

Transport Futures. A co-evolutionary view

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Abstract

The present transport system is not sustainable. Problems of road congestion, accidents, vehicles noise, and pollution are pressing car manufacturers, transport authorities, and transport users to change course. Although the directions of sustainable development are more or less clear (greater safety, less congestion, less pollution and noise), it is unclear what solutions are best. Which solution is best will differ from one's perspective. Different trajectories are possible.

In the paper we will describe three sociotechnical scenarios for inland passenger transport. The scenarios are: (1) the integration of public and private transport; (2) a system in which internal combustion vehicles will prevail but large market niches will be developed for alternative fuel vehicles; and (3) a radical upgrading of the existing system in terms of vehicle energy efficiency and exhaust emissions.

The first system amounts to a regime shift (a transformation of the existing regimes of car-based and public transport), the second to a transformation of *part* of the car-based system, and the third to a modification of the car-based system along existing trajectories of development.

The future transport system for inland personal transport is analysed through the so-called co-evolutionary sociotechnical (CEST) scenario method. The CEST scenario method is a new method which combines elements of different futures studies, in particular scenario analysis and cross impact studies. A key element of the co-evolutionary sociotechnical scenarios is that the interaction between technologies and society is *endogenised* instead of being exogenous as in traditional scenario analysis and technology assessment studies. In the scenarios we describe how technologies and society co-evolve and change through a process of interaction. Technical change is not autonomous but the result of ongoing interactions of different actors in multiple market places and policy arenas. Actor strategies, including government policies, are not exogenous but endogenous to the process: they build on previous experiences with technologies and investments in transport technologies and telematics infrastructure. Our method thus differs from traditional futures studies in which technical change and government policies are autonomous and prespecified.

The paper applies insights from evolutionary theories of sociotechnical change (Nelson and Winter, Rip, Kemp) to the problem of the future transport system. In terms of the themes of the conference, it addresses the topics of technological breakthroughs and transformation toward a sustainable society.