

# Starting with Co-Design

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- › Challenges
- › Knowledge and Knowledge Production
- › What is Co-Design?
  
- › Examples of Co-Design
- › Outlook: Acceptance

# Challenges



Source: Weith

- › Climate change,
- › Demographic change and migration
- › Energy system transition (Energiewende)
- › urbanisation, sub-urbanisation, peri-urbanisation and urban-rural interdependencies
- › Bioeconomy
- › Cohesion and fragmentation
- › Knowledge-based society and technological change / innovations
- › Innovative and reflexive societies

**... and consequences:  
more competition and more conflicts?**

**New solutions?**

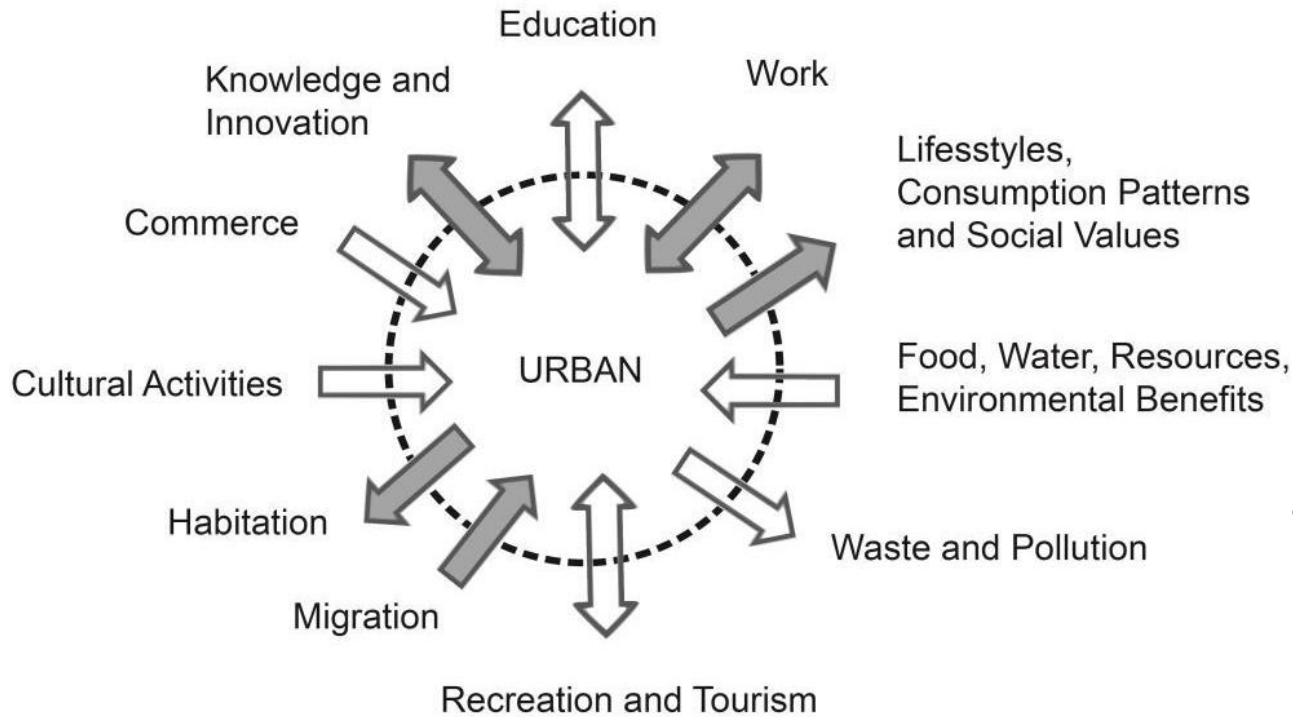
# Challenges: Actor's views, capacities and knowledge



## Broad range of

- **Stakeholders:** public administration, economy, civil society, land owners, research...
- **Values and norms:** ethical questions, e.g. on equity and carrying capacity; different target dimensions
- **Subjects:** integrative and also sectoral, e.g. urban-rural linkages or regional added value
- **Measures:** integration of different management options / governance / system solutions

# Challenges: Actors and interaction



Based on Stead (2002), modified and extended

## ‘New’ linkages:

- Tangential mobility
- Multilocal migration
- Effects of different lifestyles
- Knowledge flows

# Challenges: Preferences and governance



Multifunctional Landscape

Source: BMBVS/BBR, 2006: Future Landscapes

- multiple land use interests and requirements
- problem diversity / dynamic process of change
- management / governance
  - large number of tools, but less evidence of affects (lack of evaluation)
  - interdependencies of management tools lead to unintended interactions
  - different rationales of stakeholders

# Knowledge and knowledge production



- › Change of values:
  - › UN 2015 Post-Millennium Goals,
  - › Habitat III,
  - › Sustainability strategies (Europe, Germany ...)
  
