OPTimising FORest management decisions for a low-carbon, climate resilient future in Europe

From science to practice: Decision Support Systems for forest managers

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6th Edition of the Forest Innovation Workshop

and OptFor-EU Mid-Term Conference

INFORM-PRIORITIZE-COLLABORATE: Building a Sustainable Forest Future

through Regional Cooperation and Innovation

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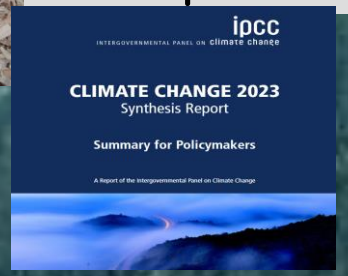
Different interests and preferences in forest management planning

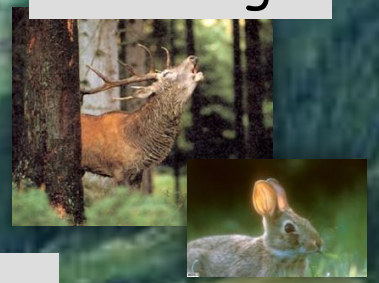
protection

timber

adaptation



hunting



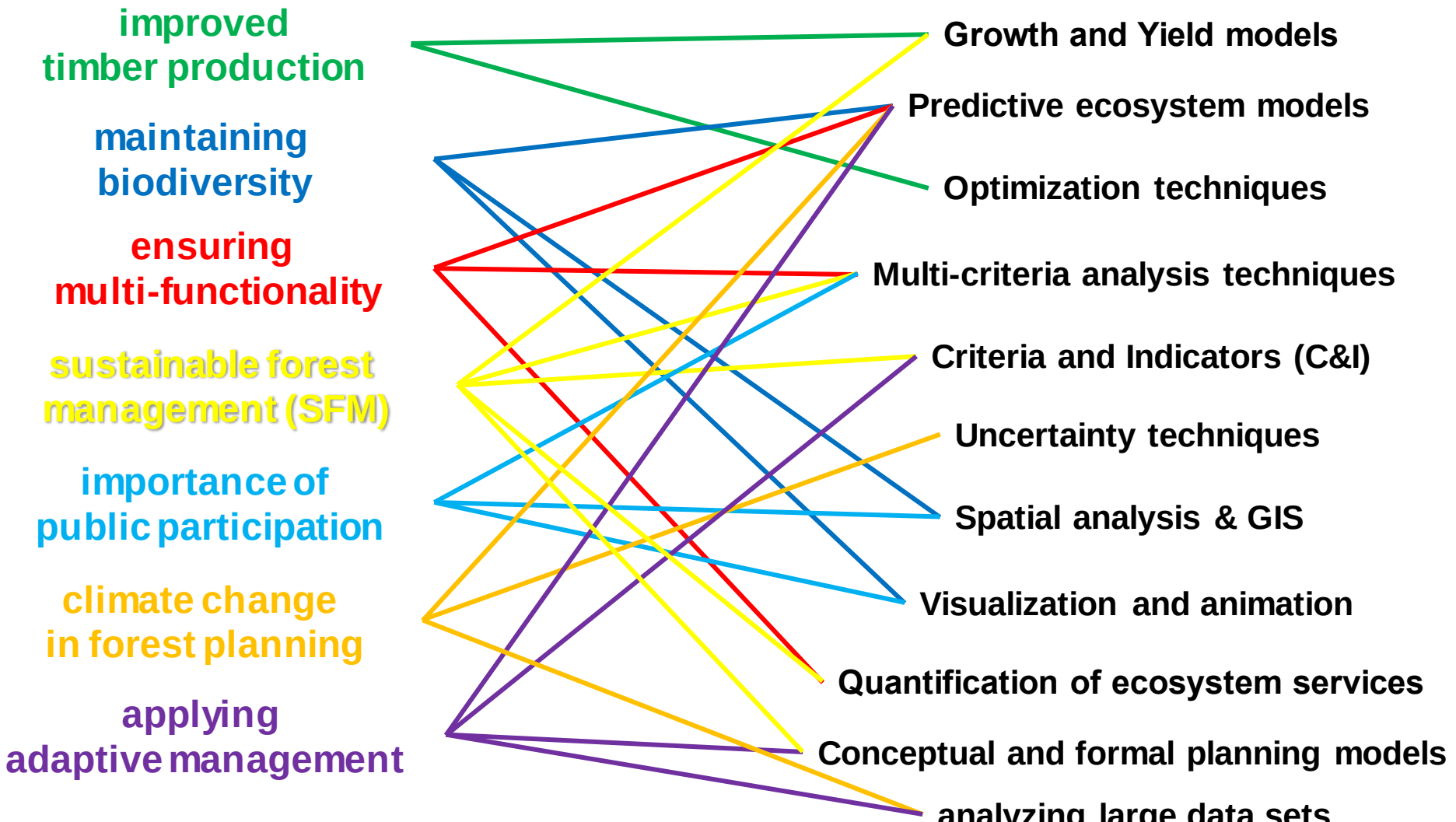
biodiversity

water resources

tourism

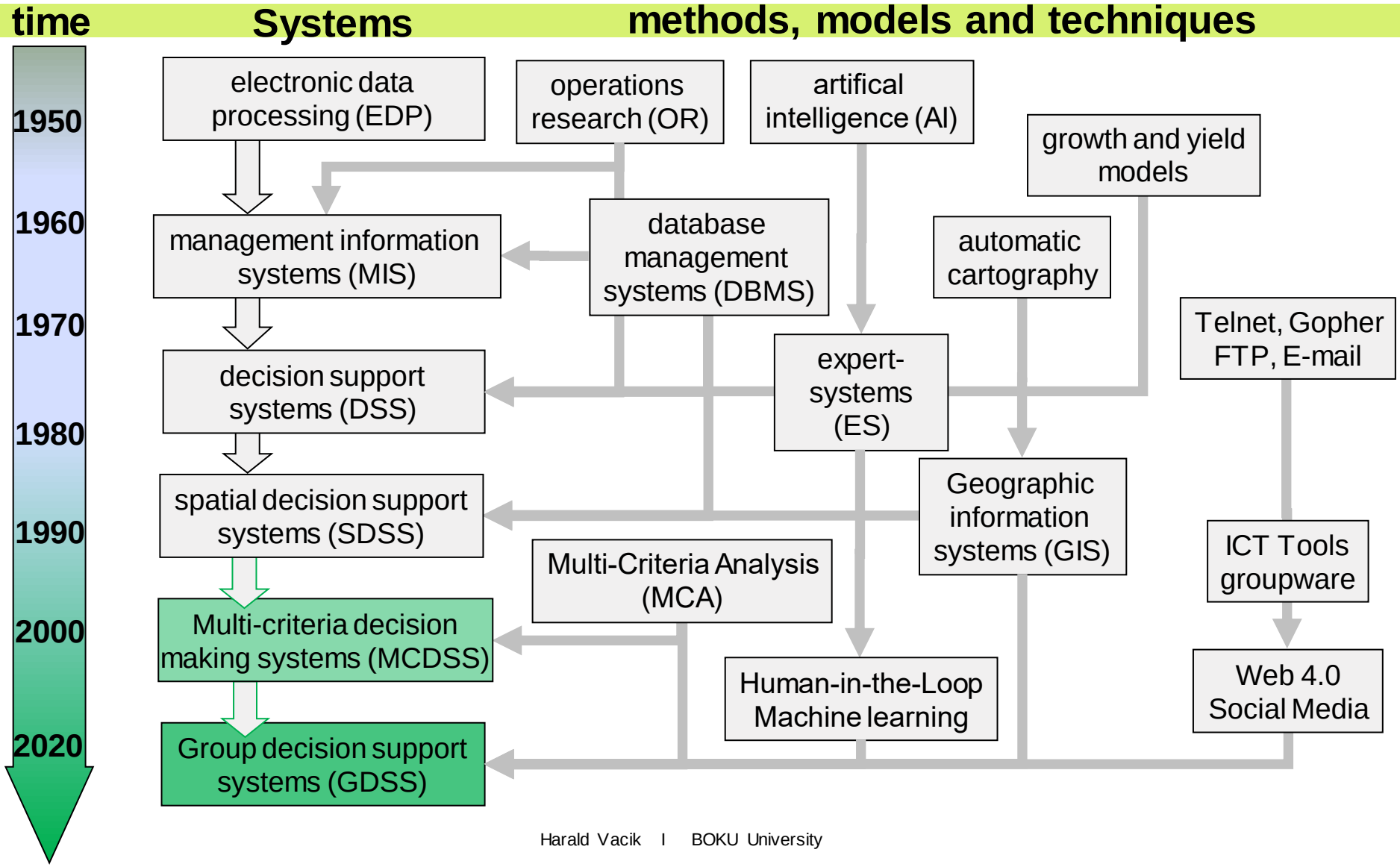
Demands stimulate decision support

providing ecosystem services under climate change

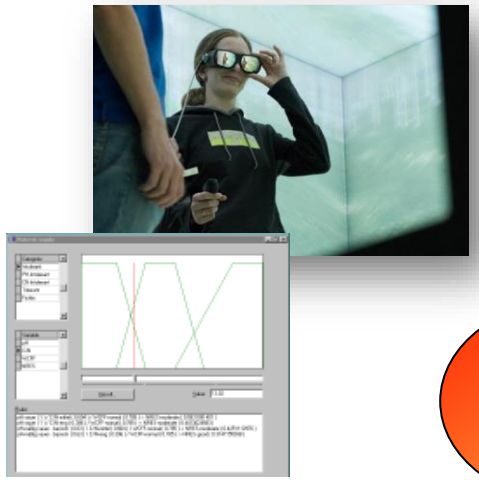


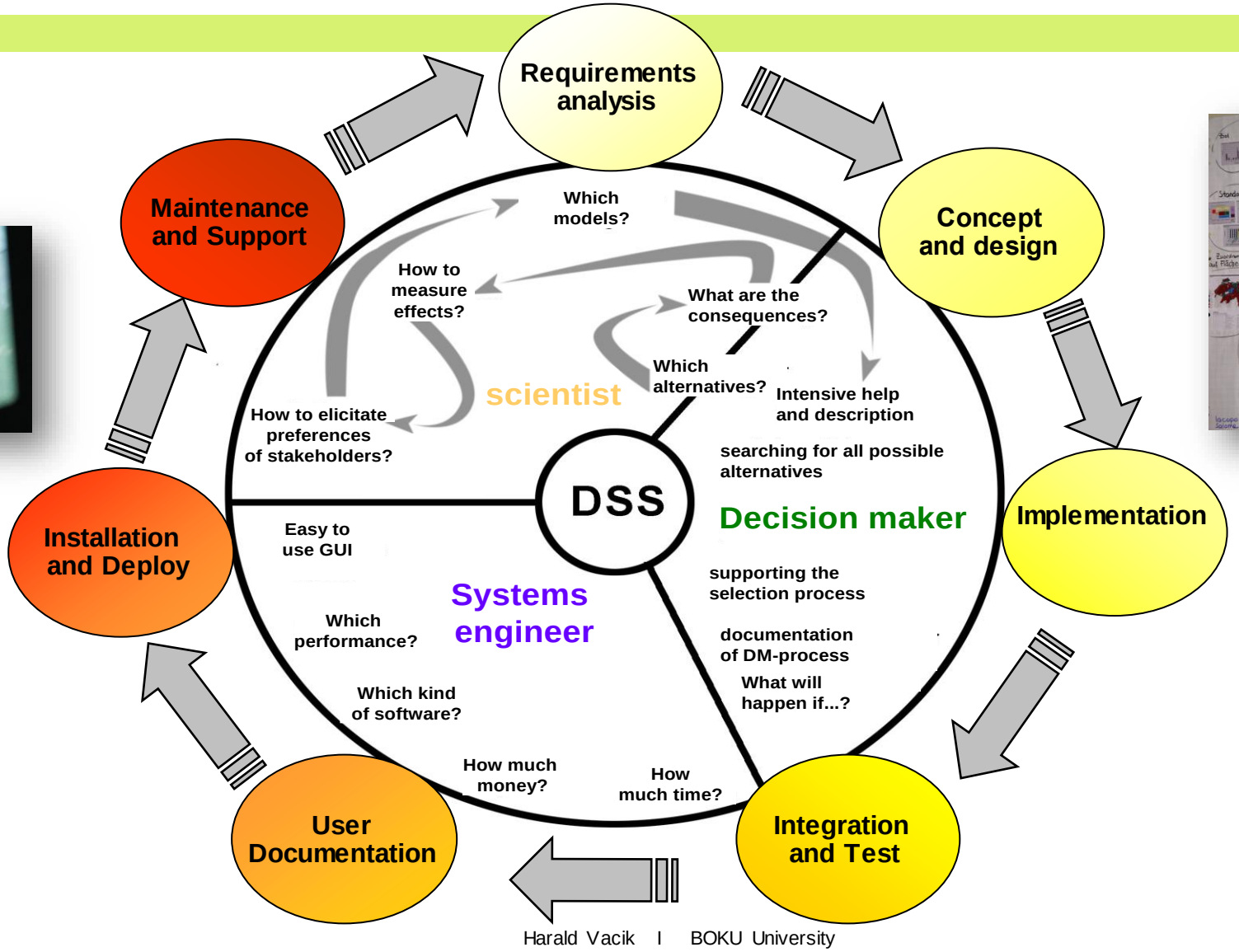
Technology and methods improve

a historical perspective...



