NTNU, Trondheim, September 16th 2015

Dialog, Spatial MCA & Infrastructure siting

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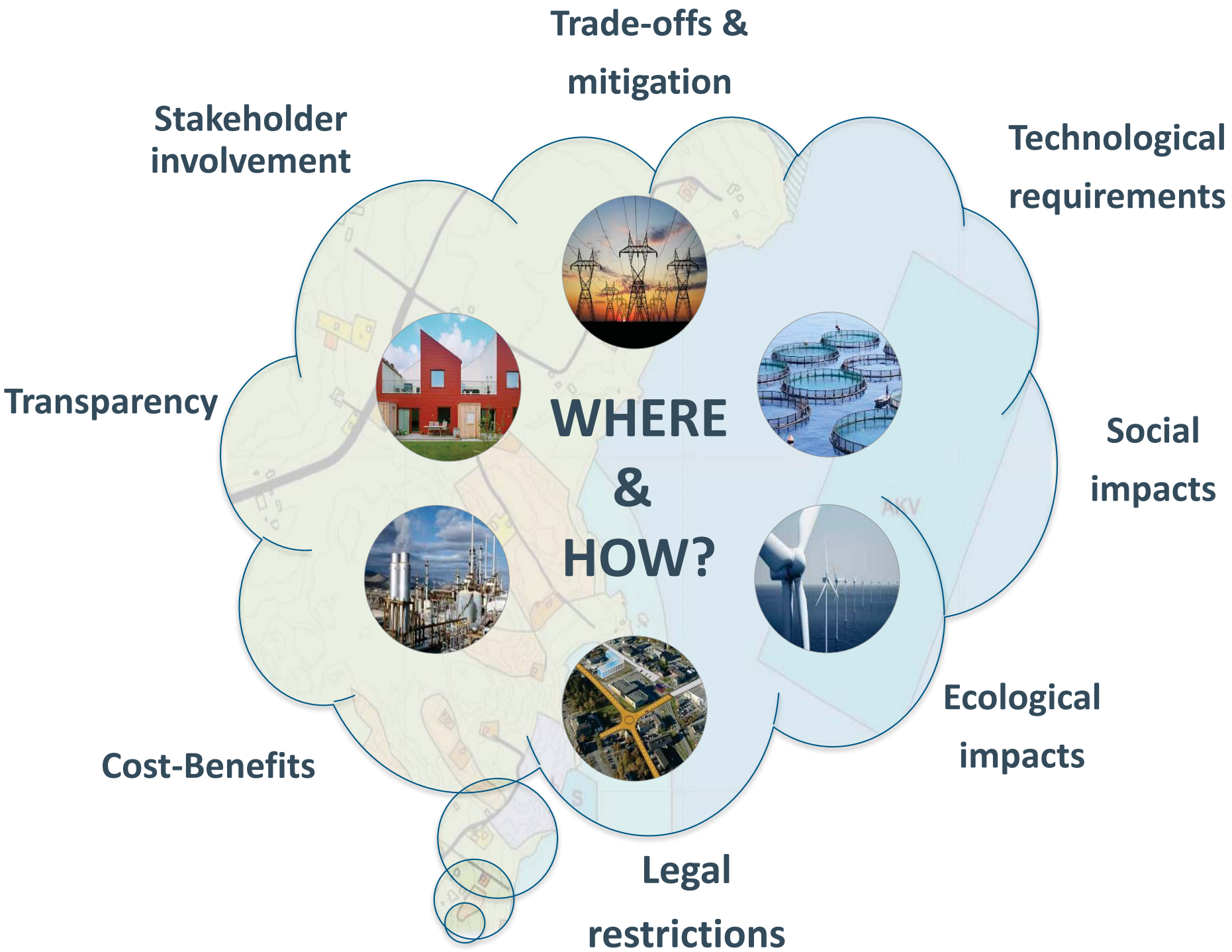
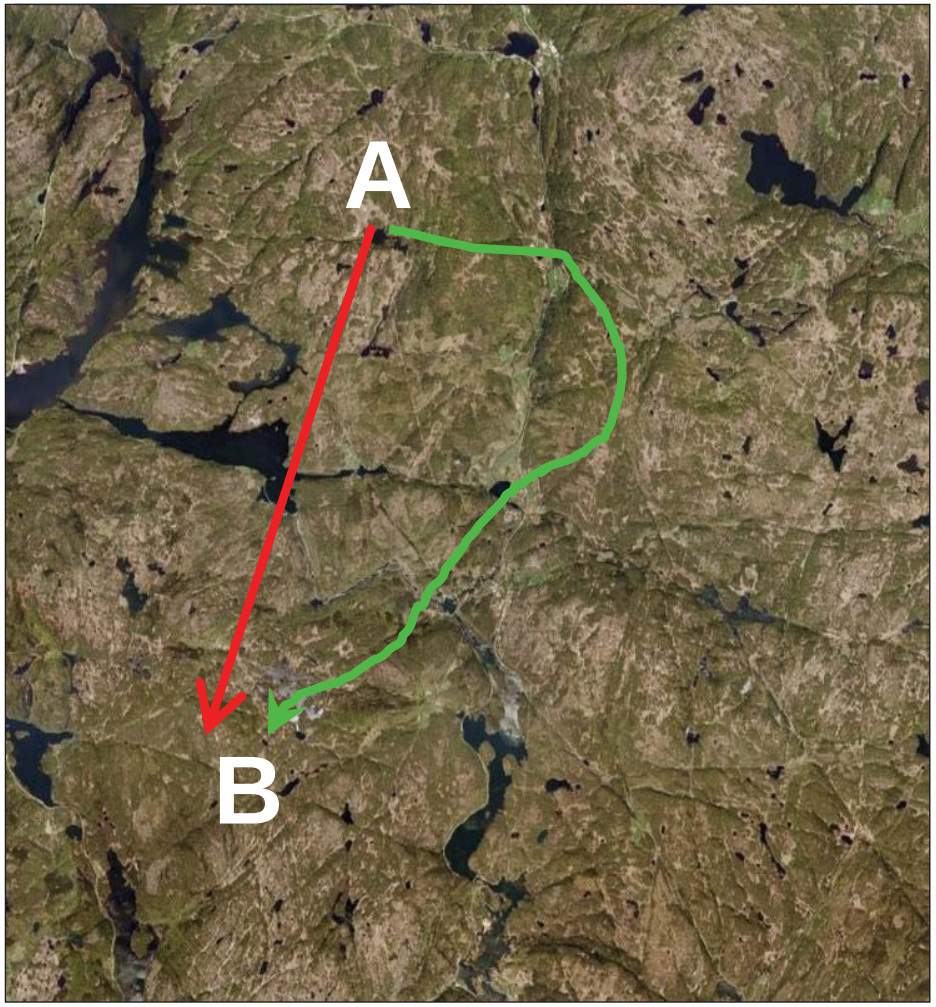