- › Scientific lines of discussion:
  - › Horizon 2020,
  - › Future Earth,
  - › German advisory council on global change
  - › BMBF FONA3

# Knowledge and knowledge production

- › focus on communication, translation, and mediation of knowledge (Cash et al. 2003) → Mode-2 knowledge

## Mode 1

- › conventional science approach
- › hierarchical, disciplinary, homogeneous, self-referential
- › problem framing and solution → science based
- › no (or elusive) societal impact
- › internal quality criteria (scientific relevance)

## Mode 2

- › context-based knowledge generation
- › Interdisciplinary / transdisciplinary
- › heterogeneity / organisational diversity
- › societal commitment and responsibility
- › additional quality criteria (societal relevance)

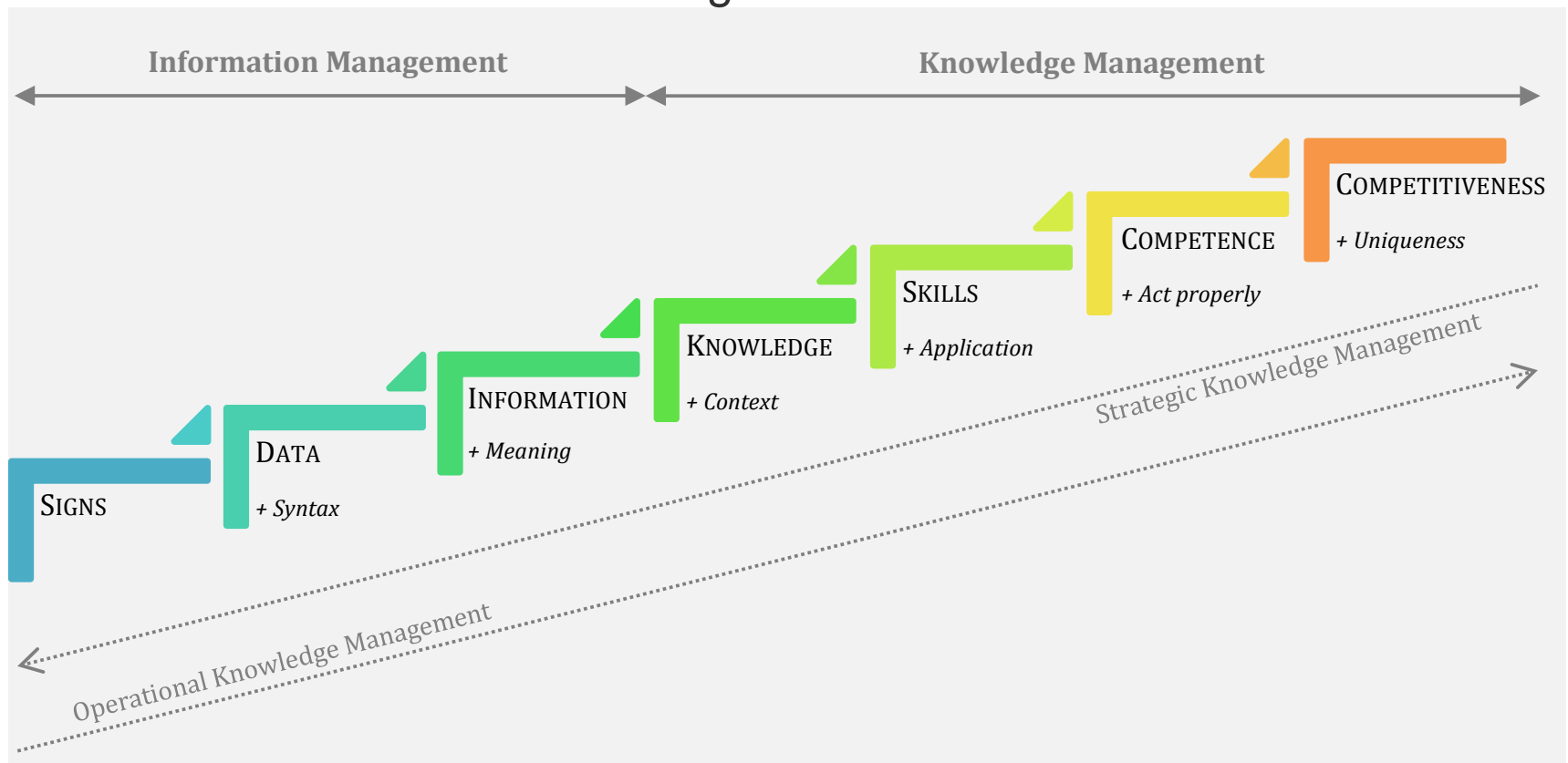
Figure 2: based on Gibbons et al. 1994