DSS development and design

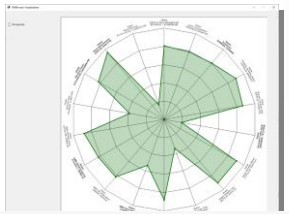




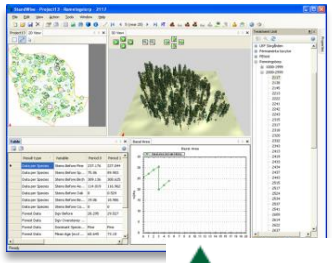
Simplicity versus complexity

User interaction becomes challenging

AFM Tool Box



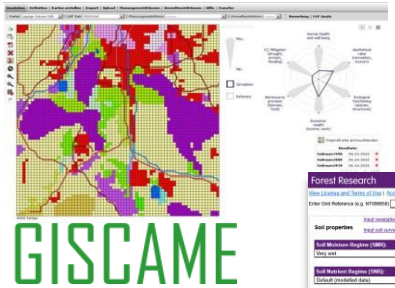
ONEforest

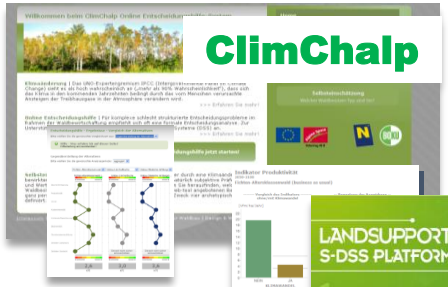


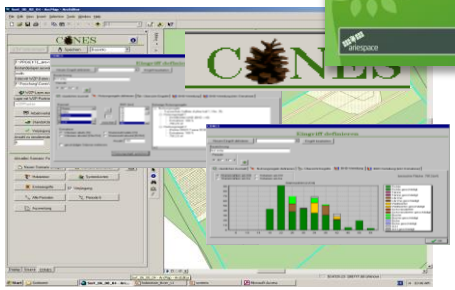
heureka!

Balancing factors
Play, Meaning and Reality
becomes challenging

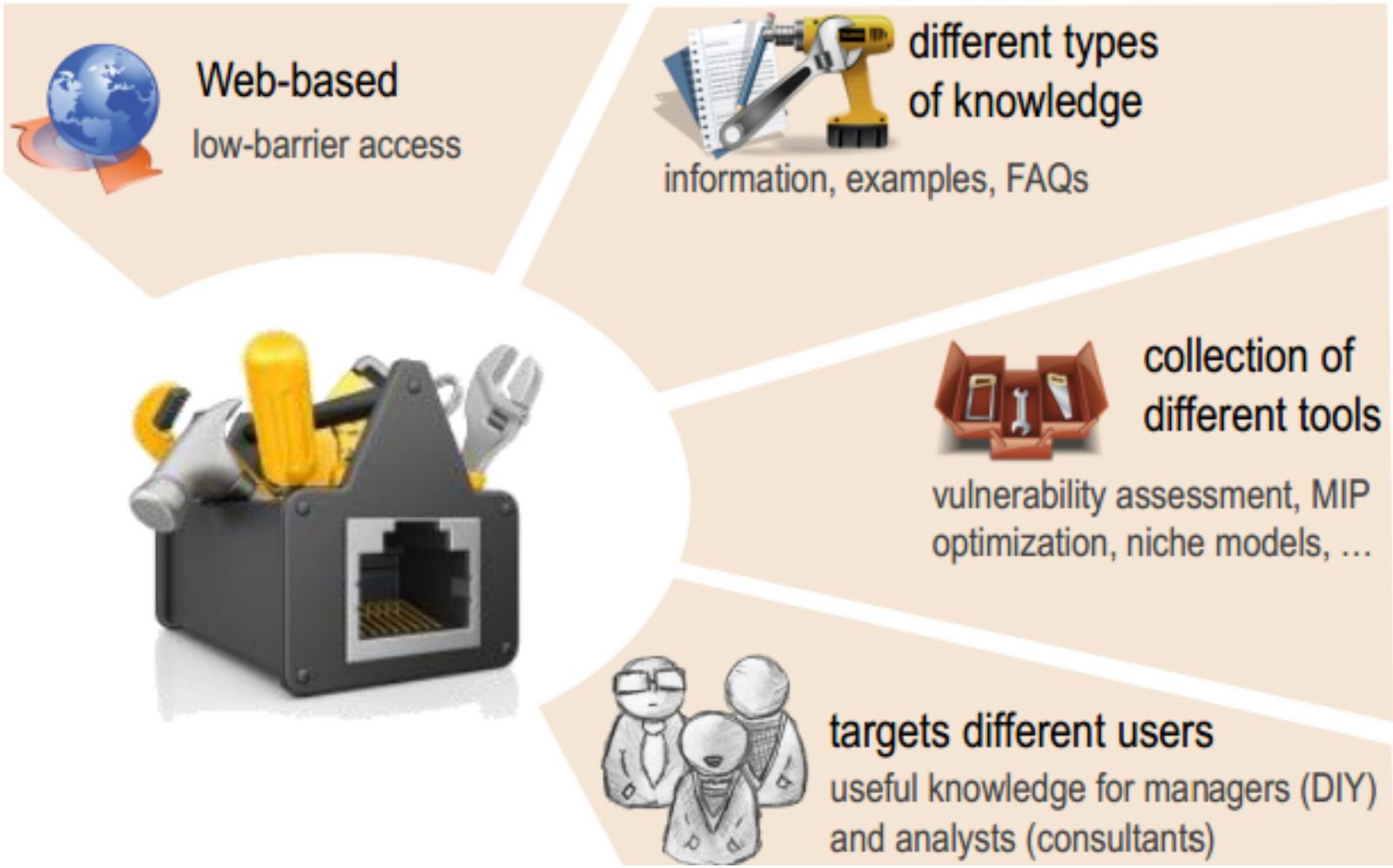
Harteveld (2009)





