of total CO2 emissions in the UK (20% of GHG emissions) in 2011. Of this, cars accounted for around 58% of CO2 emissions, HGVs (21%), vans (14%) and buses (4%) (Committee on Climate Change Fact Sheet, 2013). Overall CO2 emissions from vehicles have been in
decline over the last decade and more, as have emissions per km, and vehicle km travelled were slightly less in 2012 than in 2003 (see Figure 11).

**Figure 10: schematic representation of auto-mobility system**

- **Policy**
  - a) European (e.g. emission standards)
  - b) National (fuel taxes, highway programs, subsidies)
  - c) Local (parking policies, local road maintenance)

- **Road infrastructure, traffic signs**

- **Fuel infrastructure (petrol, diesel, gas)**

- **Markets, mobility and car use for functions such as:**
  - commuting to work
  - work functions (salesmen, plumbers)
  - social visits (friends, family)
  - holidays, weekend trips, recreation
  - shopping
  - bringing children to school
  - leisure (sports, theater, film)

But also concerns about:
- accessibility, congestion
- costs (petrol prices)
- safety, road accidents
- air pollution, climate change
- noise, spatial problems (parking), quality of life issues

**Figure 11: Historical trends of vehicle km, MtCO2 and gCO2/km for cars (2003-2012)**

Source: Committee on Climate Change Progress Report 2013
Underpinning falls in CO2 emissions have been developments in the efficiency of new vehicles, where to 2013 new car CO2 emissions fell annually over a 16 year period (SSMT, 2014). Figure 12 illustrates a 30% fuel efficiency improvement for petrol between 2000 and 2013 with a 23% improvement for diesel.

**Figure 12: New Car fuel consumption 2000-2013**

![Figure 12: New Car fuel consumption 2000-2013](source: Department for Transport, 2014)

The downward trend in CO2 emissions in terms of g/km emitted is set out in Figure 13, which also illustrates the future reductions that are necessary to meet EU targets.

**Figure 13: UK new car CO2 emissions and EU targets**

![Figure 13: UK new car CO2 emissions and EU targets](source: SSMT, 2014)

**Numbers of vehicles and journeys**

Automobility is dominant as a proportion of overall passenger kilometres travelled (see Figure 5). The proportion of passenger kilometres attributed to automobility (cars, but figures also include vans and taxis) has been growing since the 1950s, with some levelling off and
slight reduction in recent years (Department for Transport, 2014). Underpinning this has been ongoing growth in the numbers of licensed vehicles in Great Britain, which, with the exception of 1991, increased in every year between 1950 (under 5 million) and 2013 (35.2 million licensed vehicles, of which 29.1 million were cars) (see Figure 14) (Department for Transport, 2014).

Figure 14: Licensed vehicles in Great Britain 1950-2013

That said, year on year increases in motor vehicle traffic has followed a reducing trend, with concentration of high growth between the 1950s and 1970s and with significantly lower year on year growth since the early 1990s (see Figure 15).

Prices
The ‘cost of motoring’ covers a number of elements that includes: the car’s (or other vehicle’s) purchase price, tax and insurance, the cost of fuel and maintenance. The level of these costs has varied over time (Figure 16). In aggregate summary, the purchase price of a car was significantly above inflation at the end of the 1980s moving to less than inflation by 2012. Though the cost of purchasing a vehicle has risen at less than the rate of inflation this was not the case with car tax, insurance and fuel which all rose by more than the rate of inflation. Where, for example, the average cost of car insurance was £150 a year in 1988, with inflation this would have risen to an average of £340 by 2012 but was actually £1,193².

² [http://www.autoexpress.co.uk/car-news/66162/counting-cost-your-car](http://www.autoexpress.co.uk/car-news/66162/counting-cost-your-car) [accessed 21/04/2015]
Figure 15: Year-on-year change in motor vehicle traffic, Great Britain

Source: Department for Transport, 2014

Figure 16: Motoring costs v inflation

Source: Auto Express

Similarly, if the price of petrol had risen with the rate of inflation from 1988 by 2012 it would have cost 83.4p a litre. At that time it was frequently at £1.30 a litre, although there has been some reduction in the years since (see also Figure 17).
Industry data
In total, in 2012, almost 1.465 million cars were manufactured in the UK; down from over 1.657 million in 2003. The five largest manufacturers (Nissan, Land Rover, Mini, Honda and Toyota) accounted for the manufacture of almost 1.3 million cars (SSMT, 2013). There were significant falls in car manufacture in 2008/9, for both home and export markets, after the financial crisis with an upswing after these years (see Figure 18). The broad aggregate trend over the decade since 2003 is one of falling domestic output for the home market and some growth in exports. The vast majority of exports for UK-built cars and commercial vehicles - between 50% and 70% over the period 2008-2012 - were to EU countries. Of the remaining exports, Russia and the US are important markets. There has been significant growth of exports to China, up from around 1.4% in 2008 to 8.1% in 2012 (SSMT, 2013).

Figure 18: UK car manufacturing output annual totals

Source: SSMT, 2013
In 2012, this positioned the UK as the 14th largest automotive manufacturer (of cars and commercial vehicles) globally and the 4th largest European manufacturer behind Germany, Spain and France (SSMT, 2013).

In terms of engine output, from over 3.164 million being produced in the UK in 2008, the number fell to just over 2.053 million in 2009, with partial recovery to over 2.495 million engines by 2012. Primarily engine manufacture is undertaken by Ford, BMW, Toyota, Honda and Nissan, with smaller scale production by Bentley (SSMT, 2013).

It is claimed that about 80% of all component types required for vehicle assembly operations can be procured from around 2,350 UK suppliers. It is estimated that around 720,000 people are employed in the ‘automotive industry’ with 140,000 directly employed in manufacturing, with the sector accounting for turnover of £56 billion in 2011 (SSMT, 2013). It is, though, only in recent years that for cars the UK automotive sector reached a trade surplus (Figure 19). Though the increasing trend to export is likely to contribute positively to this there is a significant trade deficit in terms of components (HM Government, 2013).

**Figure 19: UK automotive sector trade balance**

![Image]

Source: HM Government, 2013

**Investments/subsidies**

UK government has claimed that in the two years prior to 2013 there was £6 billion investment by vehicle makers in the UK (HM Government, 2013). It was estimated that in 2011 over £1.5 billion was invested in automotive R&D by business (HM Government, 2013). The specifics of these investments include: significant investments in design and upgrading manufacturing facilities by Jaguar, Land Rover, BMW, Toyota and Honda\(^3\). Government subsidy and investment is also visible through various grants, schemes and tax measures. The UK government claims that, alongside industry, it will invest over £1 billion over 10 years in a centre to ‘develop, commercialise and manufacture advanced propulsion technologies in the UK’ (HM Government, 2013).

**Infrastructure**

The road network in Britain consists of approximately 245,000 miles of roads (Department for Transport, 2013a). This network is made up of different ‘types’ of roads from major roads

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\(^3\) For a summary of investments see [http://www.smmt.co.uk/investment/](http://www.smmt.co.uk/investment/) [accessed 11/03/2015]
(motorways, ‘A’ roads) to minor roads (‘B’ and ‘C’ roads). A motorway programme in the 1960s and 1970s saw the growth of the network from 8 miles of motorway in 1959 to 1500 miles in 1980. The motorway network by 2012 was over 2,200 miles long. This was part of a wider growth in the length of the overall road network between 1960 and the mid-1990s from around 194,000 miles of road to over 240,000 miles. Since then and in to the 2000s there has been a small increase in then overall length of the road network.

The vast majority of registered cars in Britain in 2012 were fuelled by petrol (66.7%) or diesel (32.7%). There has been a significant shift from petrol (92.6% in 1994) to diesel (7.4% in 1994) through the 1990s and 2000s. These vehicles are fuelled via a roadside infrastructure of filling stations that are estimated to have reduced in number from around 37,500 in 1970 to around 9,000 in 20114. The number of reported road fatalities has been in long-term decline (Figure 20) and in 2013 reached its lowest figure since records began (Department for Transport, 2014).

Figure 20: Fatalities in road accidents and motor traffic, Great Britain 1960-2013

Source: Transport Statistics Great Britain 2014

**Market segmentation**

Cars account for the vast majority of trips of over one mile in the UK (see Figure 21).

**Figure 21: Mode share - average number of trips by main mode and distance**

![Chart showing mode share by distance](source)

Source: National Travel Survey: England 2013

There has been a reduction in the average number of trips by car over the period 1995-2013 by around 12% (see Figure 22). The average distance travelled by car drivers also decreased by 12% (from 3,660 miles per person per year to 3,235 miles) as did time spent travelling (as driver or passenger) from, on average, 225 hours per person in 1995/97 to 212 hours in 2013 (National Travel Survey: England 2013).

**Figure 22: Walking and car trips - Average number of trips by selected private transport modes**

![Chart showing walking and car trips](source)

Source: National Travel Survey: England 2013
Such changing use is claimed to be influenced by the state of the economy and fuel prices as factors in the wider costs of car ownership.

It is suggested that men drive around twice as many miles a year as women. That said, the trend is a falling one for men since 1995/97 (a 22% reduction in distance travelled) and a rising one for women (a 15% increase). By 2013 this still meant that trips by car (as a passenger or a driver) contributed to 64% of all trips and 77% of distance travelled (National Travel Survey: England 2013).

The reasons for undertaking car journeys are many: these include commuting to work and for business purposes, to access education, for shopping, to access leisure activities or as a leisure practice itself (see Figure 23). By 2013, one-fifth of all trips by car (or van) were claimed to be for commuting or business purposes with a similar number for shopping. A significant percentage of car trips (29%) were undertaken for leisure activities that includes visits to places and to the homes of friends and to access entertainment and sport (Department for Transport, 2014).

Figure 23: Trips by main mode and purpose: England 2013

4.2. The main social groups and intangible regime elements

1) Industry/firms. Operating in a global environment, automakers face many problems which can be ranked as follows: 1) survival in cut-throat competition, 2) under-utilization of factories and cost pressures, 3) market fragmentation and saturation in developed countries, 4) competition through product innovation, 5) environmental sustainability pressures, mainly from government regulations, and to a lesser degree from consumer demand. The first two problems serve to orient their attention towards profits and cost-savings, e.g. through mergers and attempts to improve production efficiency (factory innovation and reorganization). Selling cars in emerging economies is also a top priority. The fourth issue translates into
technical innovation oriented towards higher engine performance, more ICT in cars, more safety devices: ‘Much of the technological effort of the automotive industry is going into areas other than powertrain or body architecture, but in fact into aspects of occupant comfort, safety, entertainment and communications’ (Wells et al, 2012). Although environmental issues are not a top concern, the car industry does pay attention to the greening agenda. Incumbent car firms are prepared to contemplate ‘the notion of a partial transition’, which is ‘constructed around green cars, rather than a radical reappraisal of mobility as a whole’ (Wells et al, 2012). Automakers are working on radical green niche-innovations such as HEV, FCV, BEV and biofuels. But, at present, these green technologies are mainly a controlled hedging or reputation strategy (Sperling and Gordon, 2009; Penna and Geels, 2015), not a full-scale commitment to reorientation. The industry’s main green strategy is still the incremental improvement of the internal combustion engine (ICE) (see Orsato et al, 2012).