# Information Management and Knowledge Management

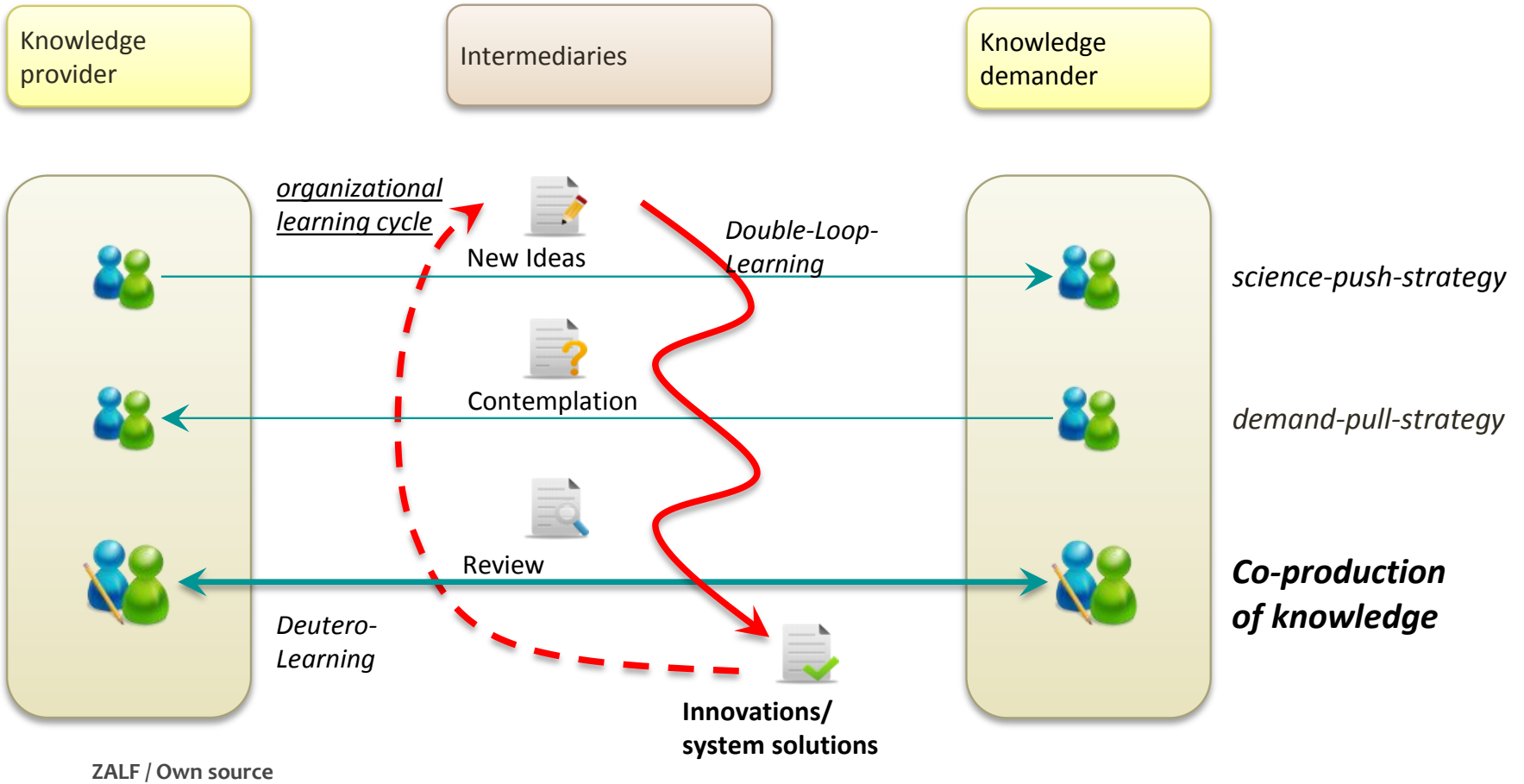


Who owns what kind of knowledge?



Knowledge Management Ladder by North (2011), revised

# Co-Design and co-production of knowledge



# Co-design and co-production: actors, knowledge and governance of knowledge

## Conceptuel frameworks:

- Knowledge is more than information is more than data
- Knowledge management
- Planning theory: knowing about knowledge **S**
- Inter- and transdisciplinarity
- Improvement of GIS- und planning support systems: informing, communicating, analysing, **interacting**
- Knowledge and learning (distinct, organisational, institutional) as basis for resilience

# Examples

Change through new knowledge

- › RePro
- › ELaN
- › IN-STARS
- › KuLaRuhr



Combining technological and societal perspectives

Change of perspectives!