Trade-offs & mitigation
Stakeholder involvement
Technological requirements
Transparency
WHERE & HOW?
Social impacts
Cost-Benefits
Ecological impacts
Legal restrictions

What is the most optimal powerline route?



- Shortest route?
- Most bird friendly?
- Accumulated impacts?
- Maintainance friendly?
- Unproductive land?
- *...or*

is it about all?!

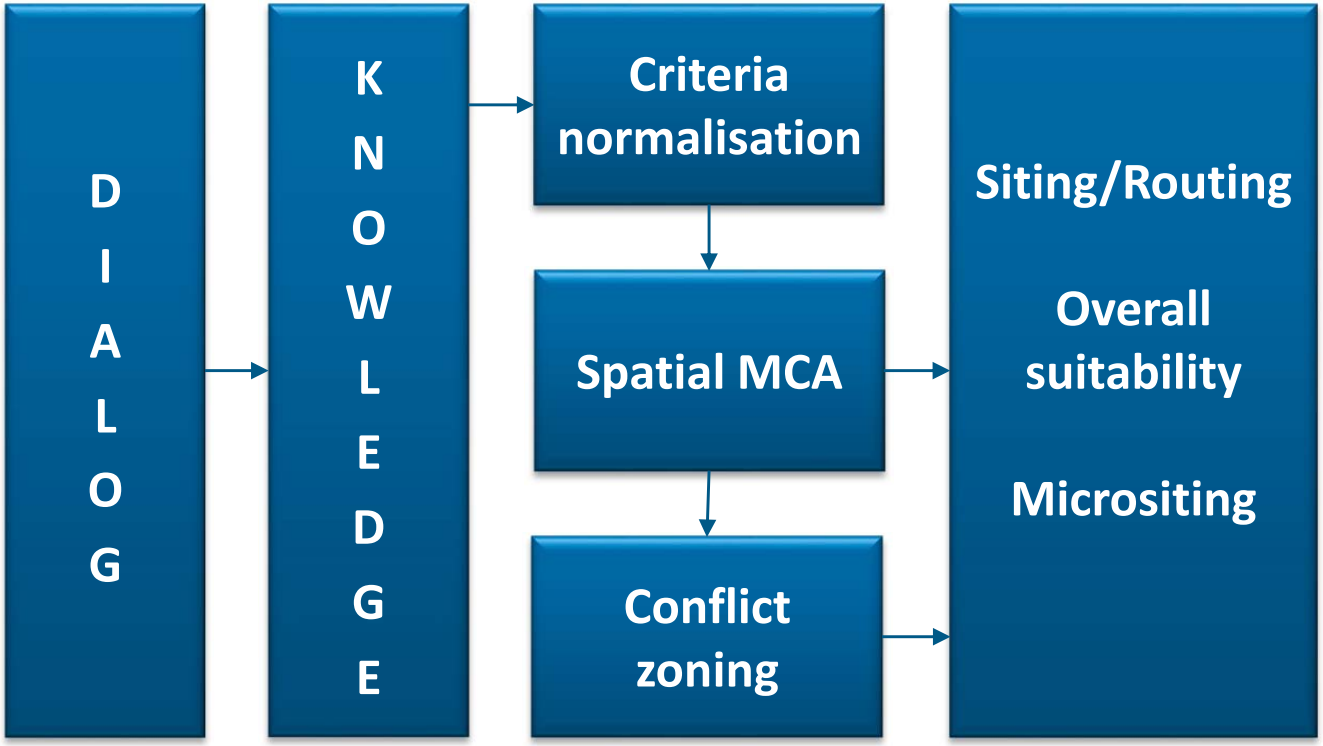
ConSite (ConSensus based Siting)

