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From Needs to Decisions: Creating Records of Engagement for Participatory Modeling and Governance

Pierre D. Glynn
U.S. Geological Survey, pglynn@usgs.gov

Alexey Voinov
Univeristy of Technology, Sydney, Australia, aavoinov@gmail.com

Carl Shapiro
U.S. Geological Survey, cshapiro@usgs.gov

Karen Jenni
U.S. Geological Survey, kjenni@usgs.gov

Nicole Herman-Mercer
U.S. Geological Survey, nhmercer@usgs.gov

See next page for additional authors

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Presenter/Author Information

Pierre D. Glynn, Alexey Voinov, Carl Shapiro, Karen Jenni, Nicole Herman-Mercer, Tim Quinn, Jim Leenhouts, and Roland Viger

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Pierre Glynn[a], Alexey Voinov[b], Carl Shapiro[c], Karen Jenni[d], Nicole Herman-Mercer[e], Tim Quinn[f], Jim Leenhouts[g], and Roland Viger[h]

U.S. Geological Survey: [a]pglynn@usgs.gov; [c]cshapiro@usgs.gov; [d]kjenni@usgs.gov, [e]nhmercer@usgs.gov, [f]tsquinn@usgs.gov, [g]leenhout@usgs.gov, [h]rviger@usgs.gov
[b]University of Technology, Sydney: aavoinov@gmail.com

Abstract: Science and policy governance, including the development of modeling and decision support tools for the management of natural resources and environments, can be improved with enhanced: (1) stakeholder and public engagement; (2) societal and institutional continuity in the evaluation of management and policy decisions, and (3) recognition of the role that biases, beliefs, heuristics, and values (BBHV) play in science and decision making. Addressing these three critical needs is essential for: (1) the societal acceptance and larger-scale use of science in decision-making, (2) the follow-through documentation, assessment, and governance of dynamic coupled human-natural systems beyond the scales of typical political or management cycles, and (3) the enhanced recognition and differentiation between what people and communities want based on their gut instincts, and what they might need based on greater knowledge and thoughtful consideration.
Here we suggest that creating a multi-media hierarchically-structured "Record of Engagement" (RoE) that would support meeting these critical needs by offering:
  (1) a reward system for engagement (in addition to other possible incentives);
  (2) a record structure and system for a) evaluating processes and outcomes, b) understanding the system/issue in the future, and c) fostering transferability and "lessons learned" to other systems or issues, and
  (3) an opportunity to systematize, facilitate, create efficiencies, and improve the engagement of experts and stakeholders in participatory modelling, planning and governance, including in the recognition of the role of BBHV.
The RoE would document: the nature of the system/issue, available evidence, the facilitation processes used for engagement, including participatory modeling processes, as well as proposed actions and governance possibilities to spur follow through. The constituencies engaged in the science and decision making processes, and their relative power to provide knowledge and affect decisions, would also be documented. Recognizing the importance of BBHV, the RoE would further document the ethical principles, beliefs, other factors used in arguments for suggested decisions, emotions expressed by different constituencies, and the behavioral and group dynamics of the engagement. A diversity of technological tools (e.g. artificial intelligence and natural language processing, machine vision and behavioural analysis, expert system design, gamification) and approaches (e.g. soft systems methodology, behavioural operations research, companion modelling) would help create the RoE while ensuring that key principles of stakeholder engagement are applied and adapted as needed.

Keywords: Human biases; heuristics; decision support; open data; open policy