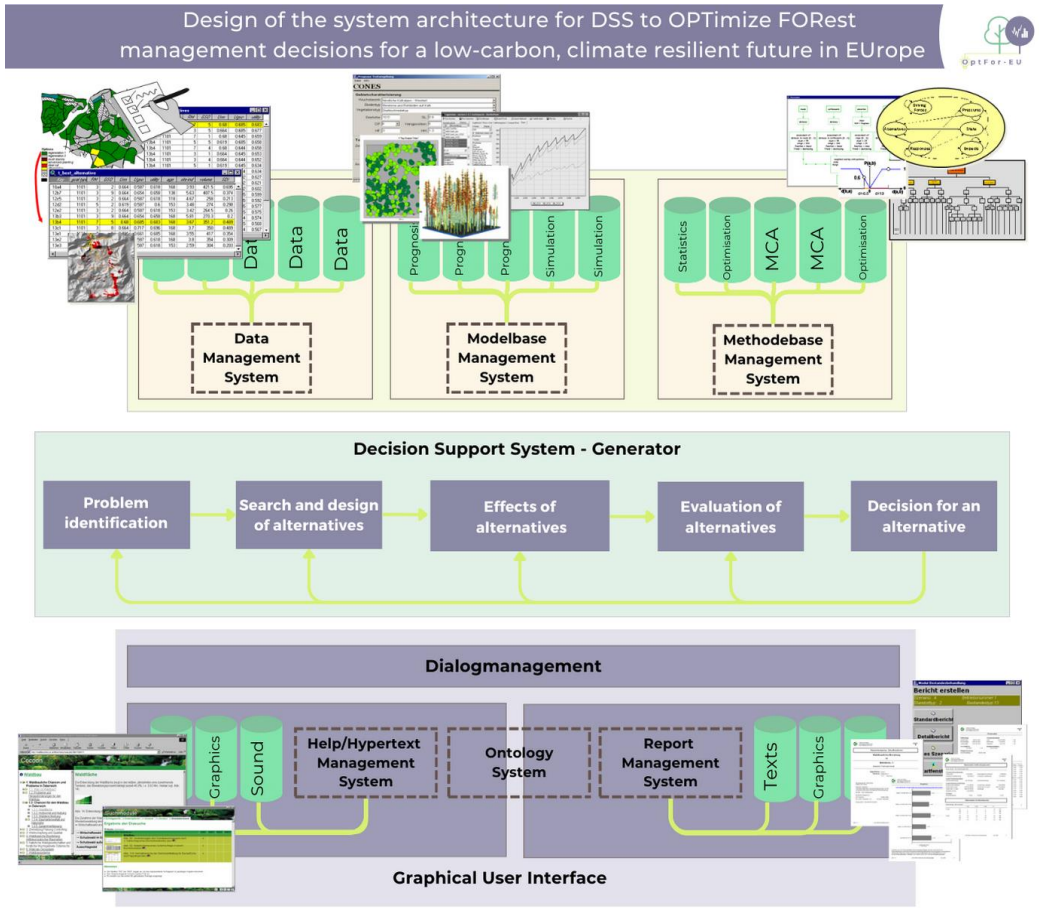


The ToolBox approach

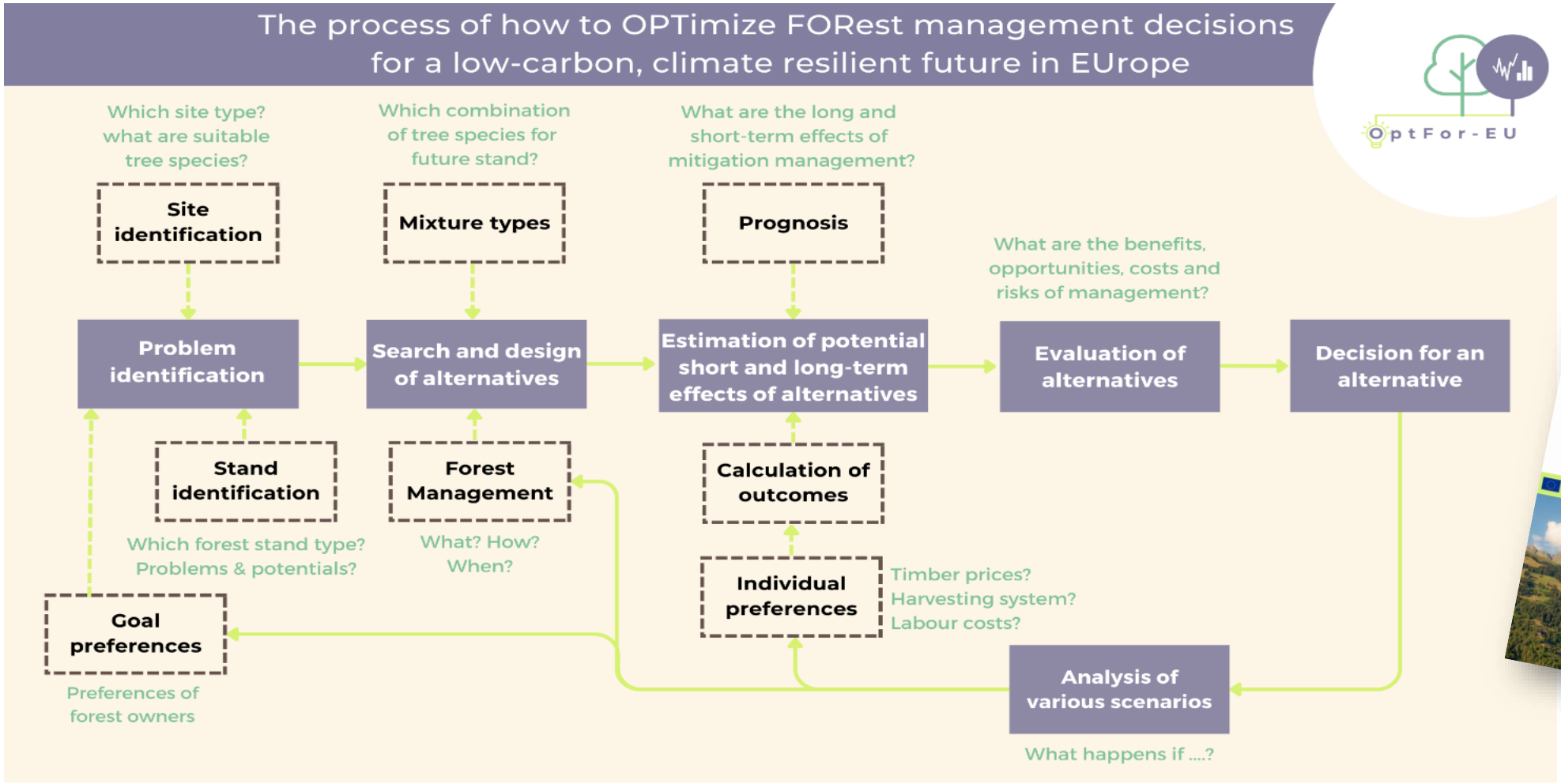


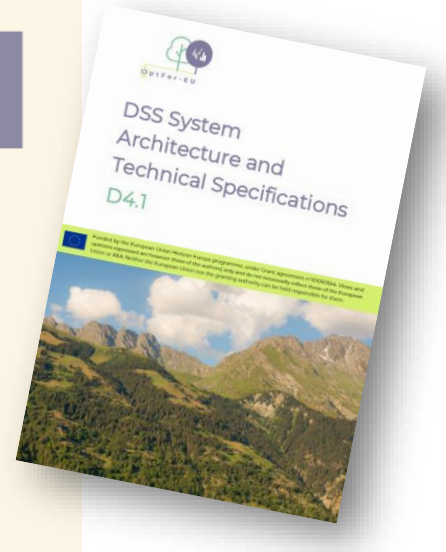
Design of OptFor-EU DSS (i)

- **OptFor-EU - ToolBox website**
  „providing access to the DSS components for the user via a content management system“
- **OptFor-EU – DataClient**
  „Supporting the transfer of model output data to the „DataBase“ for further analysis“
- **OptForEU – DataBase**
  „proving access to model output and metadata for the DSS components „Explorer“ and „Evaluator“
- **OptFor-EU – Explorer**
  “exploring current situation regarding a selected Essential Forest Mitigation Indicator at stand level / FMU level”
- **OptFor-EU – Evaluator**
  „identifying best management strategy considering multiple objectives for the FMU”
- **OptFor-EU – ChatBot**
  „finding information and learning more about specific terms, definitions or concepts in the OptFor-EU context“