2) Consumers and car use. Most consumers prefer the car as the most practical transport mode (in terms of speed, time, convenience), except perhaps in the centres of large cities, where parking problems may hinder car use. Sheller (2004, p.236) suggests that: ‘Cars will not easily be given up just (!) because they are dangerous to health and life, environmentally destructive, based on unsustainable energy consumption, and damaging to public life and civic space. Too many people find them too comfortable, enjoyable, exciting, even enthralling. They are deeply embedded in ways of life, networks of friends and sociality, and moral commitments to family and care for others’. This appreciation of cars is visible in a decades-long trend in which UK households are moving towards multiple cars per household (Department for Transport, 2008).

Though there is ‘little doubt’ that car use by young people has reduced, it remains uncertain as to how this generation will travel in the future (Goodwin and Van Dender, 2013). One view is that automobility is ‘no longer unproblematically associated with progress, freedom, youthfulness and absolute autonomy’ (Simpson, 2009). This has fed into a wider debate about whether we are entering an era of ‘peak car’, related to slowing rates of car use growth, which in some Western countries have gone further to a flatlining or reduction in growth. There are variations between countries in terms of these trends. In the UK and Germany, for example, the trend has been a levelling off of car use, with an important role for some shift to other modes of transport. Whereas in France and the USA, the reduction in car travel after the 1990s was due mainly to trend changes in overall travel demand (Kuhnimhof et al, 2013). Indeed, it has been suggested that we are entering a new, fourth era of travel where as personal travel by car ceases to grow in Western countries the move is to an era of stability where population growth, ageing, and urbanisation will shape levels of and modal shares of travel (Metz, 2013). While ‘location and settlement density effects are very important’ there are likely to be disparities in these trends between larger cities and smaller cities and towns and also with rural areas. The contrasts between more and less dense settlements and their consequences for car use ‘appear to be sharpening’ (Goodwin and Van Dender, 2013, p.243&246), suggesting a need for regional or local analysis. Different hypotheses and scenarios for the future exist, from a long-term decline in car travel (‘peak car’), to stagnation at current levels (‘saturation’) to a continuation of growth once there is renewed economic growth (‘interrupted growth’) (Kuhnimhof et al, 2013).

3) Policymakers. Transport policy is made at three different levels: European, national and local. European transport policy has introduced binding CO2-regulations (discussed above), which have resulted in incremental fuel efficiency improvements in new cars, but are not (yet) driving more radical changes. At the national level, UK transport policy changed in the
1990s from the ‘predict-and-provide paradigm’, which had been dominant since the 1960s, to include new principles such as demand management, traffic management and ‘sustainable mobility’ (Docherty and Shaw, 2008). Whereas predict-and-provide signalled policy commitment to road building and automobility expansion, the new principles suggest that policymakers have become more critical about building more roads. This does not mean, however, that policy makers discontinued investment in road expansion entirely (in fact, the coalition government in 2014 announced major new road construction works). Their willingness to assist the car industry during the financial crisis (with demand stimulus policies such as ‘cash for clunkers’) also suggests that policy commitment to cars is still substantial.

In 1998, the newly elected Labour government (elected in 1997) introduced an ambitious White Paper, *A New Deal for Transport*, which advocated an integrated approach to transport as well radical policies such as modal shift, enhanced public transport, cycling, and demand management. In the next 10 years, this plan has only weakly been implemented, however, leading to a gap between the visions and real-world action. Docherty and Shaw, (2008, p.7) conclude that ‘Sustainable transport remains talked about rather than acted upon’. And Bache et al (2015) suggest that climate change policy in the UK transport policy has remained a meta-discourse with limited concrete effects. The coalition government (since 2010) has abandoned integrated transport policy, focusing instead on a green technology strategy, oriented at ‘ultra low emission vehicles’, with the hope of stimulating green jobs in the UK car industry.

Some local city authorities have begun to implement car restraining measures such as parking restrictions and tariffs, traffic calming schemes, and traffic-free pedestrianised centres, which challenge the ubiquity of cars in certain places. The main motivations are spatial constraints (parking) and quality of life issues (e.g. local air pollution, fine particles). Because (some) cities also play an active role in stimulating bus lanes, bicycles and road pricing, they can be seen as a new actor that challenges the established regime in some respects. City authorities in the UK are hindered, however, by a lack of money (especially since the crisis, which led to major budget cuts) and limited formal remits. They are often dependent on national transport innovation programs (and budgets), which frequently change and which complicates consistent long-term policy-making.

National and local policy makers seem to be guided by the following hierarchy of priorities in transport policy: 1) stimulate the economy by facilitating the smooth flow of goods and people, 2) ensure social equity by facilitating access to mobility for disadvantaged groups (especially via public transport), 3) addressing negative externalities in the following order of importance: a) congestion, because it has negative social and economic implications, b) local ‘quality of life’ problems such as air pollution, parking and spatial problems, c) safety (traffic deaths and injuries), d) environmental sustainability and climate change.

4) Public discourse: The car is culturally deeply embedded (Sachs, 1992), and associated with many positive values (e.g. freedom, individuality, excitement, success, power). Car use is stabilised by discursive frames such as ‘Joy of driving’; ‘Love affair with the car’; ‘Can’t do without it’ (Sheller, 2012). Nevertheless, since the 1970s, there has also been a persistent anti-car discourse that sees automobiles as dangerous killers (causing about 50,000 deaths per year in the European Union), destroyers of neighborhoods (especially when highways cut up cities), and major contributors to climate change and air pollution. These negative discourses have created some tension in the automobility regime, but not very much, since the positive
discourses have greater resonance with the wider public and are advocated by powerful pro-
car and road building lobbies. In 2000, these lobby groups organised protests about rising fuel
prices, which succeeded in forcing the government to reverse its plans (which also hardened
the government’s resolve not to introduce policies that went against car interests). Counter to
this re-affirming of the car regime, there are debates (set out above) about whether car travel
has peaked.

Overarching debates on the car regime in the half century from the 1960s can be
caracterised as (1) a dominance of predict and provide approaches, (2) an assertion in the
1990s of a sustainable mobility approach, which resulted in pragmatic gains for multi-
modality but a still strong car regime, and (3) a complex mix post-financial crisis of efforts to
re-assert the car regime, within debates about its long-term decline, and the ongoing
experimentation and limited success of a range of alternatives to the car regime.

Debate around the car regime remains concerned with congestion but in the 2000s the issue
of carbon emissions reduction became more salient. Arguably, since the financial crisis of
2007/8, debate has focused on defending the automobile industry as an economic actor and
discussions of peak car. Running alongside this have been more marginal debates around
‘reclaiming the streets’, promoting pedestrianisation of urban centres, alternative uses of road
spaces for buses and cycles.

There is also an ongoing struggle - often an implicit one - between what might be called
neoliberal approaches to transport and sustainable mobility. The challenge to predict and
provide from sustainable mobility can also be seen as a challenge to neoliberalism’s
privileging of the car where: ‘The private car regime as we know it today was largely created
in this period: The car was venerated as a symbol of freedom and progress - occupants can
within reason go anywhere at any time - and governments deemed steady increases in
personal mobility facilitated by the car necessary to achieve the kinds of structural
adjustments in the labour and housing markets essential for increased economic growth….’
(Docherty and Shaw, 2012, p.107). The neoliberal approach to transport reduced modes to
calculable choices competing with one another. This contrasts with a view of sustainable
mobility promoting inter-modality and efforts to not see transport use as a matter of ‘choice’
but as integrated with locational issues, economy, health, leisure and so on.

One can see that there are different spatial focuses of the debate. Arguably, central to the
European level of governance is European legislation on vehicle emissions. The UK national
level exhibits the re-assertion of automobility and the challenges to it set out above. At a
metropolitan and local level, there are debates – but only limited action - about the re-
emergence and strengthening of public transport, multi-modes and experimentation. A further
set of debates relate to the ‘devolution’ of power from central government to the UK’s
regions and metropolitan areas. Transport is at the centre of these debates.

Looking to the longer-term future, there remains a debate and much uncertainty about the
future state of the car (Stokes, 2013) and its long-term decline (Simpson, 2009).

5) NGOs, social movements: There are a variety of NGOs and social movements which work
in different ways to try and influence the car regime, including industry/advocacy groups,
those groups promoting safety, and activist groups. The first of these includes organisations
such as the Society of Motor Manufacturers and Traders (SMMT) which provides research
and information to and promotion of the UK automotive industry. There are other advocacy
bodies including the RAC Foundation, the Association of British Drivers (a lobby group for drivers) and the Road Users’ Alliance (an ‘information exchange’ for UK road users). TransAction, a group of hauliers from the south east of England, was at the forefront of the 2000 fuel protest on the rising costs of diesel and petrol. There are also groups, such as The Royal Society for the Prevention of Accidents (RoSPA) and Brake who work on road safety issues. There are numerous activist groups. Some of these began to emerge in the 1970s as a response to the growth of the automobility regime in the 1960s and the environmental issues that were associated with that. A radical anti-road movement developed in the 1990s as a response to the large-scale road building programme announced in 1989 by the Thatcher government. Emblematic anti-road protests in the 1990s at Newbury, Twyford Down and Solsbury Hill involved various combinations of local groups and activists and anti-road groups such as Transport 2000 and Friends of the Earth (FoE). Other activist groups, such as Reclaim the Streets, sought to link anti-road protests to a wider counter-cultural politics that addressed the pre-dominance of big business and promoted anti-consumerism. Though many of the roads that were being directly protested against were (eventually) built by 1995, there was undoubtedly a policy shift as plans for over 300 future road schemes, estimated to cost £18 billion, had become 150 schemes costing around £6 billion by 1997 (Nichols, 2007). In view of the announcement by the Conservative Government of a new road building programme in 2014, the issue is whether there will be a re-emergence of anti-road protests and associated groups.

5. Developments in rail system and regime

5.1. Developments of the main tangible system elements

*Environmental performance of the rail network*

Relative to other modes of surface transport, carbon emissions directly attributable to rail accounted for around 2% of emissions in 2011 (Figure 24). This was up on the previous year by 4.6% largely due to passenger km increasing by 5.3%. Furthermore, indirect emissions from transport, primarily through electricity use from rail, rose by 5% over the same period (Committee on Climate Change, 2013a).

