

**Systems Thinking for Tackling Wicked Problems**

**Keynote: Gerald Midgley – Full Professor, Co-diretor do Centre for Systems Studies at the University of Hull.**

**Gerald Midgley** - Gerald Midgley is Professor of Systems Thinking in the Centre for Systems Studies, Faculty of Business, Law and Politics, University of Hull, UK. He also holds Adjunct Professorships at Linnaeus University, Sweden; the University of Queensland, Australia; the University of Canterbury, New Zealand; Mälardalen University, Sweden; and Victoria University of Wellington, New Zealand. He has held research leadership roles in both academia and government, having spent ten years as Director of the Centre for Systems Studies at Hull, and seven years as a Senior Science Leader in the Institute for Environmental Science and Research (ESR), New Zealand. Gerald has written over 300 papers for academics and practitioners on systems thinking and community operational research, and has been involved in a wide variety of public sector, community development, health service, technology foresight and resource management projects. He was the 2013/14 President of the International Society for the Systems Sciences, and has written or edited 11 books. These include: Systemic Intervention: Philosophy, Methodology, and Practice (Kluwer, 2000); Systems Thinking, Volumes I-IV (Sage, 2003); Community Operational Research: OR and Systems Thinking for Community Development (Kluwer, 2004); and Forensic DNA Evidence on Trial: Science and Uncertainty in the Courtroom (Emergent, 2011). Gerald is also the editor of a Systems Thinking book series for Routledge, with the first two titles released in 2020, and his forthcoming Routledge Handbook of Systems Thinking will be published in 2021.

Abstract: We are increasingly facing “wicked problems”. They are stubborn, challenging and often have to be managed rather than solved. They frequently involve interlinked issues, multiple agencies with different perspectives, conflict over desired outcomes or the means to achieve them, power relations making change difficult, uncertainty about the likely effects of proposed changes, and skepticism about the possibility of any beneficial change at all. While traditional scientific, policy and management approaches can make a useful contribution, we need something more than these if we want to gain a bigger picture understanding of how to act in the face of wicked problems. Systems thinking can help. In this talk, Gerald Midgley will introduce a framework of systems thinking skills, plus a variety of systems ideas and methods that can help people put these skills into practice. He will illustrate the use of the methods with a number of examples from his own social policy, natural resource management and community development projects in the UK and New Zealand. In this way, he will show how we can begin to get a better handle on wicked problems.

**Moderators:** **Carmen Belderrain, Full Professor, Aeronautics Institute of Technology (ITA) & Marcos Estellita Lins, Federal University of the State of Rio de Janeiro & COPPE, Federal University of Rio de Janeiro**

**Carmen Belderrain** - Full Professor at Instituto Tecnológico de Aeronáutica. Ph.D. in Aeronautical and Mechanical Engineering from Instituto Tecnológico de Aeronáutica. Master in Systems and Computer Engineering - Federal University of Rio de Janeiro COPPE/UFRJ. Degree in Operative Research - Universidad Nacional Mayor de San Marcos, Lima, Peru. Ad-hoc consultant for Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP, CAPES and CNPq. Experience in the Production Engineering area, with emphasis on Operations Research, focusing on the following topics: Problem Structuring Methods (PSM), Multicriteria Decision Methods, and Multimethodology.

**Marcos Estellita Lins** - Professor of the Department of Production Engineering - DEP/CCET/UNIRIO and the Production Engineering Program - PEP/COPPE/UFRJ. Leader of the CNPq Research Group on Systemic and Analytical Multimethodology. Doctorate - COPPE / UFRJ; Post-Doctorate - University of Bath, UK. Member of the INCT of Information and Decision Systems (INSID).