

What happens after niche development in sustainability transitions?

Focus on disruption,
directionality and justice

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Introduction and overview of sustainability transitions research



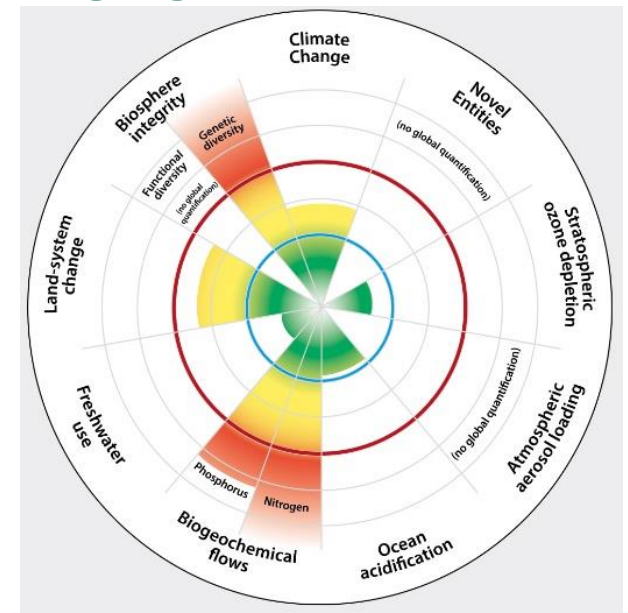
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Sustainability transitions involve addressing grand challenges

Sustainability transitions are highly complex and uncertain processes

Transitions are about *actors* doing things in new ways, changing their mind-sets and practices, and the underlying *rules*

Changes in public policies and institutions are essential to catalyse and orient systemic changes in cooperation with businesses and civil society (EEA, 2019)



Sustainability transition studies

Originated in the late 1990s as an interdisciplinary social science research field, with an aim to tackle fundamental **environmental sustainability** challenges

Tries to understand **socio-technical system** change through

- (a) creation and diffusion of sustainability innovations (niches, technological innovation systems)
- (b) path dependencies, lock-ins and the processes of destabilising socio-technical regimes/systems
- (c) influence of broader landscape or contextual changes

Importance of artifacts, actors and institutions

Incorporates **normative goals** to improve the state of affairs via research, approaches and "tools" generated

Characteristics of sustainability transitions

Multi-dimensional changes in socio-technical systems

Multi-actor, multi-scalar processes

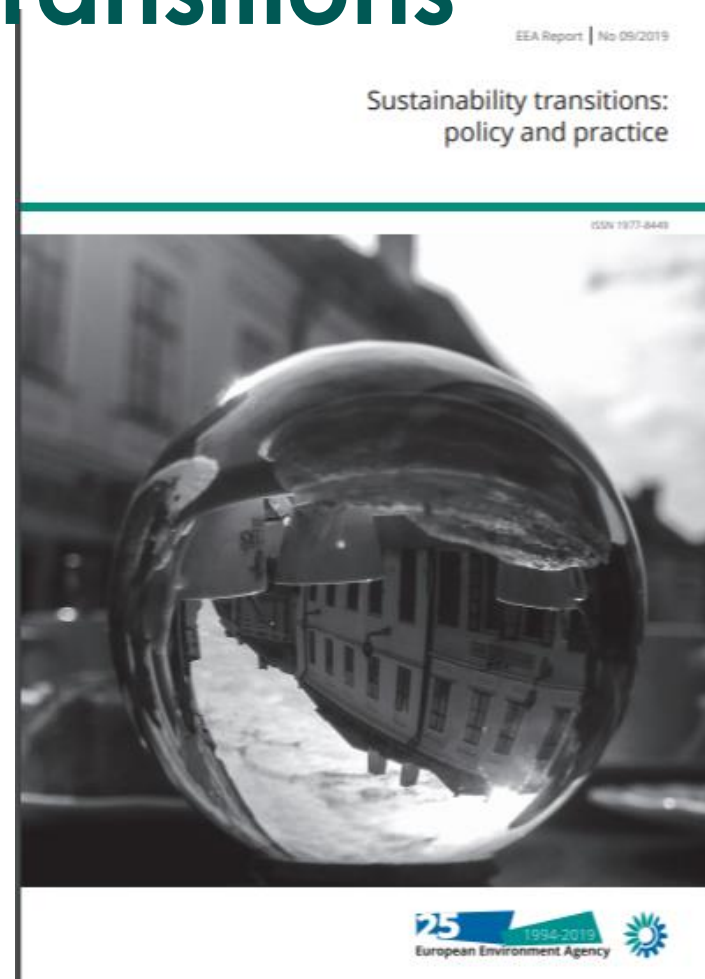
Goal-oriented **directionality** (visions, pathways to sustainability)