*Figure 24: Emissions from Transport (2011)*

![Figure 24](source: Committee on Climate Change, 2013a, p.156)
Rail passenger numbers and number of journeys

The rail system in the UK was privatised in 1994/5. In the period since rail passenger journeys have more than doubled (Department for Transport, 2014) (see Figure 25).\(^5\)

Figure 25: Passenger journeys in Great Britain

That said, there was an increase to 60.1 billion passenger kilometres in 2013/14 up from 28.7 billion passenger kilometres in 1994/95 (DfT Statistics, TSGB0601). Since 2001, rail passenger miles have increased 51% (Transport Statistics Great Britain 2014). As a proportion of surface transport, rail accounted for around 3% mode share of trips in 2013 and just over 8% of ‘total inland passenger km’ in 2012.\(^6\)

Rail users

In terms of purpose, more than half of train trips were for commuting, with 25% for leisure and the remainder made up from a mix of ‘personal business’, shopping and education. As a proportion of commuting journeys across modes, around 9% of journeys were by train (Department for Transport, 2014). In 2012/13, 62% of all rail journeys started or ended in London (Rail Trends Great Britain, 2013/14).

Prices

Post-privatisation, the cost of ticket prices for travelling on Britain’s railways has soared. Between 1997 and 2014 fares increased on average by 102%, a 23% increase in real terms.

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\(^5\) This includes some double counting after 1994/5 as a journey involving multiple trains involved each train being counted after 1994/5 but counted as ‘one’ before.

\(^6\) [http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tsdtr210&language=en][accessed 12/05/2015]
Over this time period, there was a 10% real terms reduction in the cost of motoring and a 25% real terms increase in bus and coach fares (Rail Trends Great Britain, 2013/14) (see also Figure 26).

**Figure 26: Comparative cost and increase in rail fares**

![Graph showing comparative costs and increases in rail fares](Image)

Source: Department for Transport, 2014
**Public investments, subsidies and safety**

Total government funding of the rail industry at the time of privatisation in 1994/5 was £1,967m. This had increased to £5,287m by 2013/14 (Office of Rail Regulation)\(^7\), the majority of which was a £3.5 billion grant paid to Network Rail (Rail Trends Great Britain 2013/14). The various franchised train operators received £8.2bn in passenger revenue in 2013/2014 (Rail Trends Great Britain 2013/2014) (see Figure 27). Peaks of government support reflect infrastructure spending and upgrades to the West Coast Main Line, Crossrail in London and subsequent to crashes at Hatfield and Potters Bar (Rail Trends Great Britain 2013/2014). There has only been one passenger killed in a train accident since 2005/06. There were 315 fatalities in 2013/14 on the rail network, the vast majority of which were suicides (89 per cent) (Department for Transport, 2014)

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\(^7\) Government support to the rail industry - Table 1.6, 1985-86 to 2013-14 Great Britain (£ million) at [https://dataportal.orr.gov.uk/displayreport/report/html/0913a84d-b740-4111-b6f8-bf6470e2d7b7](https://dataportal.orr.gov.uk/displayreport/report/html/0913a84d-b740-4111-b6f8-bf6470e2d7b7) [accessed 15/01/2015]

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**Figure 27: Government spending on rail and passenger revenue**

Source: Department for Transport, 2014.

**Industry data**

The railway network is subject to overall governance by the Department for Transport (DfT) and Transport Scotland (TS). These departments set out a five year framework and budget with targets. The UK, Scottish and Welsh governments regulate train fares with increases related to inflation. The railway is operated by a combination of franchised train operating companies (TOCs), of which there are currently 16, operating different routes, and which lease trains from rolling stock companies (ROSCOs); Network Rail manages the tracks and railway infrastructure, including bridges, tunnels and level crossings, for which the TOCs pay to use. Network Rail was categorised as a private company until 2014 (reclassified as public in 2014), which does not pay dividends and which is largely funded from taxation, from fees from TOCs and for commercial use of Network Rail property such as rail concourses; the Office of Rail Regulation (ORR) is the regulator for the railways, particularly in relation to safety issues and also access to Network Rail assets; the Rail Delivery Group (RDG) operates on behalf of the TOCs, freight companies and Network Rail. Its role is to be ‘the voice’ of, the rail industry; the Association of Train Operating Companies (ATOC) is the trade
association of TOCs and is responsible for the centralised ticketing system, railcards and the National Rail Enquiries service (How the rail industry works - An overview, 2013).

Rail infrastructure
In 2013/14 the total length of the rail network was 15,753km. Of this, around one-third, 5,268km, was electrified (DfT Statistics TSGB0601). An electrification programme was announced in 2012 and added to in 2014, totalling £9.4 billion. On completion this will mean that more than half of the network is electrified. There were 2,550 rail stations in 2013/14 (Office of Rail Regulation).

5.2. The main social groups and intangible regime elements

1) Industry/firms: The UK train system was privatised and re-structured following the 1993 Railways Act. The incumbent, public rail system operated by British Rail (BR) was not only privatised but was also fragmented with the intention of stimulating efficiencies within the system and also competition between train operating companies: fragmentation of the system was into units as set out above. There was no network controller or ‘single point of control or contact for external bodies’ (Haywood, 2007). Track ownership and operation of the trains was separated and TOCs pay for access to the tracks. Post-privatisation, this was initially to a private company, Railtrack. Railtrack’s ‘bankruptcy was precipitated by the Government’ and it was replaced in 2001 by a ‘not for dividend’ trust, Network Rail (Haywood, 2007). TOCs, which operate on the basis of competitive franchise, own very little (Haywood, 2007). Initially there were 25 franchises. There are currently 16 (Butcher, 2015) (the franchise in Scotland is devolved).

The privatisation of the rail network was preceded by the privatisation of British Rail Engineering Limited (BREL) in 1989. Some 20 years later the last train maker in Britain was the former BREL operation in Derby, owned by the Canadian engineering company Bombardier. In 2011, a government decision to award the production of a major £1.5 billion contract to make carriages for the Thameslink route to Siemens resulted in significant job losses, an existential threat to the Derby plant and a political row in a context of what was characterised as long-term underinvestment in UK rail engineering. One consequence was that the subsequent, larger contract for manufacturing 65 trains to operate on the new Crossrail line in London was awarded to Bombardier in 2014. Furthermore, in 2011, the UK government contracted the rail arm of Hitachi to manufacture 122 replacement trains for its core inter-city trains. These trains will be built at a new facility in the North East of England and the trains will be able to operate as either electric or diesel and thus have flexibility on the UK rail network. Hitachi was also announced as preferred bidder in 2014.

10 Infrastructure on the railways - Table 2.52, Great Britain 1986-86 to 2013-2014 https://dataportal.orr.gov.uk/displayreport/report/html/c35e0c28-324f-4168-81b9-be197963f251 [accessed 15/01/2015]
for 70 new trains for ScotRail, announced in 2015, the vast majority of which will be manufactured in the North East of England.\(^{14}\)

High Speed Trains (HSTs) were introduced in the UK in 1976 (Haywood, 2007). Inter-City 125 and 225 services are the oldest HST\(^{15}\) services in Europe (Chen and Hall, 2011). Through the 1980s operational speeds on strategic routes such as former Great Western routes, the East Coast Main Line (ECML) and the Midland Main Line (Haywood, 2007) increased through the use of IC 125 services, some of which operated at a ‘reduced’ 110mph. Through modernisation, it was not until 2008 that the West Coast Main Line (WCML) was able to achieve speeds of 125mph (Chen and Hall, 2011) and the unmet intention was for 140mph trains to run on the track. This has contributed to a ‘massive escalation’ in maintenance and renewal costs, where, in the case of the WCML, the original upgrade projection of £2.2bn resulted in costs of around £8bn and where there was a lack of an accompanying station upgrade programme and spatial and land-use strategies in areas adjacent to the line and stations (Haywood, 2007). The EU proposed a definition in 1996 of high-speed as at least 250 km/h on specially-built lines and 200 km/h on upgraded lines (Chen and Hall, 2011). Pendolino trains, which are intended to negotiate higher speed on the contours of existing lines through titling technology, have been running on the WCML since 2008 at a maximum speed of 200km/h (though the trains are capable of running at 250km/h) (Chen and Hall, 2011). Higher speeds are achieved on the line linking London to the Channel Tunnel (HS1). A product of Anglo-French agreement in 1986, the track sees trains reaching speeds of up to 300km/h. This connection to London is consistent with premium aspects of the UK rail network radiating out from London. There are now plans for the development of HS2 with trains running at up to 400KM/h, linking London to Birmingham (in a first phase by 2026) and then on to Manchester and Leeds (by 2032-3)\(^{16}\), reducing time to London (see Chen and Hall, 2011).

Within London, the Crossrail project is an east-west link, tunnelled across London at a projected cost of almost £15 billion. Thus priorities for the rail network are long-distance routes into and out of London and also commuter services to London. Yet, services between UK cities and also commuter services into provincial cities are where ‘the shortcomings of integrated network planning are most obvious’ (Haywood, 2007, p.210). There have been efforts to develop light rail as a cheaper alternative to rail for intra-metropolitan travel in Manchester, Sheffield, Newcastle and Birmingham (Haywood, 2007).

2) Consumers and rail use: The long-term decline in rail use has been somewhat reversed in the UK in the last two decades (Armstrong and Preston, 2011). Indeed, demand for rail travel is at its highest in 80 years, with ongoing growth expected to cause significant challenges for publically-funding the railways and their organisation (Bolden and Harman, 2013). This though is within a context where rail’s contribution to overall transport share remains small (Armstrong and Preston, 2011).

Rail travel has historically been seen as a ‘derived demand’ where the function is to move from one place to another. This view of the function of rail travel - and much transport activity generally - is understood through the lens of time and cost with faster journeys often equating to economic benefit and the converse also. Yet, more culturally sensitive accounts

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15 High speed is a relative concept (Chen and Hall, 2011).
of rail use have moved towards understanding the ways in which passengers use time on journeys (Lyons et al, 2013). Empirical evidence in this respect has suggested a ‘consistent dominance’ of reading, gazing either at people or out of windows and working and studying (Lyons et al, 2013). Over recent years, the use and availability of mobile technologies has increased with one study pointing out that listening to music doubled in a six year period and where there is an ‘increasing capacity for travellers to personalise the public space of the railway carriage’ (Lyons et al, 2013).

