



How can models support a transition to sustainability: The role of simulations in sustainable resource management

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The delineation of transition pathways towards sustainability and the implementation of associated measures are challenged by uncertainty, structural barriers, and conflicts among affected stakeholders. Experiences from other research domains suggest that the effective application of models to tackle these challenges require the explicit consideration of modeling purposes and roles. We present a classification of modeling roles for the analysis and governance of transitions. Models can support understanding of transitions processes, detect barriers and drivers of change, support the exploration of pathways towards sustainability, and help to actively engage relevant stakeholder groups. For each application area, examples are provided from the transition community and related research fields like environmental modeling and integrated assessment.