Disruptive (involving winners and losers)

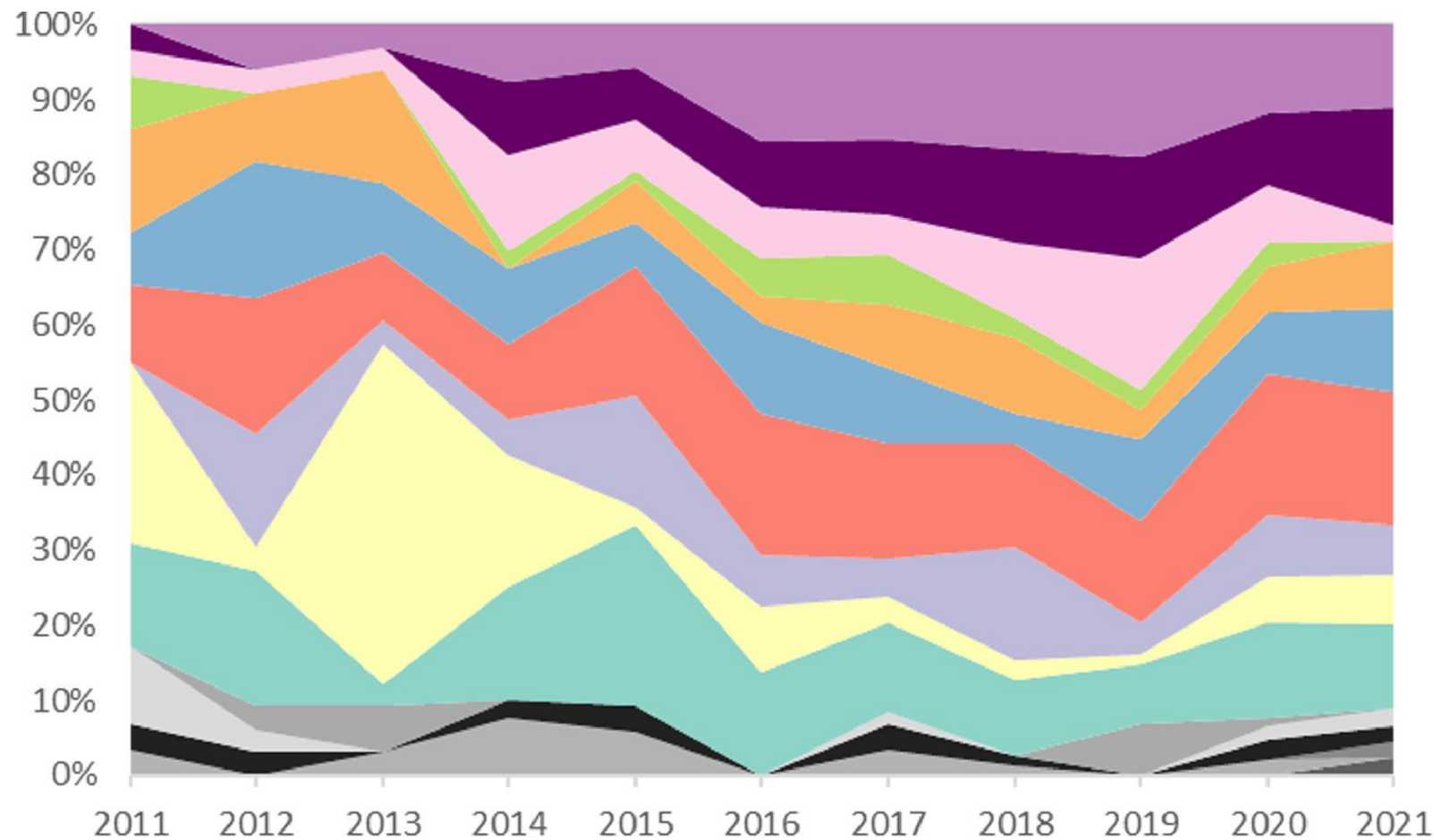
Open-ended and uncertain (learning and experimentation)

