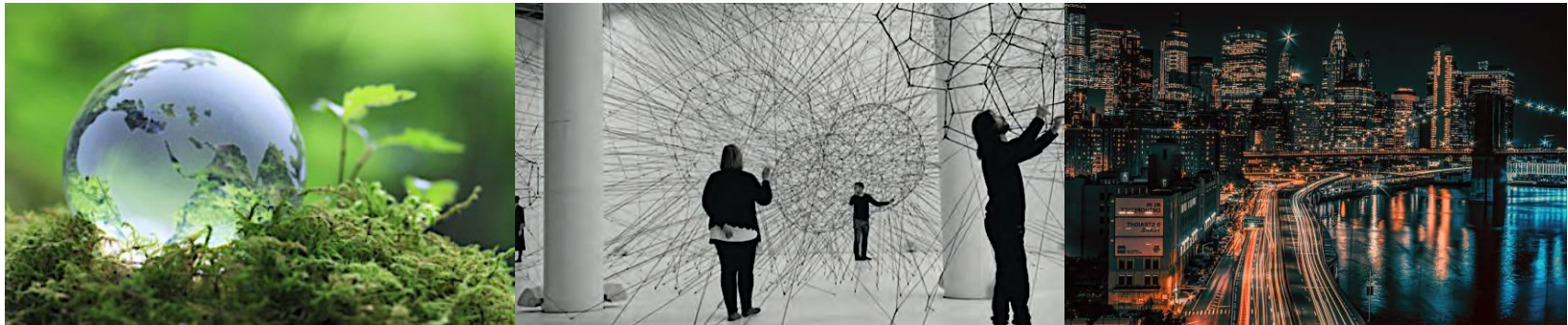


# Towards a challenge-oriented approach for regions in transition

2023 RSA Annual Conference, Ljubljana | JRC SMARTER Conference Stream

June 15, 2023



**Michaela Trippi**

University of Vienna | Department of Geography and Regional Research

michaela.trippl@univie.ac.at |  @Michaela\_Trippl

# Setting the scene

## Regional innovation and development in the era of persistent societal challenges

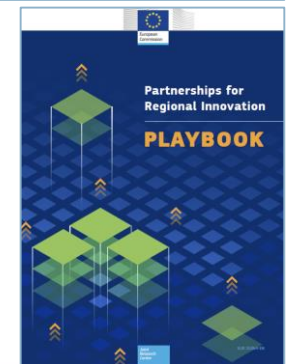
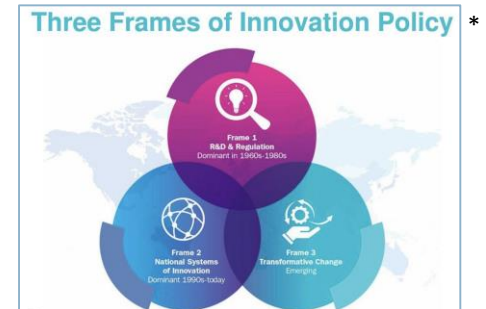
- Climate urgency, loss of biodiversity, AI, robotics, digital platforms, rising territorial and social inequalities ...
- Geopolitical tensions and strategic competition between political and economic systems
- **Risks and pressing challenges** are putting **resilience capacities** of regions to the test (*Giovannini et al. 2020, Martin & Sunley 2020*), *Trippl et al. 2023*)



# Setting the scene

## Searching for future-proof place-based innovation and industrial policies

- **Bringing environmental and social concerns to the forefront of policy agendas**
  - **Place-based mission-oriented** (*Henderson et al. 2023*), **problem-oriented** (*Flanagan et al. 2022*), **challenge-oriented approaches** (*Tödting et al. 2021*)
  - **Partnerships for Regional Innovation (PRI)**  
emerging place-based innovation policy approach in the EU: adapting Smart Specialisation; framework for promoting transformative innovation with a focus on sustainability (*Pontikakis et al. 2022*)
- **What potentials do novel policy approaches hold for different types of regions?**



