

Innovations for biodiversity assessments in planning and industry

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integrating ecological models and ecosystem services

Birgit Aue

Stefan Hotes, Thomas Gottschalk, Volkmar Wolters



Ecosystems & human livelihoods

- Healthy ecosystems are the basis of human livelihoods and well-being
 - Considering species, habitats and ecosystem functions is crucial for sustainable regional development
 - **People obtain benefits from ecosystems**
- ➔ They provide ecosystem services

Ecosystem Services

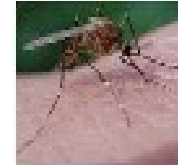
provisioning

- food
- water
- timber, fibre



regulation

- climate
- detoxification
- pests & diseases



cultural

- inspiration
- recreation
- education



supporting

- nutrients
- soils formation
- seed dispersal

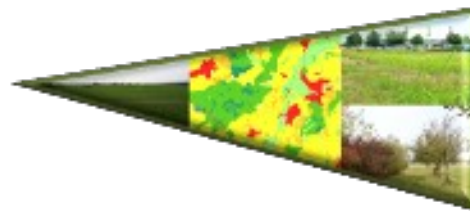


Biodiversity assessments

- Assessing the impact of economic activities on ecosystems is required
 - Numerous regulations exists
 - Public authorities
 - Private companies
 - Economic significance for companies
- ➔ Existing procedures are time-consuming and costly!

ÖkoService

- Project recently started (April 2012)
- Developing a innovative system
- Validation of its applicability and economic potential
- Funded by the Federal Ministry of Education and Research



GEFÖRDERT VOM



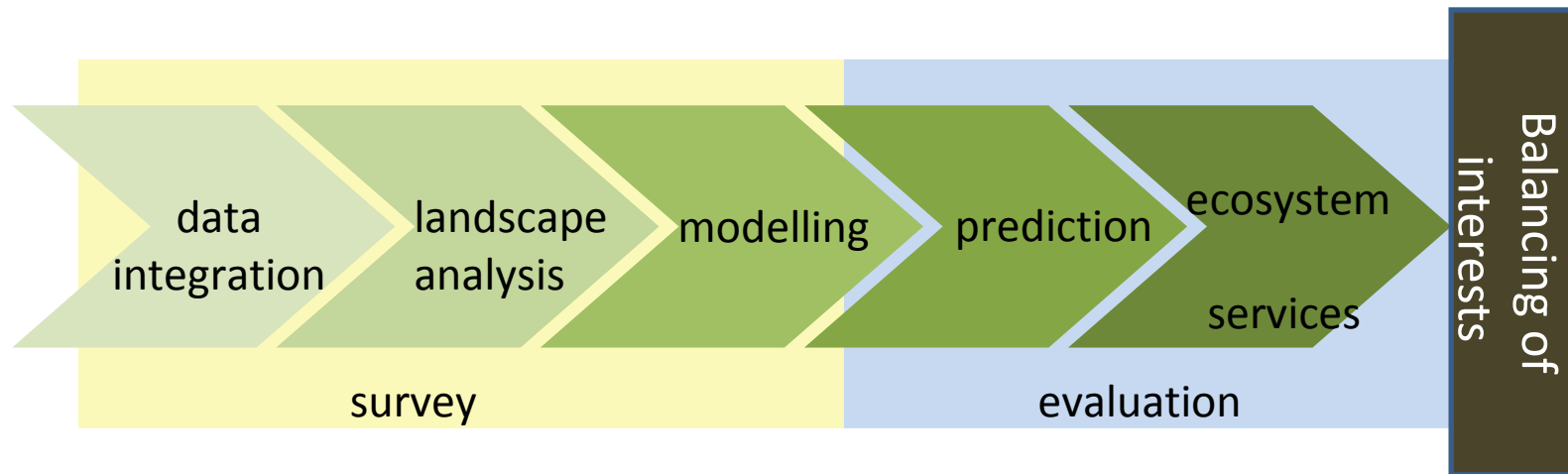
Bundesministerium
für Bildung
und Forschung