Surprises, **unintended consequences** (evaluation, reflection)

Urgency and acceleration (diffusion, phase out, exnovation)



Use of different frameworks and orientations in articles published in *Environmental and Societal Transitions* EIST (journal)



- Law
- SNM
- TIS
- MLP
- Psychology
- Business Admin
- Transition Management
- Socio-ecological systems
- Economics
- Engineering Modelling
- Sociology
- Public Administration
- TEP
- Geography
- Critical Perspectives
- Political Sciences

Truffer et al. 2022

Increasing policy impact of sustainability transitions research



New and expanding orientations (examples)

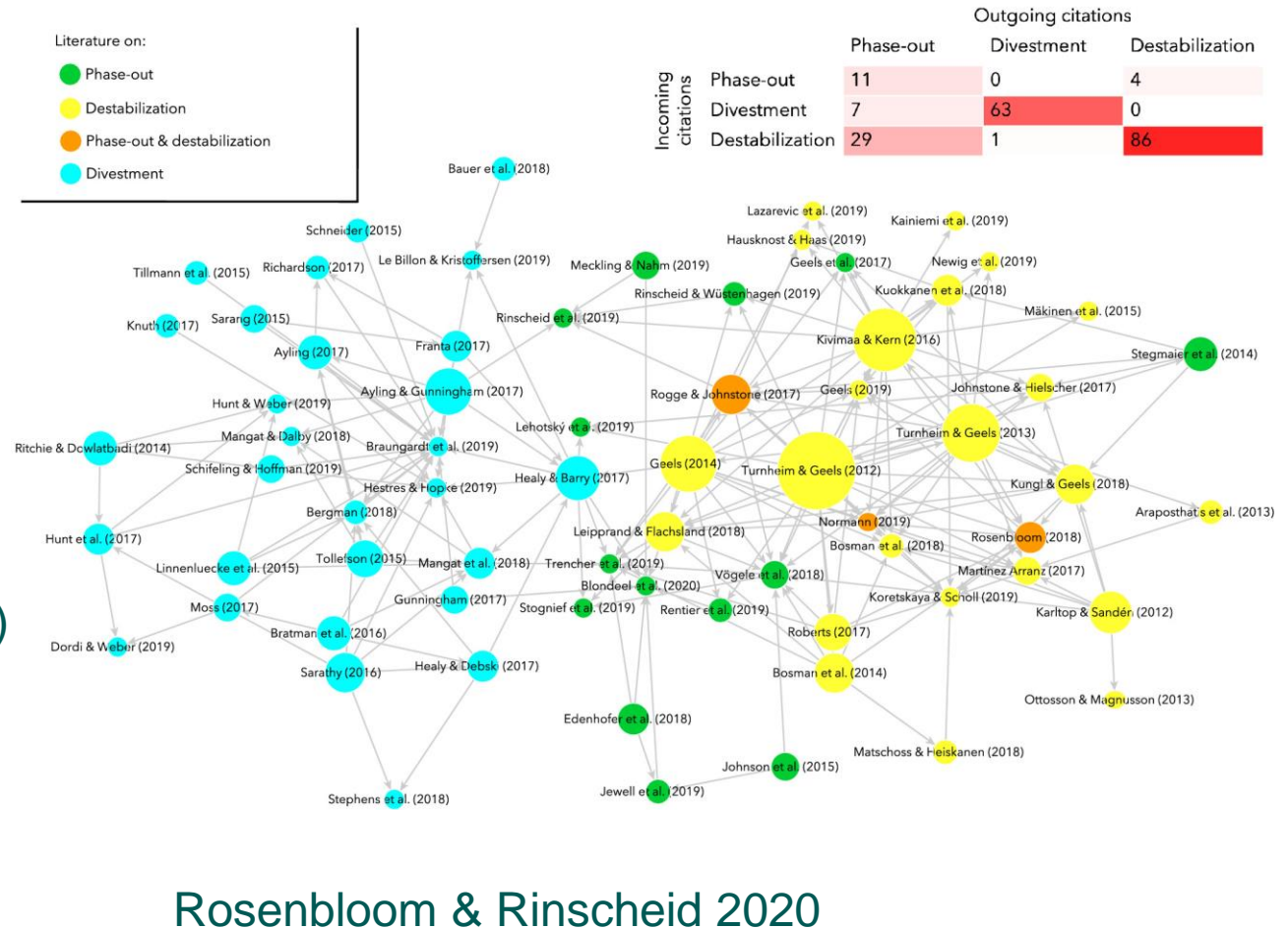
- **Disruption**, destabilisation, exnovation, phaseout, decline – and other processes of socio-technical regime change
- Deep and multi-system transitions – parallel and intertwined shifts in multiple socio-technical systems
- **Justice** in sustainability transitions – both as a new **directionality** alongside environmental sustainability & as a broader repercussion
- Security and geopolitics of sustainability transitions
- Limitations of traditional conceptual frameworks (MLP, SNM, TIS, TM), especially in Global South contexts

