




Hanzehogeschool
Marian van Os
Centrum voor Ondernemerschap

Developing new vocabulary in regional studies for changing worlds

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- 
- aim of study
 - underlying theories & framework
 - complexity epistemology & research
 - understanding new complexity
in clusters
 - cluster model - vocabulary for analysis
and intervention strategies

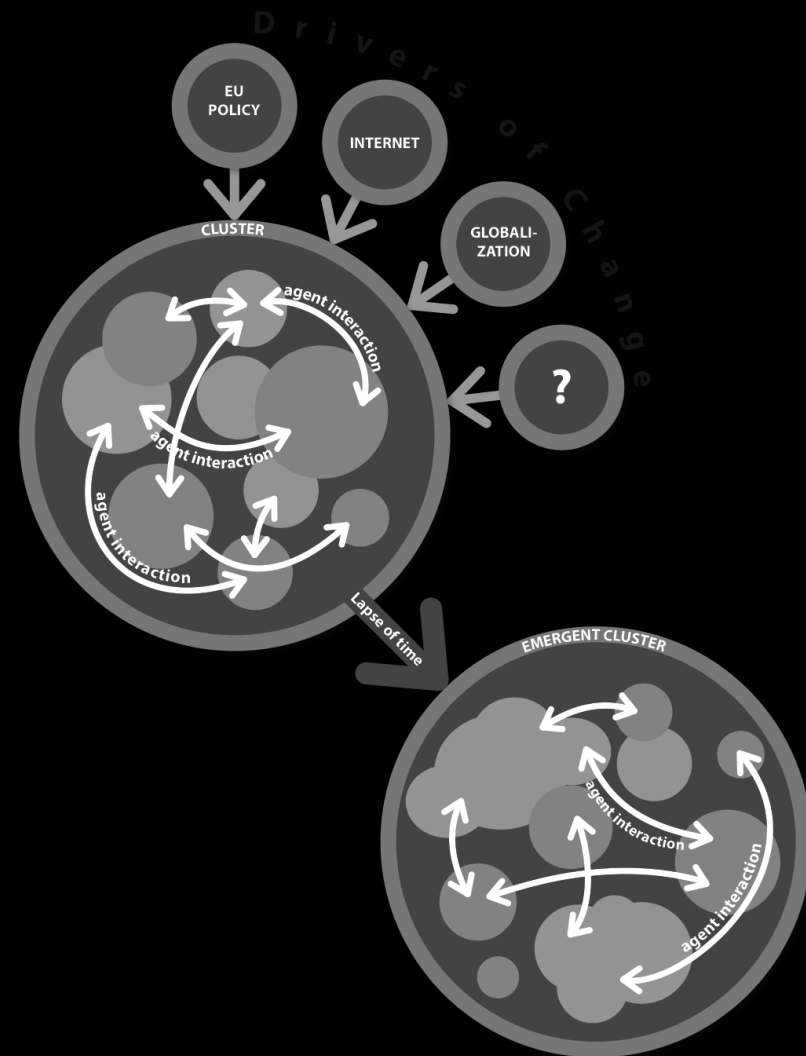
Creating new ecosystems

“We cannot address societal challenges through minor adjustments and conventional management methods.”

Committee of the Regions, 2013

Objective of study:

Contextual changes and cluster systems developments



Developing the framework: theories & concepts

COMPLEX ADAPTIVE SYSTEMS

- Organizations (Axelrood & Cohen, Olsen & Eoyang)
- Human Dynamics (Stacey, Eoyang)
- Development & aid (Ramalingam, Jones)

NON-LINEARITY
SENSITIVITY TO INITIAL CONDITIONS
SCHEMA
SENSEMAKING
AGENTS
SELECTION
CONTAINER
SIGNIFICANT DIFFERENCES
STRANGE ATTRACTOR
FITNESS LANDSCAPE
VARIETY
HISTORY
TRANSFORMING INTERACTIONS
FRACTALS/SELF-SIMILARITY
EMERGENCE
SELF-ORGANIZING

INNOVATION SYSTEMS

- National/Regional/Sectoral (Asheim, Cooke, Edquist, Geels, Gertler, Lundvall, Tödtling, Trippel)

AGENTS
NETWORKS, NODES, INTERACTIONS
INSTITUTIONAL STRUCTURES
FEEDBACK LOOPS
LOCAL LINKAGES
KNOWLEDGE GENERATION & DIFFUSION

