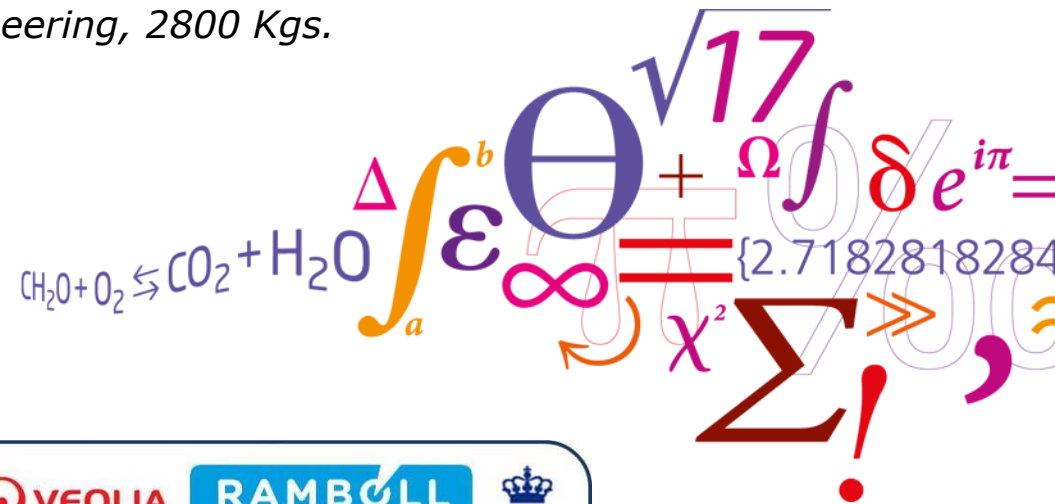


Making urban water management relevant to society by quantifying stakeholder objectives

Julie Skrydstrup^{1*}, Herle Mo Madsen¹, Roland Löwe¹, Ida Bülow Gregersen² and Karsten Arnbjerg-Nielsen¹

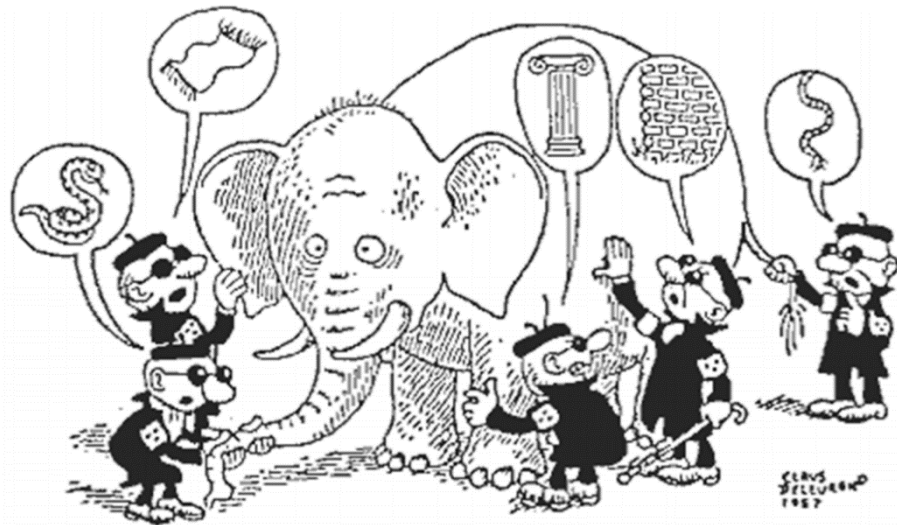
¹Technical Department of Denmark, Department of Environmental Engineering, 2800 Kgs. Lyngby, Denmark

²Rambøll Denmark, Water, Copenhagen, Denmark



Critical concerns

- Adapting to an uncertain future while ensuring liveability
- Climate adaptation measures are difficult to implement
 - space is a limited resource
 - often too expensive
- We need tools that consider the city as a whole



