

SUSTAINABILITY TRANSITIONS:
CHALLENGES AND INNOVATIVE SOLUTIONS

*INTERNATIONAL SCIENTIFIC CONFERENCE ON THE
OCCASION OF THE HUNGARIAN SCIENCE FESTIVAL*

SOPRON, 23 NOVEMBER 2023



The Multifaceted Nature of Sustainability: From Sustainable (Sustained) Development to Sustainability Transitions

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**‘The question is’, said Alice,
‘whether you can make words mean so many different things.’**

LEWIS CARROLL, *THROUGH THE LOOKING-GLASS* (1871)

Introduction

- The reason for bringing forward this topic:
 - *Sustainable development* has become a global 'catch-cry'
 - Research on *sustainability transitions* has expanded rapidly since 2010
(KÖHLER ET AL. 2019; PÉREZ-SINDÍN & VAN ASSCHE 2021; HUTTUNEN ET AL. 2022)

Nr. of articles on "sustainability transition(s)" in peer reviewed journals

	1990	2000	2005	2010	2015	2020	2021	2022	2023*
<i>Title & abstract & keywords</i>	1	16	31	134	368	1,486	1,996	2,282	1,850
<i>Economics OR Management OR Business</i>	-	2	6	41 (30.6%)	58 (15.8%)	228 (15.3%)	262 (13.1%)	294 (12.9%)	245 (13.2%)

* Not full year yet.

Source: own compilation based on Web of Science (WoS) database (November 2023)

The shift in paradigm focus

<i>Characteristics</i>	Traditional paradigms of economic thought (traditional growth models)	New sustainability paradigm
<i>Key (economic) policy paradigms</i>	<ul style="list-style-type: none"> • Keynesian (post-WWII to mid 1970s) • Monetarism (mid 1970s to 1990s) • Rationalism (late 1980s to 1990s) • New-Keynesians (in different waves) 	<ul style="list-style-type: none"> • Primary approaches to sustainable development (from late 1980 / early 1990) • Sustainability transitions (from late 1990 / early 2000)
<i>Main assumption</i>	<ul style="list-style-type: none"> • Humans dominate the environment 	<ul style="list-style-type: none"> • Humans and the environment are mutually interdependent
<i>Policy goal</i>	<ul style="list-style-type: none"> • Maximization of social benefits 	<ul style="list-style-type: none"> • Viable and long-term growth
<i>Focus of planning policy</i>	<ul style="list-style-type: none"> • Comparative & competitive advantage 	<ul style="list-style-type: none"> • Competitive & collaborative advantage
<i>Production methodology</i>	<ul style="list-style-type: none"> • Resource-intensive production in large urban-industrial centres 	<ul style="list-style-type: none"> • Resource-conserving production through energy efficient technologies
<i>Energy sources</i>	<ul style="list-style-type: none"> • Fossil fuel-based energy using energy consumptive technologies 	<ul style="list-style-type: none"> • Alternative energy sources, recycling, conservation of resources

Source: own compilation based on STIMSON ET AL. (2006)

Sustainable development: primary approaches

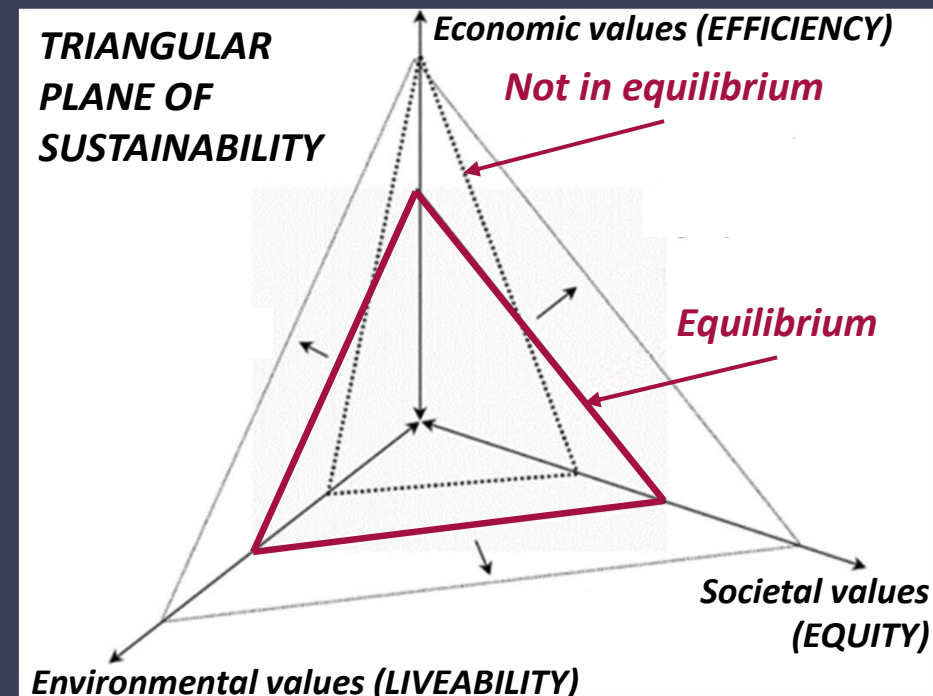
- **Ecological approach** → stability of physical and biological systems
- **Economic approach** → optimality and efficiency in the use of scarce resources
- **Socio-cultural approach** → stability of social and cultural systems