74 TERRITORIES FOR THE NEXT GENERATION OF SMART SPECIALISATION

\* [https://unctad.org/system/files/non-official-document/enc162017p11\\_JohanSchot\\_en.pdf](https://unctad.org/system/files/non-official-document/enc162017p11_JohanSchot_en.pdf)

# Regions in industrial transition (RITs)

## ■ Rethinking geographies of “disadvantagedness”

(Diemer et al. 2022, MacKinnon et al. 2022,  
Pike et al. 2023)

## ■ RITs: Specialisation trap

- Vulnerabilities and “disadvantagedness” resulting from “wrong” specialisation
- **Overspecialisation in industries in decline:** strong legacy in traditional (carbon-intensive) sectors backed by “thick” RIS structures
- At risk of becoming left behind places

- But: varying degrees of elaboration („thickness“) and coherence (alignment) (Isaksen & Trippl 2016, Baumgartinger-Seiringer et al. 2022):  
**different potentials and constraints for transformation**

“Regions in industrial transition are often characterised by:

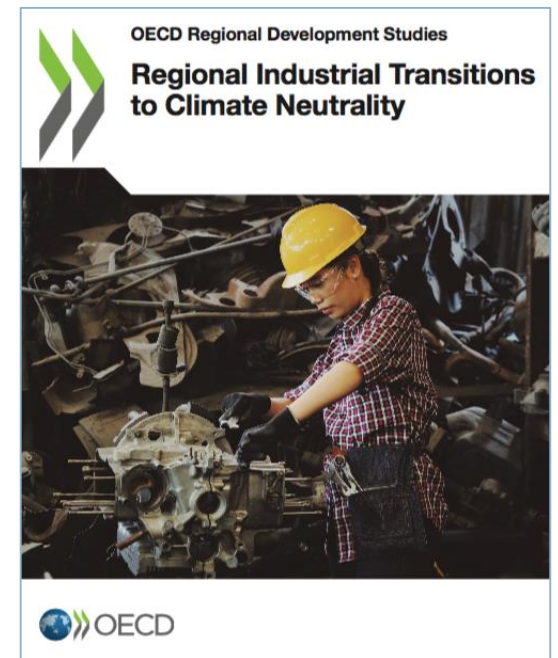
- a long heritage of traditional (carbon-intensive) manufacturing
- a strong skills base in traditional occupations (but a lack of future-oriented skills)
- highly developed knowledge-generation and diffusion systems in established industries
- an existing high-quality knowledge infrastructure (e.g. universities, science parks) in a range of technology fields
- productivity and investment opportunities largely derived from traditional industry fields”

(OECD 2019, p. 16)

# Regions in industrial transition

## Regions most vulnerable to industrial transitions to climate neutrality (OECD 2023)

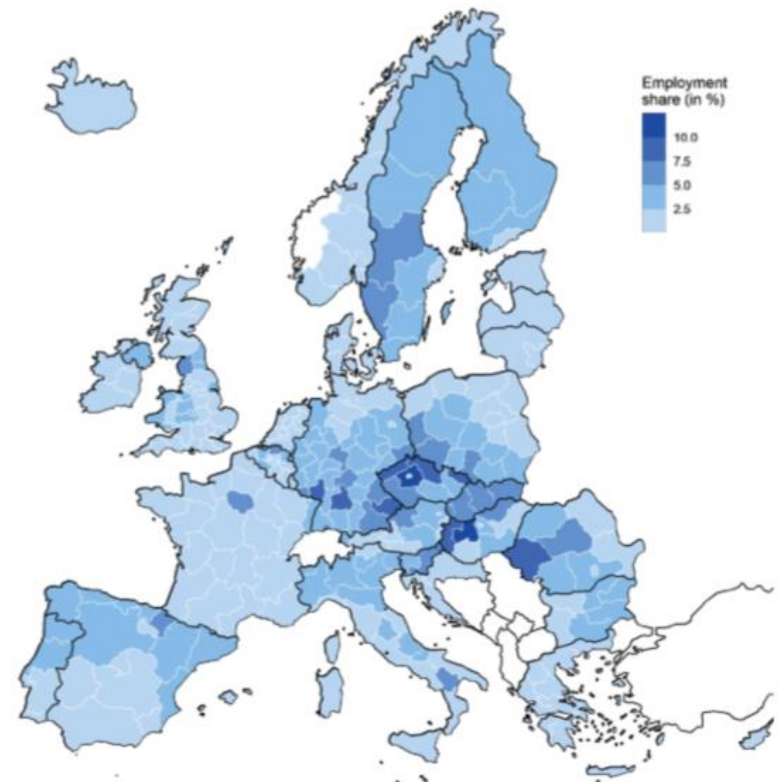
- Places with **high emissions** per capita and **high employment shares** in key manufacturing sectors:
  - oil refining, chemicals, steel, aluminium, cement, paper and pulp, vehicles:
  - long been sheltered from climate mitigation (*Nilsson et al. 2021*) but ...
  - ... now facing profound transformation challenges (*OECD 2023*)