Kig mod Åboulevard og Rantzausgade i dag



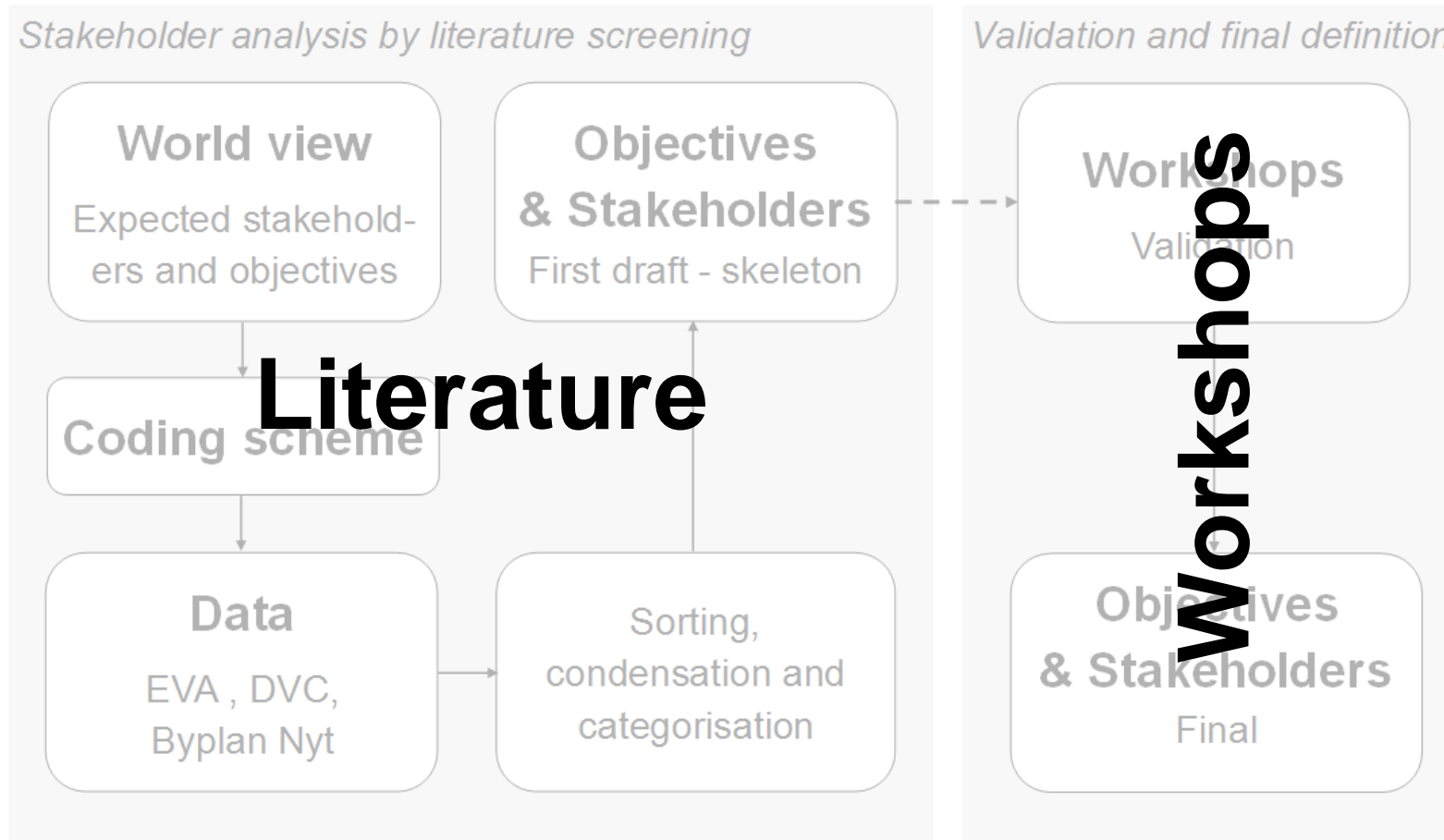
COWI & Tredje Natur, 2016

Eksempel på omdannelse ved Åboulevard og Rantzausgade

Research questions

- Which stakeholders have an interest/influence in urban water management (UWM) and urban planning?
 - Funding opportunities?
 - Potential risks?
 - Regulator?
 - Potential collaborators?
- What objectives are stakeholders connected to?
- How can these objectives be quantified, valuated and applied in planning and decision-making?

