From Resilient Critical Infrastructures to a Resilient Society

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ABSTRACT

With the current international crises such as the Ukrainian war, the ongoing climate change, or the interruptions in international supply chains and recent incidents like the earthquake in Turkey or the Ohio train derailment, it becomes more obvious that "just" protecting the society's critical services and infrastructures will not be sufficient enough in the future. Services and infrastructures need to become more resilient to the effects of intentional threats as well as disasters caused by natural hazards to keep essential services operational and protect the people's well-being. Accordingly, the solutions for achieving that and making society more resilient need to look further, beyond the boundaries of one infrastructure and beyond purely technical aspects.

In this way, evolving towards a resilient society is a multi-dimensional problem integrating different viewpoints. In the technology-driven world we are living today, the social relations and interactions among individuals have become more important than ever and organizational structures influence the success or failure of technological solutions. Furthermore, many frameworks for societal/social/community resilience include as a metric the availability of essential services/critical infrastructure. Therefore, today's technical solutions for protecting Critical Infrastructures need to play together with novel organizational, communal, and individual concepts as well as fulfill requirements from the economic, environmental, ethical and societal domains.

In this panel, we will look at the impacts Critical Infrastructures are facing due to current crisis situations in different parts of the world and the effects this has on society. We will discuss among the panelists and with the audience on how existing and future concepts, methodologies and tools could help to improve resilience from a technical, organizational, and societal perspective.

Keywords

Resilience, Critical Infrastructure, Complex Crises, Resilient Society

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PANELISTS BIOGRAPHY

Stefan Schauer
Senior Scientist and Thematic Coordinator
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Working for the Austrian Institute of Technology (AIT) since 2005, Stefan Schauer is an experienced researcher in the fields of risk management and security in the Center for Digital Safety & Security. He studied Computer Science at the University of Klagenfurt and received my PhD in Theoretical Physics form the Technical University of Vienna, analyzing the security of quantum cryptographic protocols. His research focus lies on risk management and risk assessment for critical infrastructures as well as the integration of security architectures for such organizations. In this context, he is working on novel risk assessment methodologies and processes applying mathematical concepts for the identification and handling of cascading effects within an organization and among critical infrastructures on a national scale.

Laura Petersen
Senior Security Research Advisor
International Union of Railways (UIC)

Laura Petersen is a Senior Security Research Advisor at the International Union of Railways Security Division. Her areas of expertise include crisis management, crisis and risk communication, accessibility, and critical infrastructure resilience. As part of her work with the UIC Covid-19 Task Force, she wrote several guidance documents which helped the railways respond to the crisis. She is also the Dissemination Manager of the EU H2020 PRACTIVE project. She has an MS in Engineering and Management of the Environment from the University of Technology in Troyes (UTT).

Rob Grace
Assistant Professor
Texas Tech University

Rob Grace is an assistant professor at Texas Tech University working in the fields of information science, technical communication, and emergency management. His research examines the design and impacts of information and communications technologies that citizens and first responders use during emergencies. Recently, Rob completed a project that examined how public-safety answering points improved the resilience of the sociotechnical infrastructures needed to maintain 9-1-1 operations during the COVID-19 pandemic. Before arriving at Texas Tech, Rob received a PhD in Information Science from Pennsylvania State University. He currently serves as the vice president of the ISCRAM Association.

Milad Roohi
Assistant Professor
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Milad Roohi is an Assistant Professor at the University of Nebraska-Lincoln and the director of the Smart Resilient Infrastructure and Urban Systems (SiRIUS) lab. He specializes in natural hazard infrastructure and community resilience, structural dynamics and health monitoring. Before joining UNL, He worked as a Senior Scientist at Aon (the world's largest reinsurance intermediary) in the Impact Forecasting Catastrophe Modeling R&D Center of Excellence. He completed his Postdoctoral Fellow at the National Institute of Standards and Technology (NIST) Center for Risk-Based Community Resilience Planning at Colorado State University. He received his Ph.D. in Civil Engineering from the University of Vermont. He is an active voting member of the ASCE Structural Control and Health Monitoring and ASCE Dynamics technical committees and a member of the IABSE's Task Group on Design Requirements for Infrastructure Resilience.

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