## Vulnerable regions:

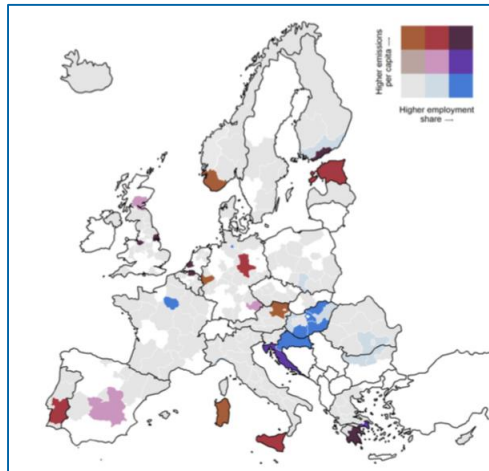
- **Stark differences in socio-economic conditions** (OECD 2023):
  - GDP per capita
  - Unemployment
  - Level of education
  - Population and migration dynamics
  - Wage levels
  - ...
  
- **Uneven capacity to mitigate the challenges and seize the opportunities of the transition**

**Regional employment shares in key manufacturing sectors**  
As a share of total employment, NUTS 2 regions, 2018  
(OECD 2023, p. 35)

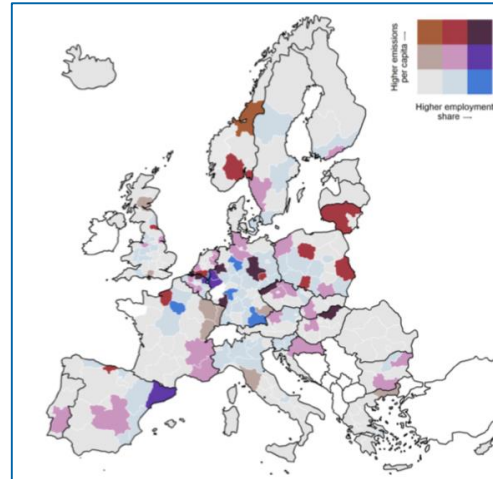


# Regional employment and emissions (OECD 2023)

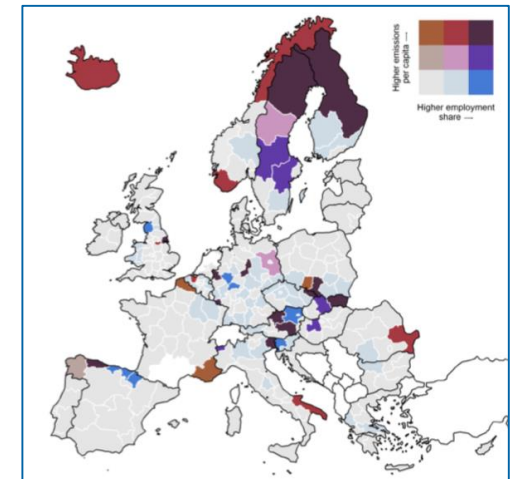
**Oil refining**



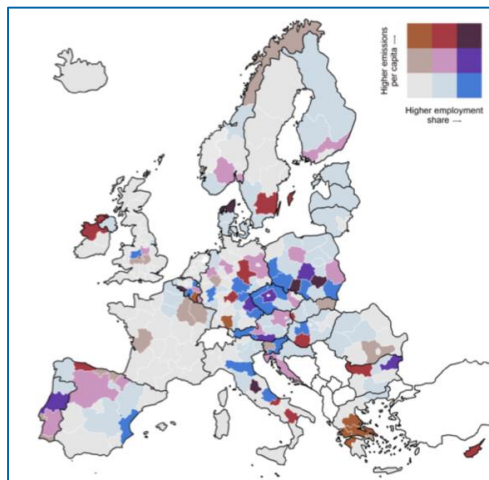
**Chemical production**



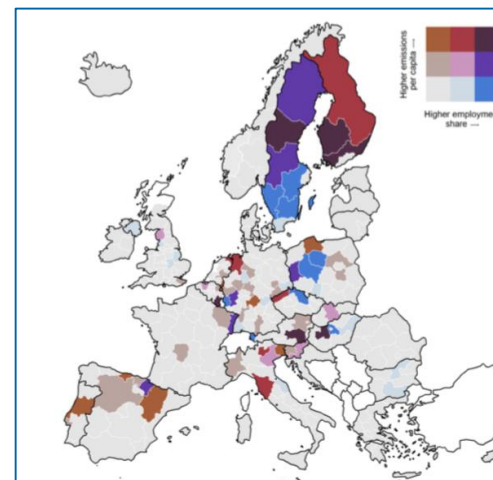
**Manufacture of basic metals**



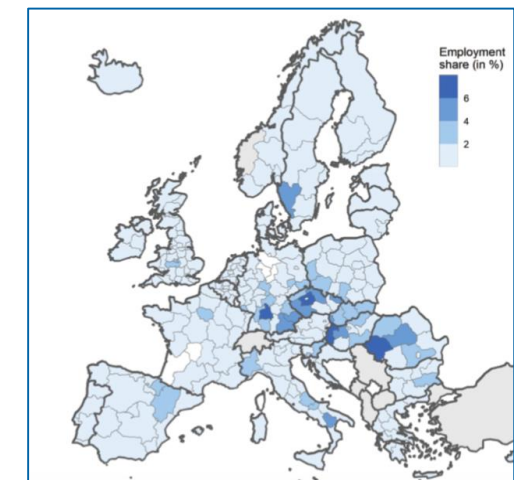
**Manufacture of non-metallic mineral products**



**Manufacture of paper and paper products**



**Manufacture of motor vehicles, trailers and semi-trailers**



# What is at stake?

**Challenges posed by unsuccessful transitions: economic, social and political problems** (*Heyen 2016, Rodriguez-Pose 2018, McCann 2019, Dijkstra et al. 2020*)

- Loss of economic basis
- Unemployment, loss of income
- Outmigration, tax loss
- Difficulties to maintain infrastructure (education & health system, leisure, transportation ...) **and:**
- **Rising populism:** regions are surfing the wave of populism: revolt through the ballot box (**geographies of discontent**)

## As end looms for coal, German mining region shifts right

By Joseph Nasr

7 MIN READ

SPREMBERG, Germany (Reuters) - A German far-right party is using a simple message to attract voters in a mining region threatened by government plans to phase out coal: jobs are more important than the environment.

