
9 Low Carbon Transition in Finnish Mobility: The clash of experimental transport governance and established practices?

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Introduction

With a population of 5.4 million people and a northern location between Sweden and Russia, Finland is a country of few people and relatively long distances. This places pressure on maintaining an efficient private transport infrastructure, while at the same time visions of low carbon mobility systems exist and are increasingly created, particularly in more densely populated areas. Even in the southern urban areas, such as the Helsinki metropolitan region (1.1 million inhabitants) and Tampere city region (close to 0.7 million inhabitants), where more opportunities for mobility innovations to replace private car use and ownership exist, urban sprawl tends to complicate the process. However, there are also signs of action on the political, institutional and societal levels supporting a low carbon mobility transition in Finland.

The Finnish context from the multi-level perspective

The multi-level perspective (MLP) of the sustainability transitions literature views long-term transformative change to occur as an interaction between three different levels: landscape, regime and niches (Geels, 2002, 2012). Innovation and experimental activities take place at the niche level with potential to initiate regime-level transition. This is the locus of more radical technological, social, organisational and behavioural innovations that can disrupt how existing systems of consumption and production function. Niche building at this level depends on processes of voiced expectations deviating from the mainstream, forming supportive networks, and learning on multiple dimensions (e.g. Hoogma *et al.*, 2002; Smith & Raven, 2012).

The key constraining and enabling factor for such disruptive innovation is the socio-technical regime that is characterised as a rather persistent deep structure composed of technology and infrastructure, institutions and policy often influenced by existing networks of actors, and prevailing practices, beliefs and habits (Geels, 2002, 2012). Destabilising an existing regime can be a very long process (Turnheim and Geels, 2012), as multiple path dependencies need to be overcome (e.g. Unruh, 2002, also see Chapter 7).

Landscape is the exogenous environment comprising macro-economic, macro-political and cultural forces and development trends that may impose pressure to change existing socio-technical regimes (e.g. Geels, 2002, 2012). We use the concept of *landscape* to show the context in which mobility systems change, of *regime* to describe the various dominant elements in the Finnish transport system, and of *niche* to focus on selected new developments with potential to overturn the high-energy and fossil-fuel dependent mobility system.

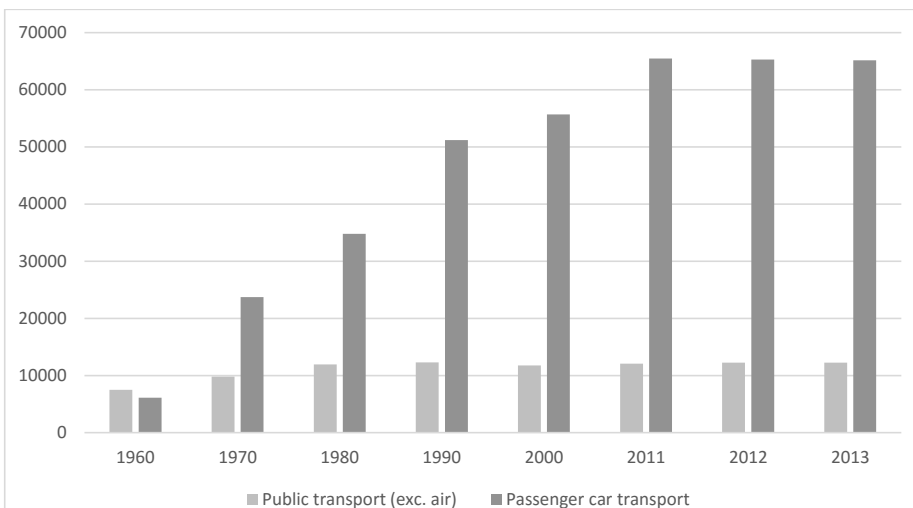


Figure 9.1: Passenger kilometres travelled in public transport and passenger cars. Source: Transport and Communications Statistical Yearbook for Finland, 2014.

Greenhouse gas emissions (GHG) from domestic transport were circa 11 million tons in 2014, reducing 14 percent from peak emissions in 2005 (Statistics Finland, 2015). This corresponds to about 19% of Finland's GHG emissions excluding land use change and forestry (Statistics Finland, 2015a). The reduction is largely explained by the increased use of biofuels in transport, whereas there is little change in passenger kilometres travelled in private cars (Figure 9.1). In Finland, looking at both the expansion of the use of biofuels and significant changes in how transport policy is planned (described later in this chapter), the transport regime has clearly begun the process of change towards low carbon mobility. However, at the same time, it continues to be much restricted by the historically dominant private vehicle and fossil fuel based-regime.