Disruption, destabilisation and decline

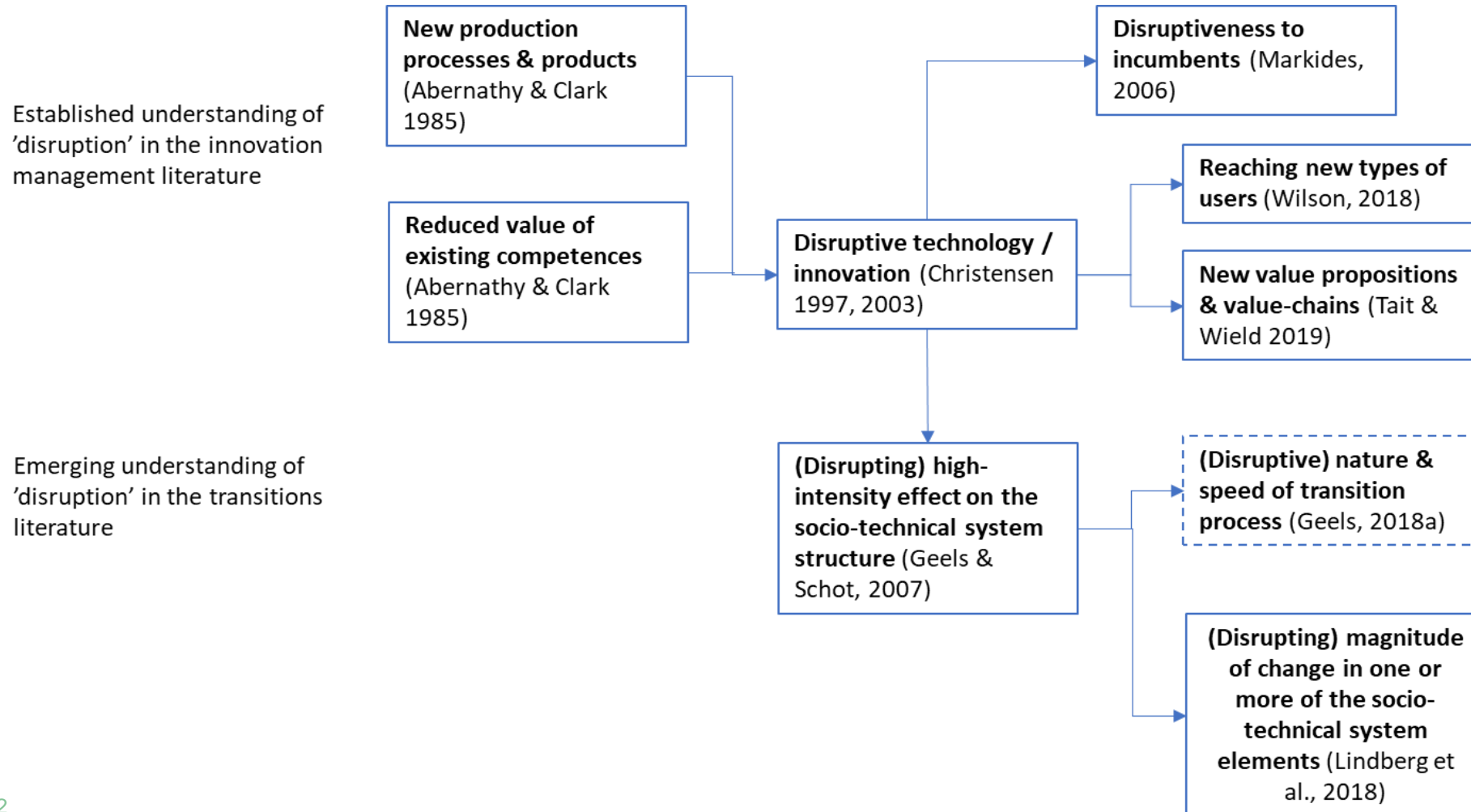


Disruption, decline, etc.

- Increased focus
 - as a result of real world transitions advancing (esp. energy)
 - as a limitation of innovation-focused approaches
- Multiple related terms with slightly different meanings
 - Disruption (effect on the regime)
 - Destabilisation (process in the regime)
 - Decline (process or status?)
 - Phase-out (policy goal, process?)
 - Exnovation (policy goal)
 - Divestment



Disruption connects (disruptive) innovation with (disrupting) regime decline



Defining disruption in transitions

a high-intensity effect in the structure of the sociotechnical system(s), demonstrated as long-term change in more than one dimension or element, unlocking the stability and operation of incumbent technology and infrastructure, markets and business models, regulations and policy, actors, networks and ownership structures, and/or practices, behaviour and cultural models (Kivimaa et al. 2021)

	Gradual change	Rapid change
Large magnitude of change, covering multiple system elements or dimensions of disruption	Disruption associated with gradual transformation and subtle reconfiguration of the whole system	Disruption characterised by discontinuity, breakdown and replacement, stretch-and-transform of the whole system
Small magnitude of change, covering a single system element or dimension of disruption	Non-disruptive incremental change, sustaining existing system configurations	Disruption associated with disruptive innovation, fit-and-conform, survival and return

Limitations of disruption

Disruption as a phenomenon is unpredictable and undomesticated

Disruption, that could be positive for environmental sustainability, may have negative consequences from other perspectives and, hence, needs to be approached with caution as an active policy strategy