- Optimal Placement of Power Lines (2009-2013)
- ConSensus based Siting (2014-2016)
- Siting of wind power in Lithuania (2015-2016)

ConSite is a Spatial Decision Support System that ensures

- Environmental friendly and cost-effective siting & routing processes of infrastructure
- Transparency
  - A common knowledge platform
  - Local accept and involvement
  - Trust and predictability
  - Re-examination
  - Conflict reduction
- Consesus based solutions

ConSite building blocks



CEDREN

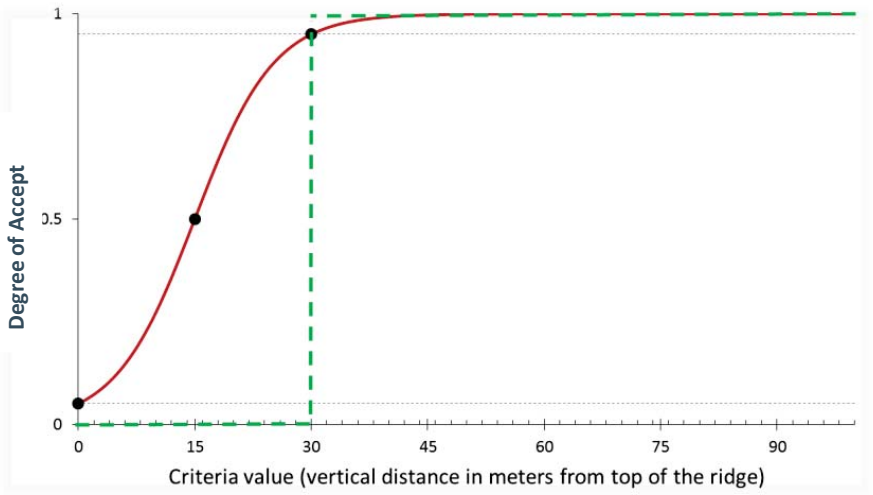
presents

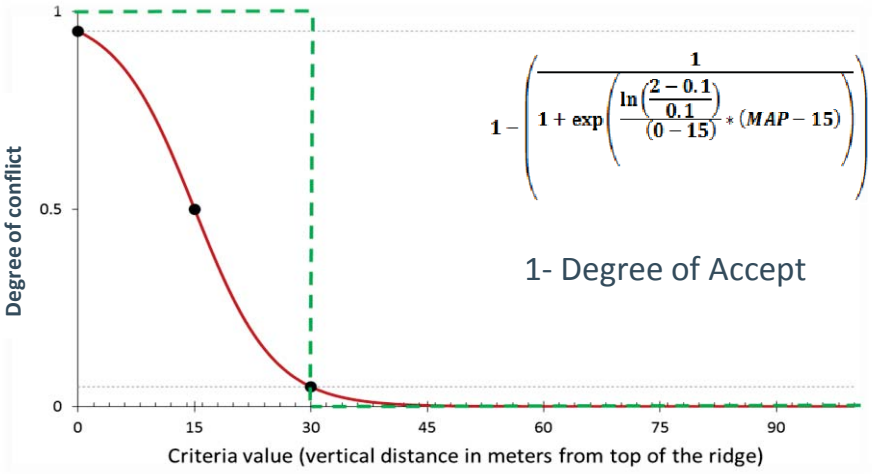
Consensus Based Siting

Dialog

- Stakeholders
- Anchoring and owership
- Relevant criteria (factors)
  - International literature
  - Empirical knowledge
  - Legal demands and restrictions
- Holistic evaluation
- Common understanding