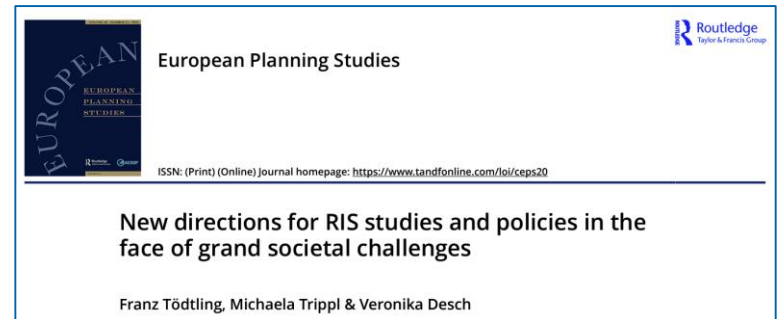




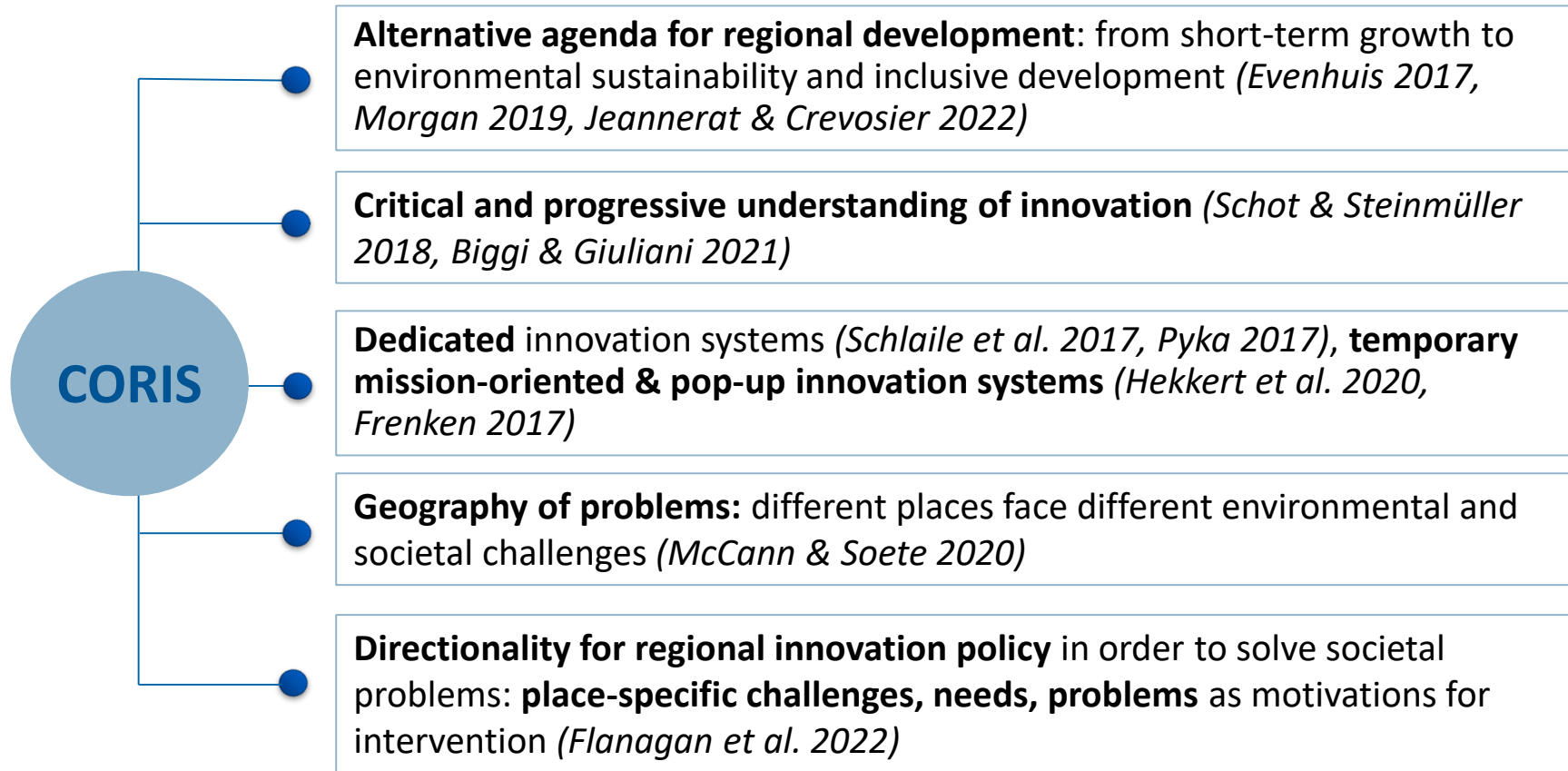
# Challenge-oriented regional innovation systems and policies for RITs

