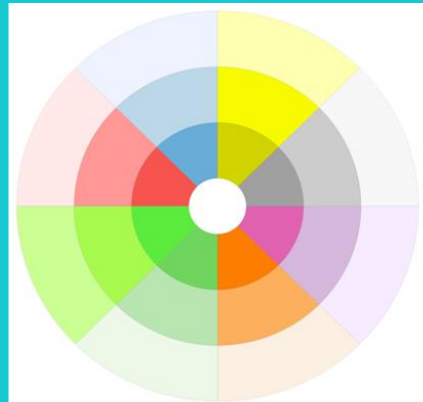


# Developing transformative capacity through systematic assessments and visualization of urban climate transitions

Erik Glaas, Mattias Hjerpe, Sofie Storbjörk, Tina-Simone Neset, Anna Bohman, Prithiviraj Muthumanickam, Jimmy Johansson



# Exploring Climate Transitions in the Making: Integrative Planning Towards a Sustainable Built Environment (ExTra)



- The Centre for Climate Science and Policy Research, Linköping University and Norrköping municipality
- Funded by the research council FORMAS 2015-2019 and Norrköping municipality
- Project team: Mattias Hjerpe (project leader), Sofie Storbjörk, Erik Glaas, Tina Neset, Carlo Navarra, Lotten Wiréhn, Therese Asplund, Martin Karlson, Tomasz Opach + Municipal officials and politicians



# Aim and research objectives

To increase our understanding of how urban planning and decision-making can facilitate urban climate change transitions.

Three current bottlenecks for climate transition:

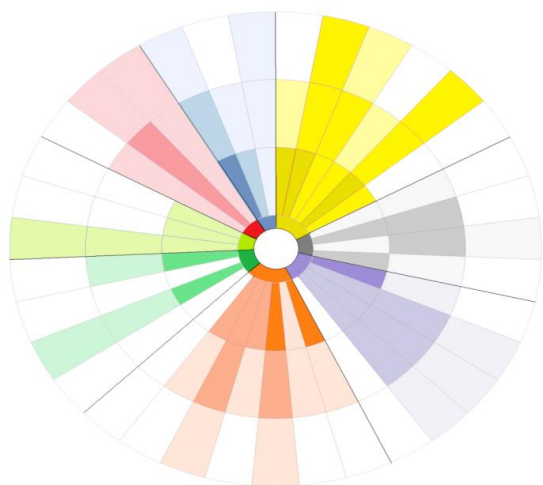
**RQ 1 Leadership and Governance:** How to effectively govern and lead urban climate transitions?

**RQ 2 Private-public collaboration:** How to strengthen collaboration between private and public actors in concrete planning and building projects?

**RQ 3 Citizen dialogues:** How to enable fruitful dialogues between citizens, planners, and politicians?

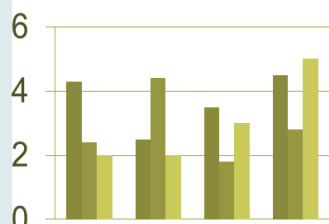
# To overview and steer urban climate actions

- While numerous mitigation and adaptation activities are being implemented, fundamental transformation will require;
  - integrated approaches across sectoral divisions and actor groups
  - holistic ways to plan for and govern urban systems
- Local governments struggle to overview and assess all ongoing climate activities in a city which challenge strategic planning and decision-making
- The study proposes and tests an assessment framework developed to visualize the implementation of urban climate transition (UCT).
  1. What elements should be included to systematically assess and visualize UCT processes?
  2. What patterns of local UCTs can be identified through visual representation of implemented climate actions?
  3. How can visual representations of UCTs influence the transformative capacity in local governance?