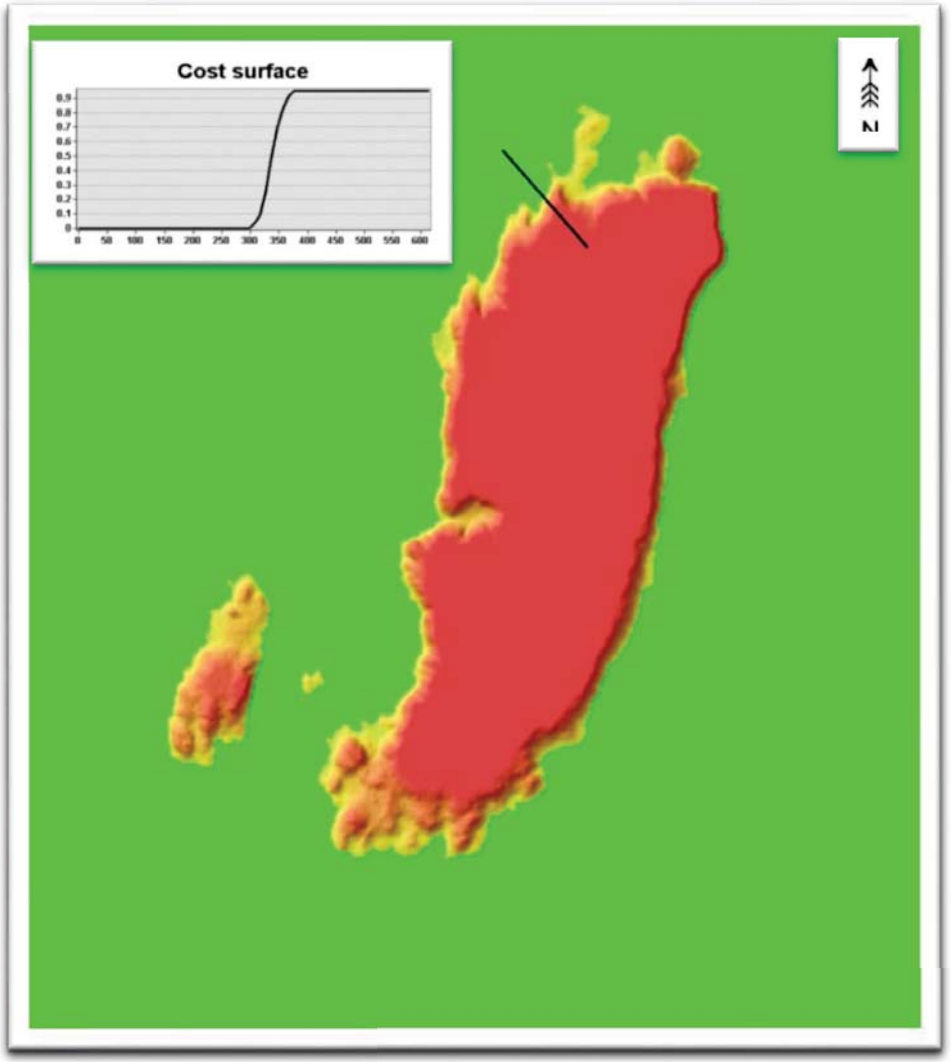
Criteria normalisation





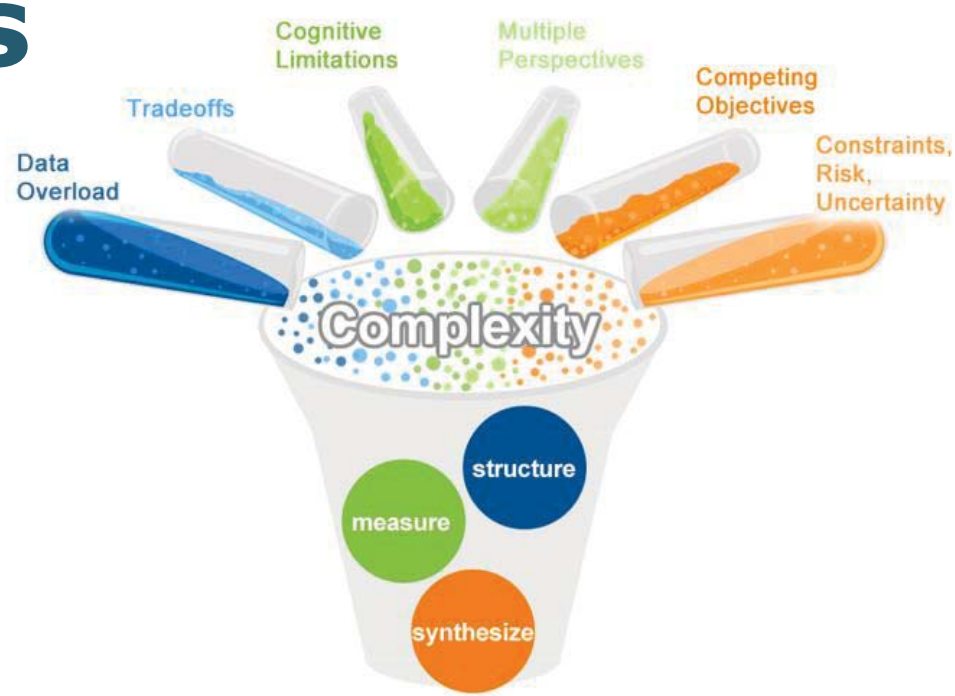
$$1 - \left(\frac{1}{1 + \exp\left(\frac{\ln\left(\frac{2-0.1}{0.1}\right)}{(0-15)} * (MAP - 15) \right)} \right)$$