EVOLUTIONARY ECONOMICS

- Regional studies (Andersen, Boschma, Frenken, Lambooy, Martin, Sunley, Uyarra)

RELATED VARIETY
PATH DEPENDENCY
SELECTION
BOUNDED RATIONALITY
INSTITUTIONAL AGENTS
EMERGENCE

CLUSTER DYNAMICS

PATH DEPENDENCY
CONTAINER
STAKEHOLDERS
ATTRACTOR
FITNESS TO LANDSCAPE
SIGNIFICANT DIFFERENCES
TRANSFORMING INTERACTIONS
EMERGING PATTERNS
SELF-ORGANIZING

CONTEXT – EXISTING LANDSCAPE

DRIVERS OF CHANGE
COMPLEX PROBLEMS

- ontology of connected entities, changing links, nodes that change internally, capabilities develop and change over time
- 'open systems' interacting with environment → 'interpretation systems'
- 'actor's' interpretation of system → as part of system
- 'modeller' and 'model' are part of system → system evolves through interactions

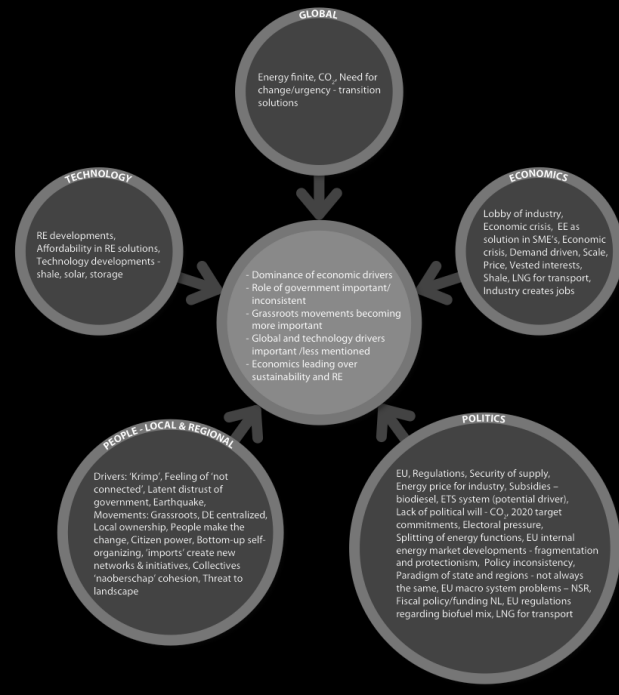


Case study: Energy Valley
Supplementary:
Karlstad – Paper Province
Silicon Valley

