TRACK: Resilience, Social Structures and Transformation

International Conference on Resilient Systems

ICRS 2026 Delft, the Netherlands, 23-25 March, 2026

INTRODUCTION TO THE TRACK

Resilience literature increasingly recognizes that socio-technical and environmental systems are embedded within normative, power-laden, and societal contexts. This "social turn" in resilience discourse has prompted researchers to frame resilience not just as persistence or recovery, but as a path to social transformation. As a result, practitioners are encouraged to clarify the type of "resilience society" they seek to foster through their interventions – one that contributes to addressing deep-rooted sociocultural structures that perpetuate inequality, racial discrimination, and injustice. Nevertheless, resilience approaches have not yet fully developed a theory or clearly defined how resilience interacts with social and cultural structures, which limits our understanding of both its potential for transformation and its normative implications.

This track aims to strengthen the dialogue between current approaches to resilience systems (i.e., Systems Engineering, Self-Organizations, Complex Adaptive Systems) and debates on social embeddedness and causality in contemporary sociological theory, in order to refine both explanatory and normative approaches for steering resilience toward social transformation. Authors are invited to theorize or present empirical illustrations of socio-cultural embeddedness and potential trajectories of transformation, offering insights into how socio-technical and environmental systems can (and should) build resilience to sustain and adapt their functionality while also developing mechanisms for social and cultural transformation.

TRACK TOPICS

Contributors are asked to elaborate explanatory and normative frameworks to answer the following questions:

Explanatory questions:

- How to theorize the socio-economic, political, and cultural dimensions of the structural contexts in which socio-technical and environmental systems operate?

- How do social and cultural structures influence the adaptation capacity of people within socio-technical and environmental systems when faced with shocks and stresses?
- What are the mechanisms by which socio-technical and environmental resilience contribute to the persistence or transformation of social and cultural structures?

Normative questions:

- What kinds of socio-cultural transformation trajectories might be desirable for shaping the design, management, and governance of socio-technical and environmental resilience systems?
- Which processes in resilience design and practice favour participation and deliberation for social transformation, and which ones prevent it or discourage it?
- Which deliberative strategies can be employed to foster collective agency and awareness of socio-cultural embeddedness among actors confronting shocks and stresses?
- What responsibility arrangements or frameworks are best suited for desirable transformation in societies exposed to shocks and stresses?

The track will open with a **keynote panel** introducing realist sociological theory as an approach to theorizing the interplay between resilience and sociocultural structures and systems, discussing commonalities and divergences with current approaches to resilience (i.e., Systems Engineering, Self-Organizing, and Complex Adaptive Systems).

Dr. Leigh Price, Associate Professor, Faculty of Teacher Education and Pedagogy Department of Pedagogy, University of Inland Norway **(To be confirmed)**

> Dr. Price will introduce a "third generation" of systems theory, which overcomes the reductionism and determinism of the first (positivist) generation and the relativism of the second (constructivist) generation (Price, 2023). The third generation conceptualises (social) systems as entities irreducible to agents, their observable relational patterns, or an analyst's "mental model." This approach supports an ethical framework informed by the principle of homeostasis, in which a deeper understanding of human subjective experience within social structures refines our approach to knowledge acquisition and action.

Dr. Karim Knio. Associate Professor in International Political Economy and Governance at the Institute of Social Studies (ISS), Erasmus University Rotterdam.

> Dr. Knio will address the contributions of social theory to conceptualise the emergence and persistence of sociocultural systems (Knio, 2023). He will raise the need for an explanatory framework that studies causation in sociocultural systems, as well as why and how sociocultural systems evolve across different times and scales than socio-technical and environmental systems. This approach emphasizes the importance of theorizing the broader social environment in which socio-technical and environmental systems operate, rather than confining the analysis of technical or environmental systems to their internal boundaries or taking the "socio-cultural" dimension only as their given background.

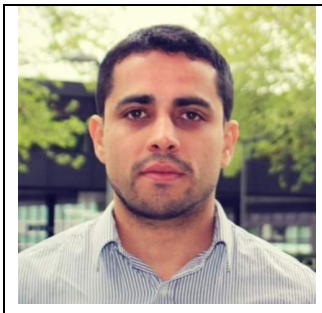
Prof. Neelke Doorn. Full Professor 'Ethics of Water Engineering' at the Department of Values, Technology and Innovation at Delft University of Technology **(To be confirmed)**

Prof. Doorn will reflect on the alternative conceptualizations of "emergence," social systems, and "sociocultural" structures introduced by Dr. Knio and Dr. Price. Specifically, she will consider whether it matters to conceptualize social systems as existing above and beyond individual actions when addressing the question of defining responsibility arrangements in concrete situations (Doorn & Copeland, 2023).