Validating the innovative system

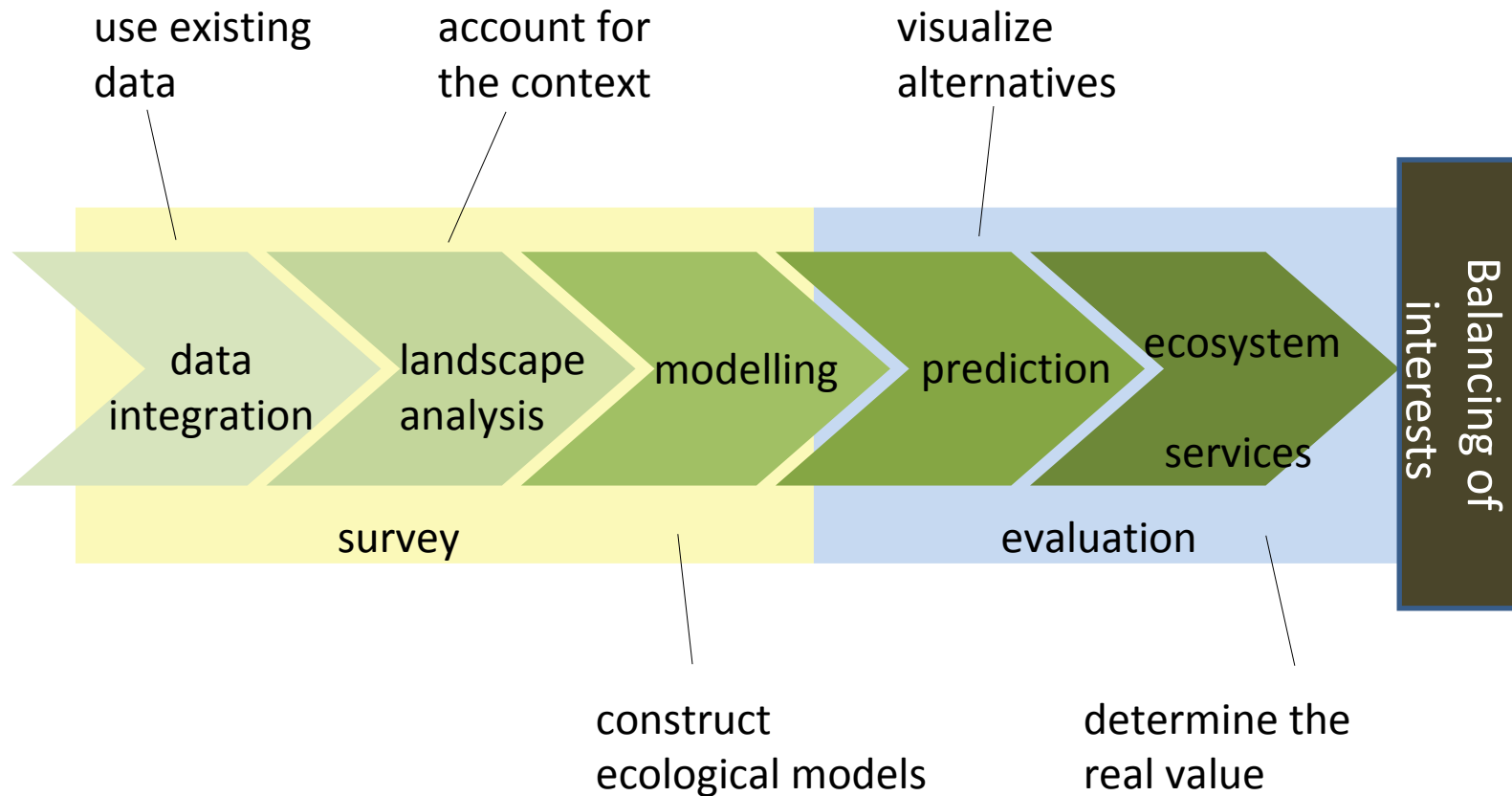
For cost-efficiency and quality assurance

- Integrating the use of ecological models and the concept of ecosystem services
- Feasibility scientifically sound methods and concepts
- Each step supported by software tools

