

Infrastructure Resilience and Conflict

Building Adaptive Systems for Evolving Threat Landscapes

Palanga, Lithuania | 19 to 22 July 2026 | AGENDA

Workshop Charge and Book Project

This Advanced Research Workshop will produce three deliverables aligned with a forthcoming collective volume on stress testing infrastructure resilience in Ukraine: (1) a methodology for resilience-by-design planning, (2) a toolkit for dual-use infrastructure stress testing, and (3) policy guidance for NATO Allies and Partner Nations. Each working group will own a chapter of the volume and present scope, table of contents, and writing assignments at the closing plenary. Working group members will be invited to present cutting-edge research within their respective groups.

Working Groups

Working Group #1, Resilience-by-Design Methodology: Frameworks, principles, and design heuristics for layered, adaptive infrastructure systems. Draws on systems engineering, civil infrastructure, urban planning, and complex-systems theory.

Working Group #2, Stress-Testing Tools and Analytics: Machine learning, digital twins, system-of-systems modeling, real-time threat monitoring, and risk analytics for kinetic, cyber, hybrid, and cascading-failure scenarios.

Working Group #3, Policy, Governance, and Civil-Military Integration: NATO-aligned decision-making, dual-use governance, mission continuity, and coordinated civil-military response. Anchors the Ukraine and Baltic case studies.



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Day 1: Sunday, 19 July 2026

Arrival and welcome

17:00 to 18:30	Registration
18:30 to 18:45	Day 1 Introduction Workshop Co-Directors. Brief welcome and orientation.
19:00 to end	Welcome Reception: Light Appetizers and Networking Informal arrival reception for participants. Light appetizers will be provided, starting at 19:00. Group photo during the reception. No formal program, speakers, or sessions. Location: room to be confirmed.



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Day 2: Monday, 20 July 2026

Threats, vulnerabilities, and the dual-use stress-test space

09:00 to 09:30	Opening Remarks Workshop Co-Directors (about 30 minutes). Recap of Day 1 and objectives for the week, and a brief introduction to the working groups.
09:30 to 10:30	Keynote Lightning Round Three short keynote talks, about 20 minutes each. Speakers: to be announced.
10:30 to 11:00	Coffee Break
11:00 to 12:15	Panel 1: Voices from Ukraine and the Baltic Region, the Call for Resilience Panelists and moderator to be announced. Duration: 1 hour 15 minutes (30-minute group presentation, followed by 45 minutes of discussion).
12:15 to 13:30	Lunch (provided)
13:30 to 14:45	Panel 2: Blending Theory and Analytics, Science and Tools for Resilience Panelists and moderator to be announced. Duration: 1 hour 15 minutes.
14:45 to 15:30	Coffee and Networking
15:30 to 16:45	Working Group Meetings, Session 1 (Part A) Begin building the resilience-by-design framework and inventory of stress-testing tools and governance landscape.
16:45 to 17:30	ClearSky Presentation (45 minutes) CLEARSKY: Civil Airspace Resilience Against HABs and Drones. Civil airspace is increasingly exposed and vulnerable to low-cost, low-signature aerial threats, including High-Altitude Balloons (HABs), fixed-wing and rotary small uncrewed aerial systems (sUAS). Recent multiple HAB and sUAS incursion incidents in the Baltic States and Poland demonstrate that conventional air traffic surveillance is often not sufficient for timely detection and tracking of non-cooperative, slow-moving or irregular aerial objects. These incursions can seriously disrupt civil air transport services, including airport operations and flight continuity, while also raising wider public security concerns related to border protection and critical infrastructure resilience. This presentation will introduce CLEARSKY, a proposed NATO SPS Multi-Year Project aimed at improving detection, identification, intent inference and tracking of sUAS/HAB targets across civil airspace, border areas and critical infrastructure zones. The project will examine how different kinds of sensors can be combined into scalable and affordable distributed cyber-physical systems that could be deployed on a national scale to provide a comprehensive understanding of what is happening in the lower air space. Particular attention will be given to interoperability with existing air navigation service systems and emerging European U-space concept.
17:30 to 18:30	Working Group Meetings, Session 1 (Part B) Continue the working group work.
18:30 to end	Dinner with Working Groups (provided, in town)