- E.g., electric bikes when disrupting extant transport practices may cause problems of public safety (Edge et al., 2020), while ride and car sharing may disrupt public transport practices and increase congestion (Szabo, 2020).
- Overall 'disruptiveness' or even chaos of disruption, as COVID-19

Empirical research emphasises reconfiguration and restabilization as alternatives to regime disruption

Socio-technical regime decline

Increasing attention to decline, because relying on innovation alone is not quick enough

- Linked to destabilisation (e.g. Turnheim and Geels, 2012; 2013)

Proposing three processes for regime decline (Kivimaa and Sivonen, 2023):

- Disruption to and repurposing skills & assets
 - Reduced value of existing skills, weaker flow of resources to old core technologies, while some skills can be used in new contexts
- Unlearning and deep learning
 - Letting go obsolete practices & old ineffective habits, consciously not acting in old ways, questioning taken-for-granted values and norms
- Deinstitutionalisation and shifting pressures
 - Eroding legitimacy; changes in underlying interests and power relations, and institutional structures; some key actors may be replaced

Potential for linking sustainability transformations & transitions research

- Shifting paradigms of animal production and consumption (Lonkila, Kaljonen et al. *in prep*)

Directionality and justice



Increased emphasis on directionality

Directionality for environmental & social sustainability (over economic goals)

- More than visions and expectations, more than UN SDGs – but what?
- Directionality failure of innovation policy (Weber & Rohracher 2012)
- Making decisions on the prioritisation of different values, such as economic growth, ecological sustainability, and social welfare (Schot & Steinmueller 2018)
- Emphasising also new social paradigms, such as degrowth, sufficiency & wellbeing

