

THE MARKET DILEMMA

IMPLICATIONS OF AN INTRODUCTION OF ELECTRIC ROAD SYSTEMS ON MARKETS AND POSSIBLE BUSINESS MODELS

3rd Electric Road Systems Conference

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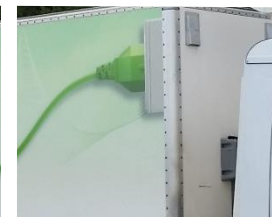
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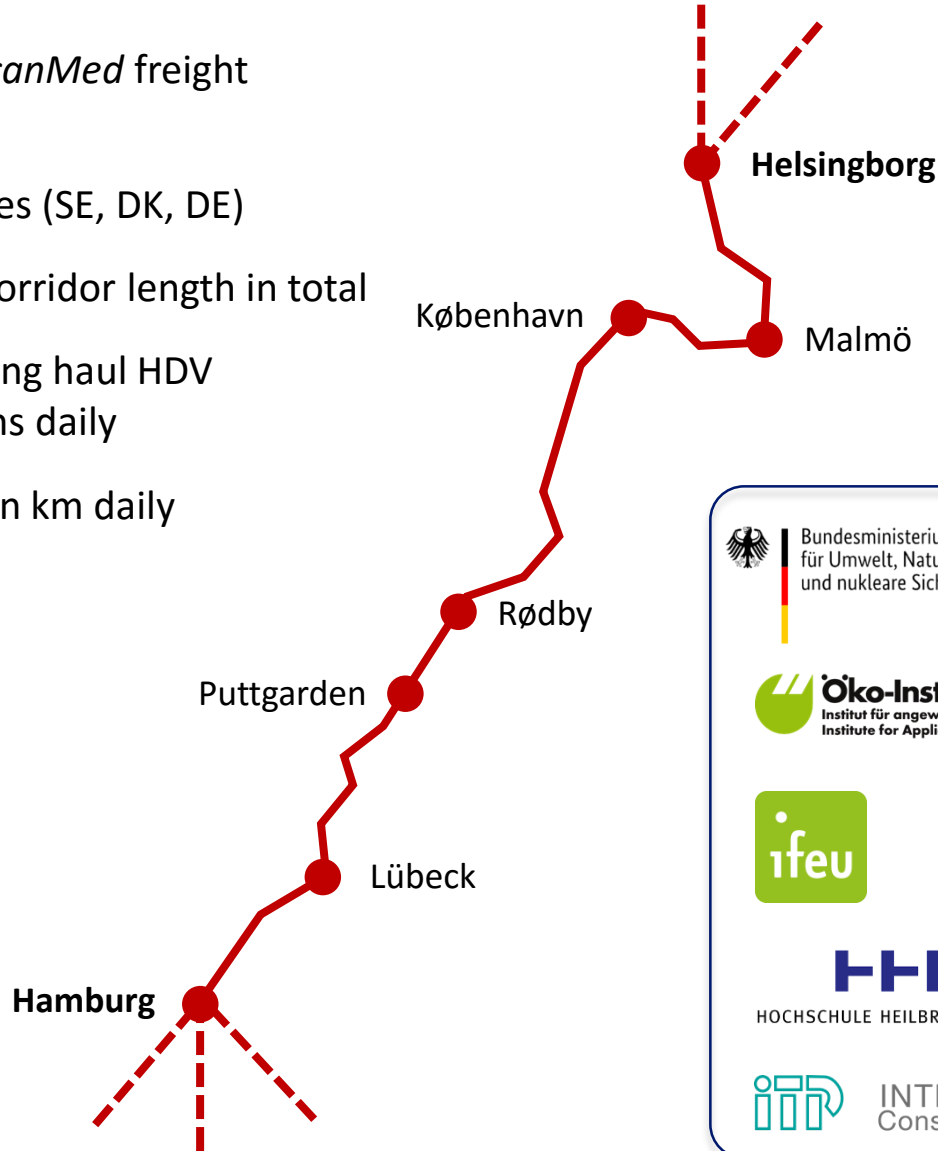
Trafikverket

Hinrich Helms

Ifeu



- Part of *ScanMed* freight corridor
- 3 countries (SE, DK, DE)
- 424 km corridor length in total
- 17'000 long haul HDV operations daily
- 3.8 million km daily



