Potential Acceptance of Mobility as a Service (‘MaaS’) – Business Models and Consumer Attitudes

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Transport, Energy Efficiency & Behaviour
International Energy Agency Workshop
10-11 May 2016, Paris, France
What is MaaS?

- Multimodal transport?
- Combined or integrated mobility?
- Servitised transport?
- Smart payments and ticketing?
- Information services?
- Autonomous vehicles?
- Something else?
INSTEAD OF TRYING TO DEFINE MOBILITY AS A SERVICE, PERHAPS IT IS BETTER TO THINK IN TERMS OF WHAT IT AIMS TO ACHIEVE

i.e. WHAT CHARACTERISES SUSTAINABLE FORMS OF MAAS?
Growth in Global Mobility (1950-2005)

Historical Trends in Mode Share in Various Countries
Model Projected Consumer Transport Demand (2030-2050): Passenger Kilometers Traveled (PKT)

- Project PKT. Allocate PKT to different modes based on exogenous/endogenous shares

Source: NRC (2013)
Model Projected Consumer Transport Demand (2030-2050): Vehicle Ownership and Choices

- Project vehicle ownership per capita and vehicle types.
MaaS Presents a Possibility for a Disruptive Innovation that Offers an Alternative…

Source: NRC (2013)
Different Levels of MaaS

Source: Holmberg et al. (2016)
What Makes MaaS Possible?

- Urbanisation;
- Digitalisation;
- Sharing economy;
- Servitisation;
- Decarbonization;
- Hybridisation of public and private sector organisations;
- Disruptive innovation in the transport space.
What Can Integrated Mobility Be?

- Integration of different transport modes
- Integration between public and private organisations
- Integration of land-use, urban development and transport planning
- Integration of social inclusion and cohesion (accessibility) into transport planning and policy
- Integration of environmental and economic transport policy objectives
- Integration of personal mobility with the movement of goods
What Can Integrated Mobility Bring?

Integrated Mobility aims to **generate and disseminate scientific knowledge** on integrated mobility solutions and **assess their potential** to:

- Deliver radical **environmental improvements**
- Improve **accessibility**, social inclusion and cohesion
- Provide **economic benefits** associated with a more resilient and efficient transport system
- Act as a base for new innovations that combine transport **services**, new vehicle technologies and ICT
What Research Do We Need to Realize an Integrated Mobility Economy?

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A New Robust and Scientifically Grounded Sustainability Evaluation Framework is Paramount

- Traditional tools are inadequate to capture system level interactions of IMS, failing to recognize:
  - Inconsistent system boundary or too narrow scope of analysis,
  - Dynamics of behavioral changes in the short-term vs. long-term
  - Leakage and rebound in modes/behaviors/technologies
  - Changes in the use, operation, construction, and manufacturing of infrastructure, energy supply systems and vehicle and transit technologies.

- Local and national governments require an evaluative framework for the creation and implementation of public policies that seek to support MaaS.

- Tools that help to identify gaps and opportunities in improving overall societal long-term benefits
Criteria for a Robust and Scientifically Grounded Sustainability Evaluation Framework

- Multi-Dimensional:
  - Service provided: PKT, quality, efficiency, and costs ($/PKT)
  - Environmental sustainability: GHG emissions, air pollution
  - Socioeconomic sustainability
  - Business model viability and functionality that support innovation
  - Institution and governance

- Life Cycle Sustainability Assessment (LCSA)
  - Robustness across system boundary, scale (trip, individual, company, societal level), time (short- vs. long-term)
  - Capture direct and indirect changes across the entire value chain
  - e.g. rebound effects and the substitution of services/materials/energy/infrastructure

- Practical, transparent, use reliable/reproducible data

- Stakeholder consensus
ACKNOWLEDGEMENT

INTEGRATED MOBILITY