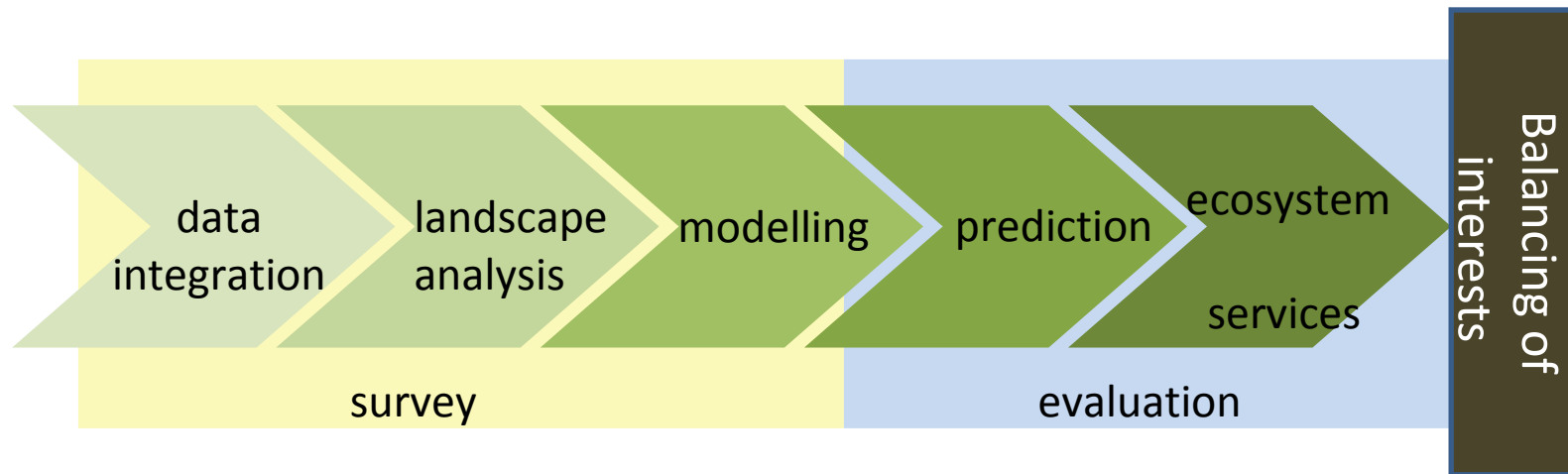
Concept



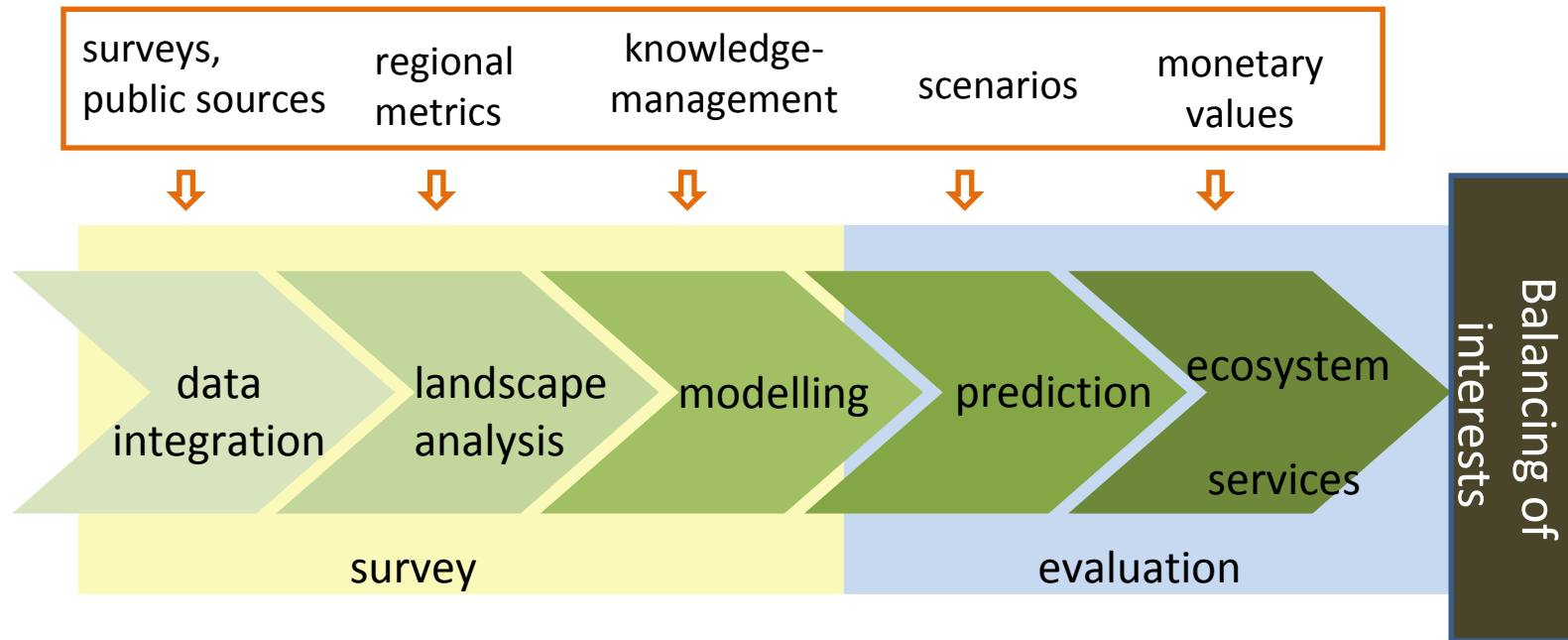