- **Tripartite model of sustainability**
No trade-off mechanisms, only
'trading' zones where economic,
social & natural capital are exchanged



- **Triple bottom line** (ELKINGTON 1997)
Sustainable development is
considered as trade-offs between
economic, social and environmental
values over the use of economic,
social & natural capital



Towards integrated approaches ...

- *The net result of past economic development practice has been that the current plane of sustainability is not in equilibrium*

- Economic values hold a higher place than societal and environmental values
- Few societies are willing to give up economic gains, prosperity, quality of life, the quest for high economic growth, especially in newly industrialised economies



- *The timely issue of sustainability has given rise to a greater emphasis on new (integrated) approaches and narratives*

- Societal and environmental values are legitimate constraints to the pursuit of economic development goals
- More extensive consultation and interaction are required among key agents
- The improvement of high-level capabilities is emphasised
- Fast response to global and local challenges is crucial
- Economies need to be resilient, proactive & agile to be adaptive to change

Adjusting to changing conditions ...

- *Ongoing / unforeseen risks and threats challenge sustained (continuous) economic growth and put pressure on existing 'regimes'*

Exposure to distant (exogenous) resources

(e.g. fossil fuels)

+

Regional conflicts, unchanging / worsening geopolitical tensions

(e.g. territorial disputes, interstate)



Economic crises, recessions (the 2021–2023 energy crisis

with much of the globe facing shortages, increased prices & slowed economic growth)



The *sustainability transitions* narrative

– *Sustainability transitions* \equiv *sustainability(-oriented) transformations* \equiv *transformation towards sustainability* (\approx *green transformations*)

- **Development base:** fundamental transformations & profound changes in core systems (institutions, practices, technologies, policies, thinking ...)



- **Means of development:** involvement of multi-scalar processes of innovation, learning, upscaling, replication / adaptation of new technologies & practices



- **Desired outcome (target):** new ways of structuring economies & production systems



A new social dynamic and inclusive form of development

The *sustainability transitions* narrative

— *Sustainability transitions have several characteristics that make them a distinct and demanding topic in sustainability debates* (KÖHLER ET AL. 2019)

- **Multidimensionality**: transitions are co-evolutionary processes, involving changes in a range of elements and dimensions
- **Multi-actor process**: transitions are enacted by a range of actors and social groups (academia, politics, industry, households ...)
- **Complicated process**: transitions involve many kinds of agency (sense-making, learning, power struggles, creating alliances ...)
- **Dialectic relationship, path-deviant change (path creation)**: transition research mobilises insights from different theories to understand the interplay between path-dependency and path creation



The *sustainability transitions* narrative

— *Sustainability transitions have several characteristics that make them a distinct and demanding topic in sustainability debates* (KÖHLER ET AL. 2019)

- **Long-term process**: transitions may take decades to unfold (radical 'green' innovations and practices take long time to develop)
- **Open-endedness & uncertainty (multiple transition pathways)**: there are multiple promising initiatives (*niche* innovations), and it is impossible to predict which will prevail
- **Contestations & disagreement**: transitions may threaten the economic positions and business models of the largest industries
- **Normative directionality**: public policy must play a central role in shaping the directionality of transitions (regulations, taxes, subsidies ...)