TYPE OF CONTRIBUTIONS:

1. **Call for Extended Abstracts** (1.000 words) - see website for the template.

TRACK CHAIR AND CO-CHAIR

	**Dr. Camilo Andres Benitez Avila *(Corresponding Chair)*** c.a.benitezavila@tudelft.nl Delft Centre for Entrepreneurship Faculty of Technology, Policy and Management Delft University of Technology (The Netherlands)
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	**Dr. Samantha Copeland** jcanizares@us.es Ethics and Philosophy of Technology Faculty of Technology, Policy and Management Delft University of Technology (The Netherlands)

Dr. Camilo Andres Benitez Avila is currently part of the Delft Centre of Entrepreneurship at the Faculty of Technology, Policy and Management at TUDelft, and He is the academic coordinator of the Leiden-Delft-Erasmus Minor: Sustainability for Businesses, Organisations and Society. Dr. Benitez has been an active member of the TPM Resilience Lab TUDelft, and he co-organized with Dr. Copeland (Co-chair) the TPM Resilience Lab event "Data science and resilience research, from qualitative to quantitative (and back again) held in Den Haag on June 2-3, 2022. Additionally, Dr. Benitez was awarded by the TU Delft Climate Action Program in 2024 to organise debates on the responsibility to minimise harm to the Global South in acquiring Critical Raw Materials for a more resilient Europe. Recent relevant research work on resilience include (Benitez-Avila et al., 2025), (Benitez-Avila et al., 2023; Prieto et al., 2025). Dr. Benitez participated in ICRS 2023 in Mexico City.

Dr. Juan David Parra is a Teaching Fellow (equivalent to Assistant Professor) in Social Ontology and International Political Economy at the International Institute of Social Studies, Erasmus University Rotterdam. An active member of the Critical Realism Network, he is also part of the teaching staff of the Erasmus Mundus Program in Public Policy, which is internationally recognised as a European leader in Policy Studies and offers an interdisciplinary curriculum delivered by four European universities. His recent relevant research on systems theory, interlinked with critical realist social theory, includes (Parra, 2022, 2023; Parra & Edwards Jr, 2023).

Dr. Jose Carlos Cañizares Gaztelu is a post-doc researcher at the project HaPEARTH, at Universidad de Sevilla (Spain), where he researches the history and philosophy of the geosciences, the environmental sciences, and Earth Systems Science and Governance. José Carlos obtained his PhD from Delft University of Technology in 2023 with an interdisciplinary thesis about resilience and has the following relevant publications on the topic: (Cañizares-Gaztelu, 2023; Cañizares-Gaztelu et al., 2023; Cañizares-Gaztelu et al., 2021; Cañizares-Gaztelu et al., 2024; Copeland & Cañizares-Gaztelu, 2022). He has organized the international conference "Justice and Values in the Climate Transition" (F. Technology, Policy & Management, TU Delft, 2023), and co-organized the XXIII International Seminar on Cognitive Science (U. de Sevilla, Spain, 2014). He has also directed a Resilience Ethics course (*Research Theme Leaders*, MEng Complex Systems Engineering & Management, 2021) and given lectures about resilience planning in two international Summer Schools organized by the Faculty of Architecture and Built Environment (TU Delft, 2022-3).

Dr. Samantha Copeland (Co-Chair responsible for Topics 4 and 2) is a philosophy in the Ethics and Philosophy of Technology, working on issues that arise when we have to make ethical decisions under conditions of uncertainty. She leads the normative line of research at the TPM Resilience Lab to understand vulnerability and ethical progress in Complex Adaptive Systems, where outcomes cannot be predicted from strategies. Dr. Copeland has extensive experience organising scientific events on resilience, leading the Healthy City Conference held on April 18, 2023, in Rotterdam as part of the Resilient Delta Initiative and Healthy Neighbourhoods. Additionally, she was awarded by the Lorentz Centre for organising the Lorentz week-long workshop "Enacting Chance" in 2021, and she has chaired multiple sessions on Ethics at the 4TU Resilience Conferences. Relevant research includes (Benitez-Avila et al., 2025; Benitez-Avila et al., 2023; Cañizares-Gaztelu et al., 2023; Cañizares-Gaztelu et al., 2021; Cañizares-Gaztelu et al., 2024; Copeland & Cañizares-Gaztelu, 2022; Copeland et al., 2020; Copeland et al., 2023; Cortesão & Copeland, 2021; Doorn & Copeland, 2023; Roux et al., 2024)