3) Policymakers: The policy context is best understood through the watershed that was privatisation. For around 150 years there was ‘progressive consolidation’ of ownership and from 1948, unitary control. ‘This evolutionary process was reversed in a single radical step on privatisation in 1993’ (Casson, 2004, p.195). There is no EU level requirement for private ownership of railways nor is government ownership of the railways disallowed (Taylor and Sloman, 2013). Privatisation was ‘an ideological statement to the effect that the market has no limits’ (Casson, 2004, p.195) where, rather than privatise a unitary system, the system was fragmented into ‘about 100 separate organisations to create market economies’ (Kaya, 2010, p.205). The premise for fragmentation was competition within different parts of the system (excepting the ‘natural monopoly’ of infrastructure). The mechanism for achieving this was intended to be franchising although these, in practice, often produced monopolies on many routes.

Privatisation of the UK railways has been identified as having nine policy objectives: raising the quality of service; increasing efficiency; boosting private ownership; consolidating public finances; creating transparency for subsidy targeting; encouraging investment; weakening the power of public sector trade unions; creating a better environment; facilitating the development of the single European market. In the five years or so after privatisation it was claimed that only one objective (the positive impact on the environment through increased usage of the railways) had been met, four had mixed results and ‘four objectives, relating to infrastructure investment, public finances, service quality and subsidy transparency, have not been achieved at all’ (Haubrich, 2001, p.332). The then Labour government acknowledged rising costs and the difficulties of the organisational structure of the rail system in 2004 with a ‘devastating critique of privatization’ but where ‘both reintegration and renationalization were dismissed’ (Jupe, 2010, p.350).

There is a role for policymakers in setting pricing levels for passengers on the railways. Initially just under half of rail tickets were capped at the level of inflation (calculated as RPI) for three years and then 1% under RPI for four years. What resulted was significant rises in those fares that were unregulated. Also, pricing on regulated fares was changed in 2004 to a policy of raising it by 1% above inflation (Jupe, 2010).

Assessments of privatisation – as above – have highlighted its mixed effects. Thus passenger usage of the railways has risen significantly post-privatisation with new rolling stock operating on upgraded lines. However, the cost to public expenditure of this with significant rises in subsidy has been a failure of privatisation (Kaya, 2010). In the post-privatisation world there have been reviews of the growing use of the rail system, the franchising system and the future of the railway system. The Eddington Review (2006) suggested that the growth in demand for rail, post-1994 was likely to continue and that policy needed to address problems in inter-urban travel in the UK, particularly with regard to rail overcrowding on parts of the network where inter-urban travel has to share networks with commuter trains. Eddington concluded that specific high-speed schemes would need to be subject to not only
detailed appraisal but also comparison with alternatives as the compact geography of the UK was likely to mean that the economic benefits would probably not be as large as for other projects. The report also highlighted the fragmented sub-national governance of transport in the UK and proposed reshaping governance arrangements to reflect particular sub-national geographies of economic activity.

The McNulty review in 2011 set out that the operating costs of the UK rail network should be 30% lower by 2019. He recommended reforms to franchising, reorganisation of Network Rail and the setting up of a rail delivery group to undertake a ‘substantial programme of change’ (Department for Transport, 2011, p.10). The Department for Transport built on the McNulty review in 2012 in its document, Reforming our Railways, which suggested that the UK railway system remains ‘unacceptably inefficient’ (Department for Transport, 2012, p.8) and that ‘as a minimum’ £2.5 billion of efficiency savings were achievable by 2018/19 with the aim of removing £3.5 billion by 2019 (Department for Transport, 2012, p.9).

The Brown review, following errors in the assessment of the financial bids for the WCML franchise, assessed the franchising system. It concluded that the rail industry works and there is ‘no credible case for major structural change’ (Brown Review, 2013c, p.5). Franchising was incorporated into a wider assessment of the future of the railways undertaken by the House of Commons Transport Committee in early 2013. This suggested a vision for rail to 2020 that promoted: clarity on rail subsidies and how these can be achieved; efforts to link rail policy and wider transport policy; a more strategic policy role for the Department for Transport; a greater role for ‘passenger interests’ in rail policy; a clear, long-term policy on regulated fares and a range of ticketing options; and recommendations for no reduction in safety standards (Bolden and Harman, 2013).

4) Public discourse: Public discourse around the railways can be summarised in respect of the following issues:

The cost of using the railways, where it has been claimed that passengers on UK trains face some of the highest commuter fares in Europe (Taylor and Sloman, 2013). Also costs to the public purse, since privatisation, have increased significantly, counter to one of the key rationales for privatisation (see Jupe, 2010).

Whether ownership of the railways should be in public or private hands and where: ‘There are signs that the rail privatization debate is coming full circle in Britain’. The cost of privatised railways to the public purse is one issue underpinning this debate. A second issue is that the bank bail outs and nationalisation of banks after the financial crisis of 2007/8 has provided the context where nationalisation of railways is more of an ‘allowable’ political debate (Taylor and Sloman, 2013, p.329).

There is a related debate linked to the growth in use of the railways and overcrowding on trains where since privatisation ‘rail traffic has grown dramatically, practically doubling, causing serious capacity problems’ (Bolden and Harman, 2013, p.344).

There is also discussion about refranchising: This has involved technical problems with the WCML franchise in 2012; also, the franchisee, First, decided not to take up its option for the remaining years of the Great Western franchise in 2011; and the ECML franchise, that had been operated by National Express, was taken back into public ownership. On the latter of these the franchise was taken over by a public operator (see Taylor and Sloman, 2013).
is a debate between those who favour no structural change and some operational change to franchises and those who argue for bringing back franchises into public control as they lapse (see Bolden and Harman, 2013).

High-speed trains have re-emerged on to the agenda in the UK with the announcement in 2012 of a HS2 line from London, north to Birmingham and Manchester and Leeds. Much of the debate has centred around two positions: proponents and the role that increased speed can play in reducing travel time to London from Birmingham and the north. And for critics, the cost of HS2, variously estimated and notoriously difficult to verify, at over £50 billion, negatively represents time savings in terms of costs. There is some limited effort to link the HS2 debate to spatial development and addressing North-South imbalances in the UK economy.

There was a debate on the safety of the railways following high profile crashes at Southall in 1997, Ladbroke Grove in 1999 and in 2000 at Hatfield. The safety debate is not one that is particularly heard now as safety on UK railways is assessed to be good.

5) NGOs, social movements: There are numerous organisations which aim to promote the role of passengers within the UK rail system. Passenger Focus is an ‘independent’ public body - set up by government - that aims to support the interests of passengers. Railfuture is a voluntary campaigning group that seeks to represent rail users. The Campaign for Better Transport operates at national and local levels and with publics to promote sustainable transport. It campaigns for cheaper and simpler rail fares. Action for Rail is led by the TUC and rail unions and campaigns on an agenda of opposing cuts to jobs and services, the promotion of public ownership of the railways and addressing rail fares. Stop HS2 and HS2 Action Alliance each campaign against the development of a second high-speed rail line in the UK.

6. Developments in bus/coach system and regime

6.1. Describe developments of the main tangible system elements

Environmental performance of the bus network

CO2 emissions from buses accounted for 4% of surface transport emissions in 2011 (Figure 28).

Figure 28: Emissions from Transport (2011)

Source: Committee on Climate Change, 2013a, p.156
This contributed to an overall fall in surface transport emissions of 1.3% in 2011 with the biggest falls in emissions coming from cars and vans. As a category, public transport emissions decreased in 2011 and the fall in bus emissions - estimated at a 7.1% decrease from 2010 - more than offset a rise in emissions from rail (Climate Change Committee, 2013a). The assumption of those advising national government is that progress to decarbonisation of buses assumes that 50% of new buses are hydrogen fuelled by 2030 (Climate Change Committee 2013b).

**Bus passenger numbers and number of journeys**

The long-term trend of numbers of bus users at an aggregate British level is one of decline, although the trend in London specifically is an upward one (see Figure 29). The average number of London bus trips increased by 45% between 1995/97 and 2013. Other local bus (buses outside of London) trips have decreased by 18% (National Travel Survey: 2013 England). In 2013/14, London accounted for over half of all bus journeys in England.

**Figure 29: Passenger journeys in Great Britain 1985-2014.**

![Diagram showing passenger journeys](source: Department for Transport, 2014)

The long-term reduction in passenger kilometres travelled on UK buses was stemmed and began to reverse in the early 2000s and has remained roughly constant since 2006/07 (Department for Transport, 2014) (see Figure 30). Bus travel in Britain accounts for a modal share of trips of around 7% (Department for Transport, 2014).

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Market segmentation
Bus use is primarily local where the vast majority of bus trips are between one and 25 miles with the majority of those being between one and five miles (see Figure 31).

Local bus use is primarily for shopping, education, leisure activities and commuting (see Figure 32)
There are both demographic and socio-economic patterns to bus use. As a proportion of trips, bus use was highest among those aged 17 to 20 in 2013, with 18% of all trips made by this age group done so by bus. The next highest proportion of overall trips made by bus was by those aged 60 and over, which reflects the availability of concessionary travel for this age group, although there was variation in take-up of concessionary schemes, particularly between rural (57% take up in the most rural areas) and urban areas (83%) (National Travel Survey: 2013 England).

There is an inverse relationship between income and bus use (Figure 33). With the lowest quintile income group averaging 116 bus trips per person per year and in the highest quintile this decreasing to 33 trips (National Travel Survey: 2013 England).
**Prices**
Bus fares have increased faster than the rate of inflation (RPI) (see Figure 34).

**Figure 34: Cost of bus/coach fares**

![Graph showing the cost of bus/coach fares over time](image)

Source: Department for Transport, 2014

**Public investments/subsidies**
In the first part of the 2000s, revenue from bus fares and government support for bus services were relatively equal. Since 2009/10 revenue from bus fares has increased while government support has reduced producing a divergence between the two (see Figure 35) (Department for Transport, 2014)

**Figure 35: Revenue and government support**

![Graph showing revenue and government support](image)

Source: Department for Transport, 2014
Industry data
The landscape of bus operators across the UK is complicated with local bus networks being operated by different configurations of operators. Aggregated to the level of England, there were an estimated 838 operators in 2013, and Stagecoach accounted for 19% of market share, Arriva 17.3%, and First 12.8%. These three operators together accounted for almost half of market share. There is some variety of operators when aggregated to a regional level and also at local level. At a regional level, one can see, for example, in the North east of England that it was estimated in 2013 that there were 67 operators, with the Go Ahead Group accounting for 35% of market share, Arriva 28.7% and Stagecoach 8.7%. In the West Midlands there were estimated to be 135 operators. Here National Express accounted for 47.2% of market share, Arriva 15.5% and First 9.9% (DfT Statistics, BUS1001b).