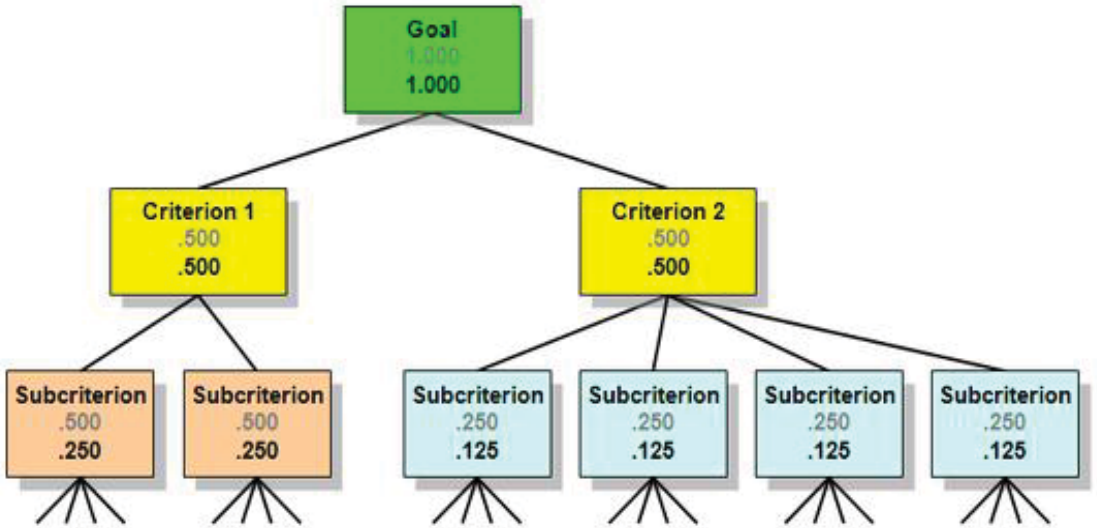
1- Degree of Accept



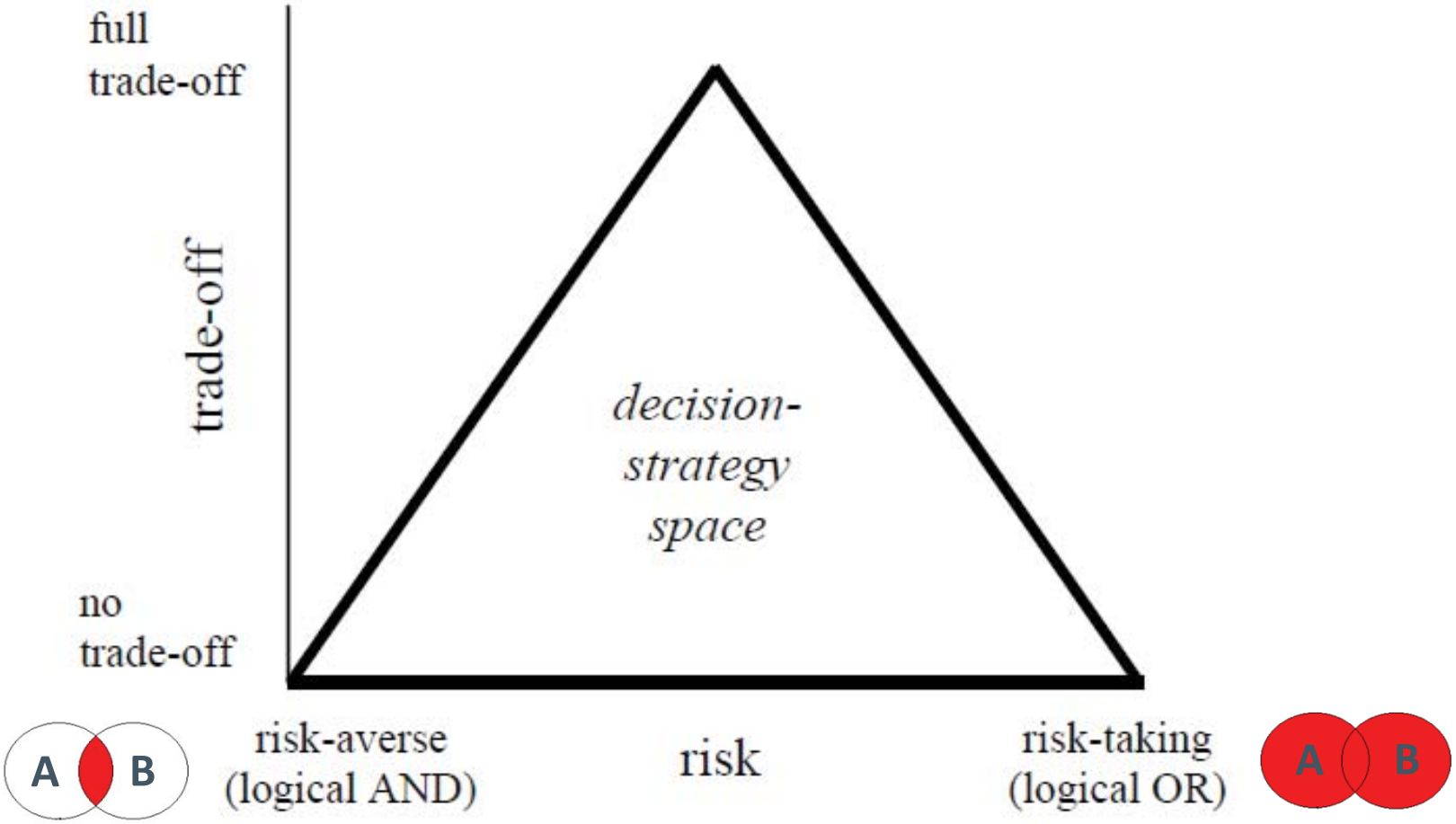
Criteria weights

- Analytical Hierarchy Process (AHP)
  - Model the problem
  - Establish priorities by pairwise comparisons
  - Synthesize judgements
  - Check consistency
  - Decision making
- No “right” answers
- Group processes