New strategies: co-evolution, co-management

# Development of economically feasible solutions for re-production chains in the energy and water infrastructure



Heizkraftwerk Waldrestholz

Heizwerk Biogas-Abwärme

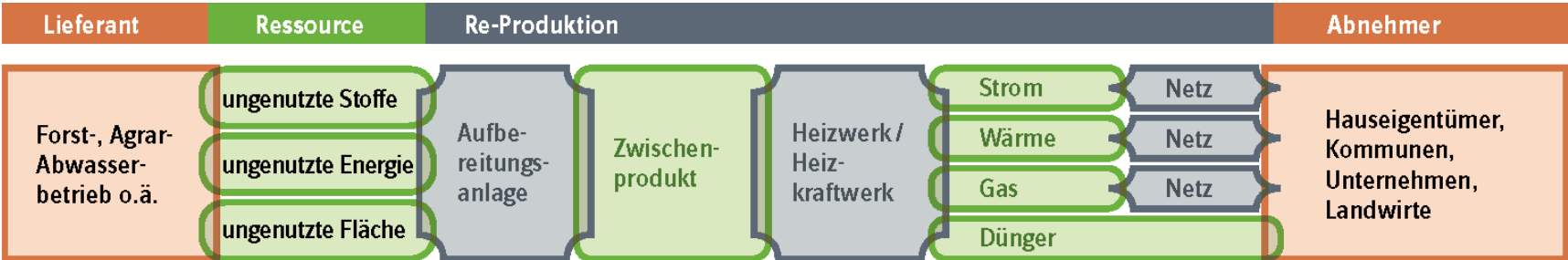
Heizkraftwerk Plantagenholz

Kraftwerk Klärschlamm

Kraftwerk Grünschnitt

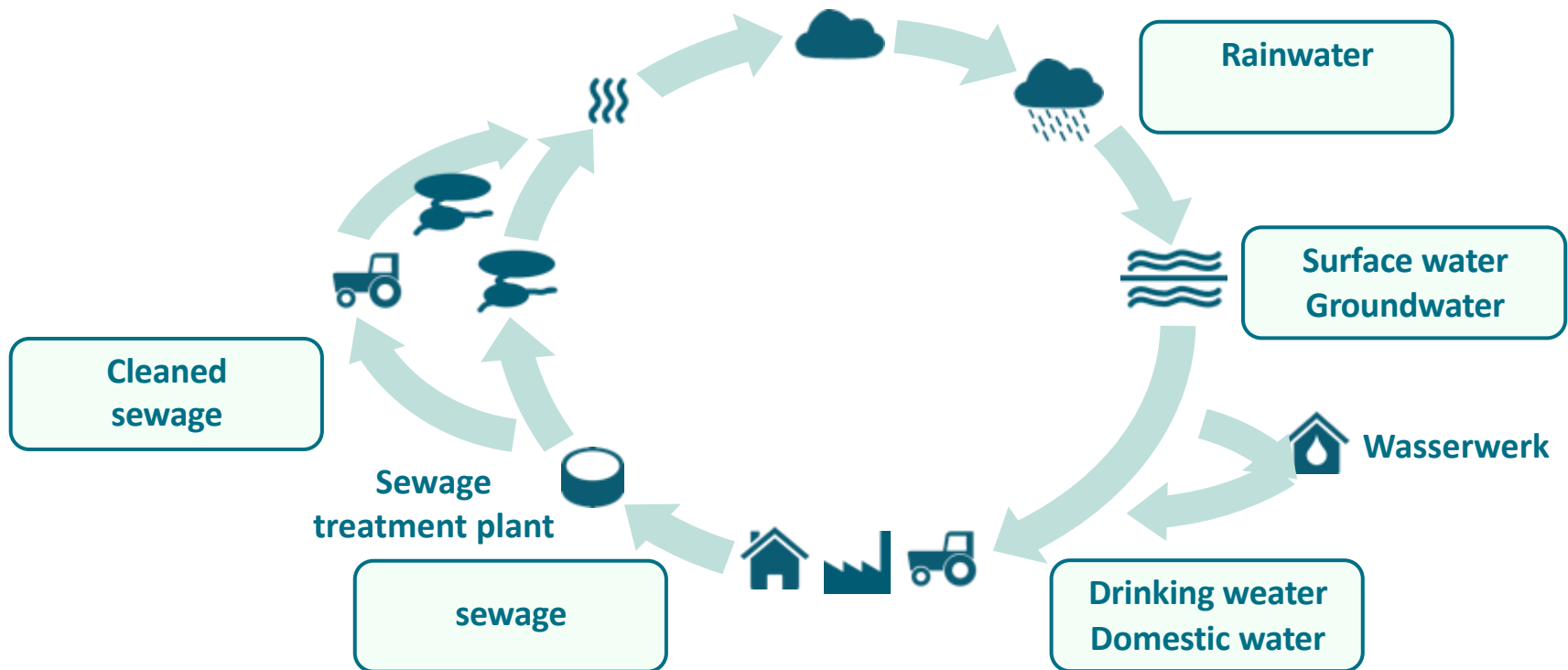
Heizwerk Abwasser-Abwärme

Bewässerung mit Abwasser



Sources: INTER 3 GMBH, REPRO ABSCHLUSSBERICHT 2014, 2 ff., SCHÖN & WENDT-SCHWARZBURG 2013, 7 ff., WENDT-SCHWARZBURG 2014, 40 f.; (photos) DRIEBEN, City of UEBIGAU-WAHRENBRÜCK, WÜNSCH, VERBANDSGEMEINDE UNKEL, INTER 3 GMBH, NOACK

