



Using transition pathways to conceptualise and measure rural transformations towards sustainability

SINATRA - Sustainable Innovation And Transition pathways in Rural Areas

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Joint Research Centre

This presentation

- Exploratory research activity at JRC
- Research focus and methodology
- Conceptualisation of rural transition pathways
- Initial takeaways on the role of innovation in rural transitions

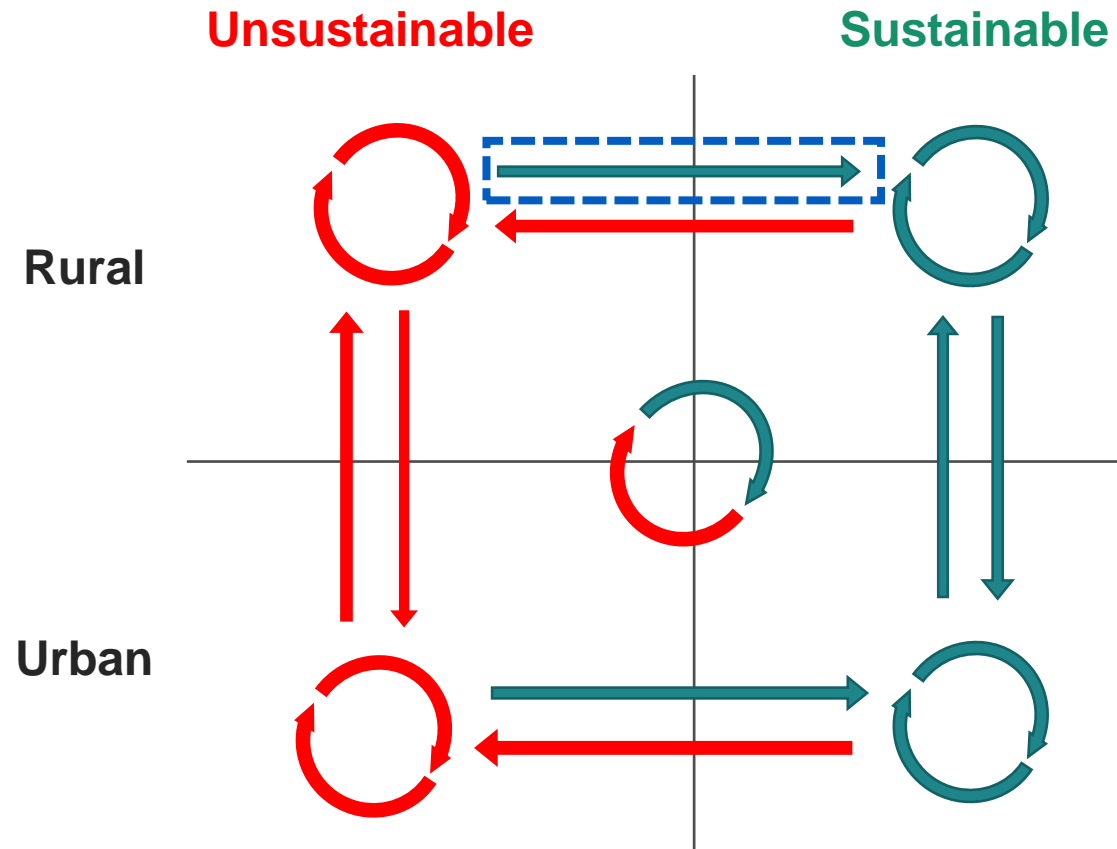
Research focus

- Focus on rural sustainability transition pathways
 - Dynamics of sustainability transitions (agency, scale, space, temporality)
 - Predominant focus on rural transitions
 - Combining diverse theoretical perspectives on rural sustainability transitions
- Role of research and innovation (R&I) in fostering rural transitions
 - Territorial R&I capacities for rural transitions
 - Effects of R&I policies on rural transitions

Geography of transition pathways

- Geography (place, space, territorial dynamics) weakly conceptualised in sustainability transitions (Truffer and Coenen, 2012; Coenen et al., 2012; Hansen and Coenen, 2015)
- Place-specific factors influencing transitions (Hansen and Coenen, 2015)
 - Regional visions and related regional policies
 - Informal localised institutions
 - Local natural resource endowments
 - Local technological and industrial specialisation
 - Place-specific consumer demand