Methodology



Methodology - Literature

Urban water management

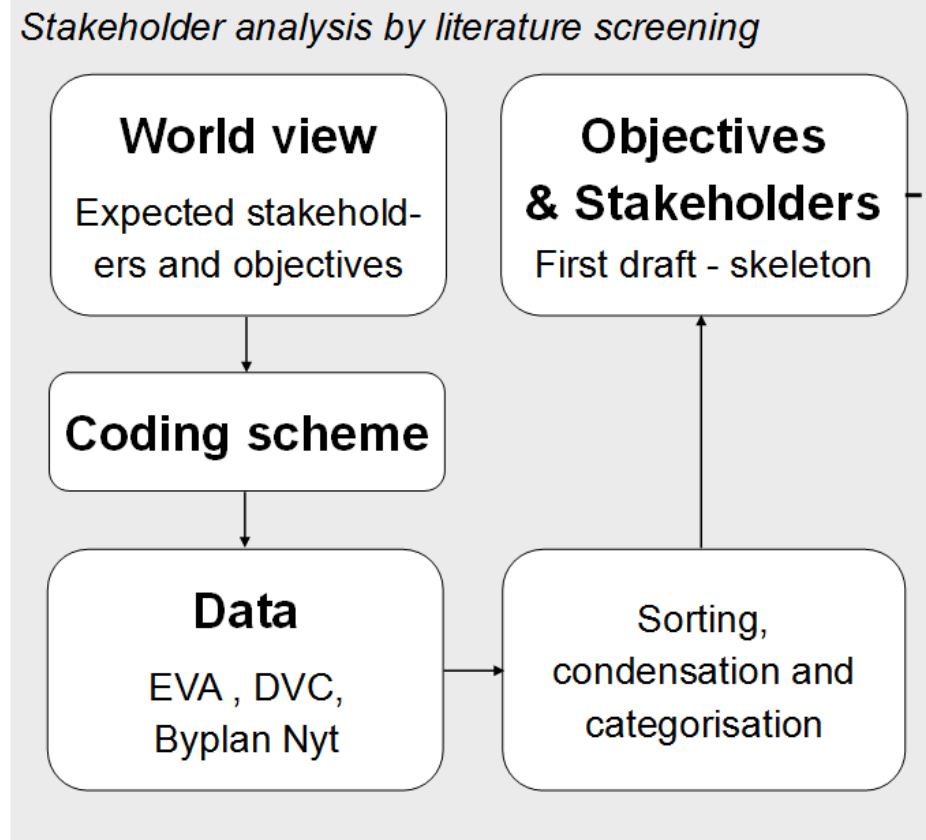
- EVA and DVC

Urban planning

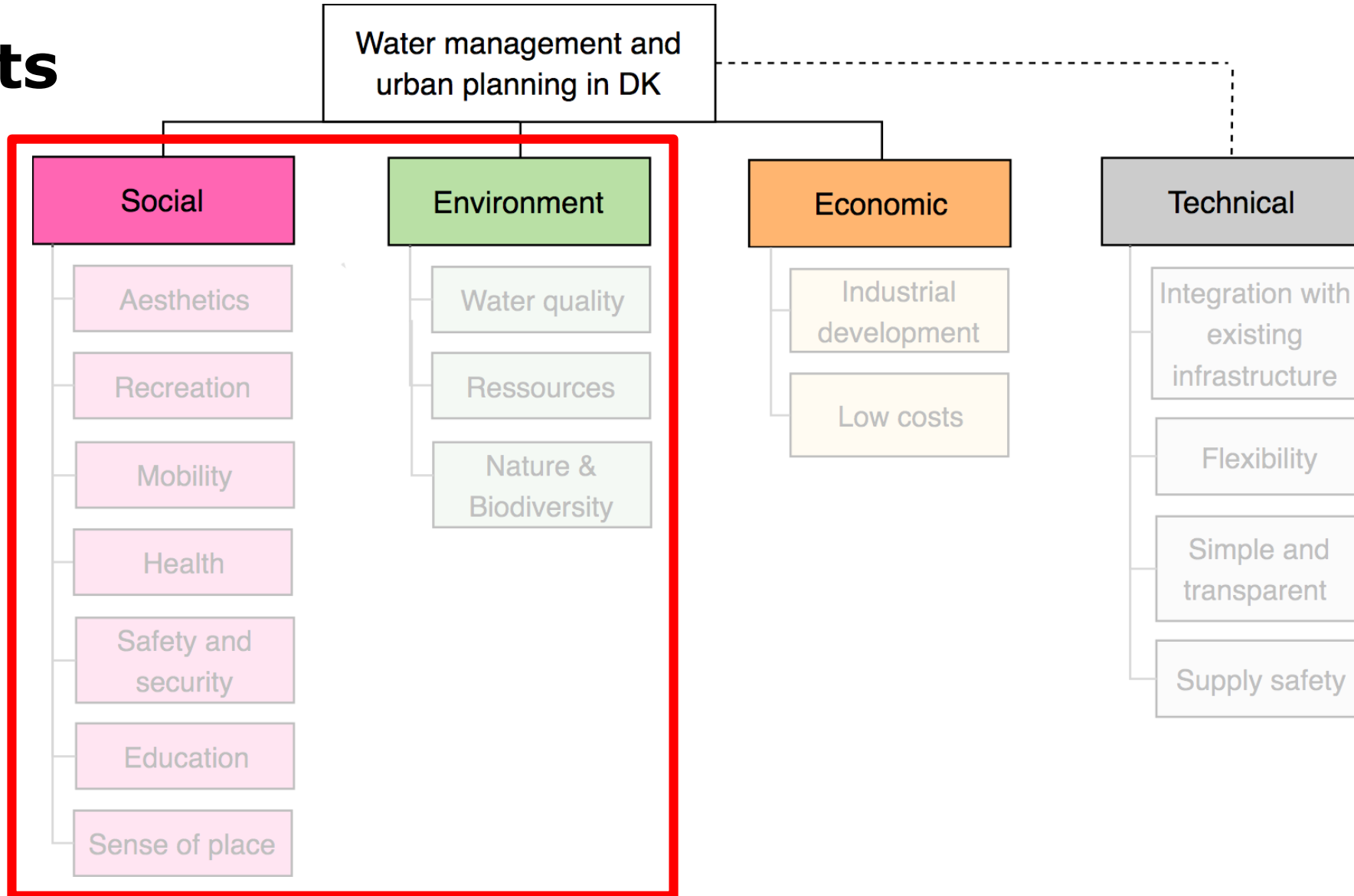