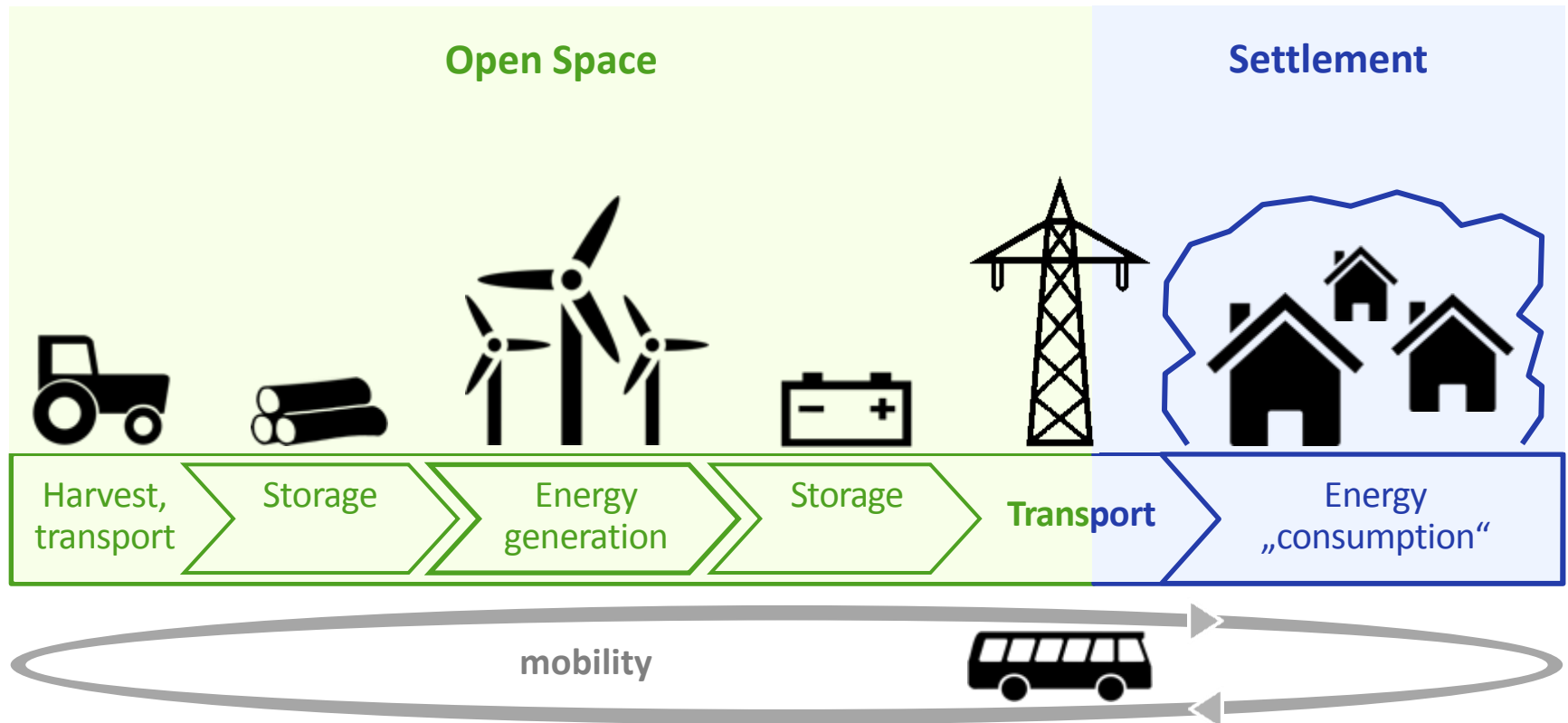
# Material flow management – strengthening the water land nexus