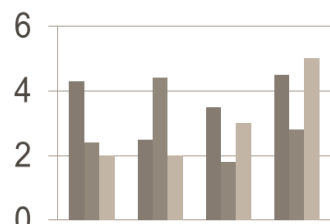


## Municipal climate transition profiles

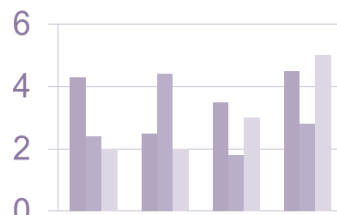
- Build on 36 climate transition activities identified in the literature



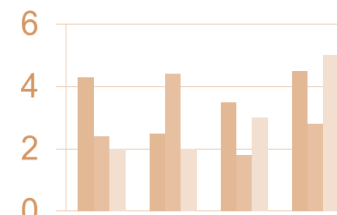
Energy



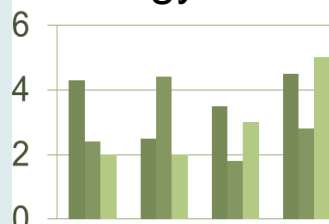
Transports



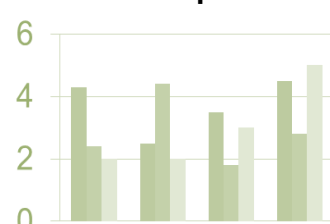
Building



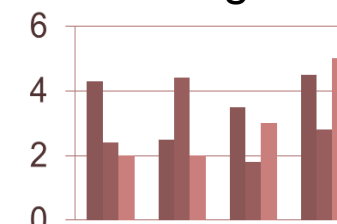
Planning



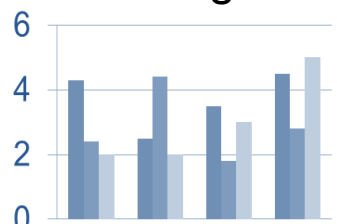
Biodiversity



Agriculture



Health



Water infrastructure



Area	Transition activities
Energy	1. Support energy saving among individuals and companies
	2. Optimize waste management
	3. Decrease the use of non-renewable energy
	4. Increase the share of renewable energy
	5. Develop effective district heating and cooling
	6. Adaptation of energy system, grid, and IT
Transport	7. Reduce GHG emissions from passenger transports
	8. Reduce GHG emissions from goods transports
	9. Increase the share of public transportation, biking, and walking
	10. Adaptation of roads and transport infrastructure
Building and housing	11. Support sustainable land use through urban densification
	12. Increase energy efficiency in buildings
	13. Decrease emissions from constructions
	14. Adaptation of official buildings and information to private house owners
	15. Adaptation of cultural heritage (e.g., buildings with cultural values)
Planning and governance	16. Mitigation considerations inherent in urban planning
	17. Cooperation with citizens and companies for resilience and low GHG emissions
	18. Adaptation considerations inherent in urban planning
	19. Increase share of green–blue infrastructure
	20. Holistic flood risk management
	21. Inter-municipal cooperation and learning for resilience and low GHG
	22. Adaptation of tourism in a changing climate
Agriculture and forestry	23. Decrease GHG emissions from agriculture and forestry
	24. Enhance usage of locally produced food and timber
	25. Adaptation of agriculture and forestry on own land or info. to producers
	26. Facilitate urban and peri-urban agriculture and gardening
Resilience	27. Increase the share of locally produced food (including urban and peri-urban agriculture and gardening)

# Assessing UCT progress evolvment

## – i.e. what measures have been taken?

UCT stage	Process indicator	Aspect investigated
<b>Initiation and policy-formation</b>	Issue raised	Acknowledgement of the need for action
	Investigation	Assessment of risks and action alternatives
	Cooperation	Involvement of actors within and outside the local government
	Goal	Explicit UCT vision or goal formulated
	Plan	Activities and instruments planned
<b>Innovating</b>	Experiment	New physical or organizational measure implemented
	Response	Well-known transformative measures implemented
	Guideline	Instructions for action developed
	Service	Support system for implementation of UCT developed
<b>Scaling-up</b>	New Procedure	New measure or routine mainstreamed and spread across and outside the municipal departments.