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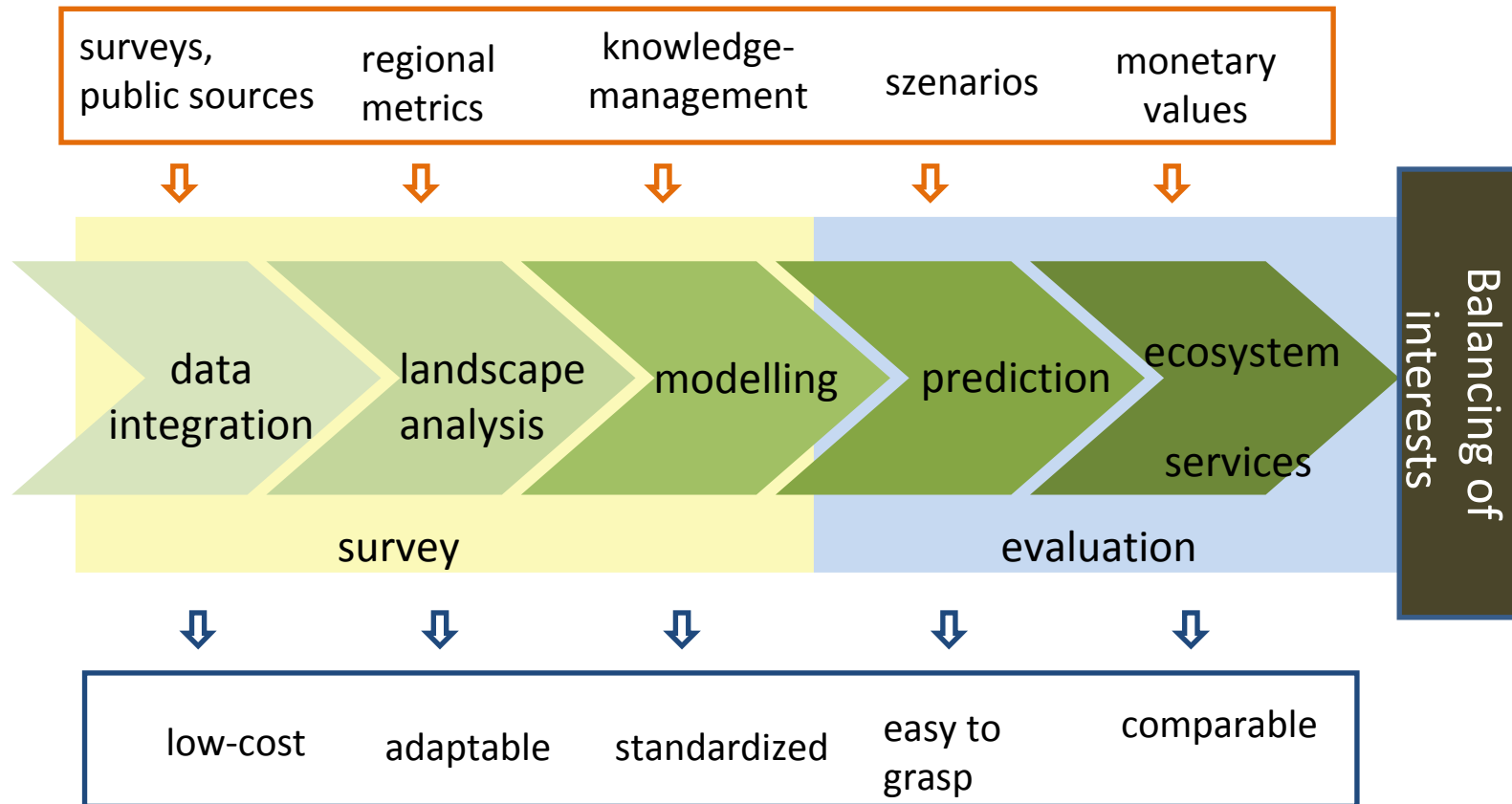