New circles >> actors >> policies >> conflicts >> governance modes

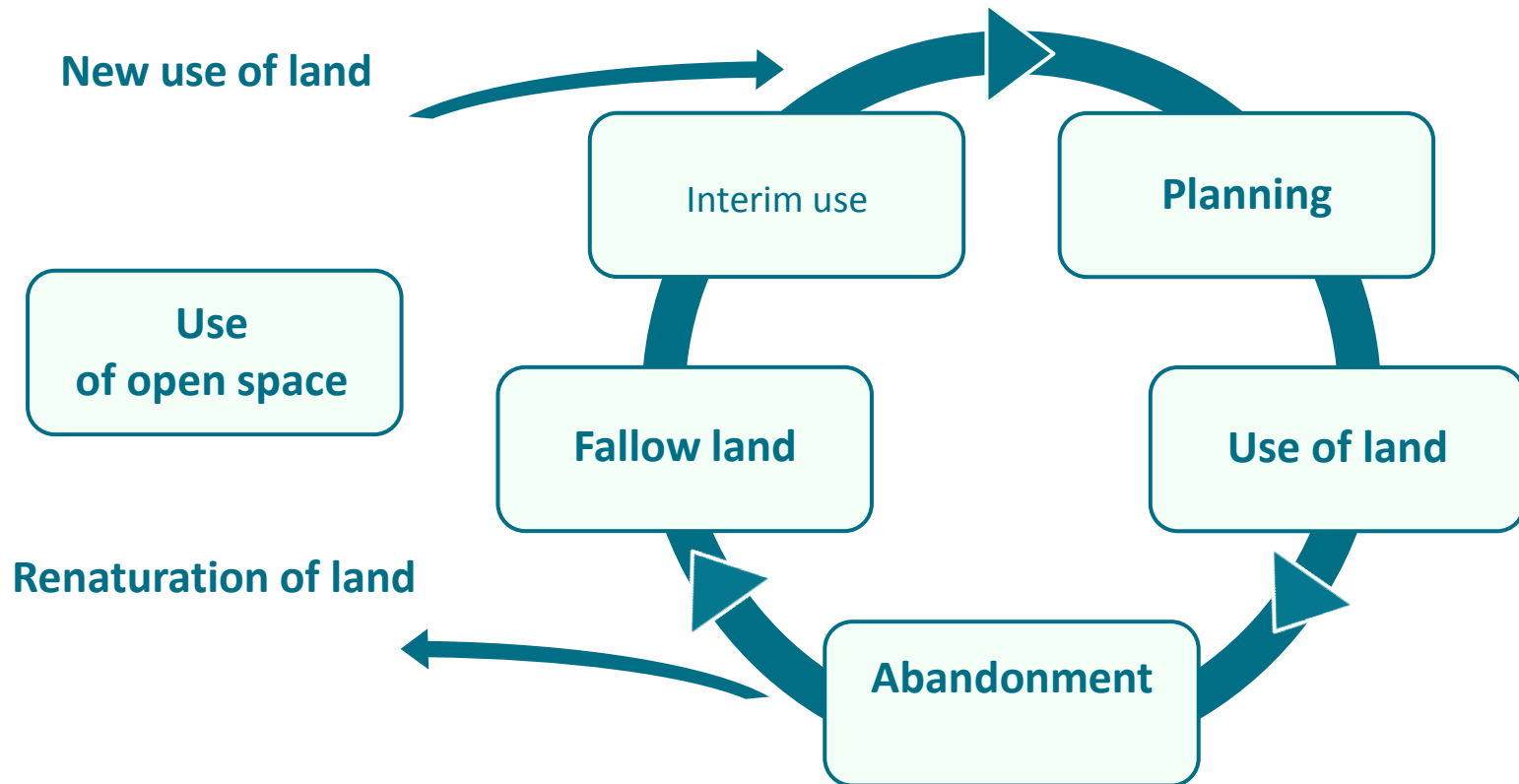
Source (figure): PONCZEK

# Improving urban and rural interrelations – case of German Energiewende (decentral energy turnaround)



Source : PONCZEK 2015 adapting BECKMANN et al. 2013, 4 ff.

# Re-use of land: governance of new circular land use



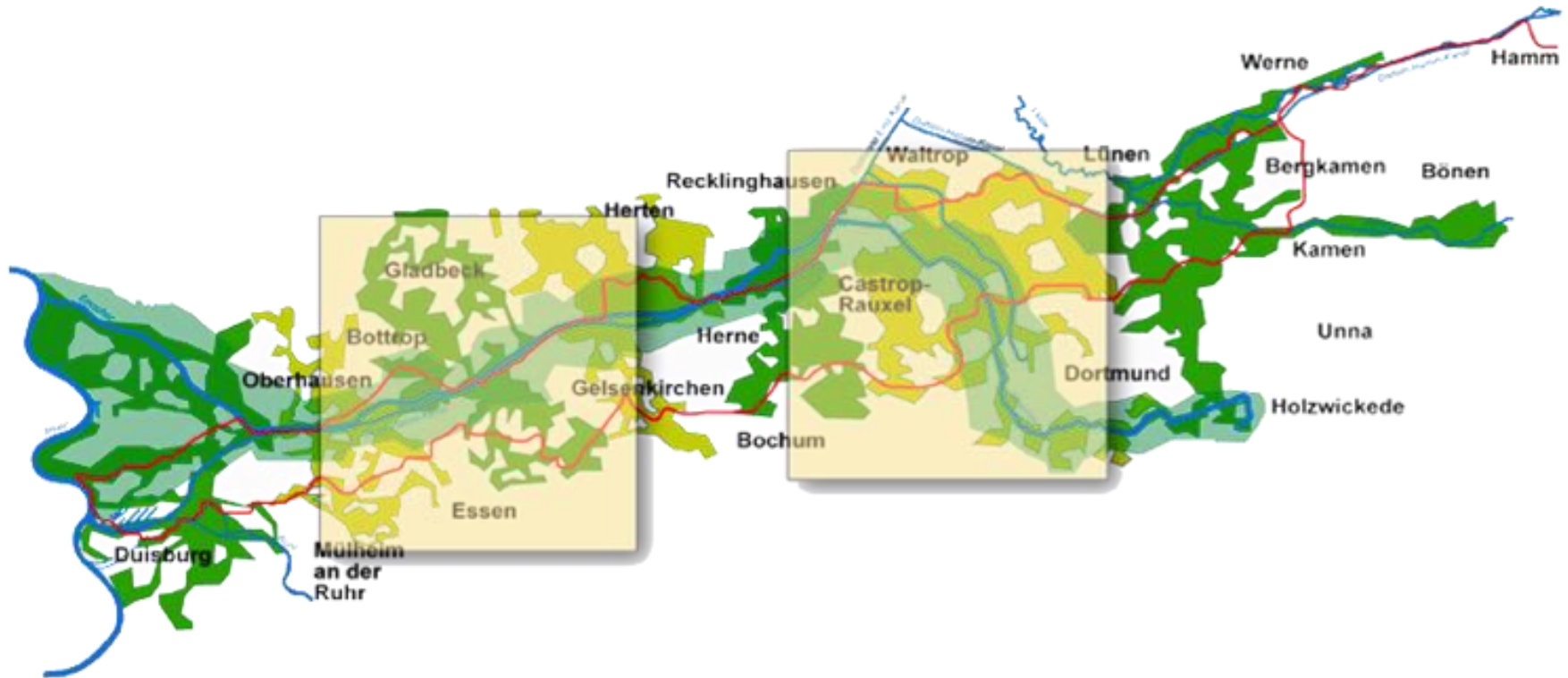
Sources: BMVBS/BBR 2007; SPANNOVSKY 2013a, S. 752; WEITH 2009, 11 | (figure) PONCZEK based on BMVBS/BBR 2007



