Bridging between approaches
Governing the electromobility transition

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Governance as Steering and coordination =>
* Plurality of actors
* Analysis of policy interventions, visions, strategies, etc

Quantitative modelling

Socio-Technical Analysis (e.g., MLP)
Socio-Technical analysis and Scenarios

Scenario from Theil et al (2016)

Fig. 4. Evolution of technology shares in passenger cars by scenarios.
Empirical data on electromobility

• **Quantitative Scenario** leading to BEV breakthrough – *Why and what to change*
Fig. 1. Two market penetration scenarios (Nykvist, Nilsson, 2016)
Empirical data on electromobility

• **Quantitative Scenario** leading to BEV breakthrough – *Why and what to change*

• **Sociotechnical system** analysis **conditions** and patterns of change, from local to global – *What to change*
Landscape trends - Battery Costs

(Nykvist, Nilsson, 2015b)
Socio-Technical analysis of Regimes and Niches

- Strong norms on what “a car is”
- Resistance to new user patterns
- Cost barrier perceived as worse than it is
- Resistance to charging along roads

“There is a communication challenge. You have a mindset that say you should be able to use the car going on skiing-holiday”

“Need to be careful with charging along roads. Snow removal is a problem. We should make people rent a parking space”

(Nykvist, Nilsson, 2015a)
Empirical data on electromobility

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• **Sociotechnical system** analysis *conditions* and patterns of change, from local to global – *What to change*

• **Governance** across levels and over time to realize breakthrough pathway – *How to change*
8 critical system challenges → Governance

Landscape

Regime

Niche

Actors, Geographical levels
a. Lack of strong Public Policy Signal
b. Reducing cost differential further
c. User norms
d. Reforming car industries
e. Develop charging infrastructure
f. Learning in fleets
g. New business models
h. Building geographical pockets for markets and learning

2016 -> 2020

2021 -> 2025

a. Policy vision, e.g., of new ICE from 2030
b. Price incentives – learning
c. Test fleets
d. R&D, public-private partnerships
e. Charging - Ultra fast and at home
f. Public procurement
g. Business incubating, testing
h. Pilots, demos, joint ventures
Summary of opportunities

• Support Industry
  – E.g., R&D and public private -> Ultrafast charging
  – R&D battery. Synergies for both BEV and stationary storage (PV integration, smart grid)

• A very rapid transition IS possible
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• A very rapid transition IS possible

• A few more years of incentives probably enough to get ball rolling -> non linear dynamic

• Cognitive barriers VERY important – Range and breadth of governance incentives important
Future research – Electrification of heavy freight

- EU H2020 – TRANSRisk transrisk-project.eu
- Technology development in Sweden
- Governance – Innovation through public procurement
- Stakeholder driven research – Industry on board
Thank You!

- Albrecht, Nilsson, Åkerman (2013)
- Nykvist, Nilsson (2015a)
- Nykvist, Nilsson (2015b)
- Nilsson, Nykvist (2016)

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