



# Decision making to address complexity in systems and organizations

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In this issue of *Environment Systems and Decisions*, we explore complex decision problems in organizational, environmental, and technological environments. A recurring theme of the papers in this issue is the importance of defining metrics. Collectively, these papers illustrate the role of well-defined metrics in managing complex systems within dynamic environments and involving multiple stakeholders. Many of the articles in this issue investigate organizational decision making, including within private companies and public utilities.

This issue opens with a review article by Salas-Zapata et al. who explored the causes of moderation in the use of natural resources. The authors found that, instead of depleting resources and creating a “tragedy of the commons” situation, several feedback mechanisms work to limit the use of resources. Delesposte et al. investigated the application of multicriteria decision aids for sustainable innovation. Through a bibliometric review of the literature, they found an increase in the application of multicriteria methods, especially for product development, production and distribution, and environmental or social impact assessment. Luís et al. developed a framework for long-term planning combining strategic risk assessment with scenario planning. They applied their framework to a water utility company in Portugal. van Putten et al. conducted interviews with stakeholders across cotton, forestry, and fishery industries regarding their perspectives on natural capital accounting. Their findings indicated that there was a perceived value proposition of such accounting for natural resources, but there were perceived barriers and costs as well. Dormady et al. experimentally studied the willingness of organizations to invest in resilience-enhancing capabilities in the face of repeated disasters. The authors found

that decision makers are less likely to invest in organizational resilience when disasters have recently occurred. Purwandani and Michaud surveyed small and medium enterprises in the state of Ohio regarding the drivers and barriers of adopting green business practices. The results indicated that internal motivations and enhancing the organization’s public image were major drivers, while lack of capital served as a barrier. Che-Castaldo et al. explored the role of critical risk indicators in managing electric grids. They found that many indicators were used to quantify risks related to climate, ecological, hydrological, financial, space weather, and agricultural threats. Ali et al. used structural equation modeling techniques to investigate the role of big data and predictive analytics on social and environmental performance. The authors applied the modeling technique to the banking industry in Malaysia as a case study. Zamanifer and Hartmann proposed a framework for the selection of attributes to include in decision models applied to disaster risk management. The methodology produced a ranked list of attributes based on a variety of decision rules, allowing decision makers to select relevant decision criteria. Zarzycka and Krasodomska analyzed the content of public disclosures from companies in Poland regarding their environmental key performance indicators. Through the use of classification and regression trees, they found over 700 environmental indicators were disclosed.

This year, *Environment Systems and Decisions* has published 44 articles, including 40 research articles and 4 editorials. The journal averaged 32 days from submission to first decision, and 162 days from submission to acceptance. The Editorial Board thanks all of our reviewers for their constructive comments. The Editorial Board welcomes submissions from researchers related to these or other topics within the scope of the journal, including decision analysis, risk analysis, systems engineering, and resilience analysis.

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If you are interested in proposing a special issue on a relevant topic, please contact the Editorial Board. Proposals are also welcome for the complementary Springer book series, “Risk, Systems and Decisions.”

## **Declarations**

**Conflict of interest** The authors declare no conflicts of interest.