# Inner development of Ruhr area (5.3 m inhabitants): new values of settlement and open space

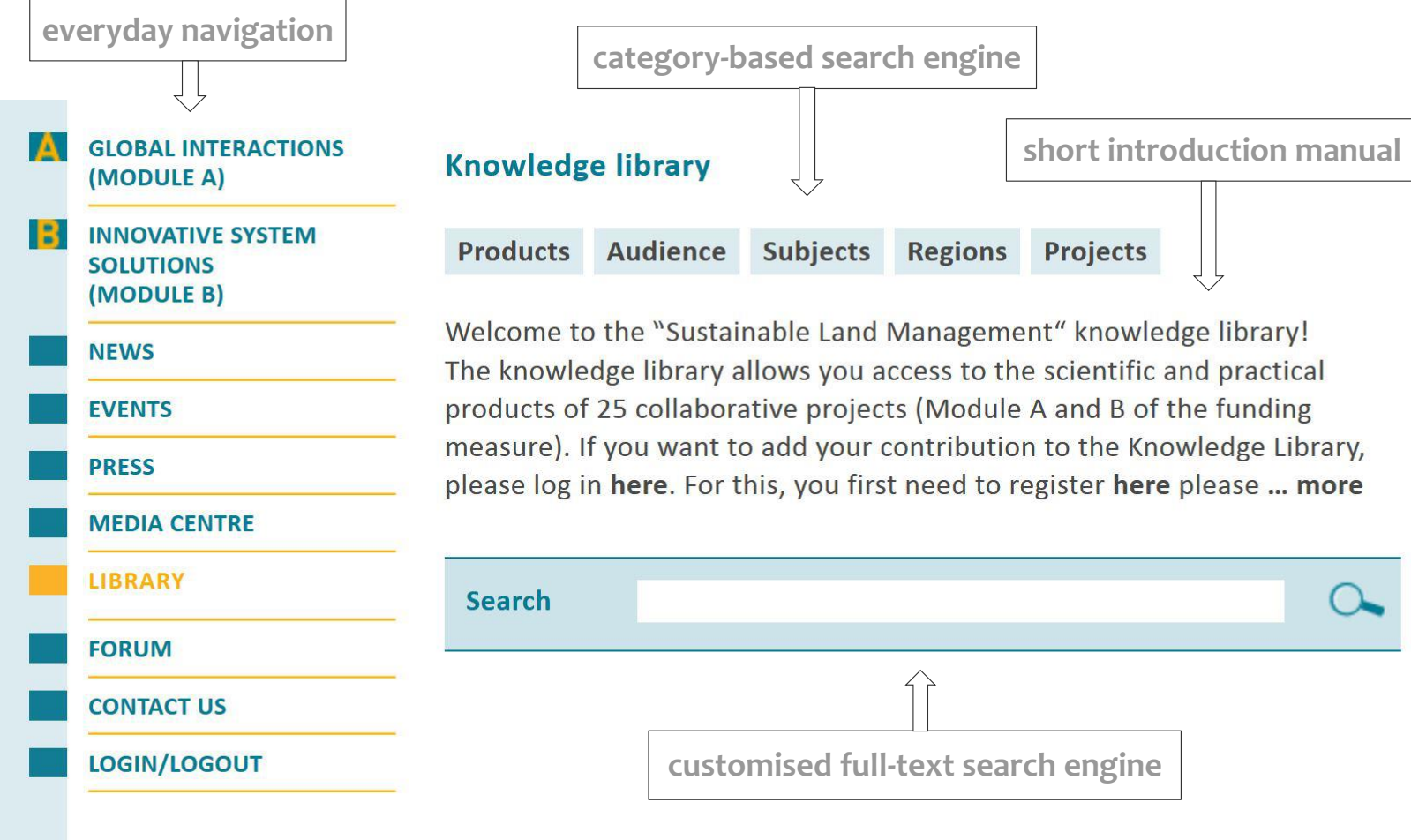


“the productive park”