## Modifying the regional innovation systems (RIS) approach: towards challenge-oriented RIS (CORIS)

- **RIS:** framework for understanding the **complex systemic and place-based nature of innovation;** **source of inspiration** for regional policy makers: design and implementation of **place-based innovation policies**
- **CORIS:** bringing the RIS concept and RIS policies in closer touch with an alternative understanding of innovation; **reorienting the approach towards a new purpose: territorial challenges** (Tödtling et al. 2022; Isaksen et al. 2022; Trippel et al. 2023)



## Towards challenge-oriented regional innovation systems and policies



**Conventional RIS**

**Challenge-oriented RIS**

<b>Purpose of innovation</b>	Regional economic growth and competitiveness	Place-specific problems and needs; territorial challenges
<b>Types of innovation and their effects</b>	Innovation in the corporate sector: technological & organisational, marketing innovation  Focus on positive effects	Innovation in the corporate sector in other realms (public sector, civil society, regional and urban communities): technological, user, social, institutional innovations  Focus on positive and negative effects of innovation
<b>Actor constellations</b>	Firms, universities, government	Conventional RIS actors 'new' innovation agents (civil society, public sector actors, users, etc.)
<b>Production and application side</b>	Supply side (generation/production of innovation in the region)	Production and demand / application side (experimentation, diffusion, upscaling of innovation in the region (and beyond))



**2.2 Challenge-oriented regional innovation systems and strategies for sustainability transitions**

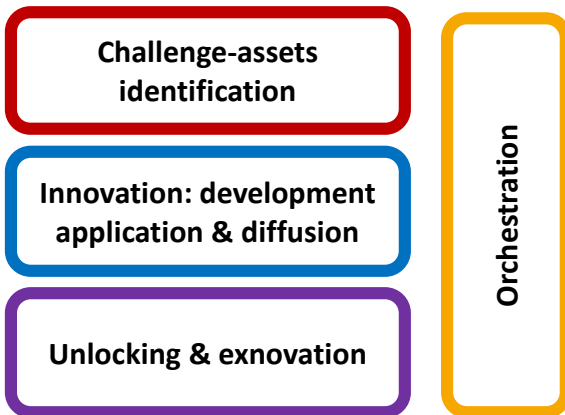
Michaela Trippl<sup>105</sup>

## CORIS initiatives for RITs

**Comprehensive** initiatives in which **heterogeneous stakeholders** coordinate their activities to tackle specific territorial problems or needs

### Core processes

*(Hölscher et al. 2019 , Trippl 2023)*



### Multi-actor approach

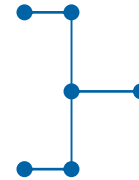
“In CoRISs, **established actors** (policymakers, universities, etc.) may take on **new roles**, and ‘**new actors**’ may enter the stage, initiating and supporting challenge-oriented innovation activities. Their **motivations** for getting involved can be very different (Hekkert et al. 2020), ranging from expected economic gains (firms) to willingness to solve their own needs (users), civic engagement and a normative stance regarding the challenge (NGOs). They may also reflect **organizational roles** like universities that educate and train students, intermediaries that facilitate networking, or banks that provide financial assets”

*(Tödting et al. 2022, pp. 2145, emphasis added)*

# CORIS initiatives for RITs: core processes

## Challenge-assets identification

- Identification and framing of place-based problems, vulnerabilities (**problem endowment**) and opportunities (based on a broad range of assets: **asset endowment**)
- Selection of priorities (challenges/problems) and stakeholders (with different power to shape discourses on challenges/assets; different strategic capabilities)