- Byplan Nyt

Screening for:

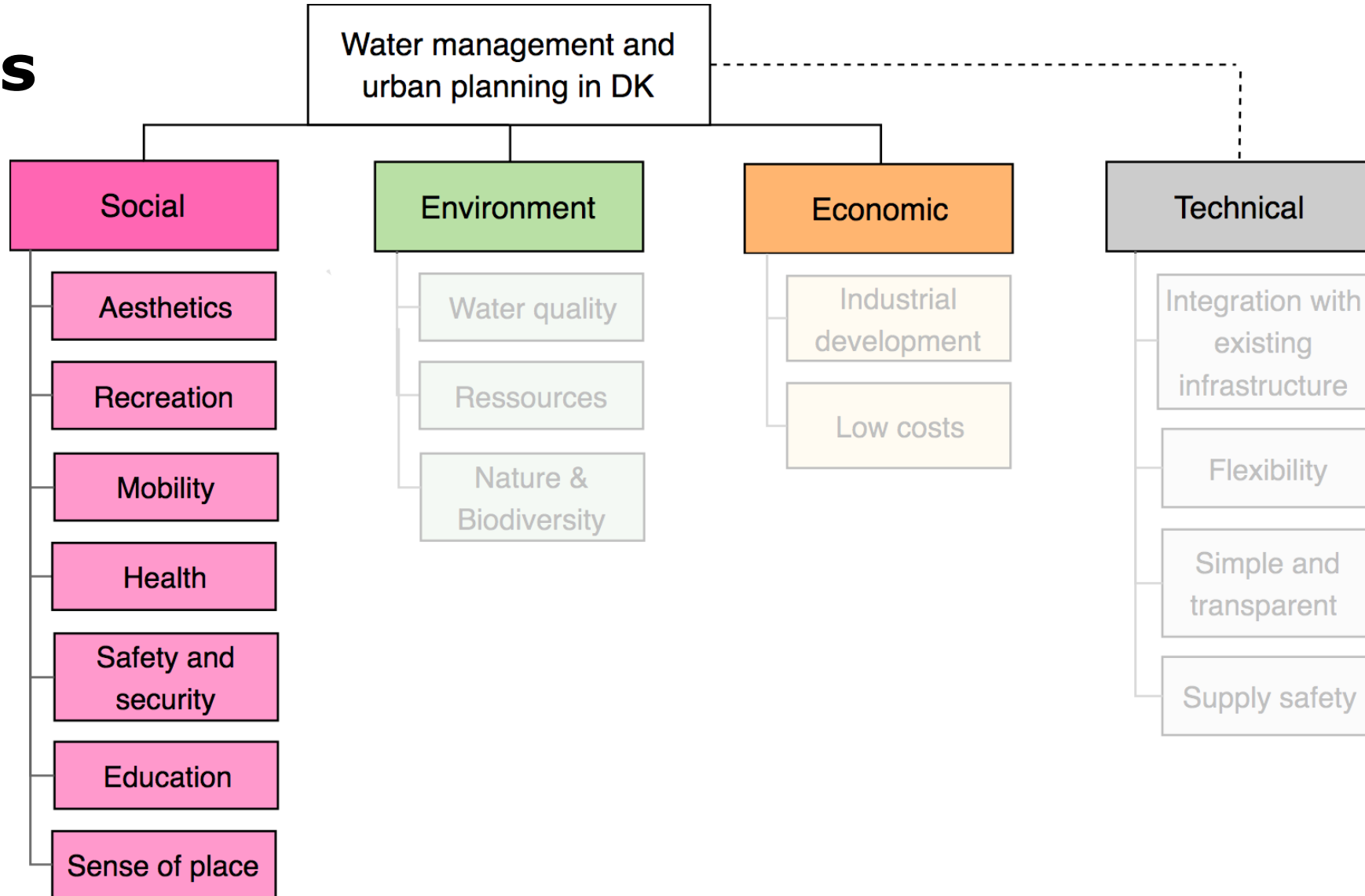
- Stakeholders
- Objectives
- Indicators
- Role in decision-making
- Spatial scale
-