Staff employed by local bus operators in Britain has remained reasonably stable at around 124,000 full time equivalent posts over the decade to 2014 (DfT Statistics, BUS0702). Passenger casualty rates on bus/coach, per billion passenger kilometres, for the period 2003 to 2012 were ‘negligible’ (Department for Transport, 2013a). There are nine bus and coach manufacturers in the UK (Alexander Dennis, Euromotive, John Dennis Coachbuilders, Minibus Options, Optare, Plaxton, Vauxhall, Warnerbus, Wrightbus) (SMMT, 2014).

Bus infrastructure
The number of buses/coaches in Britain has stayed reasonably steady over the decade to 2014 at around 52,000 vehicles. Around 42,000 of these are buses, roughly 8,000 coaches and the remainder minibuses. In 2014 over 9,000 buses operated in London with just under 10,000 operating in the English metropolitan areas, almost 17,000 in the English non-metropolitan areas, 4,600 in Scotland and 1,700 in Wales (DfT Statistics, BUS0601). There is an infrastructure of bus stations across UK towns and cities.

6.2. Describe the main social groups and intangible regime elements

1) Industry/firms: The organisation of the bus industry has been shaped by the role of competition, following the 1985 Transport Act. Prior to this bus ownership was under state control via the National Bus Company (NBC) and Scottish Bus Group (SBG) with around 50 local authority operators and seven Passenger Transport Executive (PTE)-owned bus companies which were regulated via the Road Traffic Act 1930. ‘Bus services were as a consequence essentially local monopolies with very little competition within the industry’ (Cowie, 2002). Privatisation of the National Bus Company and municipal bus operators and the deregulation of buses were intended to stimulate competition between a large number of small and medium-sized operators, increasing bus use and reducing fares (Cowie, 2002). This effort to simultaneously privatise and deregulate differed from other elements of the privatisation programme (e.g. British Telecom and British Gas) where privatisation had come first (Langridge and Sealey, 2000). Deregulation applied to all bus services outside of London (which remained regulated). The principle was that anyone with an operator’s licence could operate a bus service (Langridge and Sealey, 2000). Initially a large number of bus companies that were privatised were subject of management employee buyouts (MEBOs). ‘To a large extent there was, after the initial deregulatory hiatus, little on-the-road competition in most areas and, where it did take place, it was often a prelude to merger and takeover. The local incumbents, by and large, retained their virtual monopoly positions in their local market’ (Langridge and Sealey, 2000, p.109). The industry was subject to ongoing reorganisation through the 1990s with many of these MEBOs being resold to one of the
major bus operator groups (Cowie, 2002). The process was one of a move from nationalised provision to atomisation and then to re-oligopolisation of the UK bus industry (Langridge and Sealey, 2000). It has been claimed that: ‘Very few cases have occurred of sustained competition throughout the whole period since deregulation…’ (White, 2010, p.154). Though it is generally recognised that there is little ‘brand loyalty’ in local bus use, amongst operators, there has been emphasis on ‘quality differentiation’ through, for example, vehicle specification, use of low-floor vehicles, distinctive route branding, customer care training, better information provision and simpler networks (White, 2010). In the 2000s the post-deregulation transformation of UK bus ownership and operation has seen concentration in five companies (Cowie, 2002) through mergers and acquisitions and where around 24% of bus operators are owned by non-UK owners (Bus and Coach Professional, 2012).

2) Consumers and bus use: Bus use in the UK has been in long-term decline, outside of London (where it is on an upwards trend), though decline has levelled off since the early 2000s (Department for Transport, 2014). In a comparison with rail, buses account for a much greater majority of passenger journeys - 63% of 8 billion passenger journeys - yet buses accounted for around 30% of the overall 99 billion passenger kilometres in 2012/2013 (Department for Transport, 2013a). Within this there are variations in travel patterns and choices by age, gender and disability and also by socio-economic indicators such as income, geographical aspects such as location and transport availability, and journey purpose (Stradling et al, 2007). Bus use is most prevalent among those in lower economic quintiles, among the young, and also older ages. This latter category has grown significantly with the introduction of concessionary travel passes for the over 60s in 2001 (National Travel Survey England 2013). The dominant view of bus use (vis-à-vis car use) has often dealt with instrumental aspects of cost and reliability and research that employs survey methods. Counter to this dominant view, work has highlighted a more cultural understanding of bus users and travel experiences (Stradling et al, 2007). A more cultural view challenges understandings of bus journeys as represented through the imagery of networks connecting communities, individuals and places where ‘intercultural relations are continuously developed, destroyed, and remade in the practice of everyday bus travel’ (Wilson, 2011, p.634).

3) Policymakers: The significance of the 1985 Transport Act was that the process of deregulation and privatisation of the buses not only shifted ownership and operation of the buses from public to private bodies but involved a process of re-regulation where the general principles of competition law were enshrined in the operation of the bus system (White, 2010). The bus network was split into ‘supported’ (i.e. ‘socially necessary’) services, where operation was organised through competitive tendering, and commercial services. This tension between competition law and coordination has persisted through the 1990s and 2000s.

The Transport Act 2000 had a number of consequences for buses. First, it set out the possibilities for the development of ‘Statutory Quality Partnerships’ (SQPs). These would be formal agreements between local authorities and operators (but which did not include conditions on fares or service levels). There was very little engagement with SQPs; the potential for ‘Quality Contracts’ (QCs) to be set-up was also part of the Act. The idea of QCs was to move the organisation of local bus systems towards the way it is organised in London. In this model the role of the public authority is to contract-in services and to specify fares and

17 http://weownit.org.uk/evidence/buses [accessed 24/03/2015]
services levels. Yet ‘in practice none have emerged’ (White, 2010, p.154). The most visibly significant aspect of the 2000 Act was its establishment of a national concessionary fare scheme, from 2001, where those aged 60 and above could travel for half the adult fare and a subsequent shift to free travel for this group, with some restrictions. This is important at the level of public support as Government funding for bus services are primarily through the Bus Service Operators Grant (BSOG - calculated in relation to bus mileage), public transport support (allocated by local authorities) and concessionary fares reimbursement (Bristow et al, 2008). The Act also provided the potential for local authorities to set up set up inter-operator ticketing schemes through partnership (Sørensen and Gudmundsson, 2010). (Yet, even some time after, by 2009 OFT suggested that operators were displaying limited interest in participating in multi-operator ticketing (White, 2010)).

This tension between a competition-based market model and a gradual development of tools for local transport authorities to build coordination highlights the multi-level governance of transport in the UK where a hierarchical mode dominates between national government and local authorities although there is an increasing element of network governance; a market mode dominates in horizontal governance relationships, but where there has been an increasing development of network modes of governance through partnerships and incremental efforts to build integration (Sørensen and Gudmundsson, 2010). Yet, hierarchical efforts by national government to plan and set the conditions for local authorities ‘fails to compensate for the fragmentation installed in the horizontal level by the bus deregulations. Operators are the main stakeholders to attract travellers, but they are not accountable to central (or local) government and the system of managing by objectives. Hence, objectives put forward in the vertical dimension seem almost impossible to implement due to the organisation of the horizontal dimension’ (Sørensen and Gudmundsson, 2010, pp.14-15).

The tension between competition and coordination played out through the Local Transport Act of 2008. Voluntary Partnership Agreements (VPAs), from 2009, are intended to facilitate operators and local authority working together to co-ordinate ticketing and timetabling; although the voluntary nature of the partnership exposes its limits. This aims to tread a line between coordinating service whilst also allowing operators to compete for, for example, tendered service work. ‘If powers of the LTA 2008 are fairly widely adopted, a less marked difference between the system in London and than elsewhere in Britain (especially England) may be seen. Greater coordination between operators within parts of the deregulated regions will become possible, and if quality contract powers are adopted in one or more areas, this will be even more evident’ (White, 2010, p.157).

The logic of coordination was further promoted in the 2011 Local Transport White Paper. This suggested that as a ‘viable alternative’ to car use, public transport needed to be more attractive, the ‘whole journey experience’ needed to be enhanced and that smart and integrated ticketing should be promoted. There was a further re-enforcement of the need for partnership working between bus operators and local authorities.

4) Public discourse: The overarching narrative of the bus system in the UK remains wedded to the effects of deregulation, almost three decades on. The narrative underpinning deregulation was that increased bus use would be stimulated by competition amongst private operators. There was a competing narrative at the same time promoting the desirability of automobile ownership and use and the perceived personal economic ‘failures’ associated with bus use. In that sense, the bus was the negative status signifier to the car’s positive.
This effort to frame the bus as a single mode of transport provided by competing providers has met a narrative of the need for more coordination within the bus system and also with other modes of transport. Thus, in London, the debate about inter-modal ticketing is well established with over 80% of public transport trips mediated through inter-modal ticketing whilst in the rest of the UK public discussion of inter-modal ticketing and integrated public transport systems is much weaker.

A clear contributor to the stabilisation of the numbers of bus journeys has been the establishment of a national concessionary fares scheme. This remains in place. This surprisingly has not been challenged in debates around austerity and public sector cuts (White, 2010). This may demonstrate the political power of the over 60s, who are much more likely to vote in UK elections than younger age groups. Public debate exhibits a lack of clear consensus on how to improve bus services (Currie and Wallis, 2008).

5) NGOs, social movements: There are a number of organisations that operate in the name of bus users. These include, Bus Users UK. This was set up in the post-regulation era following a campaign which led to the establishment of the National Federation of Bus Users (NFBU) which brought together groups of local bus users. Over time the group worked actively with the trade association of the bus companies, the Confederation of Passenger Transport, to seek to find a way of negotiating the views of passengers with those of operators. The NFBU became Bus Users UK in 2004 and has been recognised in its role by national government and acts in a recognised role in overseeing service complaints. The Campaign for Better Transport campaigns on public transport issues generally and specifically recognises the widespread use of buses but also the threat to bus services in an era of austerity and public spending cuts. It has initiated a Save Our Buses campaign.

7. Developments in cycling system and regime

7.1. Describe developments of the main tangible system elements

Environmental performance of the cycling network
It has been claimed that, although it does not represent a carbon free mode of transportation, the bicycle’s greenhouse gas emissions are more than 10 times lower than those attributed to ‘individual motorized transport’ (ECF, 2011). The same report suggested that if cycling levels across the EU were equivalent to those of Denmark that this would contribute between 12% and 26% of the EU’s 2050 greenhouse gas emissions target reductions for transport (ECF, 2011). As a contributor to emissions reduction in the UK this raises questions about the current role of cycling where the average person cycles almost 600 miles in Denmark annually, around 120 miles at the level of EU average per person per year and only 46 miles in Britain.

Cycling numbers and number of journeys
The long-term trend of cycle usage in Britain is one of decline since the Second World War (see Figure 36). The decline is in both overall cycling by distance and also as a proportion of all vehicle kilometres travelled. From cycling accounting for 24 billion km in the UK in 1949

http://bususers.org/about-us/history/ [accessed 24/03/2015]
https://www.eta.co.uk/2011/12/13/co2-emissions-from-cycling-revealed/ [accessed 09/02/2015]
this had fallen to 5 billion km by 2009. This represented a shift from 33% of all vehicle kilometres travelled in 1949 to 1% by 2009 (CTC Cycling Statistics).