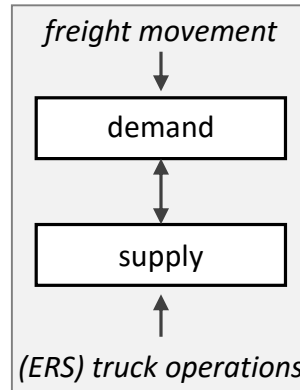
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- The long-haul freight sector is one of the most difficult sectors to decarbonize, and road freight is projected to grow drastically in upcoming years
- ERS has emerged as a potential way to achieve sustainable CO2 reduction
- Most pre-commercial ERS activities have been initiated, supported, and subsidized by public funding, driven by societal and ecological needs
- An ERS core network requires large investments in developing and commercializing technology (e.g. electric road trucks) as well as capital investments in a new physical infrastructure (e.g. electrified roads and power grid extensions) - at a development stage when uncertainty is high and rewards are difficult to predict
- **Thus, for market deployment of ERS the main variables of promising business models play a crucial role**

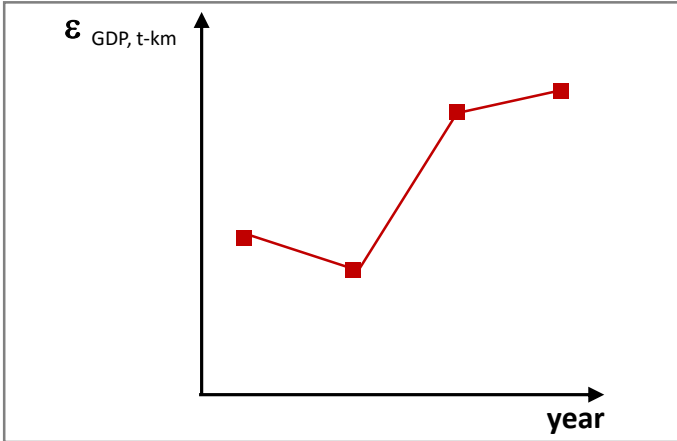
transport market



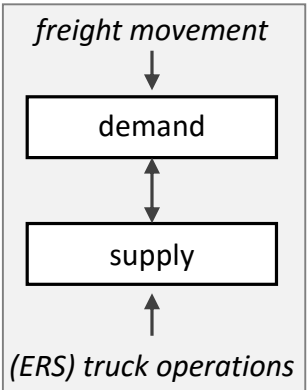
System-affecting aspects (exogenous factors)

sustainability | technology | truck availability | oil prices | regulation | digitalisation | sharing