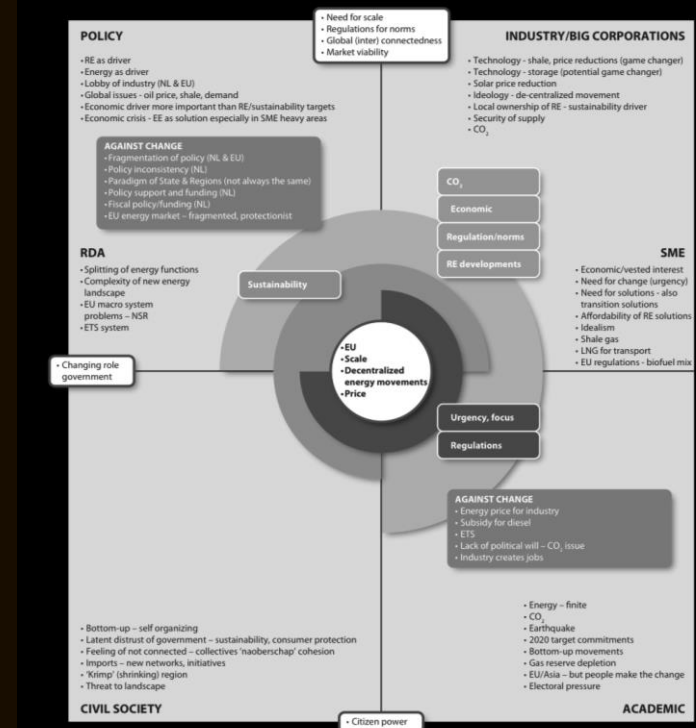
complexity of challenges faced


- different perspectives on challenges
- different ideas on solutions

Drivers of change and new complexity



quadruple-helix
different perceptions
different priorities
different solutions



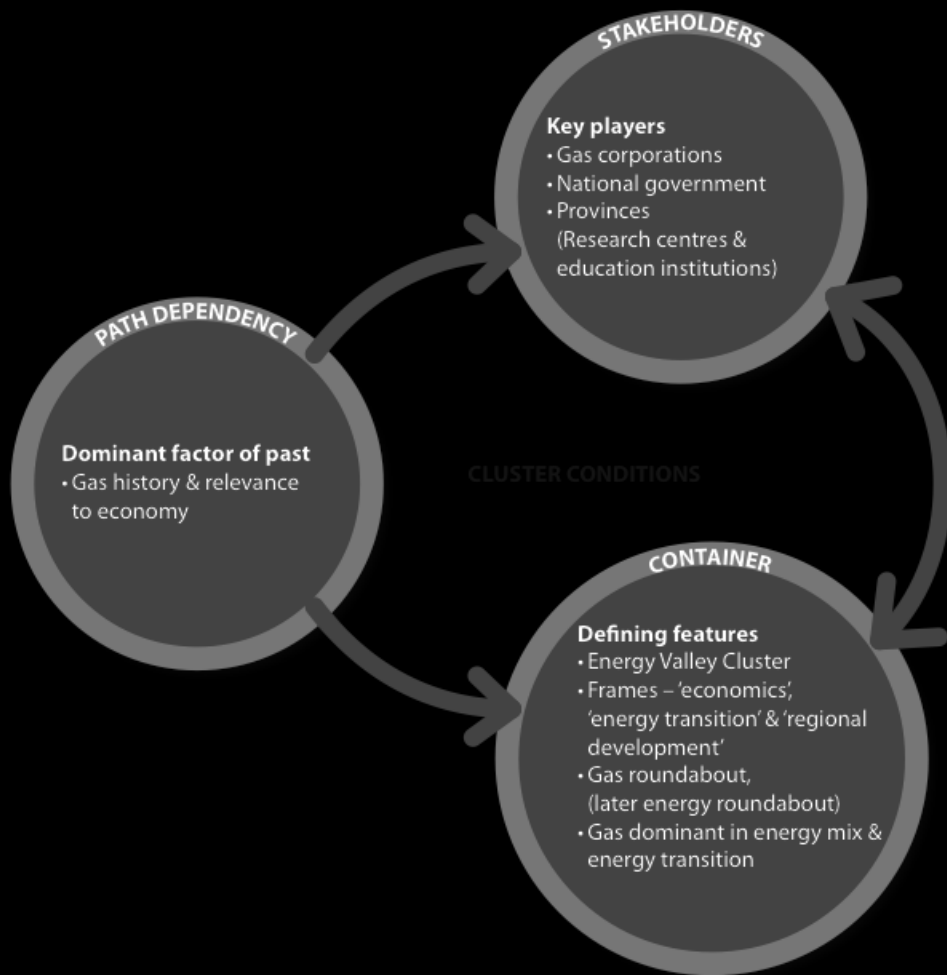


→ epistemology of interconnected systems changes interacting with its environment

- different dynamics in different parts of the systems
- held together by system constraints
- initial conditions and interactions shaping systems changes