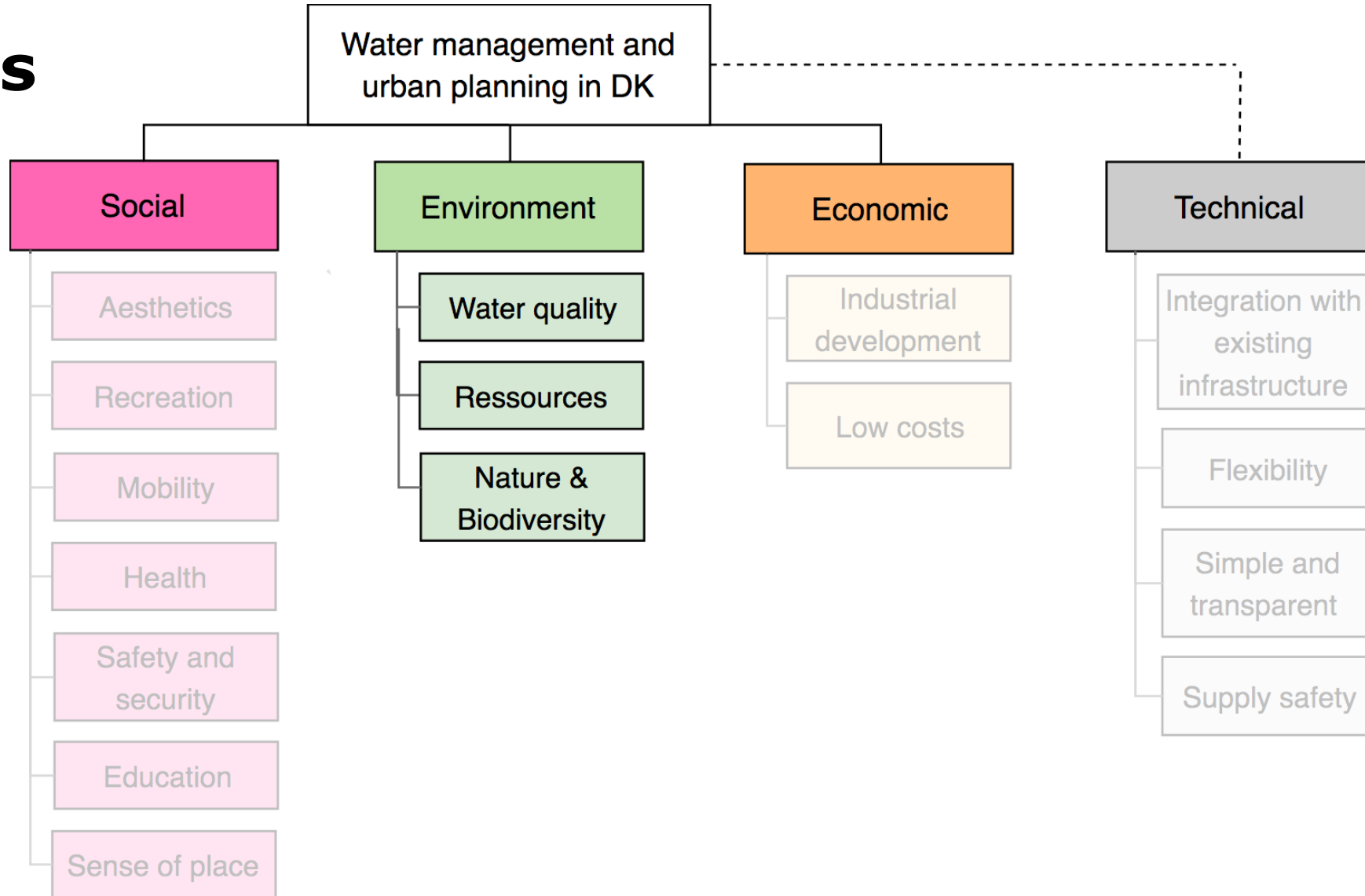
Results



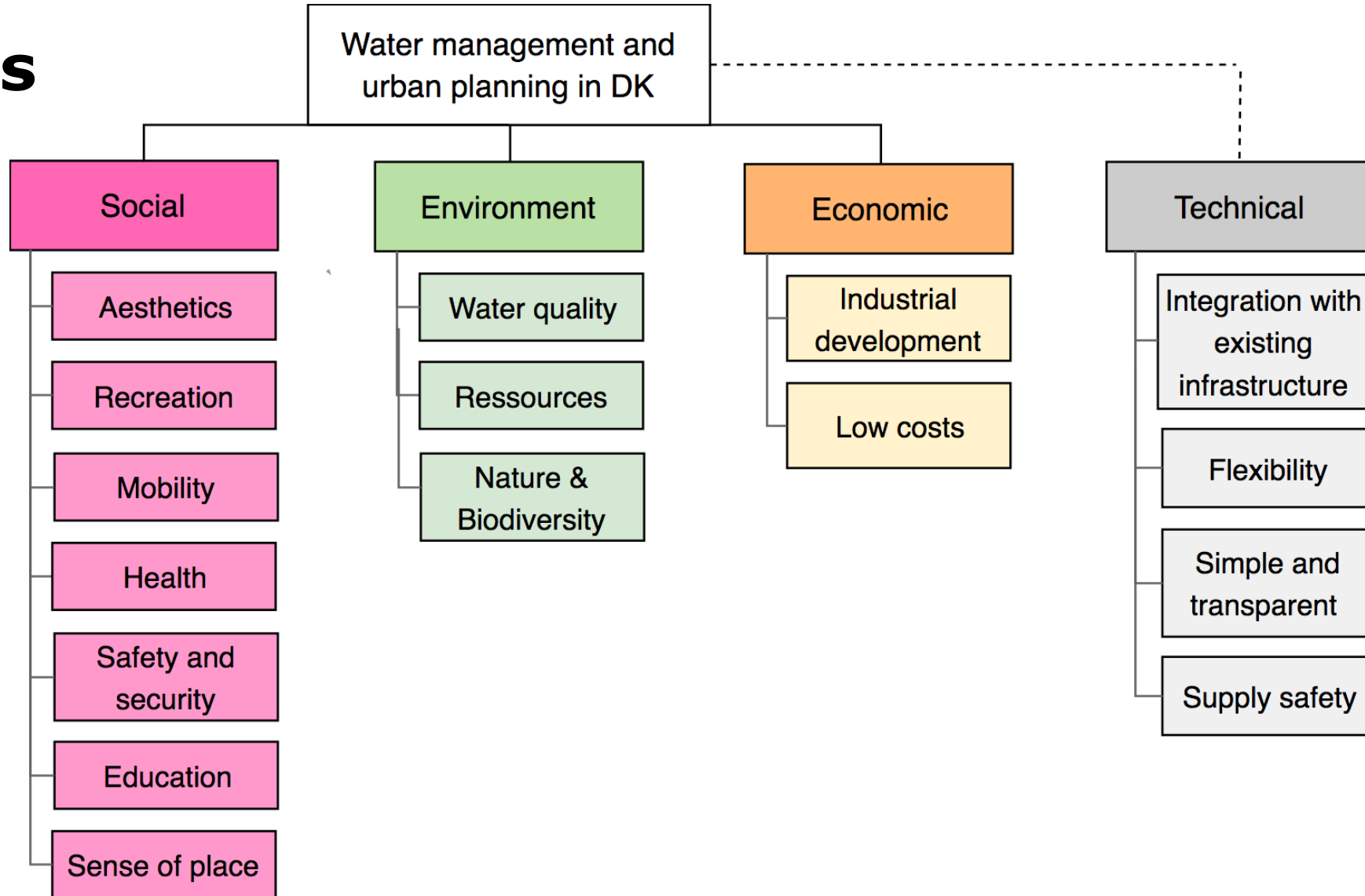
Results



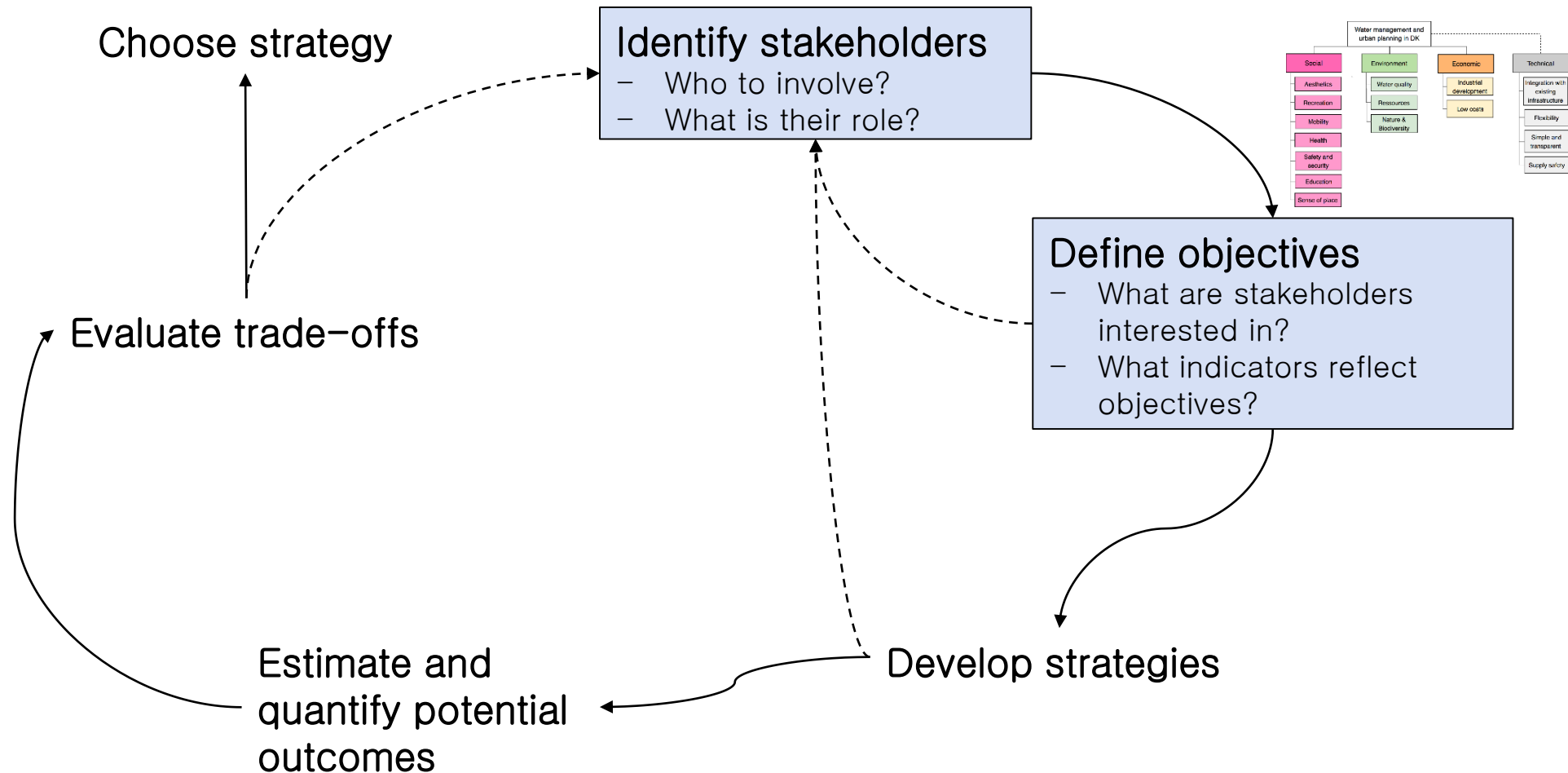
Results



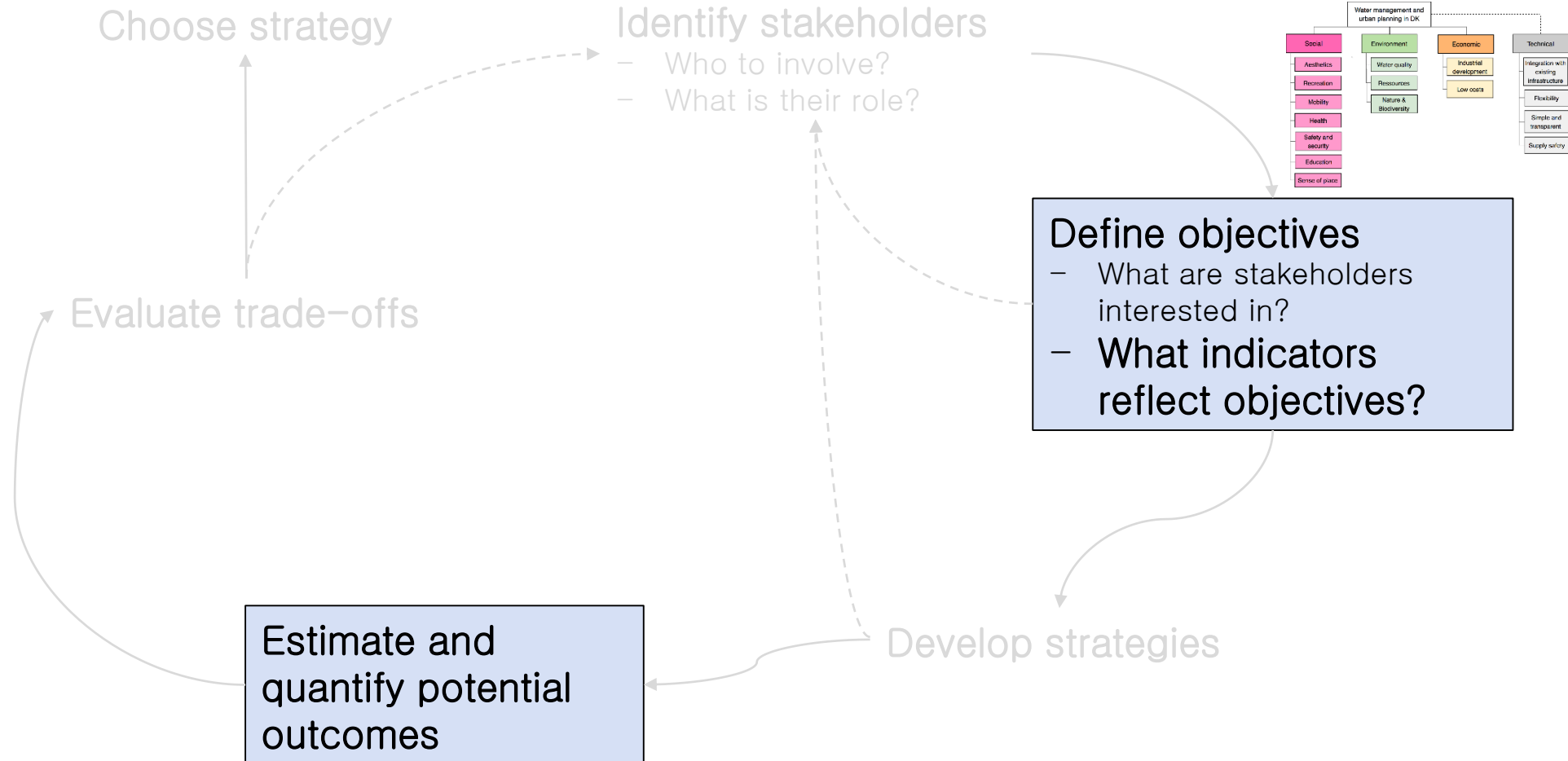
Results



Application



Ongoing work



Valuation* - Ongoing work

Objective	Monetary value
Recreation	WTP for access to nature [kr/ha/yr]
Safety (floods)	% of house price



**Presented at WSC workshop by Jakob Rosenberg Nielsen, Chief economist, Rambøll Management Consulting, October 2018*

Main challenges

- Lack of knowledge on how measures affect objectives (e.g. how safe do people feel?)