primary market for goods & services

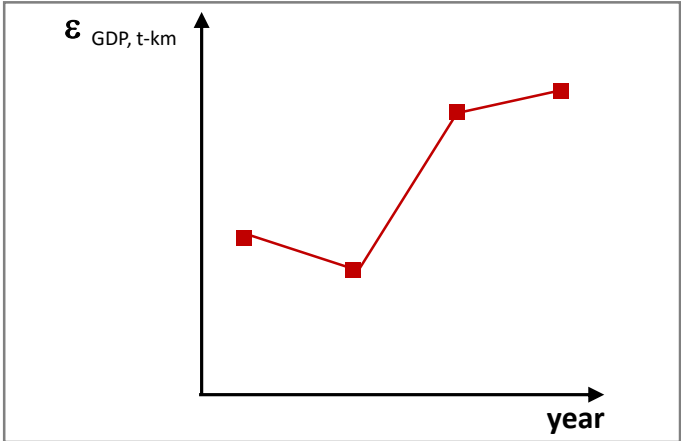


transport market



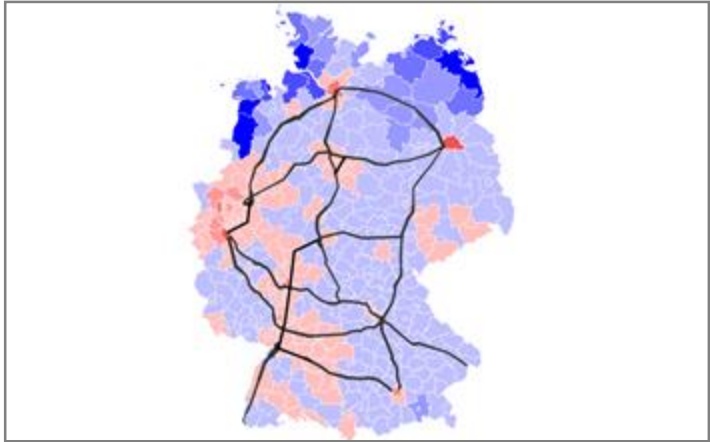
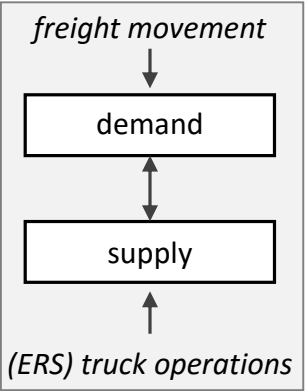
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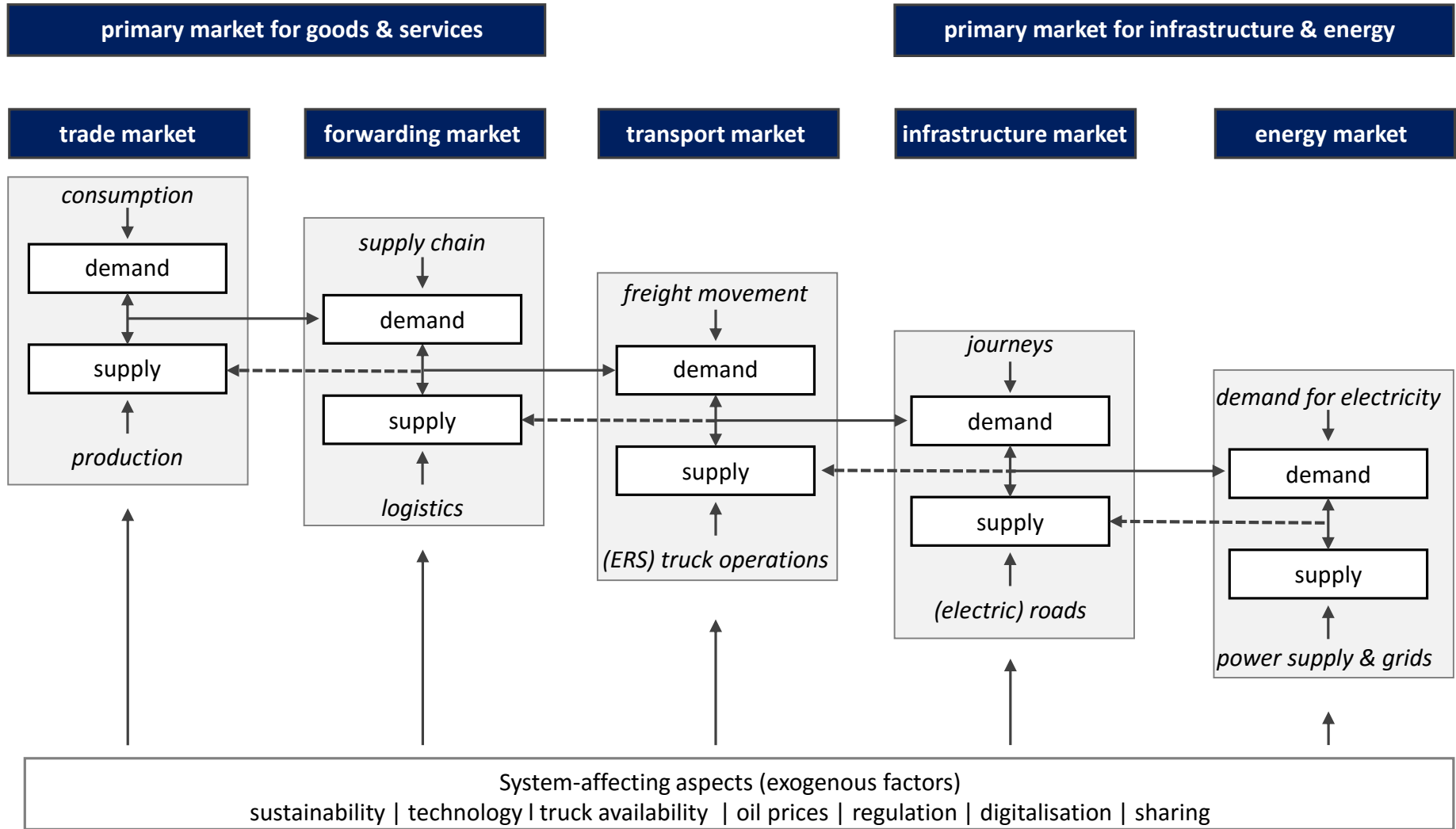