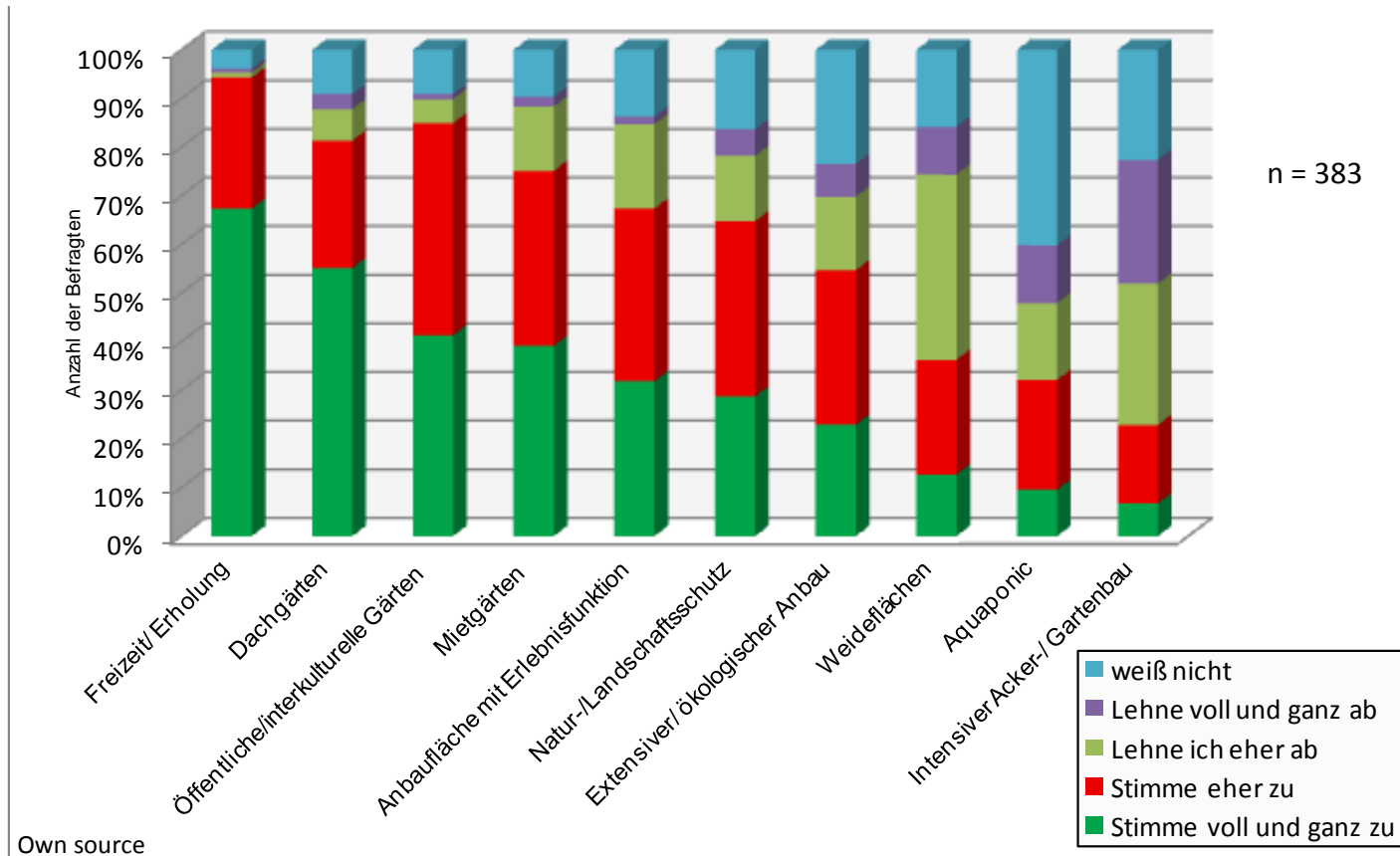
Source: KULARUHR 2012; STRAUß et al. 2014, 18 ff. | (figure) REGIONALVERBAND RUHR

# Knowledge library: Combining technological solutions and governance modes



<http://nachhaltiges-landmanagement.de/en/library>

# Outlook: Acceptance – Urban Agriculture



## Conclusion

- Technological innovation processes are not enough: integration of societal innovation processes
- In consequence: integration of different disciplines but also of both science and practise into transdisciplinary approaches
- Co-design and co-production of knowledge: new and appropriate transdisciplinary knowledge management
- Integration of knowledges also integrates urban and rural perspectives in order to achieve a sustainable regional development
- Options to realize regional material flow managements structures and to improve regional value chains
- Knowledge library: technological base for knowledge management

# Thank you for your attention!

## Contact

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