

22 March 2012

## Science System Assessment



# Governance of learning processes in transdisciplinary research teams

# Knowledge co-production...



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- 'Mode 2' science
  - Organisational heterogeneity, transdisciplinary, contextualised knowledge production
- Suitable for 'wicked problems'
- Co-production of knowledge by producers and users

# ... in teams



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- Initiatives that encompass a large range of scientists, disciplines and locations (Stokols et al., 2008)
- There is work on science collaboration and team work
- Research question: individual, interactional and institutional factors → effectiveness of teams?

# Research question



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- Initiatives that encompass a large range of scientists, disciplines and locations (Stokols et al., 2008)
- There is work on science collaboration and team work
- **Research question: individual, interactional and institutional factors → effectiveness of teams?**

# Perspective: linear → team science



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- Linear view of science production
  - With endpoints in technology and policy
- Science for 'wicked problems':
  - Extended peer community
  - Integration of concepts and methods
  - Contextualisation
- Co-production of knowledge in teams

# Science in teams: characteristics



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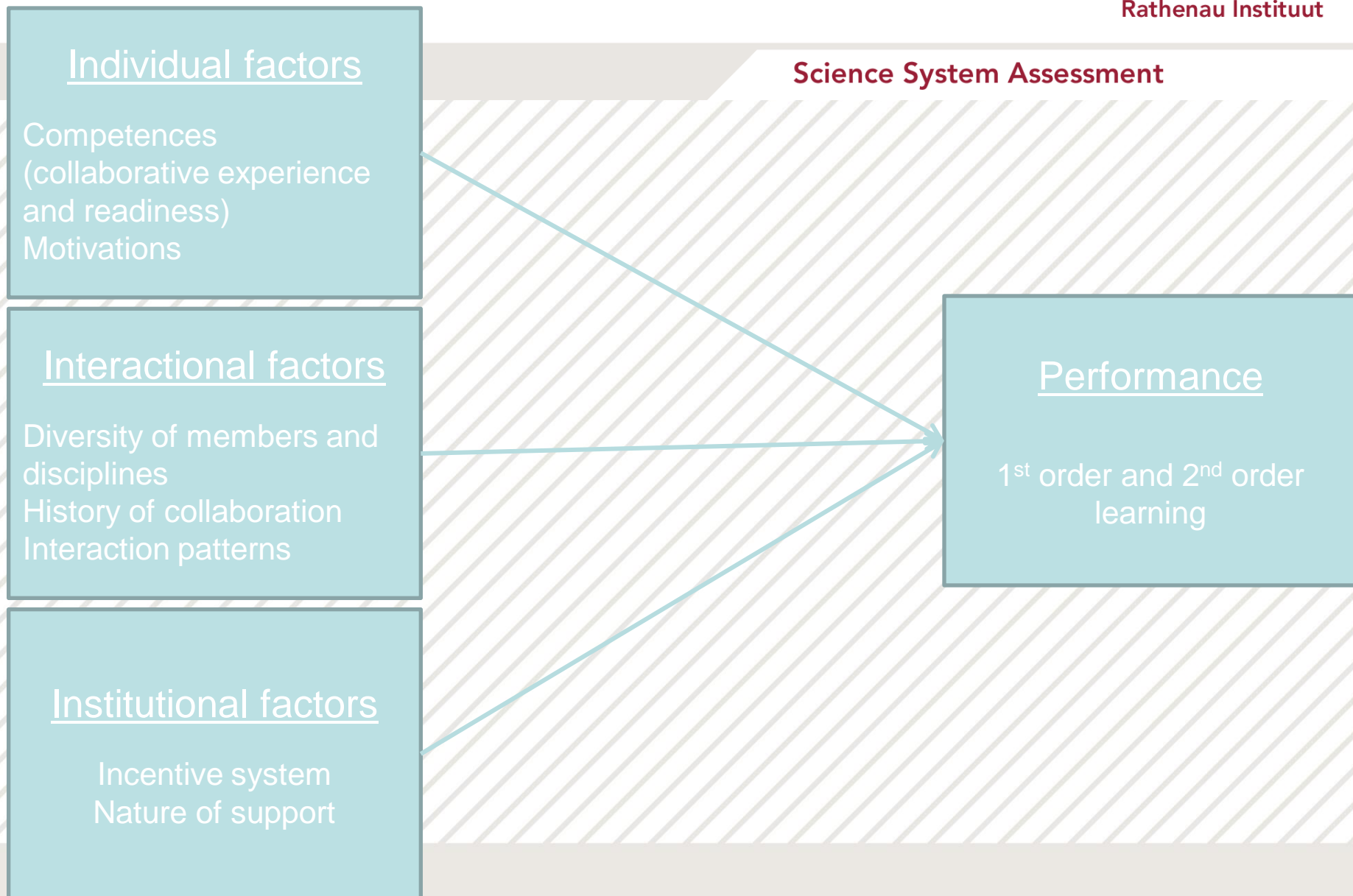
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- Knowledge users and producers coming from different organisations, disciplines and normative backgrounds.
- Teams positioned outside existing organisations (“decoupling”)
- Design from scratch
- Two principles
- Research objective as a starting point, but problem definition and methodology need to be articulated