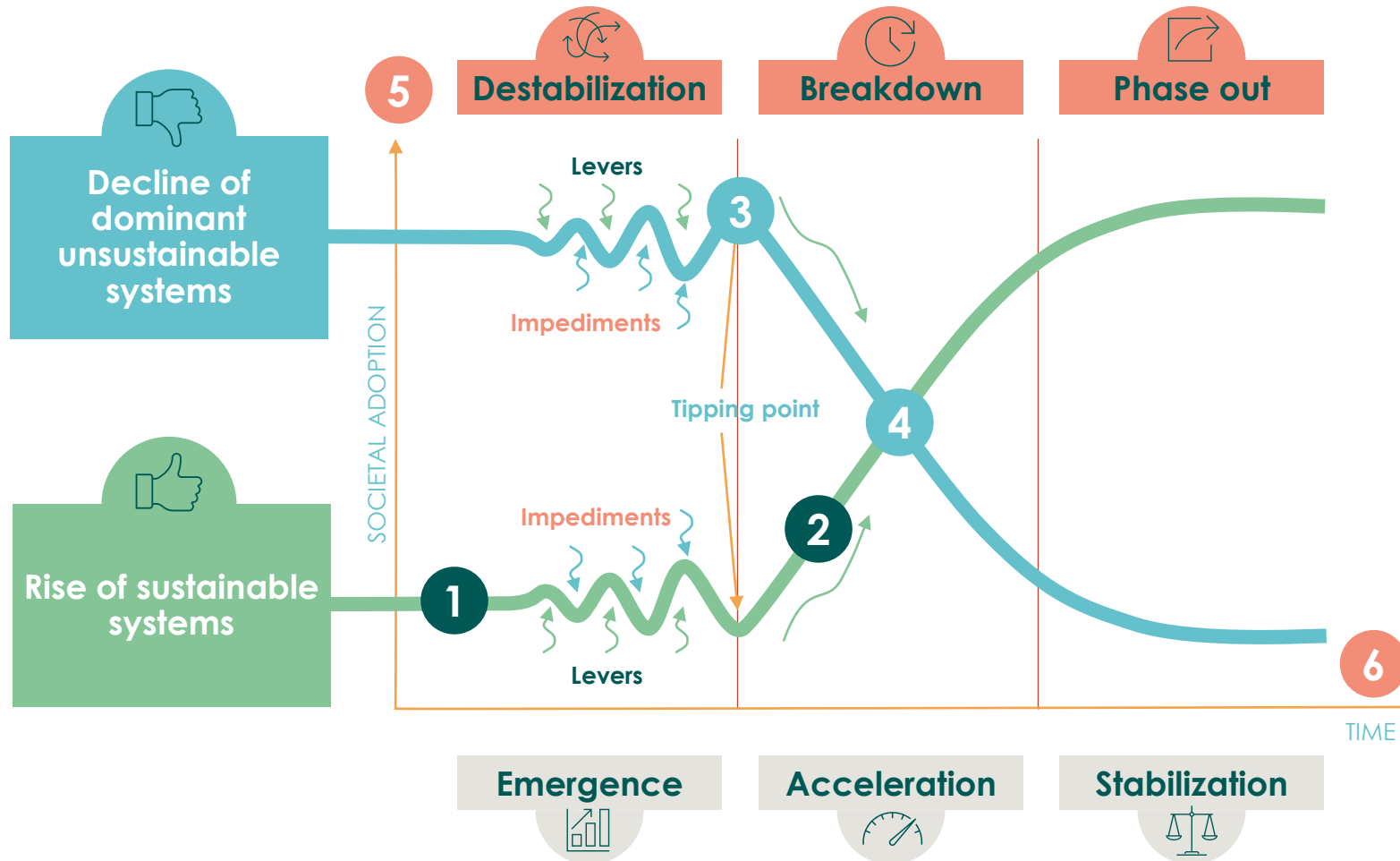


Key challenges

- Socio-technical multiplicity, i.e., divergent pathways pursued by different actor coalitions (Pel et al. 2020)
- Appraisal diversity, i.e. different understandings of sustainability, level of ambition and disruption needed (Pel et al. 2020, Lindberg et al. 2019)

New orientation into policy intervention points & their broader repercussions

(slide adapted from Minna Kaljonen)