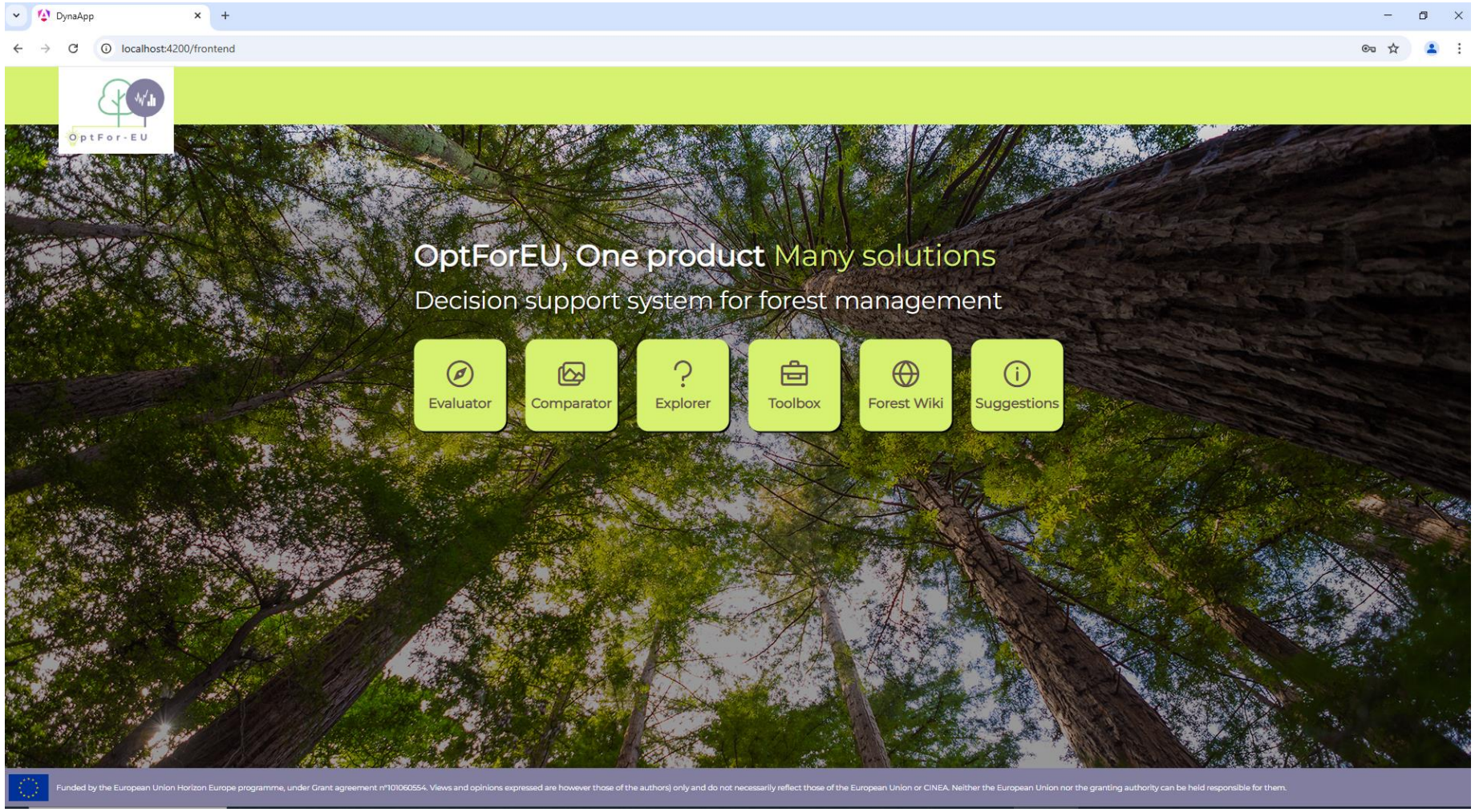


Design of OptFor-EU DSS (ii)





OptFor-EU DSS

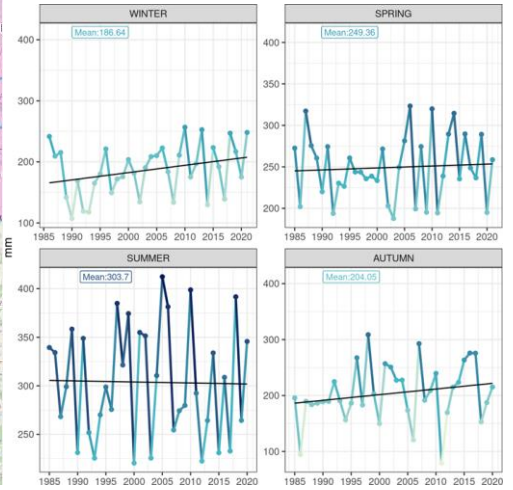


OptFor-EU DSS - Explorer

ESSENTIAL FOREST MITIGATION INDICATORS (EFMIs)

- Forest area available for wood supply [ha]
- Forest area with 2-5 tree species occurring [ha, %]
- Carbon stored in living biomass [tons C/ha]
- Carbon stored in deadwood [tons C/ha]
- **Precipitation [mm]**
- Near surface air (2m) temperature and temperature range [°C]
- …

The indicator '**precipitation**' can be assigned under 'Regulating and Maintaining Ecosystem Services' and linked to 'regional climate regulation' under Forest Ecosystem Services because it reflects the forest's influence on local and regional hydrological cycles, where forests can affect rainfall patterns through processes like evapotranspiration, helping regulate climate