Benitez-Avila, C., Gil, S., & Copeland, S. (2025). The Hybridity of Inclusive resilience: organisational levels, tensions and fixes in Rotterdam. *Urban Studies (Forthcoming)*

Benitez-Avila, C., Schuberth, F., & Copeland, S. (2023). Mastery and social position: factors in negotiating urban social resilience. *Humanities and Social Sciences Communications*, *10*(1), 1-13.

Cañizares-Gaztelu, J. C. (2023). Normativity and Justice in Resilience Strategies.

Cañizares-Gaztelu, J. C., Copeland, S., & Doorn, N. (2023). Embedding Justice Considerations in Climate Resilience. *Ethics, Policy & Environment*, 1-26. https://doi.org/10.1080/21550085.2023.2197824

Cañizares-Gaztelu, J. C., Copeland, S. M., & Doorn, N. (2021). Making sense of resilience. *Sustainability*, *13*(15), 8538.

Cañizares-Gaztelu, J. C., Copeland, S. M., & Doorn, N. (2024). Assessing the capability approach as a justice basis of climate resilience strategies. *Journal of Global Ethics*, *20*(1), 31-55.

Copeland, S., & Cañizares-Gaztelu, J. C. (2022). Rhetorics of Resilience and Extended Crises: Reasoning in the Moral Situation of Our Post-Pandemic World. *Values for a Post-Pandemic Future*, *40*, 233.

Copeland, S., Comes, T., Bach, S., Nagenborg, M., Schulte, Y., & Doorn, N. (2020). Measuring social resilience: Trade-offs, challenges and opportunities for indicator models in transforming societies. *International Journal of Disaster Risk Reduction*, *51*, 101799. https://doi.org/https://doi.org/10.1016/j.ijdrr.2020.101799

Copeland, S., Hinrichs-Krapels, S., Fecondo, F., Santizo, E. R., Bal, R., & Comes, T. (2023). A resilience view on health system resilience: a scoping review of empirical studies and reviews. *BMC Health Services Research*, *23*(1), 1297.

Cortesão, J., & Copeland, S. (2021). Urban climate resilience. In *The palgrave encyclopedia of urban and regional futures* (pp. 1-6). Springer.

Doorn, N., & Copeland, S. (2023). Resilience and Responsibilities: Normative Resilience for Responsibility Arrangements. In *Risk and Responsibility in Context* (pp. 231-248). Routledge.

Knio, K. (2023). Complexity, trans-immanent systems and morphogenetic régulation: towards a problématique of calibration. *Journal of Critical Realism*, *22*(5), 790-812.

Parra, J. D. (2022). Decentralisation and school-based management in Colombia: An exploration (using systems thinking) of the Full-Day Schooling programme. *International Journal of Educational Development*, *91*, 102579.

Parra, J. D. (2023). Realist evaluation and its role in the stages of explanatory research based on critical realism. *Journal of Critical Realism*, *22*(5), 859-881.

Parra, J. D., & Edwards Jr, D. B. (2023). Systems, complexity and realist evaluation: reflections from a large-scale education policy evaluation in Colombia. In *Systems Thinking in International Education and Development* (pp. 183-203). Edward Elgar Publishing.

Price, L. (2023). Bhaskar's philosophy as third generation systems theory, with implications for ethics and earth system stability. *Journal of Critical Realism*, *22*(5), 771-789.

Prieto, G., Sirenko, M., & Benitez-Avila, C. (2025). The Ambiguity of 'Balanced Neighbourhoods' for Urban Social Resilience in Rotterdam *npj Urban Sustainability (Manuscript under review)*

Roux, J., Hinrichs-Krapels, S., Copeland, S., Doorn, N., & Maharaj, A. (2024). Understanding Community Resilience in the Context of Health Systems: a Scoping Review.