- Uncertain valuation of goods that are not traded on a market
- Existing valuation studies from, e.g., UK or US cannot necessarily be transferred to Scandinavian context
- Should municipalities budget for increased physical health (citizens exercise more) and mental health (citizens are less stressed about flooding)?

Lessons learned

- Urban planners, politicians and water managers communicate in different ways
- We identified 16 objectives. Recreation, Mobility, Health, Nature and Low costs were popular and connected to more than 10 different stakeholders.
- The objectives hierarchy is a **snapshot in time** and explores the diversity of objectives (and stakeholders). It provides a **starting point for discussion**.
- Valuation can aid decision-making, but is associated with a lot of challenges and uncertainty

Ways forward

- An objectives hierarchy can structure communication between different professions to ensure the same understanding of objectives
- Indicators are useful for understanding the complexities in multi-objective city initiatives (water management, traffic, recreation, housing, health etc.)
- Valuation could help to increase cooperation across budget silos:
 - Local studies will help to reduce the uncertainty in valuation
 - Can we trigger investments, if we can “prove” that we add value to the municipal traffic or health department?
 - Is the value of “less stressed citizens” part of municipal budgets?
 - Can we make investments based on making citizens feel more safe?

Thank you!

Come talk to me or send an email (jusk@env.dtu.dk) if you have comments/questions and/or interested in following the project