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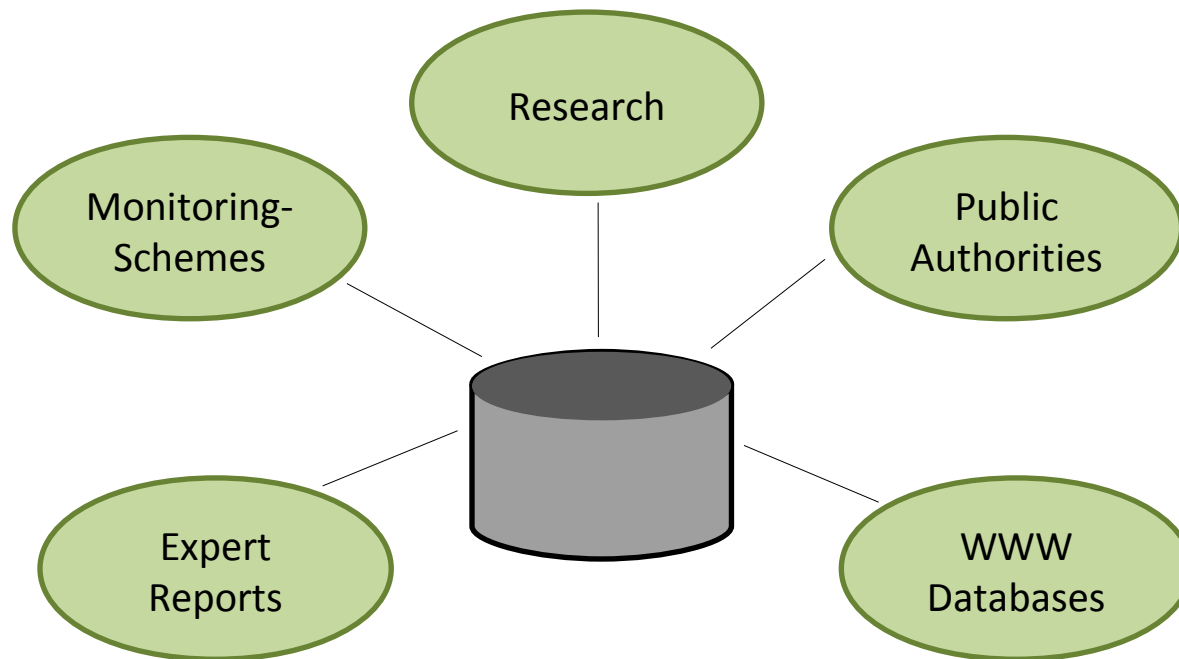
Concept



