Summary

Objective and status of the research

- In this research study, the KiM Netherlands Institute for Transport Policy Analysis maps the innovations and technologies that could possibly be introduced in the public transport system.
- This study was commissioned by the Public Transport and Railways (OVS) directorate of the Ministry of Infrastructure and the Environment (IenM).

Research questions

- Which (technological) innovations are coming or are already underway?
- What do these innovations mean for the public transport market?
- What are the starting points for policy in order to engage with these developments?

Definition of innovation

- Innovation is defined as pertaining to new or improved products, services, concepts or processes.
- Innovations in public transport are often technological in nature, such as new types of vehicles. However, it may also pertain to non-technological innovations, such as new marketing concepts or new public transport services within the existing concession.
- Innovations in public transport usually involve minor improvements in quality, and rarely large-scale leaps within the public transport system.
- No sharp boundary exists between what is and what is not an innovation: bus only lanes or ticketless travelling are long established practices (thus, not an innovation), but they can however experience a wider rollout (hence, an innovation).

Research conclusions

- It is certainly not the case that all innovations successfully claim a market position. Rather, a process occurs, which includes the requisite obstacles. New products therefore often fail to reach the market.
- The focus in literature pertaining to public transportation innovations is on vehicle technology, payment and information systems, and demand-responsive transport.
- At present, innovations primarily pertain to improving and rolling out what is already underway.
- Innovations that substantially improve door-to-door travel times (both the 'clock time' and the perceived travel time) are the most attractive to travellers.
- When introducing an innovation, it matters whether or not the transport operator introducing the new public transport is already an operator of more traditional public transportation. If it concerns a new operator, they can subsequently use their new services to siphon off the potential customers of the 'incumbent operator'. This limits the income potential of the old transport services.
- It is often unknown whether an innovation will result in a positive business case over the long term. For example, regarding demand-responsive systems offering door-to-door transport, over time the costs increase and revenues stagnate.
- Certain innovations do not offer travellers any specific benefits, although they do offer benefits in a broader context. Consequently, the environment benefits from innovations pertaining to electric buses, the use of hydrogen as a transport fuel and magnetic-floating trains, specifically with regard to air quality and CO_2 emissions.
- Innovations that require new infrastructure commonly result in extra land use and/or the need for major government investments. This is the case with the Hyperloop, for example. We therefore deem such innovations to be less realistic for the time being.

Starting points for policy

- Policy options for stimulating innovation in public transport are found in the development and sharing of knowledge, fiscal regulations, open data, and an improved use of the opportunities already afforded by the current public transportation concession system.
- In order to stimulate innovation, additional long term market initiatives and deregulation offer potential benefits as compared to monopolies, government planning or tendered concessions, owing to the benefits derived from increased entrepreneurship and improved marketing that is directly focused on the travelling public, rather than on politics.