- Linkages to broad exogenous problem definitions (challenges and goals, e.g. SDGs) set at higher spatial scales?
- Contribution to national/supranational goals? (*Henderson et al. 2023*)

## Innovation: development, application, diffusion

- **Search for solutions:** experimenting with, developing, testing, applying, upscaling novel solutions (combinations of technological & non-technological innovations) in the region (and beyond)

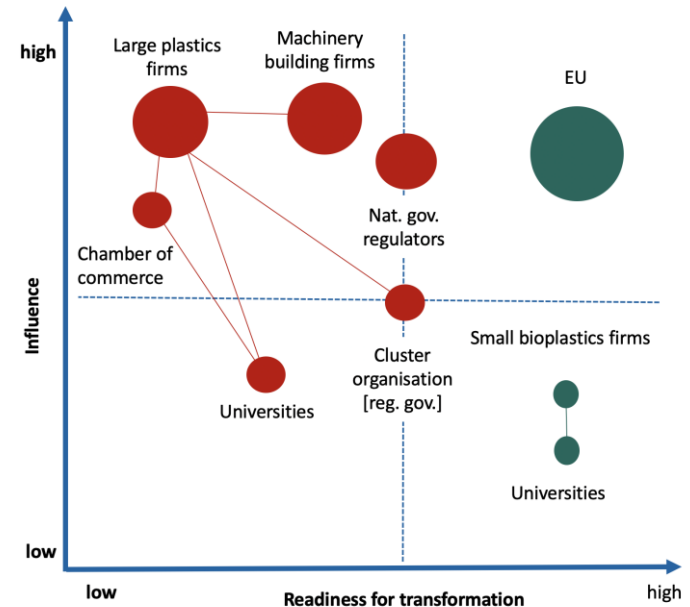


**Scalability** of place-based solutions: regionally bound solutions versus spatially transferable solutions (*Coenen et al. 2015*)

# CORIS initiatives for RITs: core processes

## Unlocking and exnovation

- Revelation and unlocking of unsustainable path dependencies in the RIS
- Deliberate destabilisation and phasing out of unsustainable activities, practices, products, technologies, networks, institutional structures
- Undermining vested interests and ‘picking the losers’, dealing with resistance to change and maintenance agency (*Kivimaa & Kern 2016, Rosenbloom & Markard 2020, Braams et al. 2021*)



**Bioplastics in Lower Austria**  
*(Steinböck & Tripl 2023)*

# CORIS initiatives for RITs: core processes

## Orchestration

**Challenge-assets  
identification**

**Innovation: development  
application & diffusion**

**Unlocking & exnovation**

- Coordination of multiple actors, interests, motivations
    - mediation
    - formulation of shared visions
    - setting collective priorities
    - minimisation of trade offs, conflicts, dealing with resistance to change
  - Navigating complex multi-level governance systems, facilitating asset flows, translocal networks
  - Coordinating with and mobilising support from national and EU policies
-

# CORIS: implications for RITs

## RIS reconfiguration strategies for RITs

(Isaksen et al. 2022, Tripl 2023, Tripl et al. 2023)

repurpose | remove | create

### (Narrow) industrial transition agendas

- Green path renewal through adoption / integration of low-carbon technologies (hydrogen, CCS ...) in traditional industries
- Beneficial for securing growth and job opportunities (for parts of the workforce)

### Comprehensive agendas

- Development of new (green) paths through creation, diversification, importation (Tripl et al. 2020)
- Food, health, mobility, energy, housing
- Development of innovative solutions to place-specific wider social, ecological and economic challenges, delivering public benefits (and economic opportunities)
- More capacious and less technology-focused approaches with more potential for inclusion of unheralded actors (Henderson et al. 2023)

### Reorientation

#### Augmenting the challenge-orientation of existing RIS elements and functions

- Mobilisation and redirection of actors, networks, institutional structures of the historically grown RIS
- Repurposing the asset base inherited from the past: reuse (recombination of) historically grown assets