Conceptualising rural transition pathways



Source: Authors

Research methodology

Literature review

Phase 1

Phase 2

Prototype
conceptual
framework

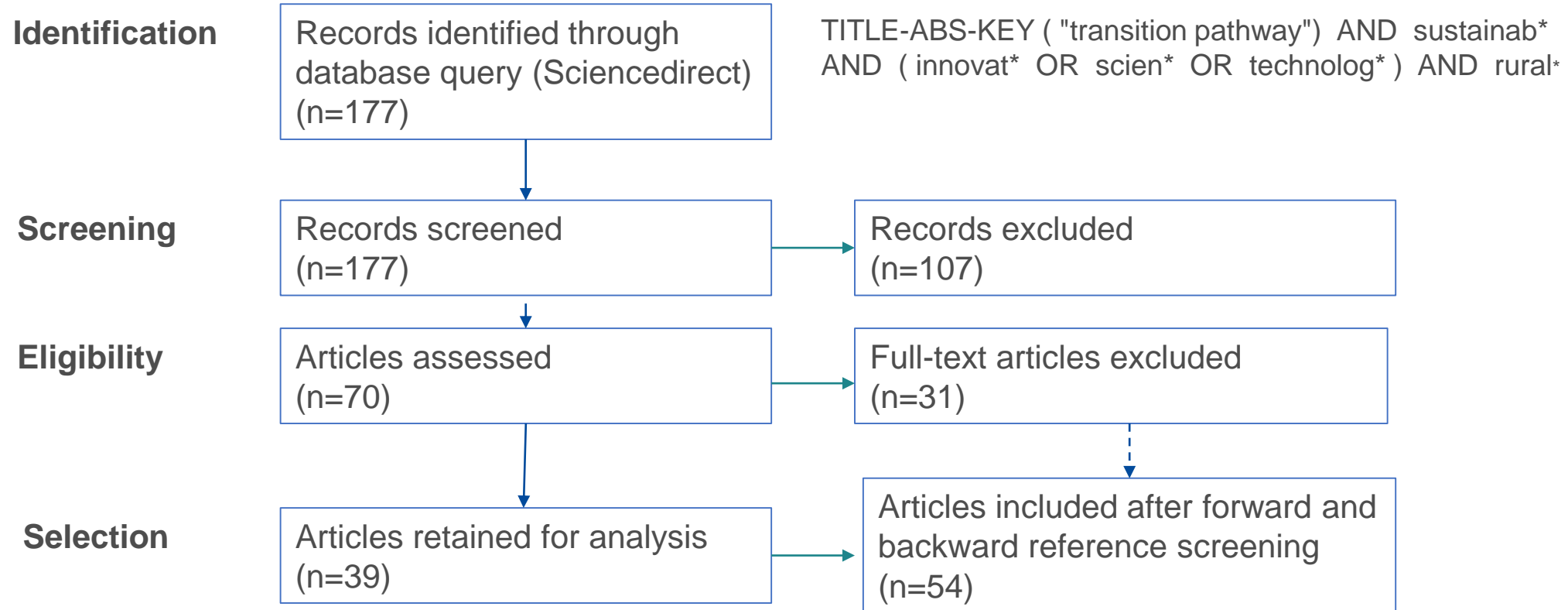
Co-creation with
selected pilot
regions

Phase 3

Phase 4

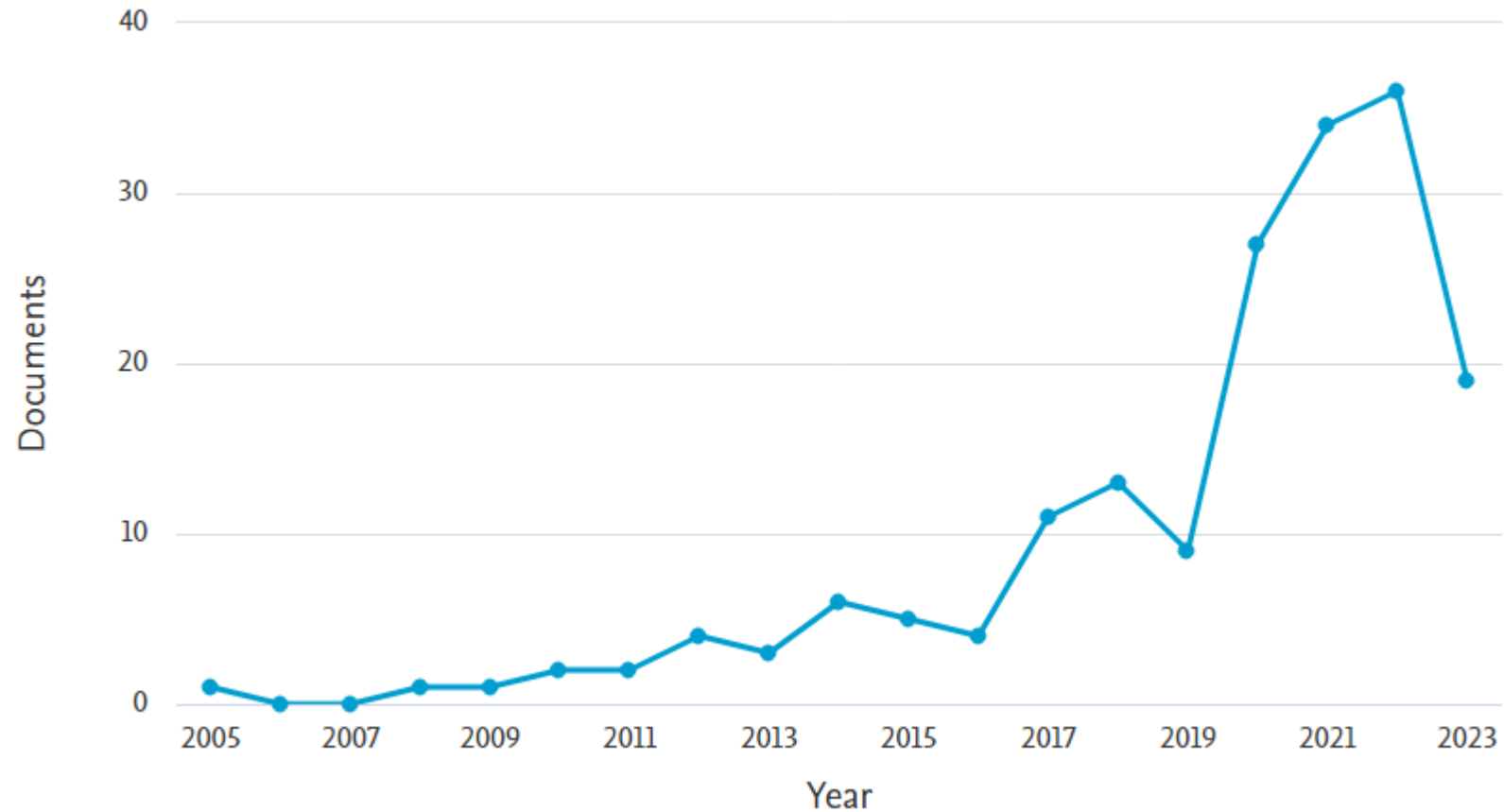
Soft launch

The review process



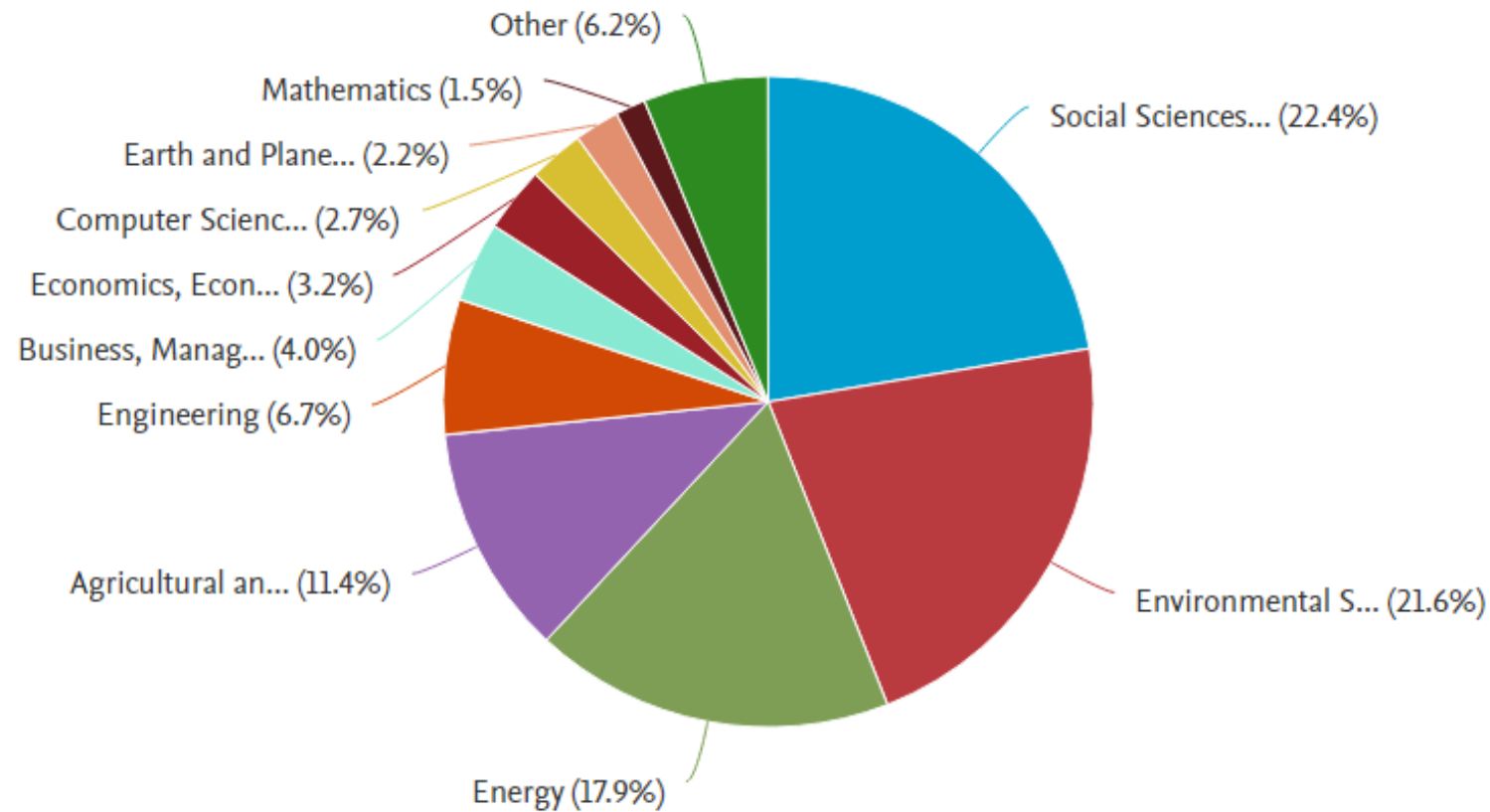
Key trends identified

Documents by year



N= 177, Source: Scopus, last retrieved May 5th, 2023

Key features identified



Main features identified

Theories

- Socio-technical transition
 - Multi Level Perspective (MLP)
 - Strategic Niche Management (SNM)
 - Transition Management (TM)
- Socio-ecological system
- (Regional) Innovation system
- Forest Transition (FT)
- Efficiency Substitution Redesign (ESR)
- Adaptive Management

Methods

- Case studies
- Integrated Assessment Models (IAM)
- Energy System Models (ESM)
- Life Cycle Assessment (LCA)
- System Dynamics
- Agent Based Models (ABM)
- Econometrics
- Social Network Analysis (SNA)

Topics

- Agriculture and food systems
- Energy
- Forestry
- Land use
- Rural development

Main features identified

Innovation

- Exogenous in model based analysis
- Endogenous factor in case studies
- Focus on organizational & social innovation