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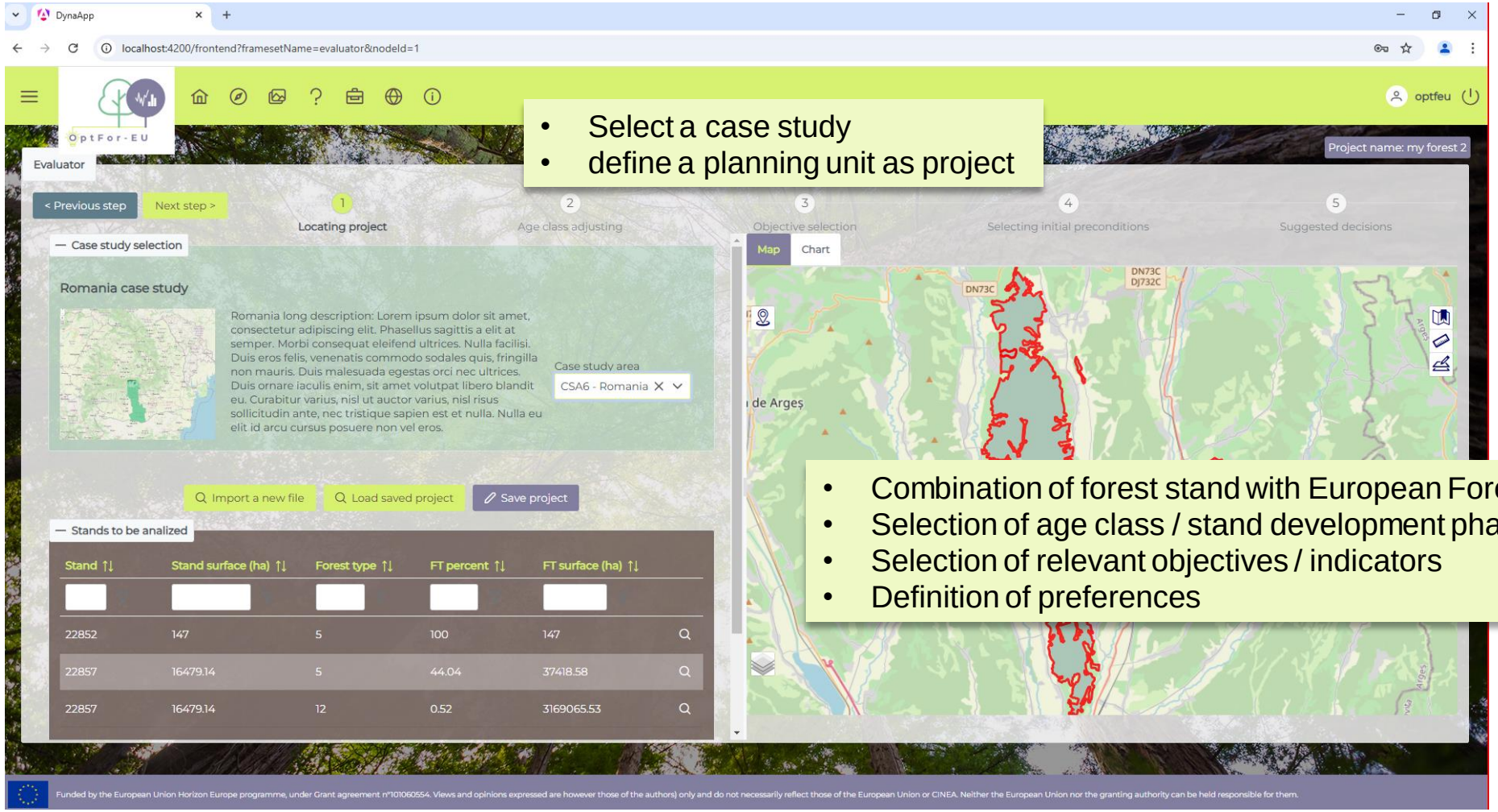
OptFor-EU DSS – Evaluator (i)



- Select a case study
- define a planning unit as project

- Combination of forest stand with European Forest Types
- Selection of age class / stand development phase
- Selection of relevant objectives / indicators
- Definition of preferences

OptFor-EU DSS – Evaluator (ii)

- FM0 = No management
- FM2 = BAU (Business as usual, Shelterwood)
- FM7 = BAU + 20% thinning intensity
- FM8 = BAU - 20% thinning intensity
- FM3 = Continuous cover (Single tree harvesting)

Preliminary Conclusions

- **Simple access** for users via web and **easy to use** tools increases commitment
- Limited **data investigation for the application** improves usability
- **Visualization** is very important…
- …but difficult to communicate **complex results**
- **ToolBox approach** allows to address different demands
- Decision makers use **multiple tools tailored** towards a particular purpose
- Careful **selection of methods** and tools is required
- **Sustaining updates of tools** after project life time will be challenging

Thank you

For more info, follow our social media, visit our website or contact us:

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