# Assessing UCT spread

## – i.e. who are targeted?

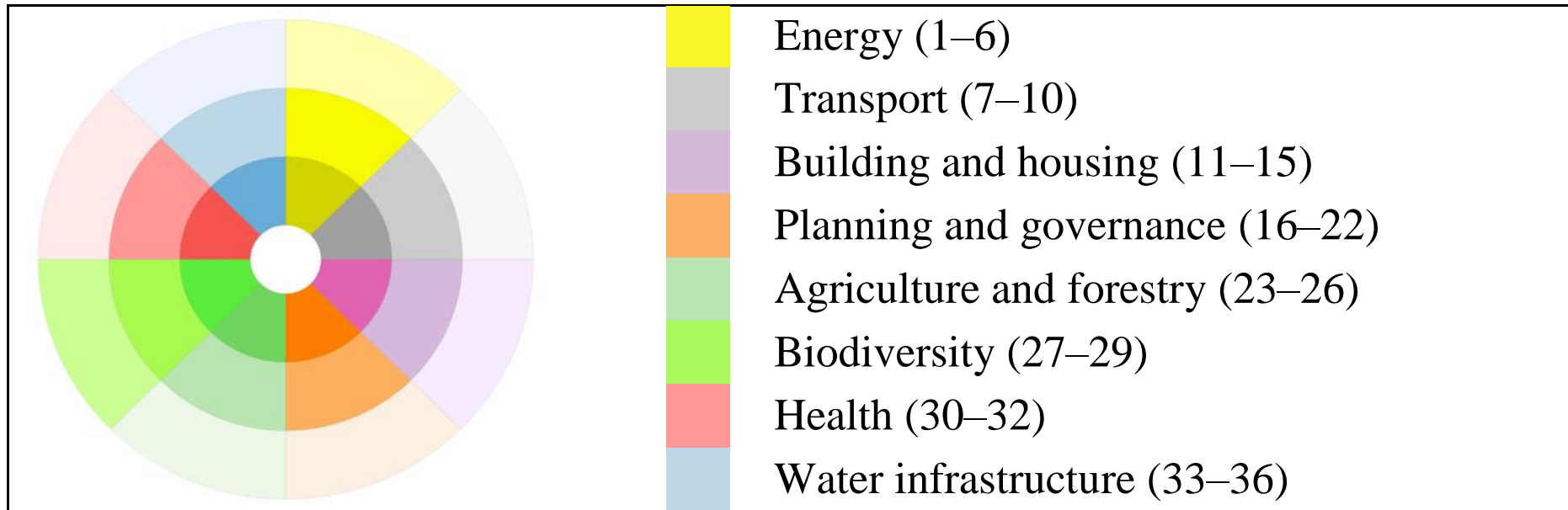
1. One or a few departments in the municipal administration
2. All municipal departments
  - Internal spread
3. External actors (companies and citizens)
  - External spread



# Methodology

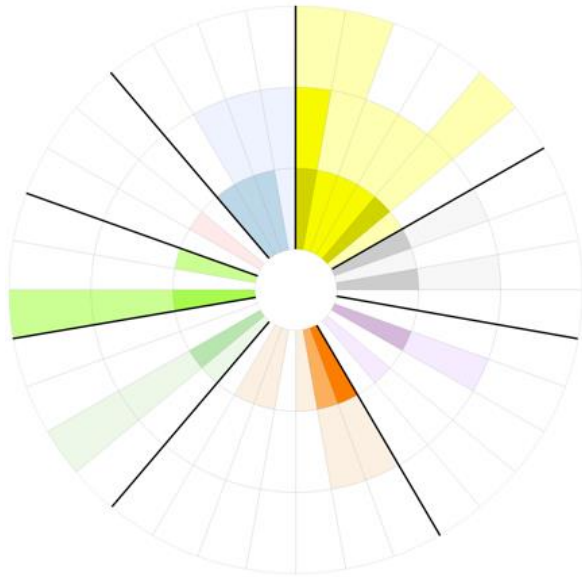
- Developing the assessment framework
  - Literature reviews (+100 articles)
- Collecting material for UCT assessments
  - Documents analyses
  - Interviews with sector representatives
- Testing the visual representations
  - Interviews and workshops with climate coordinators and municipal councilors
- Case municipalities
  - Linköping, Norrköping and Finspång

