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Introduction to decision support for sustainability minitrack

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The final report of the World Commission on the Environment and Development, also known as the Brundtland Report, defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Subsequent international efforts such as the Rio de Janeiro Conference in 1992, the publication of Agenda 21, the Rio+5 special session of the United Nations (UN) in 1997, the formation of the World Business Council for Sustainable Development in 1997, and the Rio+20 UN Conference on Sustainable Development can be credited with raising environmental concerns to increase public awareness, serving as an initial focus and impetus for collaboration as well as conflict between government, industry, and academia. The Johannesburg "Plan of Implementation", revealed at the Earth Summit 2002, affirmed commitment by the UN to fully implement Agenda 21. Environmental management systems standards (EMSS) such as ISO 14001 and the European Eco-management and Audit System (EMAS) provide a sound practical basis for environmental management within organizations.

Information systems (IS) support both immediate action and sustainable long-term strategies, helping to address the urgency and scope of environmental problems. This mini-track emphasizes the significant research synergies that exist between IS and environmental management for sustainable development from an organizational as well as a technical perspective. Collaboration and cross-fertilization between these domains can be mutually beneficial and may in fact present unique, timely and socially relevant 'real-world' research opportunities as well as viable public sources of empirical ecological information for interdisciplinary research and application. The mini-track accommodates both research articles and practitioner reports exploring technical and organizational issues that pertain to the development, implementation, and deployment of IS in sustainable development.

This year's conference has attracted range of contributions. From a technology perspective, contributions included interesting applications of innovative techniques such as agent-based modeling and case-based reasoning (CBR) for policy development and decision support. In that regard, Abreu et al. present the use of multi-agent system for environmental simulation (MASE) for exploring potential impacts of land use policies. The proposed system is available as a freeware and is applied to the Brazillian Cerrado case as an illustration. Taeihagh and Banares-Alcantara present another application of agent-based modeling as the basis for a virtual environment for the generation of different configurations of policy measures. They illustrate the benefit of the approach in the design of complex policies. Another technique discussed in this mini-track is case-based reasoning. In that regard, Hastings et al. describe attempts to establish a process for the automatic evaluation in CBR systems in order to identify gaps in the predictive coverage using Monte Carlo methods. The proposed approach represents an extension of prior CBR work, which considers only the matching stage when evaluating predictive coverage.

Other contributions include a paper by Reiter et al. where they employed a design science approach develop a conceptual integration model for the energy consumption of IT components and business processes. The paper represents a notable contribution in the emerging discipline of green business process management (BPM). In another study Koukal and Breitner employed a design science approach to develop and evaluate a decision support system for assessing projects and general financial conditions. They demonstrated the viability of the proposed system by applying it to an offshore wind project in Brazil. Last but not least, Grimm et al. provide a comprehensive literature review and assessment of the current state of the art of product carbon footprint and life cycle assessment (LCA) of information and communication technology (ICT). The review provides insights into the current situation, accepted standards and methodologies, and research gaps and directions.

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