### Transformation

#### Creating new challenge-oriented RIS elements and functions

- Empowerment of “new actors”, disruption of old and construction of new networks, institutions
- Transforming the asset base: Creation / importation of new assets; strategic removal of assets

### Regional choices

reorientation



transformation

Two ends of a continuum, along which various combinations of reorientation and transformation activities are possible



# At a glance: green regional industrial restructuring

## Rise of new green industries

### Green path creation

Rise of new-to-the-world industries: often based on radical innovation, scientific breakthroughs

### Green path transplantation

Settlement of new-to-the region green industries: inflows & anchoring of non-local firms, assets

### Green path diversification

Green industries grow out of established industries through asset transfer

## Greening of old industries

### Green path renewal

Adoption of green technologies and eco-efficient practices in established sectors

## Phasing out old brown industries

### Brown path decline

Exnovation in established sectors: cutting subsidies, withdrawal of operating permits, bans ...



Example: fuel cell industry in Baden Wuerttemberg, North-Rhine Westphalia, North Holland

Examples: on-site water recycling industry in Chinese regions; offshore wind in NE England

Example: Move from old dirty industry to emerging green industry: oil & gas → offshore wind in Norway

Examples: fuel cell technology in shipbuilding; green steel production (hydrogen) in various regions

Examples: coal industry in Eastern Germany, various regions in Poland, Romania, Bulgaria ...

# CORIS: implications for RITs

## RIS reconfiguration strategies for RITs

(Isaksen et al. 2022, Tripl 2023, Tripl et al. 2023)

repurpose | remove | create

### (Narrow) industrial transition agendas

- Green path renewal through adoption / integration of low-carbon technologies (hydrogen, CCS ...) in traditional industries
- Beneficial for securing growth and job opportunities (for parts of the workforce)

### Comprehensive agendas

- Development of new (green) paths through creation, diversification, importation (Tripl et al. 2020)
- Food, health, mobility, energy, housing
- Development of innovative solutions to place-specific wider social, ecological and economic challenges, delivering public benefits (and economic opportunities)
- More capacious and less technology-focused approaches with more potential for inclusion of unheralded actors (Henderson et al. 2023)

### Reorientation

#### Augmenting the challenge-orientation of existing RIS elements and functions

- Mobilisation and redirection of actors, networks, institutional structures of the historically grown RIS
- Repurposing the asset base inherited from the past: reuse (recombination of) historically grown assets

### Transformation

#### Creating new challenge-oriented RIS elements and functions

- Empowerment of “new actors”, disruption of old and construction of new networks, institutions
- Transforming the asset base: Creation / importation of new assets; strategic removal of assets

### Regional choices

reorientation



transformation

Two ends of a continuum, along which various combinations of reorientation and transformation activities are possible

## Conclusions

- RITs (and other vulnerable regions) come in many shapes: unique problem (challenge) endowments and asset endowments
- No quick fixes or silver bullets
- **Comprehensive CORIS initiatives** as part of wider **RIS reorientation / transformation agendas** are needed to facilitate place-based sustainability transitions in RITs
- **Building capacities** for CORIS processes: challenge-asset identification; innovation: development, application, diffusion; unlocking and exnovation; orchestration



**Aim:** Exploring the potential of CORIS initiatives for green transitions in disadvantaged regions and those at risk of becoming so in the (near) future

**Case studies:** 9 places in the Danube macro region (Central, Southern and Eastern Europe)

*(Baumgartinger-Seiringer et al. 2022, 2023)*

### Nature and geography of challenge-oriented initiatives

- Mapping and analysing challenge-oriented initiatives in different geographical contexts
- Structural pre-conditions and agency dynamics: interplay between change, consolidation and maintenance agency (*Henderson 2020, Jolly et al. 2020, Baekkelund 2021, Baumgartinger-Seiringer 2022*)
- Assessing the outcomes: what benefits are produced (and for whom)?

Many thanks for your attention!

Questions, comments ...?

[michaela.trippl@univie.ac.at](mailto:michaela.trippl@univie.ac.at)