Cluster conditions

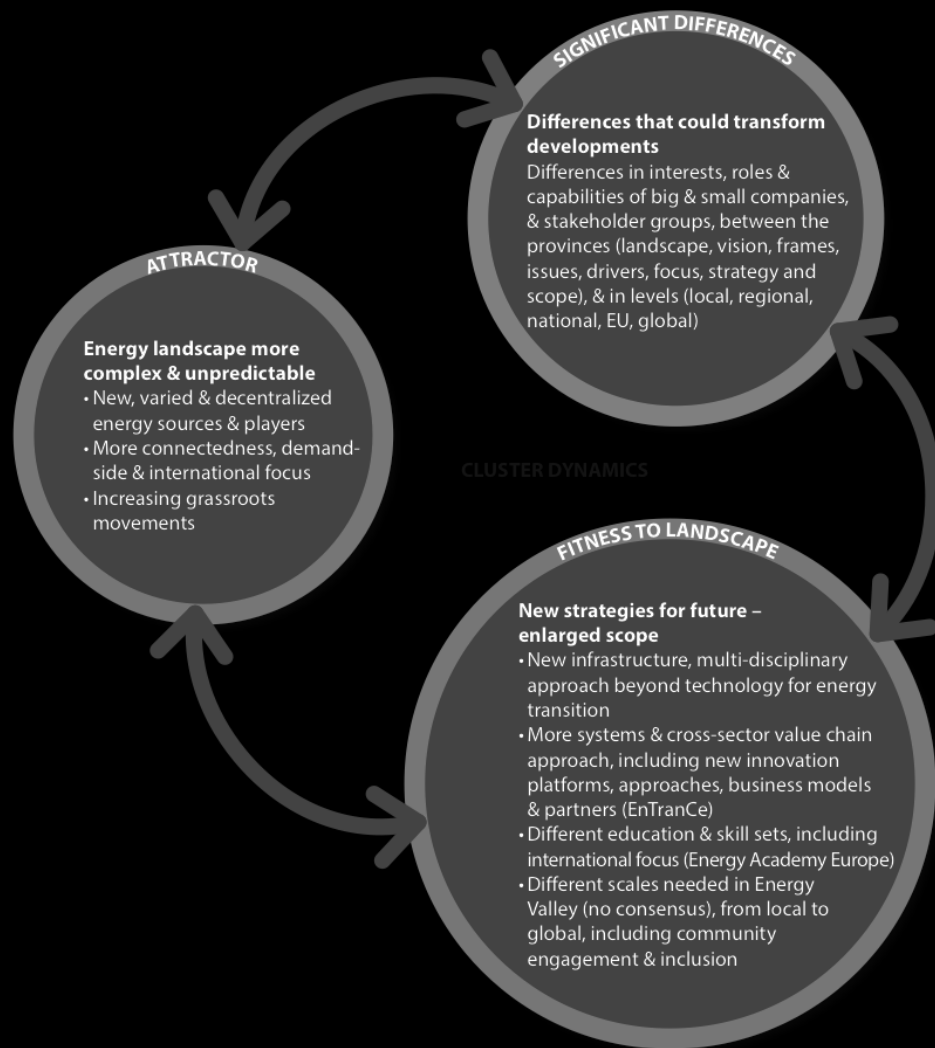
path dependency
stakeholders
container



Cluster dynamics

attractor
fitness to landscape
significant differences

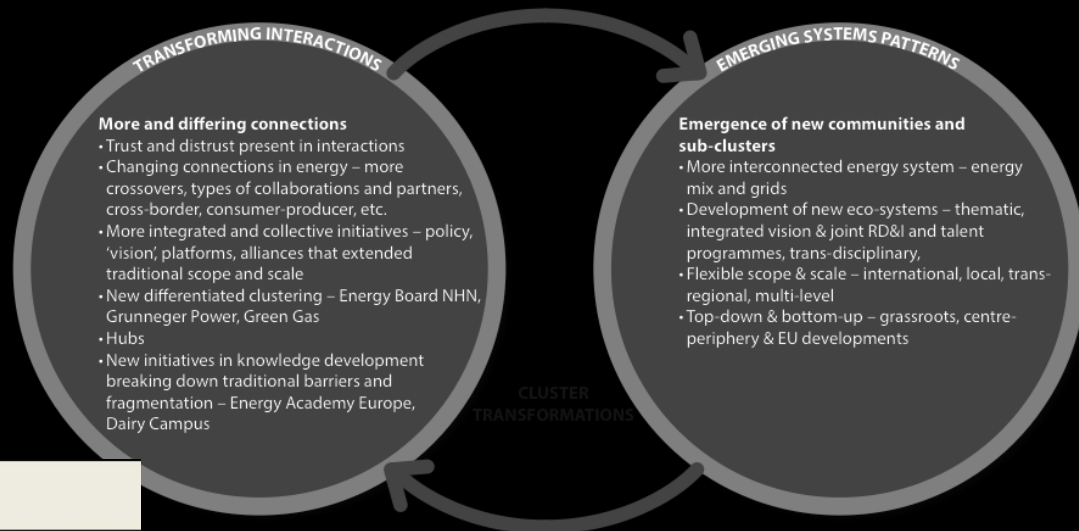
| | |
|-------------------------|---|
| Attractor | <p>Shared attractors in all 3 levels - examples:</p> <ul style="list-style-type: none"> - Sustainable economic growth - Energy efficiency, decentralized energy and demand side focus <p>Differences</p> <ul style="list-style-type: none"> - NL and EV – focus on future of gas in energy transition and innovations vs. EU with a broad range of energy sources - EU pull to be independent from external energy sources vs. NL/EV connecting to EU and global energy markets |
| Fitness to Landscape | <p>Shared at all levels</p> <ul style="list-style-type: none"> - Longer term policy and investment perspectives needed - Compliance structures, and dialogues to seek solutions for complex problems and differences - Collective energy vision and commitments, 'EU thinking' where needed - Need for multi-disciplinary competences, cross-sectoral value chain innovations, new business models, new governance models, trans-regional and international collaborations and new infrastructure |
| Significant Differences | <p>Shared</p> <p>Collaborative and consensus practice in dealing with conflicts of interests</p> <p>Differences</p> <ul style="list-style-type: none"> - Most important difference in EU is that of the MS and regions with their individual politics and energy mix - Difference in innovation capacity in different energy arenas vs. NL more focused on biomass, bio-gas and on gas innovations and off-shore developments - Differences in own specialization, interests, etc. as seen in the lobby culture and organization vs. NL collaborations of large and small corporations, industry and universities, fossil and renewables, etc. |