**Figure 36: Bicycle usage in Great Britain, 1949-2011**

![Graph showing bicycle usage in Great Britain, 1949-2011](source: Road Cycling Statistics, House of Commons Library 2013)

The two decades since 1995 saw a period of decline in the number of cycling trips with then a mixed trend since 2007 (Department for Transport, 2014). The distance that those cycling travel is up 20% between 1998 and 2013 from 4 billion km to 5.1 billion km (CTC Cycling Statistics) (also see Figure 37). In London specifically, cycle use on main roads was 176% higher in 2012/13 than in 2000 (CTC Cycling Statistics). Cycle use in the UK is low by comparative EU standards. Whereas cycling is the main mode of transport for around 31% of people in the Netherlands and an average 7% at EU level, in the UK an average of 2% of people use cycling as their main mode of transport (Department for Transport, 2013a). This compares, in the UK, with 64% of people travelling by car or van, 22% walking, 7% by bus, 3% by rail and 2% by ‘other’ modes (Department for Transport, 2014).

**Figure 37: Number of cycling trips and trip distance**

![Graph showing number of cycling trips and trip distance](source: Department for Transport, 2014)
**Market segmentation**
Around 43% of the UK population owns or has access to a bicycle (CTC Cycling Statistics from National Travel Survey). Using data for England only, ownership is notable among those under 16 (see Figure 38).

![Figure 38: Bicycle ownership by age: England 2011/2013](image)

Source: DfT Statistics NTS0608

In terms of use, 14.7% of people in England cycle at least once a month, 9.5% at least once a week, 4.3% at least three times a week and 2.5% at least five times a week (DfT Statistics Table CW0111). These figures hide differences between those who cycle recreationally and those for ‘utility purposes’. From these aggregate figures at the level of England there are significant geographical variations. So, compared to the figure for England of people cycling at least once a week (9.5%), in the university towns of Cambridge (49%) and Oxford (34%) these were much higher. There were also five local authority areas with a figure of more than 20% and 14 local authorities with fewer than 5% (Department for Transport, 2014).

There is also variation by age and gender (see Figure 39). It has been claimed that men are almost three times more likely to cycle than women. A gender distinction is noticeable across different demographic categories but is most pronounced between the ages of 11 and 21 (CTC Cycling Statistics).
Prices
There has been an increase in sales of bicycles in Britain since the early 2000s. It has been suggested that over that period the value of sales has ‘rapidly increased’ due to inflation (see Figure 40). This growth in expenditure on bicycles has been greater than the growth in cycling distance since the early 2000s. The suggestion is that there is increasing expenditure on more expensive bikes (CTC Cycling Statistics).

Public investments/ subsidies
Public investment in cycling infrastructure and training is difficult to ascertain in the UK as policy on cycling has been stop/start over the last three decades and investment in cycling and cycling infrastructure is often incorporated in funding schemes that have a wider focus
than cycling (e.g. Local Sustainable Transport Fund). That said, it has been claimed that in the Netherlands spending per capita on cycling is between £10 and £20 while in England this figure is less than £1\(^{20}\). There has been public investment in cycling infrastructure and training through measures such as the Local Sustainable Transport Fund and Cycle City Ambition Grants. These are national funding schemes aimed at local authority action. Also an urban bike hire scheme has been developed in London, ‘Boris Bikes’. The Labour government in 1999 introduced a Cycle to Work scheme where workers could buy bikes for commuting on a tax-free basis.

**Industry data**

It has been claimed that the value of cycling to the UK economy in 2010 was almost £3bn (Grous, 2011). This figure includes bicycle manufacture, retail and related-employment to produce a ‘Gross Cycling Product’ (see Figure 41). It is estimated that around £1.5bn was spent on bikes, £850m on accessories, with £600m attributed to wages and taxes from the 23,000 people working in cycling in the UK. In 2010, 3.7m bikes were sold in the UK.

**Figure 41: The British Cycling Economy**

Source: Grous, 2011

**Cycling infrastructure**

Though there are plans for cycle networks in UK towns and cities (e.g. London’s Superhighways and Manchester Velocity), with the exception of the London Cycle Network, it has been suggested that there has not been a town or city that has ‘yet managed to build a

\[\text{http://www.cyclingweekly.co.uk/news/how-britain-has-failed-cycling-46388}\] [accessed 10/02/2015]
half-decent cycle network worthy of the name’21. There has been public investment in cycling infrastructure as set out above.

There are a number of ways in which the safety of cycling in the UK can be understood. The fatality rate of cycling, per billion vehicle miles, has been in a general long-term decline, following an upswing with the growth of mass automobility (see Figure 42). Annually, around 19,000 cyclists are killed or injured, including 3,000 of whom are killed or seriously injured, in reported road accidents22. This latter figure has increased slightly in recent years although the longer-term trend since the 1980s has been downward (Department for Transport, 2014). Cycling safety has been claimed to be 61% safer, per mile travelled, in 2012 than it was in 200223.

Figure 42: Cyclist fatality rate, Great Britain, 1950-2011

![Figure 42: Cyclist fatality rate, Great Britain, 1950-2011](source: Road Cycling Statistics, House of Commons Library 2013)

Comparatively, casualty rates for cyclists over the decade from 2004 were generally unfavourable compared to other modes of transport (see Figure 43).

Figure 43: Passenger casualty rates: cycling in comparison

![Figure 43: Passenger casualty rates: cycling in comparison](source: Department for Transport, 2014)

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21 [http://www.cyclingweekly.co.uk/news/how-britain-has-failed-cycling-46388](http://www.cyclingweekly.co.uk/news/how-britain-has-failed-cycling-46388) [accessed 10/02/2015]


There is a ‘safety in numbers’ view which suggests a strong correlation between countries with a high fatality rate from cycling and low rates of per km cycling and vice versa, where drivers are more used to seeing cyclists on the roads and where there is an associated development of cycling infrastructure\(^{24}\). Theft of cycles remains a persistent and rising problem in the UK, with over 460,000 stolen in 2013 (Figure 44)\(^{25}\).

**Figure 44: Theft of bikes in comparison with theft of/from vehicles, 1981-2013**

Source: CTC

### 7.2. Describe the main social groups and intangible regime elements

1) **Industry/firms:** The vast majority of bicycles bought in the UK are manufactured abroad. Bicycle manufacture in the UK has become specialised and niche where, among the small number of bicycle manufacturers, Brompton is the largest UK producer at around 45,000 annually\(^{26}\). Innovations involving technologies such as electronic gears and carbon fibre have seen the development of premium ranges\(^{27}\). Mass production at the large-scale producer Raleigh in Nottingham ceased in 2002 when production was outsourced (although wheels are manufactured in Nottingham)\(^{28}\). UK companies contributing to the cycling industry include kit designers such as Rapha, drinks and gels manufacturers such as Science in Sport and Sunwise, a sunglasses manufacturer\(^{29}\). In terms of retail, across sales, servicing, workshops and ‘other speciality areas’, there are 2,000 stores and a further 1,000 independent, specialist cycling shops (Grous, 2011). Overall numbers of bicycle shops, particularly independents, increased by around 15% in the decade to 2014 and there has been the emergence of online

\(^{24}\) [http://www.ctc.org.uk/resources/ctc-cycling-statistics](http://www.ctc.org.uk/resources/ctc-cycling-statistics) [accessed 25/03/2015]


\(^{26}\) [http://www.ft.com/cms/s/0/7b477768-bc16-11e3-a31c-00144feabdc0.html#axzz3V1eiryv2](http://www.ft.com/cms/s/0/7b477768-bc16-11e3-a31c-00144feabdc0.html#axzz3V1eiryv2) [accessed 25/03/2015]


\(^{28}\) [http://www.bbc.co.uk/insideout/eastmidlands/series2/raleigh_bikes_cycling.shtml](http://www.bbc.co.uk/insideout/eastmidlands/series2/raleigh_bikes_cycling.shtml) [accessed 25/03/2015]

\(^{29}\) [http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/leisure/10150537/Cycling-a-tour-de-force-for-British-companies.html?mobile=basic](http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/leisure/10150537/Cycling-a-tour-de-force-for-British-companies.html?mobile=basic) [accessed 24/03/2015]
retailers including Wiggle.com and ChainReactionCycles.com. There is a view, though, that this growth may have peaked.  

2) Consumers and cycling: Using cities such as Amsterdam and Copenhagen as comparators, certainly, ‘in most British towns cycling is not seen as normal’ (Pooley et al, 2011, p.1604). That said, there are varying levels of cycling use that are enmeshed in discourses of class and choice (Aldred and Jungnickel, 2014). It has been recognised in empirical work in the UK that there is some denial of cycling as ‘cultural’ and where there is cycling it is seen as ‘just something that people do here’ (Aldred and Jungnickel, 2014). However, researchers have identified distinctions between and within emerging and established cycling cultures in terms of different clusters of cycling practices, which themselves ‘must be congruent’ with other practices, such as going to work, taking children to school and so on. In recent years in the UK, there has been a greater congruence between cycling and commuting than cycling and travel to school, for example (Aldred and Jungnickel, 2014).

3) Policymakers: Since the development of a national cycling strategy in 1996, there has been a renewed policy emphasis that has aimed to increase cycling. The UK government’s 10 year transport plan, in 2000, aimed to triple cycling trips in a decade. This failed, where the number of cycling trips ‘hardly changed during this period’ (Aldred and Jungnickel, 2014). This is perhaps not surprising given that cycling policy and interventions ‘are being developed without full understanding of their likely impacts across the population’ (Pooley et al, 2011, p.1601). One reason for this could be ‘that policies to increase walking and cycling do not require transport solutions but, rather, need much more fundamental changes in society and urban structure that allow more flexibility in how and when people travel, so that walking and cycling can more easily be fitted into household routines’ (Pooley et al, 2011, p.1607). There was not really a cycling policy in the UK to speak of prior to the 1990s and when it did subsequently emerge, it did so in the context of a hollowed out neo-liberal state. The consequence of this was that ‘cycling became embedded in public policy only after policy-making had been variously outsourced to private, quasi private, and voluntary organisations’ (Aldred, 2012, p.95). Alongside this, an individualisation of cycling policy as underpinned by notions of ‘active’ and ‘responsible’ citizenship has ‘again helped to maintain cycling as perceived as being peripheral to the main business of ‘transport’ where ‘policy has been doubly devolved, away from the state, and away from transport’ (Aldred, 2012, p.95). Additionally, there was a developing role by the new millennium for local authorities who were expected to produce a cycling strategy, which, in the logic of state hollowing out, were often outsourced to consultants (Aldred, 2012).