The *sustainability transformations* perspective

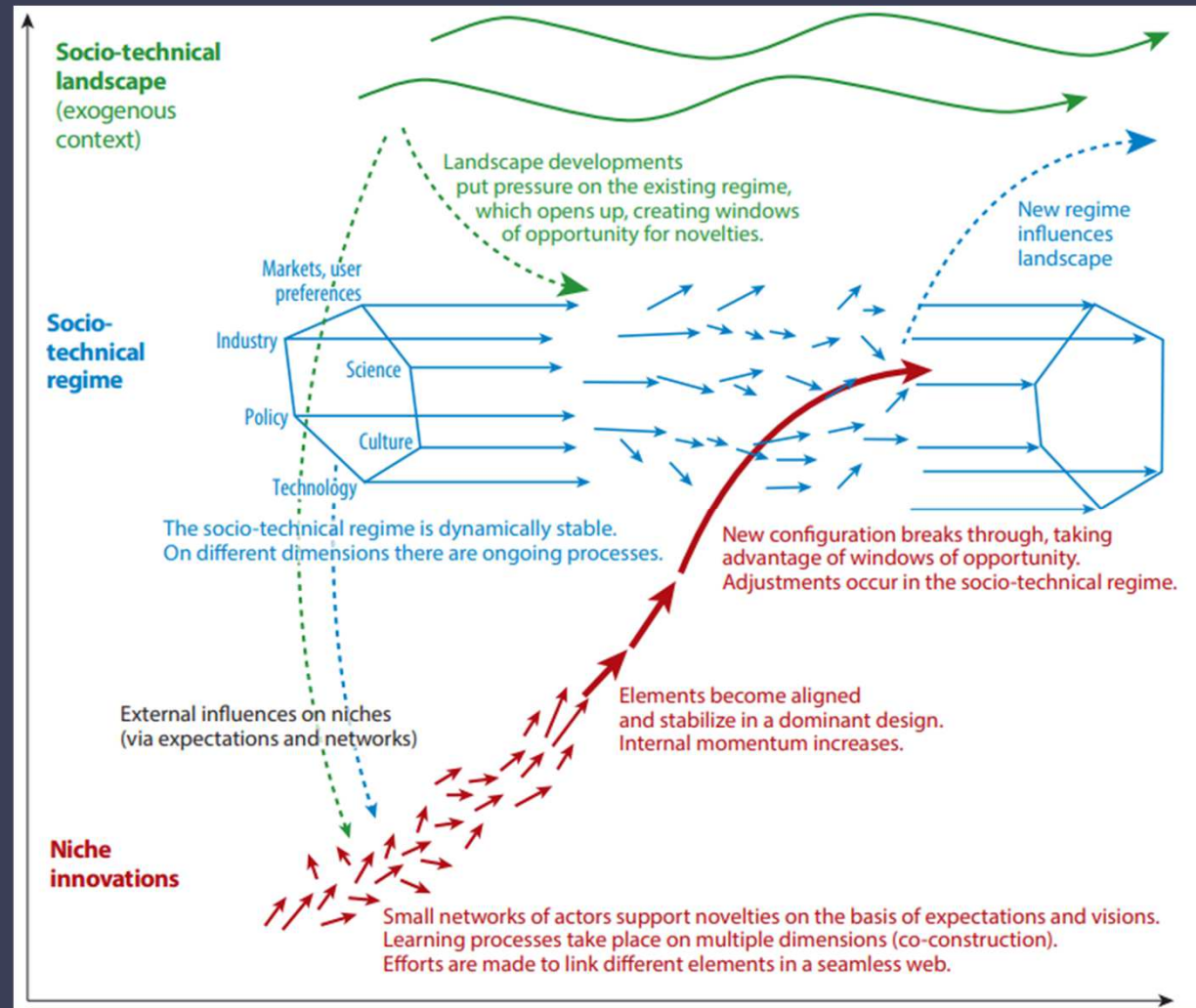
- *Transitions are results of interacting dynamics at multiple levels*

- External crises
(context, landscape)
- Internal tensions
(configuration, regime)
- Better alternatives
(niches)



- *A combined process of breaking down & building up*

Source: LOORBACH ET AL. (2017)



Concluding remarks

- ***Sustainability appears in various guises***
 - Previously, ecological (+) economic (+) socio-cultural approaches of sustainable development served as a landmark, indicating a new policy paradigm
 - At present, scholars and practitioners are paying increasing attention to sustainability transitions / sustainability(-oriented) transformation(s)

- ***Sustainability transitions are non-linear changes towards a new social and inclusive form of development***
 - Change-driven and action-(actor)-centric narrative, rather than growth-oriented and resource-centric approach
 - Profoundly transforms existing human-environmental systems, economic and production systems at global and local scales
 - The interplay between landscape developments, internal tensions and *niche* innovations is crucial for deep structural transformations



Thank you for your attention!

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