Many Miles to Paris: A Sectoral Innovation System Analysis of the Transport Sector in Norway in Light of the Paris Agreement

DEMAND

Road
- 86% of passenger transportation and 73% of cargo transportation

Rail
- 6% of passenger transportation and 8% of cargo transportation

Water
- 7% of passenger transportation and 19% of cargo transportation

Air
- 7% of passenger transportation and almost 0% of cargo transportation

Demand is affecting the income and operations of transportation carriers

INSTITUTIONS

National Legislation
- Climate Policies
  - Carbon neutrality pledge for 2050 (2008)
- EV Policies
  - EV Policies were introduced from the early 90s.
  - Incentivised EV purchases
  - Tax and toll exemptions
  - Other facilitations
- Norway Transport Plan
  - A plan to increase safety and reduce emissions by 2029.
  - 100 billion Euros invested from 2018 to 2029 leading to 50-100% reduction of bus emissions and to the increase of biofuels in aviation to 30% usage until 2030.
  - From 2025, all newly registered passenger vehicles must be zero-emission vehicles.
- European Legislation
  - Not a member-state but follows most of EU's regulations

ACTORS & NETWORKS

Transportation Carriers
- Bane NOR, Vy Group, Carpathelf, Asosar AS (Public)
- AutoLink AS (Private); Other private companies are limited on more regional markets, due to the high penetration of public entities

Oil Refining and Related Industries
- Equinor ASA (very important stakeholder since petroleum is the biggest industry of Norway)
- Norsk Hydro (important energy industry agent)

Universities & Research Institutes
- University of Oslo
- Institute of Transport Economics
- CICERO

Petroleum and Energy providers
- Norsk Hydro (important energy industry agent)

Knowledge Flow: The processes are enhanced and improved and then used by the actors of the transportation sector

KNOWLEDGE, LEARNING PROCESSES AND TECHNOLOGIES

Dominant energy sources
- 48% diesel and 42% petrol on private cars in 2017
- Fossil fuels also dominate on every other transportation sub-sector except rail; Norway's rail system is electrified

Innovations: Electrification Biofuels Hydrogen
- Norway has taken numerous initiatives regarding EVs leading to a share of almost 50% in 2019. There are also some primitive endeavours for the production of electric ferries.
- Indication of knowledge spillover from the electrification of road transport to sea transport.
- Norway's electricity mix is heavily dependent (95%) on renewable energy plan for 40% usage of biofuels for short-distance ships by 2030 and generally a growing interest on the use of biofuels in Norway.