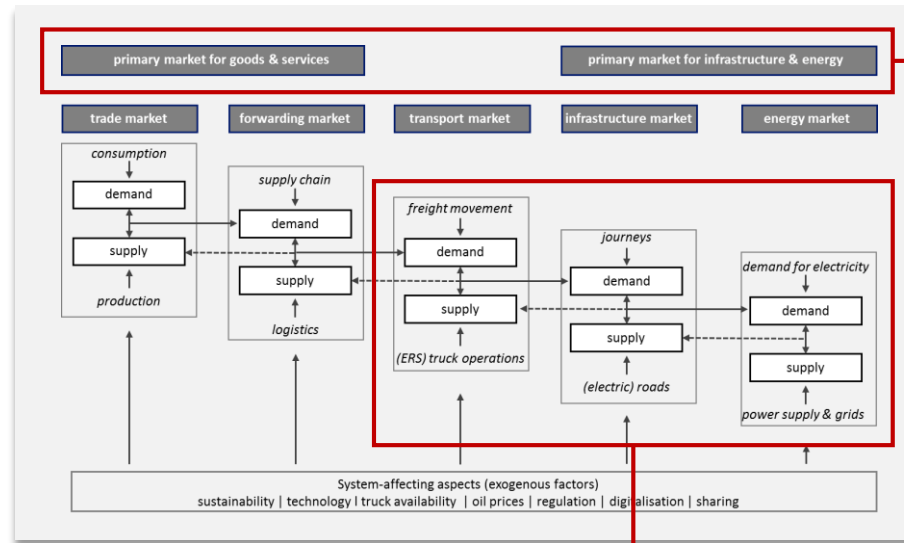
primary market for infrastructure & energy

transport market



System-affecting aspects (exogenous factors)
 sustainability | technology | truck availability | oil prices | regulation | digitalisation | sharing