4) Public discourse: It has been suggested that views that people hold of cycling are often ambiguous and sometimes contradictory (Pooley et al, 2013). Cycling, as the figures above suggest, remains a marginal activity. That said, there is significant geographical variety with Greater London, for example, seeing relatively large growth since 2000. There is debate about a number of issues and the ways in which they may contribute to this variety.

The national-local relationship in cycling: Strategic priorities are set nationally and enacted locally. Yet, the move from a Keynesian mode of state governing has resulted in cycling capacity being fragmented among a range of public and private actors. This has created

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difficulties in producing coordinated responses at local level where national strategic approaches to transport are separated from understandings of local transport (Aldred, 2012).

Infrastructure: local cycling responses are often manifest in infrastructure projects such as cycling lanes, cycling storage and, in the case of Greater London, a cycle hire scheme. There remains the sense in the UK that the promotion of cycling infrastructure is often in a struggle for priority with cars and public transport. The ‘marginal status’ of cycling in the UK is contrasted to high levels of cycling in the Netherlands, Denmark and Germany where the ‘key to achieving high levels of cycling appears to be the provision of separate cycling facilities along heavily travelled roads and at intersections, combined with traffic calming of most residential neighbourhoods’. This is complemented by ‘ample bike parking, full integration with public transport, comprehensive traffic education and training of both cyclists and motorists, and a wide range of promotional events intended to generate enthusiasm and wide public support for cycling’. Additionally, urban driving is made more expensive and inconvenient and land-use policies promote more compact mixed-use developments. ‘It is the coordinated implementation of this multifaceted, mutually reinforcing set of policies that best explains the success of these three countries in promoting cycling’ (Pucher and Buehler, 2008, p.495). On the face of it, where there has been an extensive programme of cycling infrastructure development and policy promotion, in Greater London, there has been a significant increase in cycling. Yet, ‘[p]olicies promoting cycle lane construction appear promising but the socio-demographic distribution of their effects on physical activity is unclear’ (Fraser and Lock, 2010, p.738).

Cycling cultures: There is some challenge to reductionist, ‘derived demand’, rational, cost-based, quantitative approaches to transport use decision-making. More expansive understandings of the meaning of cycling mobility, beyond movement between two points, have begun to focus on the ‘immaterial’ embodied and sensory aspects of mobility that have previously been neglected or marginalised (Spinney, 2009). Drawing on practice theory, there have been attempts to understand geographical differences in cycling, through the idea of cycling cultures, and how meanings, materials and competences interconnect. These different cultural embeddings of cycling suggest that policy needs ‘to take culture seriously in considering how to shift transport practices’ (Aldred and Jungnickel, 2014, p.78; see also Spotswood et al, 2015).

5) NGOs, social movements: There are a variety of NGOs promoting different elements of a cycling agenda. These operate at a national level, as national-local networks, or as local groups. CTC is a national charity that has promoted cycling for more than a hundred years. Sustrans is another charity that works to promote taking more journeys by cycling, walking and public transport. Since its set-up in 1977, Sustrans has been fundamental to the development of the National Cycle Network, for both off-road and on-road cycling, that stretches to 14,000 miles. In doing this they work in partnership with funders, local authorities and the Highways Agency. CycleNation acts as a federation of local cycling campaign groups. Additionally, there are local campaigns, such as the Love Your Bike Campaign in Greater Manchester that promotes cycling. There are also groups that represent the cycling industry, such as the Bicycle Association.

31 http://www.ctc.org.uk/ [accessed 25/03/2015]
32 http://www.sustrans.org.uk/ [accessed 25/03/2015]
33 http://www.manchesterfoe.org.uk/loveyourbike/ [accessed 25/03/2015]
34 http://www.bicycleassociation.org.uk/ [accessed 25/03/2015]
8. Conclusions

This report has analysed the automobility, rail, bus and cycling sub-regimes which, together, contribute to the socio-technical land-based passenger transport mobility regime. In this conclusion, we assess the degree of lock-in and path dependency of these regimes and the possible cracks and tensions that arise within them (see Table 1).

The report’s main findings are as follows:

Although it faces several problems, the automobility regime is still dominant and stable, although less so than twenty years ago. Some tensions and cracks have appeared such as: a) public concerns about Peak Oil and climate change, b) government policies (European CO2 regulations, national innovation programs) aimed at the ‘greening’ of cars, c) some urban policies that restrain cars and encourage alternatives to cars (often for reasons of urban regeneration and quality of life), d) green innovation strategies by automakers, which are mainly focused on incremental innovation, but also explore alternative options (BEV, HEV, FCV), e) decreasing overall car-mobility (Peak car), stagnant car sales, and some indication of less car desires amongst young people. But these tensions are not yet very strong, whereas the mechanisms of inertia and stability are still substantial.

Alternatives to the automobility regime in the UK remain marginal. This is the case even with rail, where passenger journeys have more than doubled since 1994/5, where rail passenger miles have increased 51% since 2001, but which still accounted for only around 3% mode share of surface transport trips in 2013. Overcrowding and congestion on the railways have highlighted a capacity problem. This capacity problem is not being addressed in a systemic-strategic way. Instead there is spatially selective prioritisation of parts of the network (e.g. HS2, Crossrail) for large-scale infrastructure investment in corridors and enclaves - notably within London and connecting to London.

Similarly, passenger kilometres and trips by bus remain marginal relative to automobility, as part of a long-term trend of decline that has levelled off and in some cases begun to reverse over the last decade. The neoliberal reformulation of transport prioritised the car and portrayed car users as ‘successful’ and bus users as economic ‘failures’. This resonates with the dominance of bus use by ‘lower’ socio-economic classes and the young and elderly. The bus regime has been shaped since the 1980s by the idea and principles of competition, through deregulation and fragmentation. In London, where there was not deregulation and where there was a well-developed range of modal alternatives, bus usage performed well (45% increase in bus trips between 1995/7 and 2013) vis-à-vis other parts of the UK.

Cycling, likewise, remains marginal in a UK context, despite small increases in distance travelled by cycling in recent years. The longer-term trend shows the scale of decline since the Second World War where cycling accounted for 33% of all vehicle miles travelled in 1949 and only 1% by 2009. Though a similar trend affected many European countries cycle use remains comparatively low in the UK. In the last two decades there has been a developing policy-push around cycling and associated infrastructure particularly through national programmes focused on urban areas, and also the development of a wider UK cycling economy. Realisation of cycling infrastructure has been limited and cycling is still seen as an ‘abnormal’ activity which is often incongruent with employment, family, leisure or other activities. There is a gap between policy-push and limited realization which can be attributed to policy being embedded in a wider, fragmented governance of multiple private
agencies and actors. There are though examples of significant spatial variations in use where, again, cycling in London has grown significantly over the last decade.

Binary oppositions between pro-car and anti-car have been fuelled by neoliberal efforts to frame single modes of transport. Neoliberalism has sought to reduce organising transport to calculable choices competing with one another. This was at its height in the era of predict and provide. Though there was a shift to discussing more integrated forms of sustainable mobility in the 1990s there were only small tangible shifts in actuality. Yet, there has been no large-scale re-assertion of predict and provide.

We have seen over the last decade an increasing tension between this competition-based market model and a gradual development of tools by national policymakers for local transport authorities to build coordination. With pressures for further significant transport devolution to regional and metropolitan authorities there remain possibilities for ‘pockets’ (‘niches’) of more inter-modal forms of localised transport system to be developed.
Table 1: Conclusions about stability and tensions in the UK Auto-mobility regime, Rail, Bus and Cycling

<table>
<thead>
<tr>
<th>Automobility</th>
<th>Lock-in, stabilising forces</th>
<th>Cracks, tensions, problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External landscape pressures</strong></td>
<td>- Financial-economic crisis - has resulted in a defence of the automobile industry by the state</td>
<td>- Financial-economic crisis - declining sales</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Climate change - requirements for largescale transport CO2 emissions reductions</td>
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<td></td>
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<td>- Rising oil prices (Peak oil), although weakened with recent price decline</td>
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<tr>
<td></td>
<td></td>
<td>- ICT development and information society - growth of alternative modes of home-working/shopping/leisure</td>
</tr>
<tr>
<td><strong>Industry</strong></td>
<td>STRONG</td>
<td>WEAK</td>
</tr>
<tr>
<td></td>
<td>- Sunk investments in machines, people, factories, knowledge</td>
<td>- Economic problems (cut-throat competition, stagnant sales in Western countries) lead to focus on core business and entrenchment</td>
</tr>
<tr>
<td></td>
<td>- Commitment to internal combustion engines</td>
<td>- Aware of climate change and peak oil (which are expected to get worse in long-term)</td>
</tr>
<tr>
<td></td>
<td>- Firms believe that the ICE still has substantial technical development potential for incremental improvement in green directions - CO2 emissions have fallen annually in new vehicles for the last 16 years and a 30% fuel efficiency improvement in new petrol vehicles 2000-2013.</td>
<td>- Development of radical technical alternatives, but as hedging strategy not as full reorientation strategy</td>
</tr>
<tr>
<td><strong>Consumers</strong></td>
<td>STRONG</td>
<td>WEAK/MODERATE</td>
</tr>
<tr>
<td></td>
<td>- Car embedded in lifestyles and mobility patterns (shopping, commuting, bringing children to school).</td>
<td>- Depressed car sales after crisis, with some recent signs of picking up</td>
</tr>
<tr>
<td></td>
<td>- Many consumers prefer the car as a mode of transport in terms of speed, time, convenience - except perhaps in the centres of large cities, where parking problems may hinder car use.</td>
<td>- Some dissatisfaction about fuel prices, congestion and parking problems - though overall costs of motoring are claimed to be falling while those for rail and bus passengers are steeply rising</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- There was a reduction in the average number of trips by car, average distance travelled and time spent travelling on average 1995-2013 (‘Peak car’)</td>
</tr>
</tbody>
</table>
### Policy-makers

- Perhaps less desire for cars amongst younger generation.