- System innovation (socio-technical systems)

Actors

- Communities
- Farmers
- Governments, policymakers
- Firms
- Networks (e.g. cooperatives, etc.)

Scales

- Macro: country/macro-regions
- Meso: regions/communities
- Micro: farm/firm
- Multi-scalar approaches

Towards a conceptual framework to analyse rural transition pathways

- Drawing on multiple theoretical traditions (notably socio-technical and social-ecological system) and using mixed methods
- Multi-scalar and multi-actor perspective on system change in rural areas focused on the role of research and innovation in fostering sustainability transitions
- Integrated territorial approach to capture place-based synergies and trade-offs of innovation in different functional systems (food, energy, mobility etc.)
- Visualising (and collectively deliberating) transition pathways in the context of desired system change to identify key intervention areas for policy and expected areas of outcomes and impacts

Early lessons on measuring transformative potential and outcomes of innovation

- Theory of change approach to capture dynamics of alternative transition pathways and identify causal assumptions that underpin them
 - System-level theory of change with multiple agency (actors, networks) and multiple transition pathways and their interrelations: mutually supporting, alternative or conflicting paths of emergence and phase-out; imagined versus enacted pathways
- Need to capture the role of different types of innovation and their combinations (e.g. social & technological innovation) taking into account local capacities, territorial context and wider trends
- Measuring process and impacts of R&I on transitions being reflective about the varying level of confidence with which one can measure outcomes of R&I on transitions and attribute them to R&I policy

Main findings from the literature review

- Growing interest in analysing rural transitions towards sustainability, especially in developing and emerging economies
- Plurality of approaches to theorising, conceptualising and analysing pathways differing across thematic areas of research with emerging integrated research designs (e.g. socio-technical transitions with adaptive management)
- Limited attention to the role of science, technology and innovation in fostering rural sustainability transitions
- Limited attention to measurement contributions of research and innovation and innovation capacities to rural sustainability transitions

Thank you



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