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Day 3: Tuesday, 21 July 2026

Ukraine case studies, partner perspectives, and chapter drafting

09:00 to 09:10	Opening Remarks Workshop Co-Directors (about 10 minutes). Recap of Day 2 and orientation to the day.
09:10 to 10:30	Working Group Meetings, Session 2: Problem Formulation and Priority Setting
10:30 to 10:50	Coffee Break
10:50 to 12:00	Working Group Meetings, Session 3: Chapter Development Continue chapter development and prepare questions for the lunch panel.
12:00 to 12:45	Lunch (provided)
12:45 to 13:30	Panel 3: Policy and Governance for the Next Generation of Infrastructure Panelists and moderator to be announced. Duration: 45 minutes.
13:30 to 15:00	Working Group Meetings, Session 4: Shared Ideas and Concepts Cross-group synthesis: shared definitions, overlapping frameworks, and integration points across the three chapters. Select working group spokespersons for the Day 4 plenary.
15:00 to 15:20	Coffee Break
15:20 to 18:00	Working Group Meetings, Session 5: Draft Report
19:00 to 21:30	Group Dinner (provided)



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Day 4: Wednesday, 22 July 2026

Synthesis, plenary reports, and next steps for the book

09:00 to 09:10	Opening Remarks Workshop Co-Directors (about 10 minutes). Recap of Day 3 and orientation to the closing.
09:10 to 09:55	Panel 4: Resilience by Design Across the World Panelists and moderator to be announced. Duration: 45 minutes.
09:55 to 10:55	Working Group Meetings, Session 6: Wrap-Up Finalize the chapter table of contents, action register, writing and editing process, and presenter prep.
10:55 to 11:15	Coffee Break
11:15 to 11:55	Working Group Meetings, Session 7: Prepare Summary Paper and Final Wrap-Up
11:55 to 12:45	Lunch, Working Group Breakouts (provided)
12:45 to 14:15	Closing Summary Panel and Final Remarks Working group leaders present: 12:45 WG #1. 13:05 WG #2. 13:25 WG #3. 13:45 Closing remarks by the Co-Directors: book project, publication schedule, chapter delivery milestones, peer review, editorial roles, and formal close.
15:15	Amber Museum Visit and Group Transportation Group departs for a visit to the Palanga Amber Museum. Group transportation provided.



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Appendix A: Working Group Charters

WG #1: Resilience-by-Design Methodology

Expertise sought:

- Systems engineering and complex adaptive systems
- Civil and structural infrastructure (energy, transport, water, telecom)
- Urban planning and critical infrastructure protection
- Resilience theory and risk-by-design practice

Chapter deliverable: A methodology chapter articulating principles, design heuristics, and a step-by-step framework for embedding resilience into infrastructure planning at design time, validated against Ukrainian and Baltic experience.

WG #2: Stress-Testing Tools and Analytics

Expertise sought:

- Machine learning and AI for threat detection and risk analytics
- Digital twins and system-of-systems modeling
- Cybersecurity and real-time monitoring of critical infrastructure
- Operations research and decision-support modeling

Chapter deliverable: A toolkit chapter cataloguing available stress-testing methods, proposing an integration architecture for dual-use infrastructure, and demonstrating application against Ukraine case-study data.

WG #3: Policy, Governance, and Civil-Military Integration

Expertise sought:

- NATO and EU policy on critical infrastructure protection
- National civil-military coordination, homeland security, and emergency management
- Ukrainian and Baltic government and operational practitioners
- Public-private partnership and dual-use governance

Chapter deliverable: A policy chapter offering NATO and Partner Nation recommendations on governance, decision rights, and civil-military integration for infrastructure resilience, anchored in Ukraine case studies.

Cross-Cutting Themes (threaded across all WGs)

- Ukraine as the primary case study, with the Baltic region as comparative context
- Dual-use infrastructure (civilian assets with military significance)
- Cascading failures across interdependent networks
- Stress testing as a unifying methodology across design, tools, and policy