- Policymakers supportive of cars (although less than 20 years ago)
- Policymakers are constrained by electorate (many of whom prefer cars), lobby groups, and economic importance of car industry

- Some climate change pressure from EU policymakers (CO2 regulations not yet technology-forcing, but could get stronger)
- Limited climate change pressure from national policymakers (no targets, regulations, etc.), but support for green technology development/deployment
- Some pressure from local policymakers, who introduce some car-restraining measures and stimulate alternatives (bus, cycling)

### Public debate and opinion

- Many positive cultural associations with cars (freedom, individuality, excitement, success, power).
- Powerful pro-car lobby groups
- Enduring (though weaker) neoliberal view of single, competitive modes of transport governed by ‘choice’

- Long-standing presence of an anti-car discourse, which has drawn attention to negative side-effects of car use
- ‘Sustainable mobility’ emerged as a phrase, but with limited concrete effects (less strong discourse than ‘renewable energy’)

### Pressure from social movements, NGOs, scientists

- There are powerful - often industry-linked - pro-car lobby groups
- Road and car safety groups contribute to incremental improvements in automobility

- Anti-roads protesters had success in curtailing a road-building programme in the 1990s. Weakened by fuel protests in the 2000s. There may be windows of opportunity following announcement of new road-building programme

### Overall assessment

- Still fairly stable automobility regime (although perhaps less than 15 years ago)
- Alternatives to automobility remain marginal.

- Some cracks and tensions from: a) hedging car industry, leading to development of technical alternatives, b) less car-based lifestyles amongst younger generation, c) EU and local policy (which do not yet provide strong push for alternatives), d) presence of critical discourse (but limited wider appeal)
<table>
<thead>
<tr>
<th>Rail</th>
<th>Lock-in, stabilising forces</th>
<th>Cracks, tensions, problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industry</strong></td>
<td>MODERATE</td>
<td>MODERATE</td>
</tr>
<tr>
<td></td>
<td>- UK train system privatised and fragmented since 1994</td>
<td>- Political rows since 2011 over whether state should prioritise UK train manufacturer in awarding contracts - mixed results - New train capacity being built by Japanese-firm Hitachi in new English facility</td>
</tr>
<tr>
<td></td>
<td>- Infrastructure, train operations and rolling stock separated into multiple units with no system controller</td>
<td>- Prioritisation of premium parts of the system (HS2 and Crossrail) and ‘alternatives’ of light rail plans for other urban areas</td>
</tr>
<tr>
<td></td>
<td>- Last train maker in Britain, the former state-owned operation in Derby, owned by the Canadian engineering company Bombardier</td>
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<tr>
<td><strong>Consumers</strong></td>
<td>MODERATE</td>
<td>MODERATE</td>
</tr>
<tr>
<td></td>
<td>- Long-term decline in rail use reversed in the UK in the last two decades - approximate doubling of passenger KMs travelled – yet rail’s contribution to overall transport share remains small</td>
<td>- Post-privatisation (between 1997 and 2014) fares increased on average by 102%, a 23% increase in real terms</td>
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<tr>
<td></td>
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<td>- Majority (62%) of all rail journeys started or ended in London with implications for system investment</td>
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<td></td>
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<td>- Capacity a serious issue (including sharing of lines between local /inter-city trains)</td>
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<tr>
<td><strong>Policy-makers</strong></td>
<td>MODERATE/STRONG</td>
<td>MODERATE</td>
</tr>
<tr>
<td></td>
<td>- Unitary control of the railways abolished in 1993 when policy promoted fragmentation of rail system to create market economies</td>
<td>- Though passenger numbers have increased post-privatisation public subsidy has risen sharply, counter to a key objective of privatisation</td>
</tr>
<tr>
<td></td>
<td>- Numerous government reviews have not fundamentally rejected the post-privatisation organisation of railway system</td>
<td>- Assessments of privatisation as policy response suggest a mixed record of success</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Policy is selectively prioritising parts of the rail system, primarily into and through London</td>
</tr>
<tr>
<td><strong>Public Debate and Opinion</strong></td>
<td>MODERATE</td>
<td>MODERATE/STRONG</td>
</tr>
<tr>
<td></td>
<td>- Rail passenger use has seen significant increases - this is in</td>
<td>- Increasing debates about cost of rail to public purse and passengers</td>
</tr>
<tr>
<td>Pressure from social movements, NGOs, scientists</td>
<td>MODERATE</td>
<td></td>
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<tr>
<td>------------------------------------------------</td>
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<tr>
<td>- Campaigning groups appear to have moderate influence on government and subsequently the rail system. Groups exist to champion passengers, to campaign on fares and to oppose privatisation - there is a mix of insider and outside groups</td>
<td>WEAK</td>
<td></td>
</tr>
<tr>
<td>- Limited downward influence on fares</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Overall assessment</th>
<th>MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- There is no great challenge to the privatised rail system. It is expensive, congested but also heavily used by passengers</td>
<td>MODERATE</td>
</tr>
<tr>
<td>- Modest cracks and tensions in relation to: a) congestion, b) costs, c) the private organisation of the rail system</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Bus</th>
<th>Lock-in, stabilising forces</th>
<th>Cracks, tensions, problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>MODERATE</td>
<td>WEAK</td>
</tr>
<tr>
<td>- Complicated landscape of bus operators across the UK - local variety. But three operators - through mergers - together account for almost half of market share</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- There are nine bus and coach manufacturers in the UK and the number of buses/coaches in Britain has stayed reasonably steady over the decade to 2014 at around 52,000 vehicles</td>
<td></td>
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</tr>
<tr>
<td>- Relatively settled operator landscape after series of mergers in the 1990s.</td>
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<tr>
<td>- Incremental moves to bring more control over the bus operating companies through local authorities</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Consumers</th>
<th>MODERATE</th>
<th>WEAK/MODERATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Bus use remains significant at around 30 billion passenger KM a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Bus use has been in long-term decline outside of London but this has levelled off.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Policy-makers** | MODERATE  
-Deregulation and privatisation since 1985 shifted ownership and operation of the buses from public to private bodies and enshrined the general principles of competition law in the operation of the bus system | WEAK/MODERATE  
-The tension between competition law and a greater role for local policymakers in the governance of the bus system has incrementally increased in the 2000s |
| **Public debate and opinion** | MODERATE  
-The overarching narrative of the bus system in the UK remains wedded to the effects of deregulation, almost three decades on  
-The political power of the over-60s remains strong and has implications for the continuation of concessionary bus passes | WEAK  
-Bus use suffers some negative perceptions. This can be traced to the binary debate of the 1980s between the desirability of automobile ownership and use and the perceived personal economic ‘failures’ associated with bus use. |
| **Pressure from social movements, NGOs, scientists** | WEAK  
-There are numerous groups, working with government and operators incrementally | WEAK  
-Campaigning groups appear to have limited influence on the bus system and its operation |
| **Overall assessment** | MODERATE  
-The dominant organisation of the bus system remains shaped by the privatisation and deregulation of the 1980s.  
-There have been incremental changes in ownership of operators since then and a period of relative stabilisation of operating companies, passenger numbers and fleets | WEAK  
-Incremental change means that cracks in the system - for example, efforts to bring more local authority control of the bus system - are addressed slowly over a long period of time |

year and remains used for a wide range of purposes from commuting, to shopping, education and leisure activities  
There is though geographical variation to bus use with London seeing significant growth in passengers but rural areas showing significant reductions  
Buses are disproportionately used by the poor, the young and elderly and bus fares have increased faster than inflation. Furthermore, significant usage by pensioners is through concessionary travel which may come under threat in times of austerity
<table>
<thead>
<tr>
<th><strong>Cycling</strong></th>
<th><strong>Lock-in, stabilising forces</strong></th>
<th><strong>Cracks, tensions, problems</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industry</strong></td>
<td>MODERATE/WEAK</td>
<td>MODERATE</td>
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<td></td>
<td>-The vast majority of bicycles bought in the UK are manufactured outside of the UK. Bicycle manufacture in the UK has become specialised and niche</td>
<td>-The UK has no mass producer of cycles</td>
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<td></td>
<td>-Growth of a wider cycling industry of associated products (clothing, accessories)</td>
<td>-There has been a growing cycling economy - but a view that this growth may have peaked</td>
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<tr>
<td><strong>Consumers</strong></td>
<td>WEAK/MODERATE</td>
<td>WEAK/MODERATE</td>
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<td></td>
<td>-The long-term trend of cycle usage in Britain is one of decline since the Second World War - but with an increase in cycling KM of around 20% between 1998 and 2013</td>
<td>-There is a poor understanding of the cultural dimensions of cycling and hence limited congruence between cycling and some practices, such as travelling to school for example</td>
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<td></td>
<td>-Around 43% of the UK population owns or has access to a bicycle. Yet, cycling is seen as an ‘abnormal’ activity in the UK and low by comparative EU standards</td>
<td>-There are huge variations in use by age and gender and notably by geography. This links to the cultural dimension of cycling</td>
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<td><strong>Policy- makers</strong></td>
<td>WEAK/MODERATE</td>
<td>WEAK</td>
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<td></td>
<td>-No real national cycling policy prior to the 1990s</td>
<td>-Cycling policy emerged in a neo-liberal state that means capacity is outsourced and fragmented and policy is difficult to realise locally</td>
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<td></td>
<td>-National cycling strategy in 1996 placed a renewed policy emphasis on cycling - subsequent targets to triple cycling trips in a decade failed</td>
<td>-Individualisation of cycling policy underpinned by notions of ‘active’ and ‘responsible’ citizenship has presented cycling as perceived as being peripheral to the main business of ‘transport’</td>
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<tr>
<td><strong>Public debate and opinion</strong></td>
<td>WEAK</td>
<td>WEAK/MODERATE</td>
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<td></td>
<td>-Views that people hold of cycling are often ambiguous and</td>
<td>-There is significant geographical variety in use with Greater London, for example, seeing relatively large growth since 2000</td>
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<td>Pressure from social movements, NGOs, scientists</td>
<td>sometimes contradictory -Cycling remains a marginal activity</td>
<td>-There is some challenge to reductionist, ‘derived demand’, rational, cost-based, quantitative approaches to transport use decision-making. More expansive understandings of the meaning of cycling mobility focusing on the immaterial embodied and sensory have begun to emerge</td>
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<tr>
<td><strong>Pressure from social movements, NGOs, scientists</strong></td>
<td>MODERATE -Variety of NGOs working to promote different elements of a cycling agenda but with ad hoc connections between them</td>
<td>WEAK/MODERATE -Cycling at local authority level requires a statutory response but there is limited in-house capacity. This creates some possibility to build capacity through NGOs and social movements, although this may be constrained through lack of finance and institutional barriers</td>
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<tr>
<td><strong>Overall assessment</strong></td>
<td>WEAK/MODERATE -Cycling remains marginal in a UK context, despite small increases in distance travelled by cycling in recent years -In the last two decades there has been a developing policy-push around cycling and associated infrastructure particularly through national programmes focused on urban areas, and also the development of a wider UK cycling economy -Realisation of cycling infrastructure has been limited and cycling is still seen as an ‘abnormal’ activity</td>
<td>WEAK -There are examples of significant spatial variations in use where, for example, cycling in London has grown significantly over the last decade – these present exemplars of ‘alternative’ cycling cultures</td>
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</table>
References