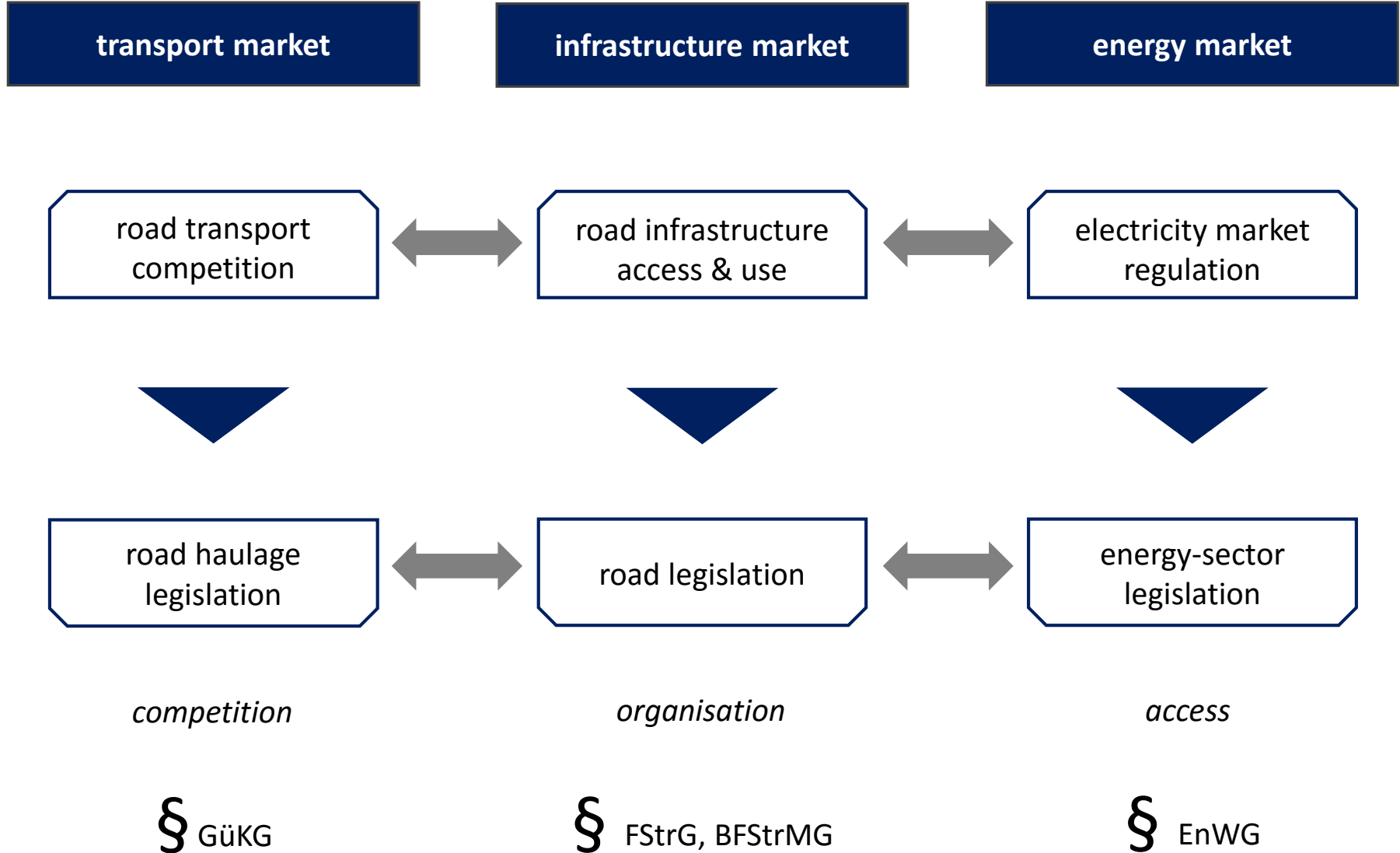


Heterogenous market principles for transport, energy, and infrastructure

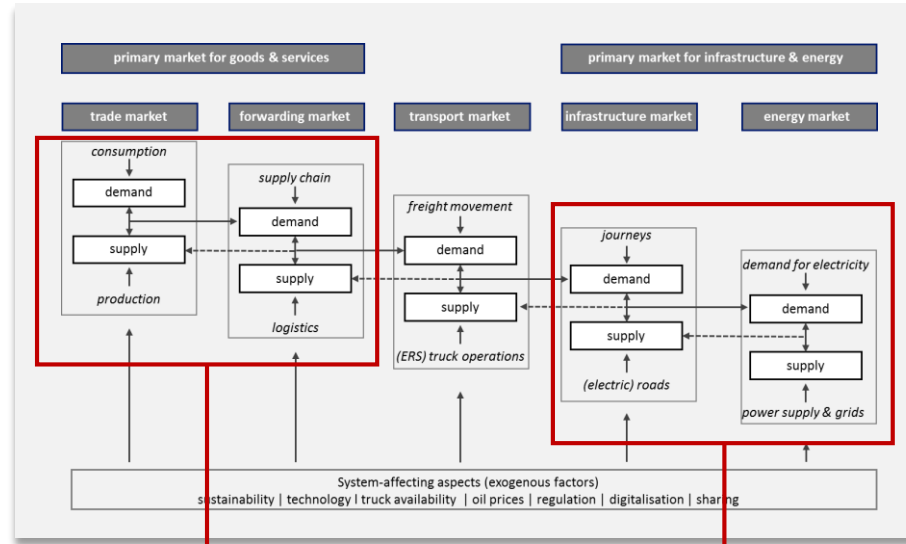
dilemma 1

Different market drivers between trade and energy

dilemma 2



- Open competition, market organization, and regulated access are completely different principles for structuring markets
- Assigning the wrong principle to a (sub-)market leads probably to market failure
- **Thus, for every step towards the deployment of ERS a clear orientation, which market is focused at the moment, and which principle is used, is essential**
- In detail, if acceptance for ERS shall be achieved on the transport market, this has to be done by respecting and using the **rules of a strongly competitive market** and by modeling the transport market as a **new business opportunity** for the energy sector at the same time



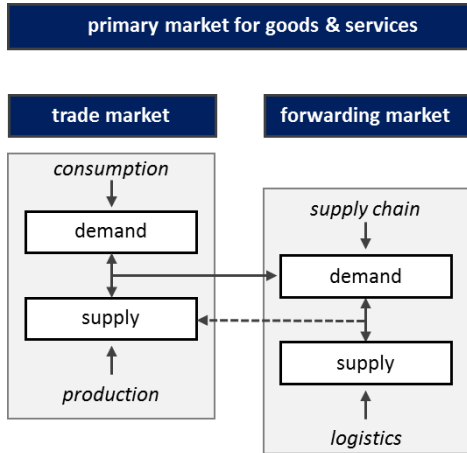
driver:

cost efficiency

driver:

market opportunities

Enhancing (cost) efficiency in transport ↔ new energy business & CO2-reduction



vehicle operator models ↔ vehicle manufacturing

overall flexibility of trip planning ↔ electric mileage

easy payment ↔ managing energy & grids

incremental change ↔ radical change

cutting cost ↔ market opportunities

- Implementation scenarios of ERS might be looking completely different, depending on the market the responsible person is coming from
- **The market model is a suitable way of pointing that out, to show the ongoing dilemmas, and possible solutions**
- Different market perspectives on ERS open up innovative business opportunities, e.g.:
 - 1) truck operators that are running electric trucks might become part of the energy supply system through offering capacity for temporal energy storage
 - 2) infrastructure companies could be interested in operating or financing ERS infrastructure as a new part of their business
 - 3) companies providing billing solutions (e.g. collecting tolls) could be interested in billing electricity for ERS trucks, for instance.
- **ERS operators, either in the public or private sector, are key actors, as they are moderating between the different primary markets, and can benefit from both markets**

THANK YOU FOR LISTENING

3rd Electric Road Systems Conference

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