Concept



Data integration



Semantic consistency

classifications

ontologies

data dictionaries

Spatial consistency

projection

georeference

resolution

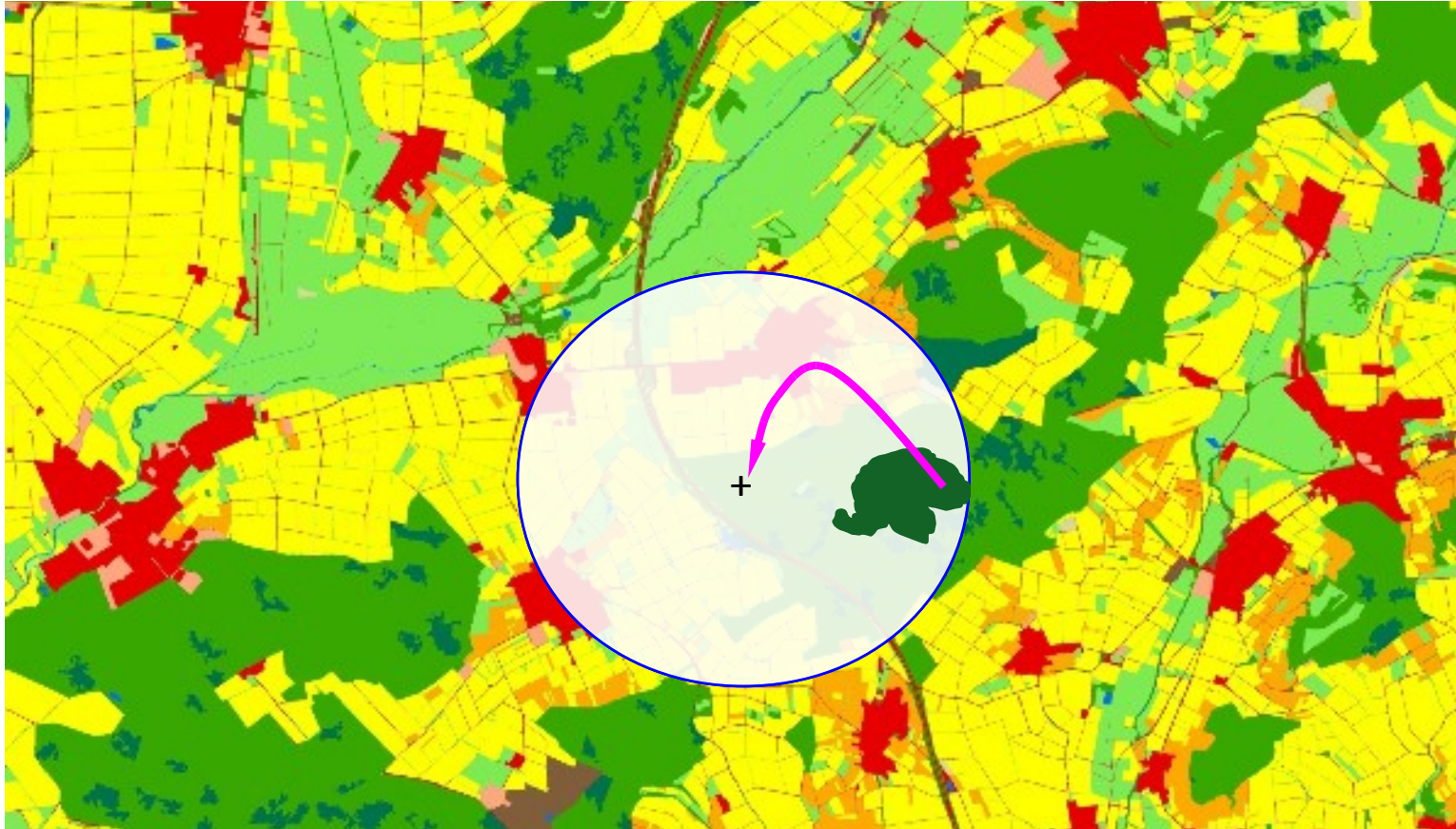
Temporal consistency