# Conceptual model

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# Case selection



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- Knowledge for Climate
- Hotspot Mainport Rotterdam (local, rich, networked)
- Projects (first tranche; heterogeneity of participants)



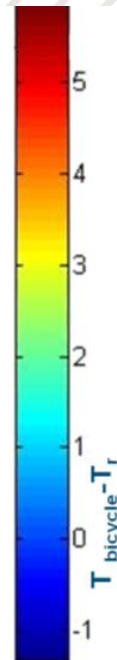
# Case introduction

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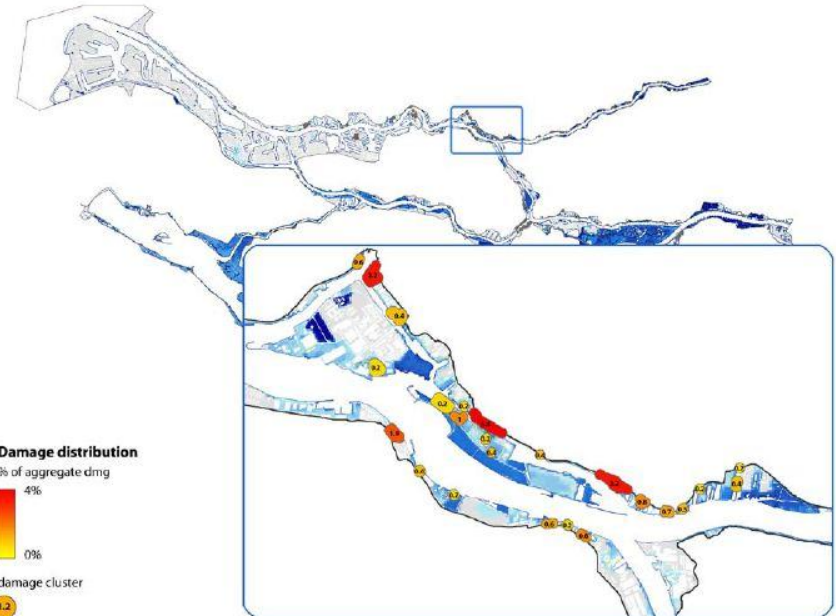
## Urban heat

6 augustus 22:00 – 24:00 LT



Heusinkveld et al. (2011)

## Flood risks in unembanked areas



Veerbeek et al. (2010)

# Methodology



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- In-depth interviews
- Document analysis

# Results: urban heat (1)



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- 1<sup>st</sup> order learning:
  - On outcomes
  - Chain of research questions
  - No integration
- 2<sup>nd</sup> order learning:
  - Acknowledgement
  - No shared vision

# Results: urban heat (2)

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- Individual factors
  - No previous collaborations; science push and policy pull
  - ‘Hobby horses’, self-interests
  - Motivations: content-driven
- Interactional factors
  - Team diversity: high
  - Formal, business-like interactions; distributed governance
  - Network with scientists as hub
- Institutional factors
  - Individual-oriented; divergent evaluation at home org.
  - Administrative support and burden

# Results: flood risks (1)



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- 1<sup>st</sup> order learning:
  - Part of continuous learning process
- 2<sup>nd</sup> order learning:
  - Commercial chances
  - Awareness of blind spots

# Results: flood risks (2)



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- Individual factors
  - Previous collaborations; policy pull
  - Methodologies further developed
  - Motivations: content-driven
- Interactional factors
  - Team diversity: mostly the same disciplinary background
  - Informal, also bilateral interactions; lead organisation governance
- Institutional factors
  - Individual-oriented; evaluation: new knowledge and network
  - Administrative support and burden

# Conclusions



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- Urban heat
  - New field and lots of opportunities; fragmented and distributed patterns; no shared vision and integration
- Flood risks
  - Previous and continuous collaborations; co-production of data; continuous learning
- Individual, interactional and institutional factors (partly) explained the level of learning in the urban heat and flood risk teams

- Expansion to other cases/teams:
  - Monodisciplinary teams
  - Other hotspots
  - Other programmes (less 'safe harbour')
  - Other sectors
- Expansion of methods
  - Bibliometrics, CV analysis



# Wrap up



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- The individual, interactional and institutional factors partly explained the level of learning in the urban heat and flood risk teams.
- The analyses contribute to formulating recommendations on the governance of user-producer knowledge production.

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Thank you for your attention!

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