1. Niche stimulation

2. Niche acceleration

3. Regime destabilisation

4. Repercussions of regime destabilisation

5. Coordination of multi-regime interaction

6. Landscape tilt

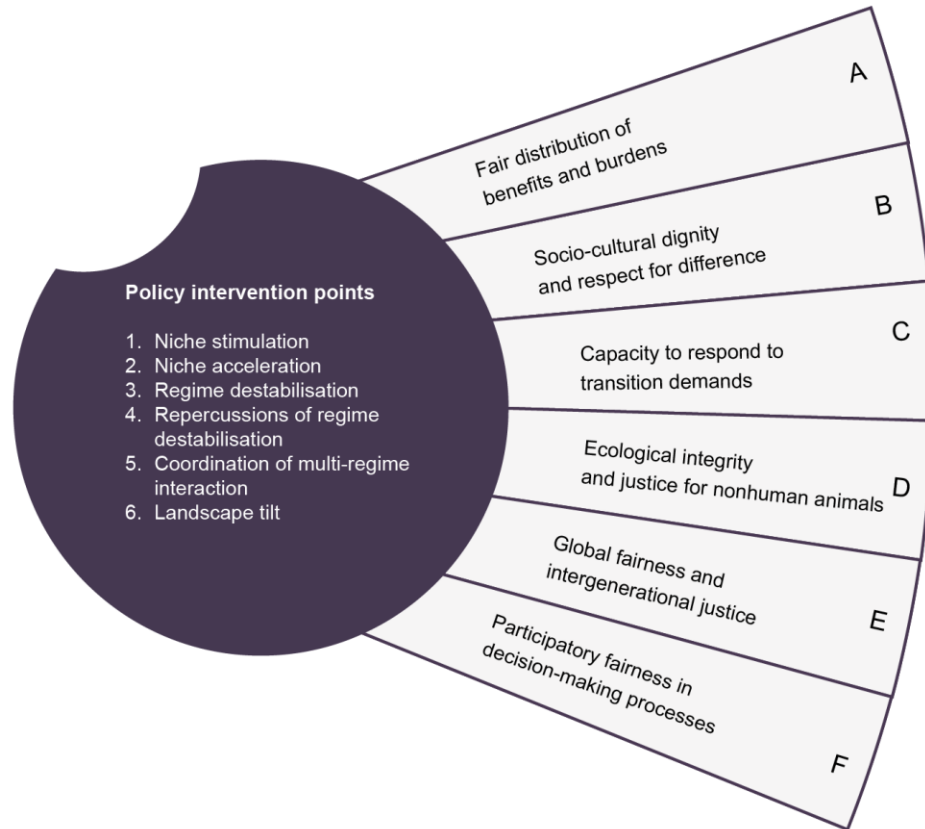
Kanger, L., Sovacool, B.K., Noorkõiv, M., 2020. Six policy intervention points for sustainability transitions: A conceptual framework and a systematic literature review. *Research Policy* 49, 104072.

Kaljonen, et al. 2024. Policy mixes for just transition: a holistic evaluation framework. *Environmental Innovation and Societal Transitions* 52, 100885.

Times of Crises, times of change. Science for acceleration of transformations to sustainable development. *Global Sustainable Development Report 2023*.

Kivimaa, P., Kern, F., 2016. Creative destruction or mere niche support? Innovation policy mixes for sustainability transitions. *Research Policy* 45, 205–217.

Rapid increase in attention to justice



Links research on environmental, social and energy justice to transitions

A substantive track in IST2024 conference

New thematic group on justice by the STRN

Key orientations:

- Justice as a normative goal
- Just transition as a political process
- Social justice and vulnerable groups
- Global justice and decolonialisation

Conclusions

Key strengths of sustainability transitions research (to be continued)

- Strong orientation into conceptual insights, frameworks, theorisation – that informs empirical research and is informed by it
- Embraces multi-disciplinary and inter-disciplinary approaches
- Requires increasingly solid reporting of research methods
- Strong policy ties (e.g. with pull for insights from European Commission, OECD, Canadian government – and emerging interest e.g. from South Africa)

Many new openings in sustainability transitions research – that allow for

- Increased diversity of perspectives and inputs from new research fields
- The messiness of transitions in the real-world and from moral-ethical viewpoints
- Questioning of the "sustainability" of transitions
- Bringing sustainability transitions closer to sustainability transformation