actuality

resolution

Data mining in heterogeneous data

Landscape analysis



accounting for the surrounding landscape

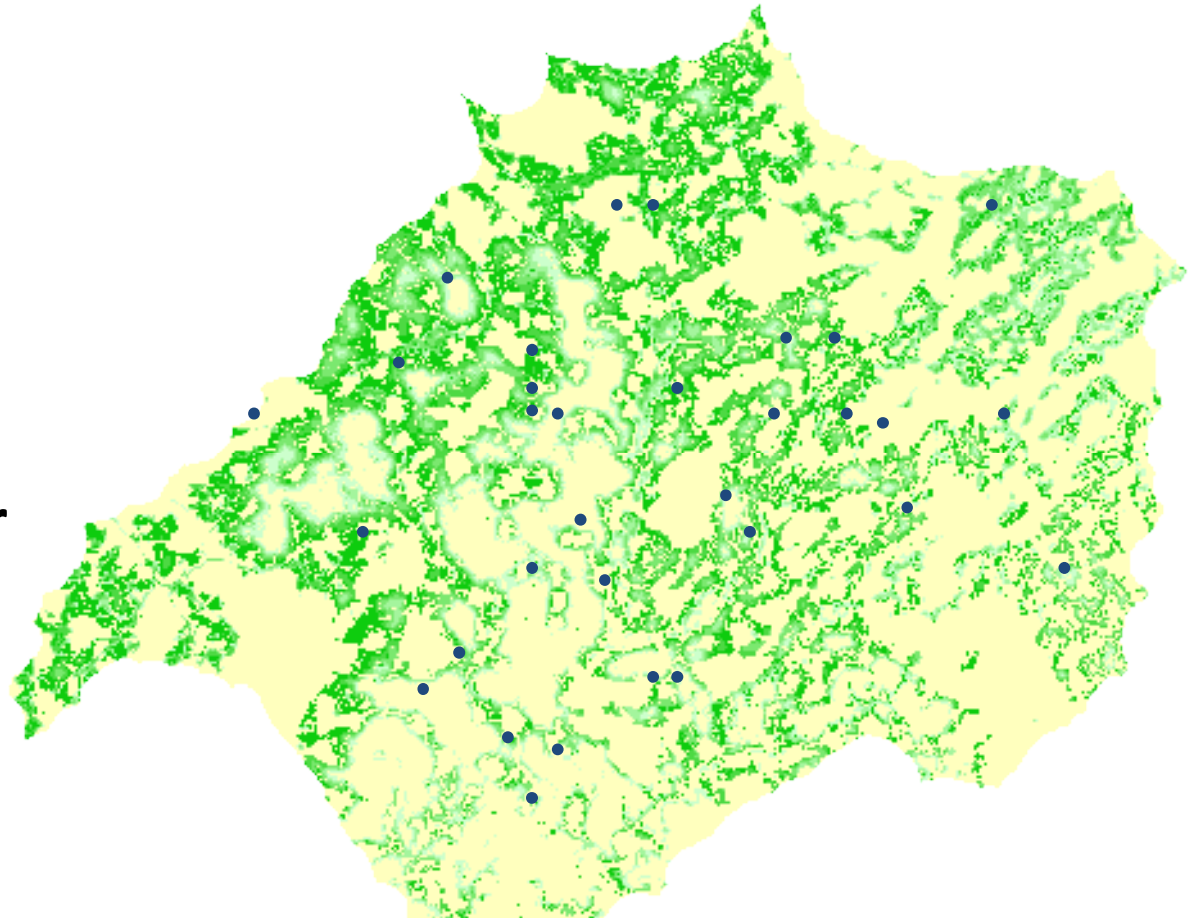
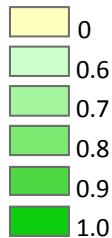
Modelling and prediction