Several landscape factors set the context for the Finnish transport regime and its change in recent years. Many of these are global, including international climate change commitments, fluctuating oil prices and the availability of oil, and digitalisation. For example, new information communication technologies (ICT) (see Chapter 13) have enabled the early small-scale emergence of business concepts for more efficient use of private cars; including ride sharing and car lending (Temmes *et al.*, 2014). In addition, there are landscape factors particular to Finland, namely the cold climate, long distances in a relatively sparsely populated country, and the urban sprawl phenomenon that jointly contribute to making low carbon mobility transition difficult. At the same time, however, more than two thirds of the people in Finland live in an area that covers only 5% of the country, i.e. cities and their surroundings, creating opportunities for intelligent use of public and intermodal transport (Temmes *et al.*, 2014). Megatrends including the aging population and online shopping will gradually change the transport regime in terms of what kind of transport and delivery services are needed in the future. At the end of 2014, 20% of the population was over 65 years old, and this is estimated to reach 25% by 2030 (Statistics Finland, 2015b).

As in many Western countries, the transport regime is dominated by privately-owned internal combustion engine vehicles. As Figure 9.1 shows, passenger kilometres by private cars increased steeply until 2011 and have stagnated since then, while journeys made by public transport have stayed at the same level since the 1980s. Despite the long distances in the country, interestingly *'64% of the journeys travelled by car in Finland are less than 10 kilometres in distance. Moreover, the use of private passenger vehicles is most common in journeys that are only 1-3 kilometres long'* (Temmes *et al.*, 2014: 13). While private cars dominate the transport system, *'[o]ther modes of passenger transport (cycling and walking, public transport, and transport services) co-exist as important elements. In addition, practices such as teleworking or internet shopping provide opportunities to reverse'* the historically high levels of private car-based transport (Temmes *et al.*, 2014: 7).

There are also regional differences in the use of different transport modes; public transport and walking being the most common in the Helsinki metropolitan region, while private car and cycling are more common in smaller and more

northern cities, such as Oulu (Upham *et al.*, 2015). Also in terms of public perception, the transport regime is not homogenous throughout the country. For example, support for biofuels is much stronger in the Northern city of Oulu than in the more Southern cities of Helsinki and Tampere (Upham *et al.*, 2015).

On the institutional side, path-dependent and transformative elements co-exist. The need to combine processes of land-use planning and transport has been recognised for decades to create a more efficient and sustainable transport system (See Chapter 7). More recently, both public and private actors have advocated a range of experiments and programmes to develop new technologies and services enabling systemic change in transport. Examples of this include a portfolio of experiments initiated in 2014 by the Ministry of Transport and Communications and the Transport Safety Agency, the Mobility as Service (MaaS) concept launched also by the Ministry of Transport and Communications (see below), the TransEco and TransSmart Programmes (TransEco, 2016; TransSmart, 2016) pooling together around 20 projects and a range of actors, and the capital city Helsinki adopting a radical turning point in the principles of transport planning starting in 2013 – putting pedestrians and cyclists before motorised transport (Helsingin Sanomat, 2016). Simultaneously, however, removing tax credits to commuting largely based on private motorised transport, on a national level, and introducing parking fees to a larger area around cities, on a local level, have been very difficult (cf. Mäkinen *et al.*, 2015).

The niche level includes a range of technologies and service concepts with already realised or potential influence over different parts of the current transport regime, the largest being the biofuels niche that has, according to Nylund *et al.* (2015), reached large commercial scale. Electric vehicles and related infrastructure are growing but the numbers are still small (ElectricTraffic, 2016). Public transport, which cannot be considered a novel niche as such, has started to renew itself through low carbon vehicles, improved services and infrastructure, connected to investments in new rail and metro networks. In terms of more demand-related niches, while interest in a range of services reducing transport demand and travelled passenger kilometres exist, still many '*car sharing and ride sharing concepts tend to be restricted by the rules of the existing regime, e.g. taxation, business licensing and insurance policies*' (Temmes *et al.*, 2014: 34). These have not received the same level of innovation policy support as the solutions maintaining with the ideology of private motorised transport (Kivimaa & Virkamäki, 2014).

Changing institutional and policy for sustainable mobility

In 2011, the Government Programme, drafted by each new government and laying out a four-year plan for the government term, stated as the main goal of Finnish transport policy to be '*to secure smooth and safe mobility in accordance with the needs of the economy and the inhabitants of Finland, along with measures to reduce transport-*