ACT at MESAS 2026

Modelling & Simulation for Autonomous Systems

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NMSG-ET-058

A concrete research effort on credible modelling, evaluation and coalition integration.

Connecting operational needs with research and experimentation

MESAS can help turn these questions into sustained scientific collaboration.



Why this matters for NATO

Faster development requires credible evidence

01 Coalition integration

Different nations and manufacturers must exchange meaningful information and coordinate behaviour under human supervision.

02 Complex behaviour

Learning, adaptation and system interactions challenge test coverage. Models must represent sensor errors and changing conditions.

03 The contribution of M&S

Explore concepts, compare alternatives and repeat demanding scenarios before live trials. Support training and mission rehearsal.

The NMSG-ET-058 research pathway

Exploratory work is moving towards a follow-on Technical Activity Proposal

Understand the current baseline → **Prioritise shared gaps** → **Define follow-on research**

How do nations model uncrewed and autonomous systems across air, land and maritime domains?

Which issues most affect credible evaluation and coalition interoperability? Build on existing NATO M&S work.

Consolidate research questions, clarify scope and define expected outputs. Explore links to trials and research communities.

Draft TAP: objectives are taking shape; deliverables and approval remain open.

Connected research priorities

A common objective: credible assessment of autonomous systems

Interoperability

Common interfaces and data definitions across models, systems and national environments.

Credibility and fidelity

Appropriate detail, realistic sensor inputs and evidence to justify transition to live trials.

Human–machine teaming

Shared understanding, supervision, operator awareness and effective handover.

Scale and adaptation

Swarms, emergent behaviour, learning systems and the computational cost of testing.

These themes inform the discussion on standards, development, outreach and trust.

MESAS as a future reference point

A proposed scientific contribution to NATO's approach to autonomy

NATO-relevant research questions → **MESAS research and dialogue** → **Evidence for future priorities**

A recurring forum

Discuss operational needs with academia and industry, challenge assumptions and identify methods for further investigation.

A concrete invitation

Contribute use cases, validation methods, interoperability experience and evidence of model limitations.

NMSG-ET-058 has discussed bringing research questions, a draft proposal or a roadmap to MESAS. Continued ACT engagement could connect findings to follow-on work.