Constructing, evaluating and visualizing value and utility functions for decision support (Reichert et al. 2013) [1]

Formal methods of decision analysis can help to structure a decision making process and to communicate reasons for decisions transparently. Objectives hierarchies and associated value and utility functions are useful instruments for supporting such decision making processes by structuring and quantifying the preferences of decision makers or stakeholders. Common multi-attribute decision analysis software products support such decision making processes but they can often not represent complex preference structures and visualize uncertainty induced by uncertain predictions of the consequences of decision alternatives. To stimulate strengthening these aspects in decision support processes, we propose a set of visualization tools and provide a software package for constructing, evaluating and visualizing value and utility functions.

In these tools we emphasize flexibility in value aggregation schemes and consideration and communication of prediction uncertainty. The use of these tools is demonstrated with an illustrative example of river management decision support.

Keywords: Decision support; Multi-criteria decision analysis; Value functions; Utility functions; Uncertainty; Environmental management; Ecological river assessment; River management

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http://dx.doi.org/10.1016/j.envsoft.2013.01.017 [2]

Links
[1] https://reformrivers.eu/constructing-evaluating-and-visualizing-value-and-utility-functions-decision-support-reichert-et-al
[2] http://dx.doi.org/10.1016/j.envsoft.2013.01.017

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