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TOOL FACTSHEET



Tool name

Netica

Tool type

Model (Bayesian belief network)

Short description of the tool

Bayesian belief networks are semi-quantitative models that make use of causal reasoning and can use limited or uncertain data. BBN models are essentially conceptual diagrams function with conditional probabilities, which are the probabilistic relationships between variables (nodes). These networks, also called Bayes nets, are an increasingly popular method for uncertain or complex models. Especially for environmental and ecosystem management, capabilities and functions of BBN, can provide innovative solutions for uncertainty issues. BBNs support planning decisions and provide benefits in several ways with its specific cause-and-effect relationships between variables.

Source (where/ link)

www.norsys.com/netica.html

Licence cost or other type of costs (e.g. maintenance)

Free version of Netica software allows user to model up to 15 nodes. It requires a licence fee for the ability of modelling with unlimited nodes.

Commercial licence: \$685

Educational / Personal licence: \$285

General requirements (technical and input data)

It does not require any relevant computational requirements

Input data are usually tabular data of any kind of nature: environmental, economic, social, etc.

Management dimension for which the tool could be used

- Policy / Management
- Environmental
- Economic / Market
- Other sectors



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Main functionality

- Site identification
- Modelling
- Mapping
- Stakeholder engagement
- Economic analysis
- Ecosystem services assessment
- Scenario analysis
- Other: (Please specify)

Fields of application (i.e. issue to be solved)

BBN tools can be used for site identification of marine activities, determination of habitat suitability, risk and environmental impact assessment and fisheries management decisions. In spatial context BBN was also used to analyse dynamics of marine environment.

Circumstances in which it can be implemented (strength and opportunities)

Tool lets user to combine both empirical data and expert opinion. BBNs can be used for scenario analysis, site selection or re-allocation even in data-poor conditions.

Limitations

Tool can give output maps but it has technical limitations for spatial analysis. Due to technical availability, tool allows user to enter one value for each parameter in input case file. It restricts user to enter different values for parameters such as habitat type for a grid ID.

Technical skills needed to operate the tool

Computer skills related with Netica and GIS software (for spatially explicit analysis) are necessary to operate the tool.

Background knowledge needed to implement the tool

User needs to have enough expertise of the system to be modelled (e.g. ecosystem functioning, economic trade-offs, etc.) in order to develop the model structure.



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How can the tool contribute to the EAA

Please select the EAA steps that the tool can contribute:

1. Scoping
2. The identification of issues and opportunities
3. Prioritisation of issues
4. Objectives
5. Management actions
6. Monitoring

How can the tool contribute to the MSP

Please select the MSP steps that the tool can contribute:

1. Define goals and objectives
2. Gather data and define current conditions
3. Identify issues, constraints, and future conditions
4. Develop alternative management actions
5. Evaluate alternative management actions
6. Monitor and evaluate management actions
7. Refine goals, objectives and management actions

AquaSpace case studies in which it has been implemented

Case study name:

Basque Country, SP

Reference and link to case studies report:

AquaSpace D4.2 at www.aquaspace-h2020.eu Library/Reports page



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Other bibliographic references

Stelzenmüller, V., H. O. Fock, A. Gimpel, H. Rambo, R. Diekmann, W. N. Probst, U. Callies, F. Bockelmann, H. Neumann, I. Kröncke, 2015. Quantitative environmental risk assessments in the context of marine spatial management: current approaches and some perspectives. *ICES Journal of Marine Science: Journal du Conseil*: 1022-1042.

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