Decision strategies & trade-offs



Spatial MCA

Sub themes

Themes

Categories

Aggregated conflict map

Criteria

Weights

Criteria

Weights

Criteria

Weights

Weights

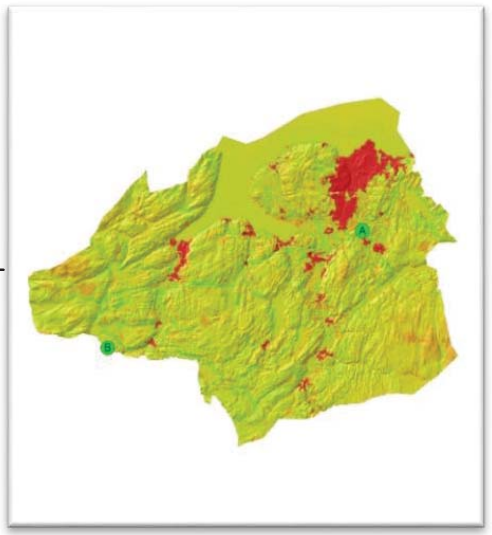
Ecology

Economy

Technology

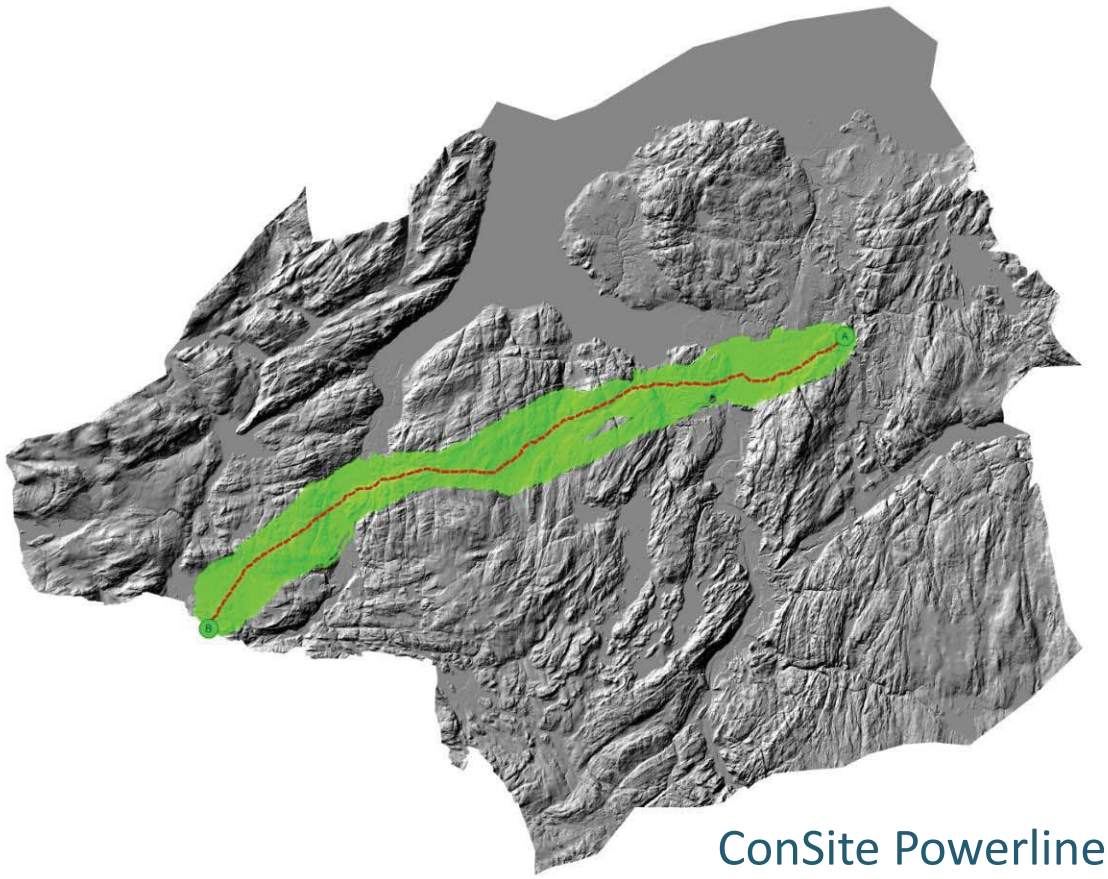
Society

Weights



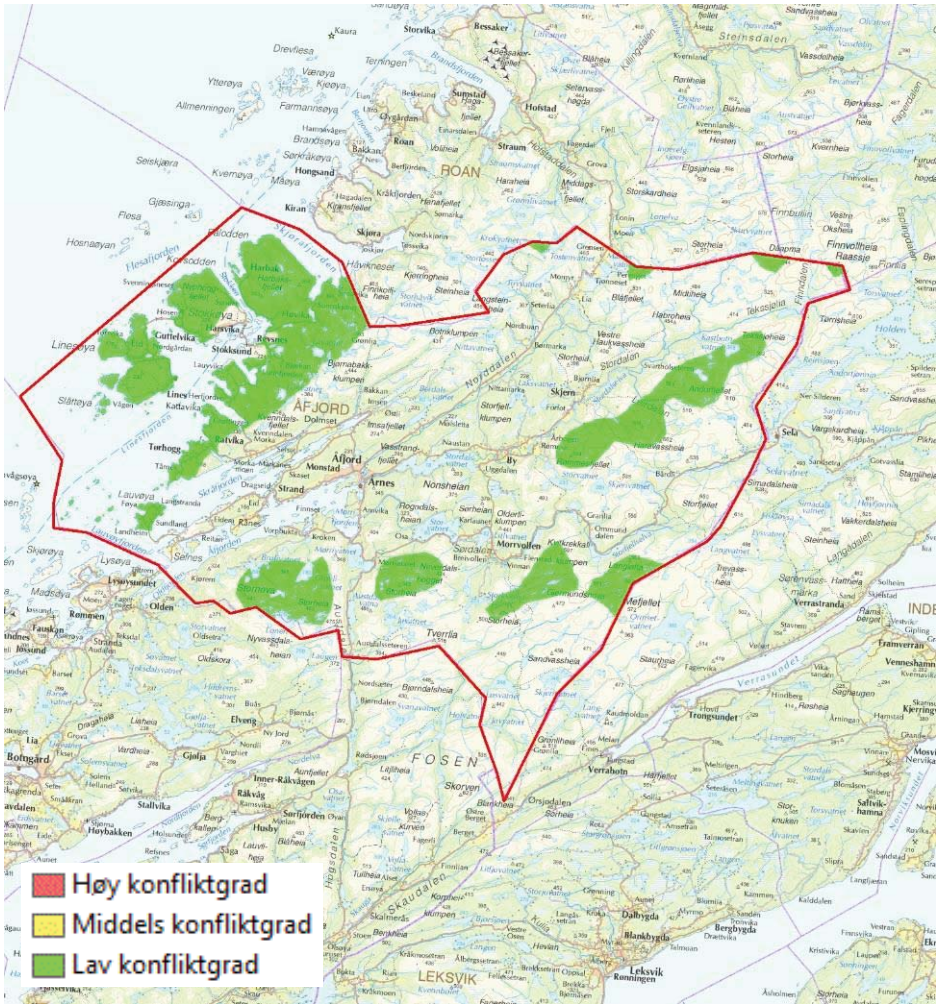
Routing of transmission lines

- Conflict map
- Study area
- Optimal solution
- Project design



ConSite Powerlines

