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# Acceleration and beyond: New challenges for transitions research

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IST 2019 Conference, Carleton University, Ottawa  
June 24, 2019

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## STRN highlights 2018-19

European Environment Agency

Upcoming report 2019  
Sustainability Transitions:  
Policy and Practice

IST2019  
INTERNATIONAL SUSTAINABILITY  
TRANSITIONS CONFERENCE

500 papers/yr

Date: Jan 2019; total: > 2800 papers

1'900 members

Winter school on Methods  
Karlsruhe, Germany

Research Agenda

Impact factor 5.3

Environmental Innovation  
& Societal Transitions

NEST conference  
Lisbon, Portugal

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## Transition highlights

IRENA 2019

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## Acceleration

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## What do we mean by acceleration?

- Pace:** rapid diffusion of alternatives (e.g. solar, wind)

... but there is much more happening:

- Decline** of incumbent technologies
- Break-up of established system structures,  
**re-configuration** → new **direction** of development, eg. decentralization
- Potential questioning of **system functioning**
- Struggles become **existential** for some **incumbents**

→ **New phase**, new challenges for research & policy

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## Increasing structuration of activities in local practices

Geels & Schot 2007

Fig. 1. Multi-level perspective on transitions (adapted from Geels, 2002, p. 124).

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## 1st key issue: How to accelerate?

- Improve performance and lower **costs** of innovations  
→ innovation policy, subsidies [e.g. Jacobsson & Bergek 2011]
- Create **new markets** and provide **direction**  
→ mission oriented policies [Bergek et al. 2008; Schot & Steinmueller 2018; Wanzenböck et al. 2019]
- Re-direct investments into new industries and infrastructures  
→ carbon pricing, divestment [Baranzini et al. 2017]
- Overcome **resistance**  
→ new coalitions, policy sequencing [Meckling et al. 2017; Roberts et al. 2018]

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## 2nd key issue: Acceleration challenges


- Multi-technology** interaction  
beyond simple 1v1 competition: interplay of technologies, complementarities [Sanden & Hillman 2011; Papachristos 2013; Haley 2018]
- Multi-system** interaction  
focal socio-technical system interacts with adjacent systems [Konrad et al. 2008; Sutherland et al. 2015]
- Decline**  
conceptualization, phase-out policies, resistance & losers [Turnheim & Geels 2012, 13; Kivimaa & Kern 2016; Rogge & Johnstone 2017; Rosenbloom 2018]
- System re-configuration**  
whole systems, supply & demand, overall performance [McMeeking et al. 2019]

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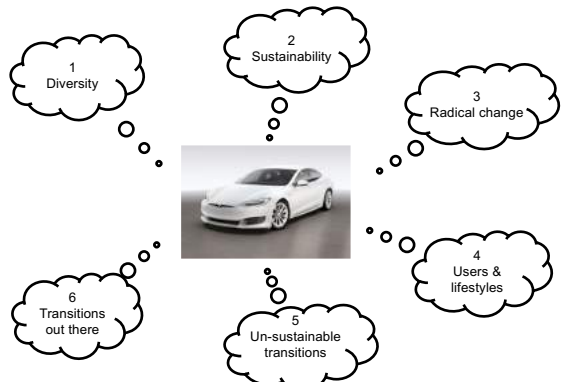
## Next generation transition challenges



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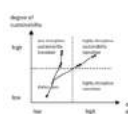
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## Acceleration & Diversity

- Pay **more attention** to diversity [Stirling 2012]  
**competing** technologies/ configurations  
e.g. electric vs. fuel cell cars  
individual vs. public transport
- Acceleration**: diversity is even more important  
→ econ. of scale, standardization, new infrastructure, **risk of a new lock-in!**
- Plurality and feasibility of transition **pathways**;  
associated **politics** [Stirling 2014; Turnheim & Nykvist 2019]



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## Sustainability

- How sustainable is the transition?  
How comprehensive our research?
- Challenge 1: everything we **scale up**, creates **new problems** elsewhere  
e.g. Car batteries (Lithium extraction, e-waste)
- Challenge 2: often, we only concentrate on a **single sustainability issue**
- Challenge 3: SDGs and **trade-offs** between sustainability goals





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## Radical change

- How radical is the transition?
- Which **regime rules** still intact? How strong is the regime? [Fuenfschilling & Truffer 2014]  
EV: speed, acceleration, status, freedom, sport, price, business model
- Disruption by e-mobility? [Dijk et al. 2016]  
→ primarily a threat for supply industries & oil firms
- Transition studies: **bias** towards **technology substitution**  
→ Solves one problem, creates new ones  
→ Does not require consumers to change!




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## Users, lifestyles

- How important are changes in routines & practices?  
EVs (or solar PV):  
**no major changes in consumer perspectives** [Dijk et al. 2016]  
→ transitions are nice, if they don't disrupt our lives ☺
- But: potential for **wider change**
  - mass transit, commuting, city planning [Geels 2018]
  - home-office, lifestyles [Brand et al. 2019]
  - sharing economy / platforms
  - autonomous vehicles
- Transitions research  
→ practice theory, psychology, ...

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## Unsustainable transitions

- We focus on **hopeful developments**, but: what about the things **getting worse**? [e.g. Shove & Walker 2007]
- Who is pushing /benefiting** from these developments?
- Larger **trends** behind this? ... convenience, lifestyle, status and how to break these trends?








Figure 1.1 World Passenger Air Travel by Volume, 1950-2012

Car Collapse  
As U.S. SUV sales soar, passenger cars head to

Been there. Done that.

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## The other "transitions out there"

- Our **"pet" systems**: energy, transport, food
- Risk to overlook interaction with **major systemic changes out there** [Schot & Kanger 2018]
  - Technological: AI, digitalization, automation
  - Political: Populism, nationalism, "fake news", migration, geopolitics
  - Economic: Trade wars, increasing inequality, neoliberal agenda, econ. crises
- Challenge: **dynamics**, feedback loops  
Eg. political systems may change for the worse in times of crisis  
→ We **can't just "landscape"** these developments
- Also: Engage with (needed) **transitions in economic and political systems**  
e.g. degrowth, new economics, beyond capitalism [Kallis et al. 2012; Schor 2014]

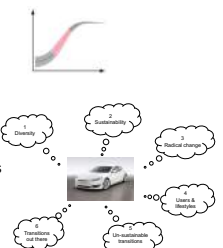
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## Wrap up

- 1st generation transition studies:  
emerging innovation & regime resistance
- 2nd generation:  
→ Acceleration challenges
- Next generation: challenges



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## Thank You!

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