Example: predicting bird distributions under prospective global change



Yellowhammer

**Predicted
probability of
occurrence**

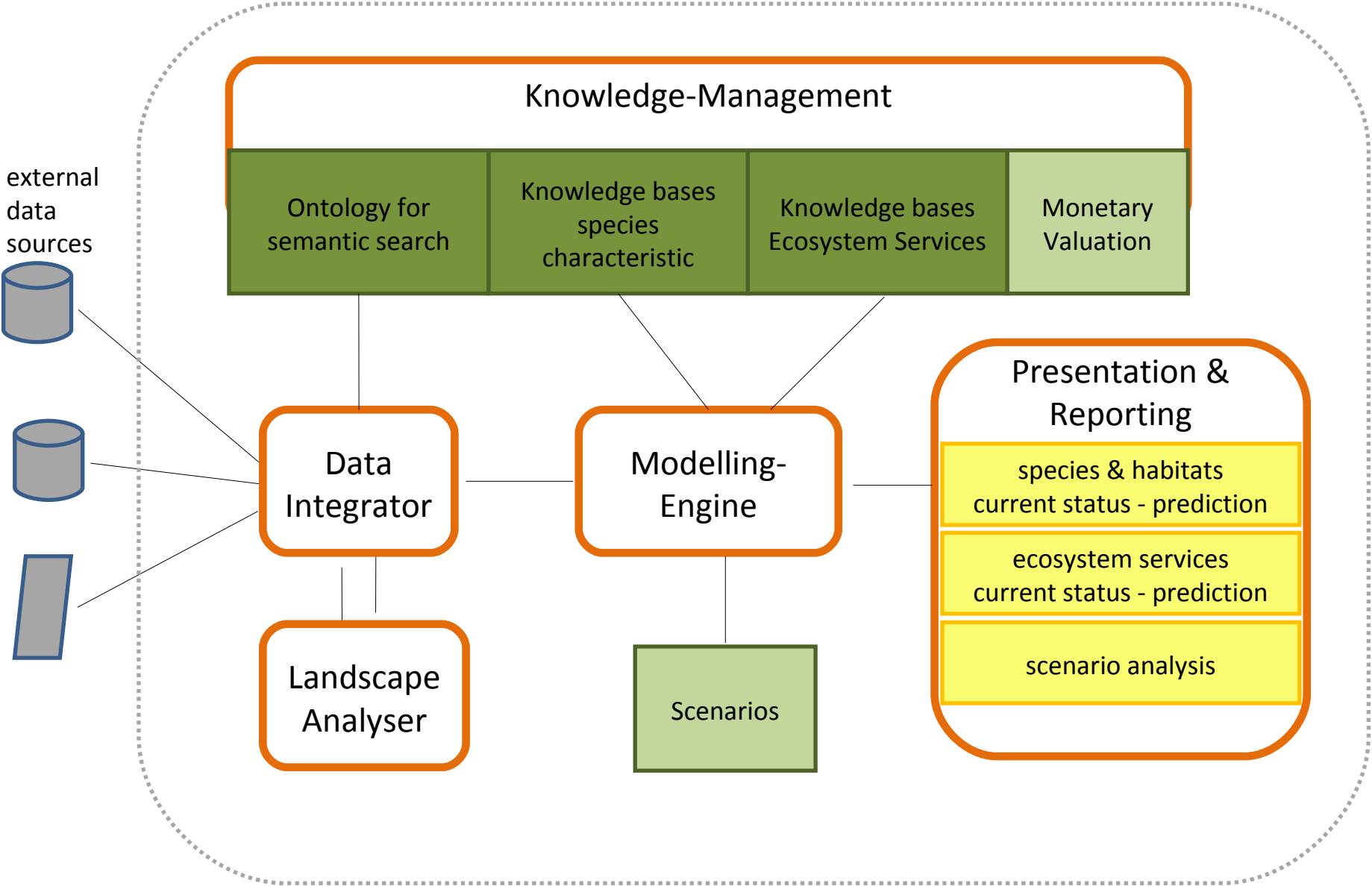


Valuating ecosystem services

- biophysical terms, e.g.
 - yields
 - carbon sequestration
 - pollination
- monetary terms, e.g.
 - direct: market based prices
 - indirect: willingness-to-pay



technical platform



**Thank you
for your attention!**