# Patterns of local UCT progress



# All climate related work

Finspång



Linköping



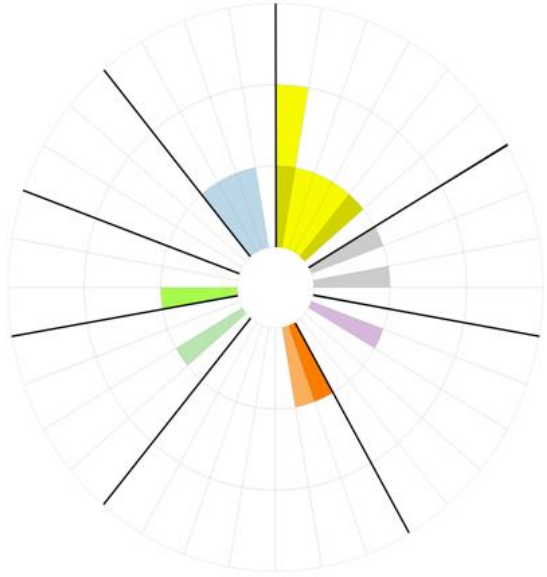
Norrköping



A

# Internal speed

Finspång



Linköping



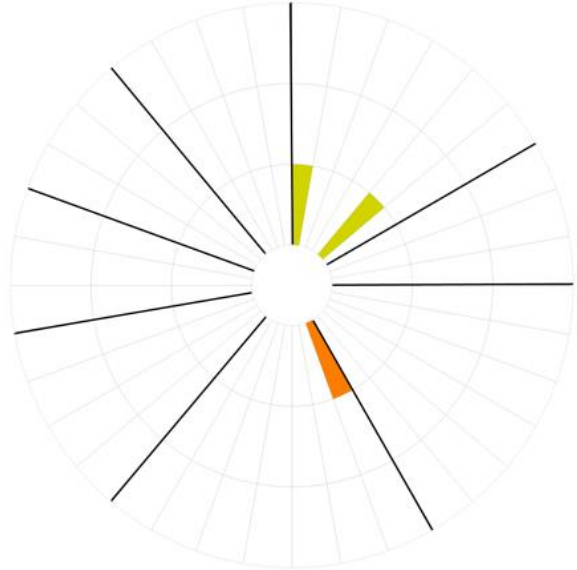
Norrköping



B

# External spead

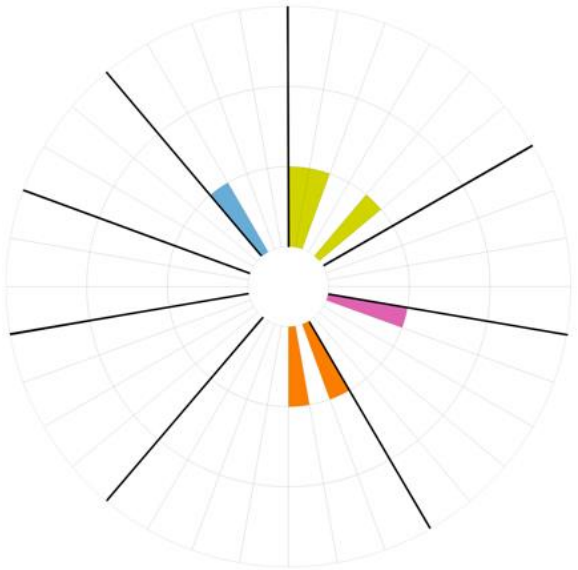
Finspång



Linköping



Norrköping



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# Influence on transformative capacity

- UCT representations facilitated transformative capacity by contributing with an overview of the scope and evolution of transition through;
  - System awareness and memory
  - Urban sustainability foresight
- The overview was perceived to make UCT more governable, which indirectly could spur local leadership
- However, taking the assessment framework further would necessitate;
  - Assessing target achievement, i.e. how progress help meeting local and national climate goals
  - Developing metrics to quantify progress

# Thanks!

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