Siting of wind-power plants

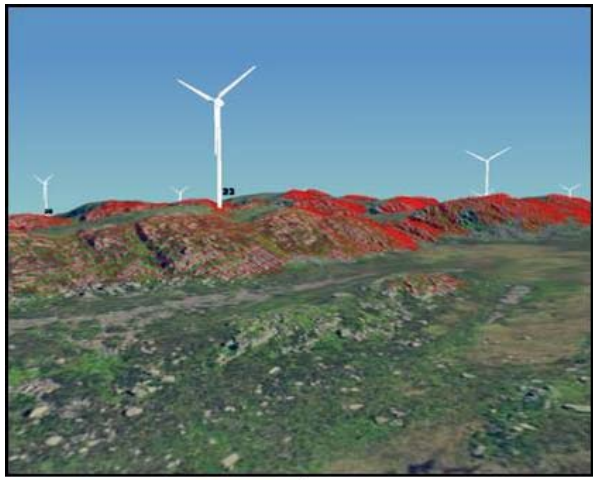


- Balance wind-power potential with local conflict level
- Conflict zoning
- Overall suitability
- Production-spesifics
  - Boundary constraints
  - Geometrical design
  - Turbine capacity

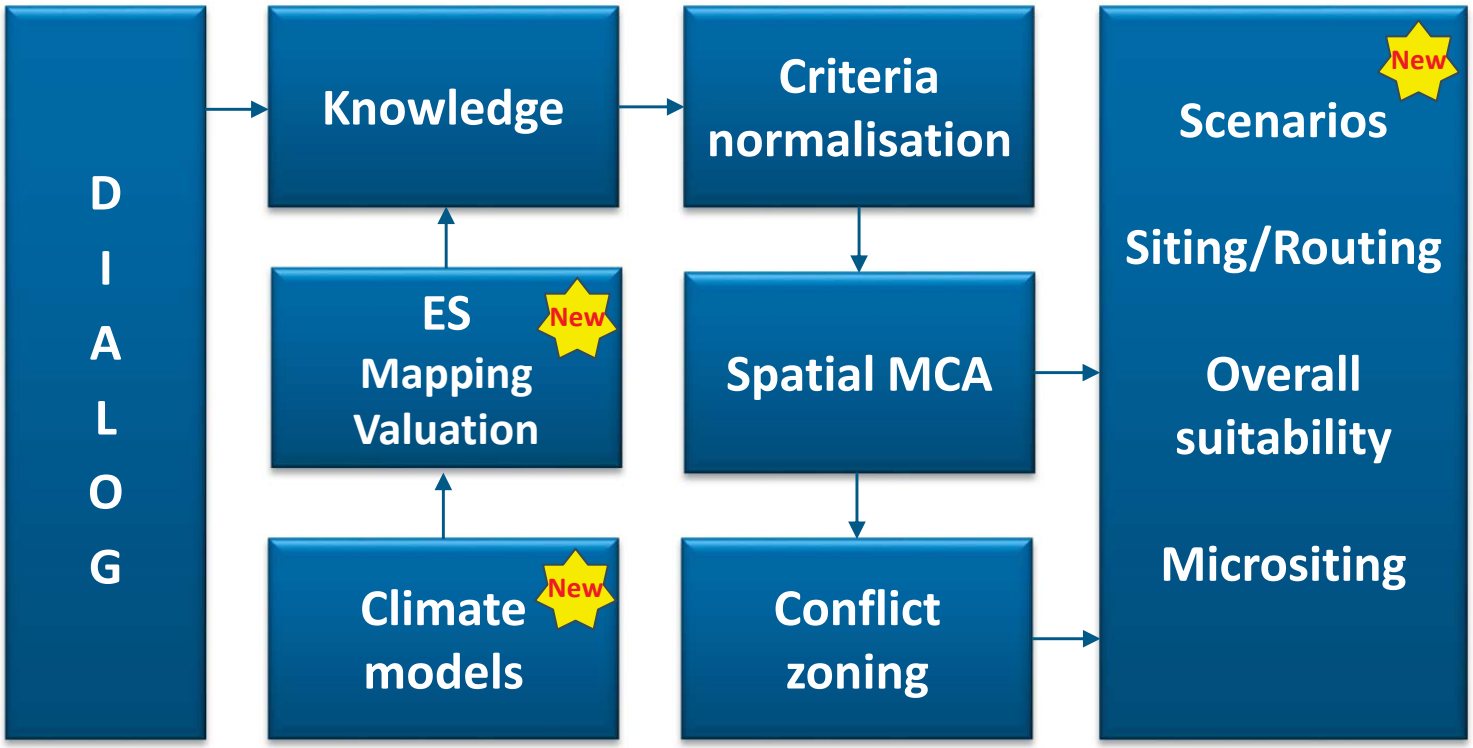
ConSite Wind (NB! Under construction)

Micrositing of wind-turbines

- INnovative Tools to reduce Avian Collisions with wind Turbines- INTACT (2014-2016)



Further progress
- ConSite Aquaculture



Summary

- ConSite adress current needs in spatial planning and decision making
- Consite ensure:
  - Documentation & re-examination
  - Simulation of spatial effects of decision strategies & trade-offs
  - Conflict resolution & mitigation
  - Process scoping & effectivisation
- Many synergies

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Thanks for the attention!
Questions?
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