Cluster transformations

transforming interactions

emergent systems patterns

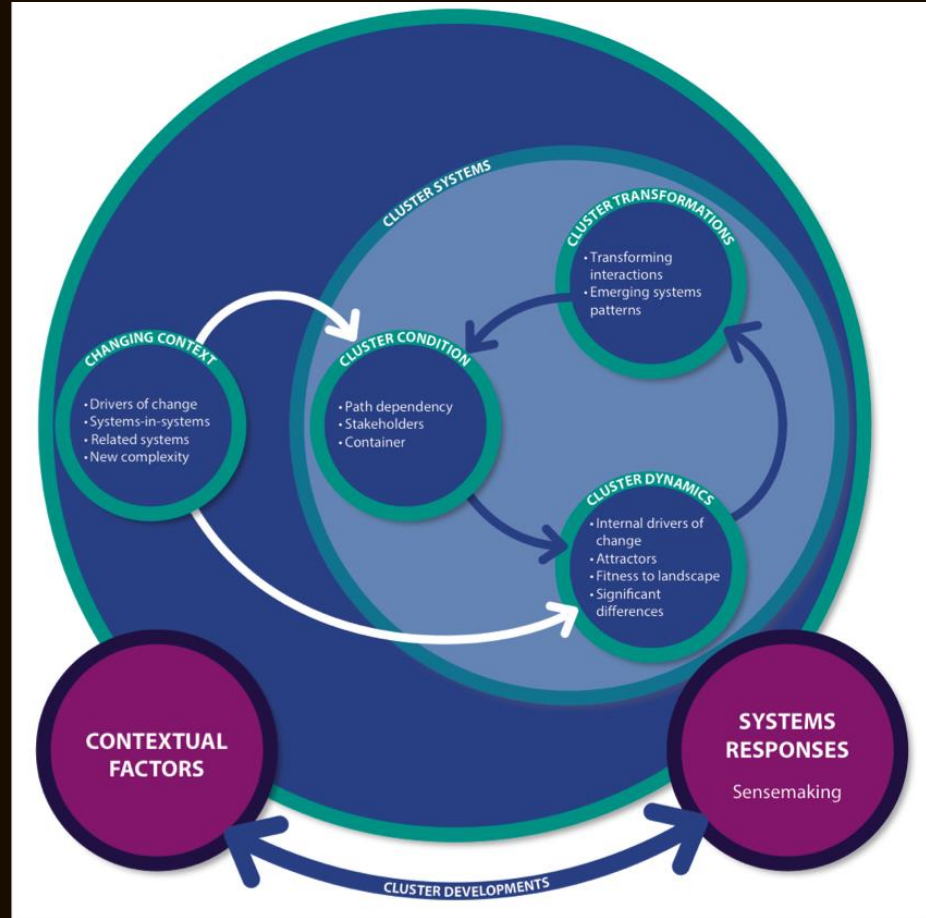


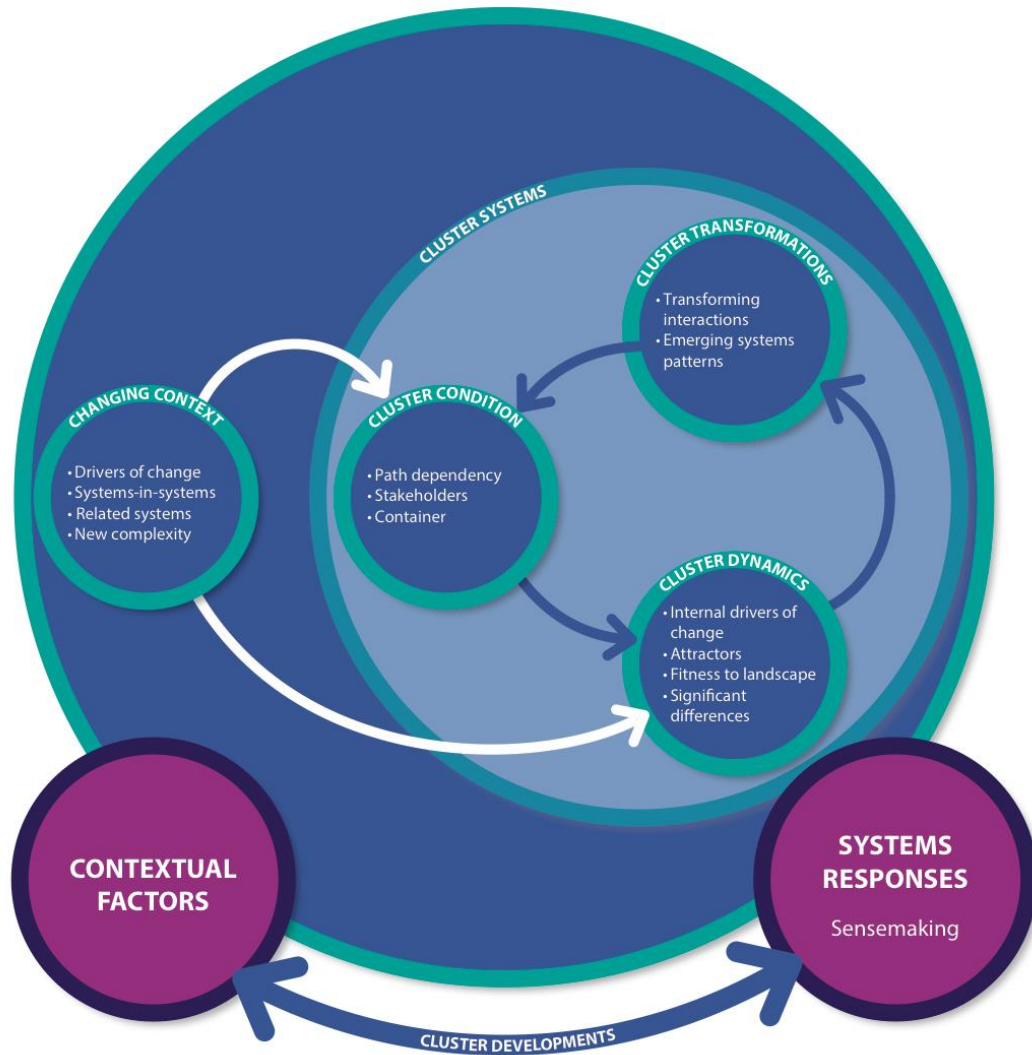
| Existing landscape | New landscape |
|--|--|
| ‘Simple & complicated’ – technology, economics, policy | The ‘many’ & the ‘complexity’ – distributed agency |
| One or two frames of reference in policy/strategy | Multiple frames & sensemaking – new ‘voices’ and dialogue |
| Slow change – ‘homogeneous’ future scenarios | Uncertainty and change – unpredictable future scenarios |
| Latent trust in authorities and specialists | Trust is conditional – varying (tolerance, engagement, alienation) |
| Knowledge development - exclusive & internally organized (traditional) | ‘Learning’ & ‘being open’ as norm (inclusive, experimentation) |
| Collaboration – fragmented & segmentations | Different collaborations needed (sharing & cross-border) |
| Decision-making – centralized | ‘Multi’ governance – new players & new norms |
| Problems & solutions – linear thinking (modelling & scenarios) | System & context – ecosystems thinking |

Cluster Emergence Model

→ epistemology of interconnected systems changes interacting with its environment

- different dynamics in different parts of the systems
- held together by system constraints
- interactions rather than inherent properties shaping systems changes
- sensemaking is an integral part of systems change





Cluster emergence model:
a whole systems approach to describe qualitative systems shifts & design collective interventions

What is 'new' about this approach?

- combines concepts from evolutionary and complexity sciences for regional studies
- offers an extensive whole-systems approach to study regional developments in their changing context
- brings sensemaking processes to the foreground
- offers a systemic analysis tool that facilitates new thinking and dialogues
- offers new interventions based on complex adaptive systems approach





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Research groups: International Business, Sustainable Cooperative Entrepreneurship,
Energy Transition

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