FSM Open Research Programme

From concepts to applied maritime research tools | Scientific and functional overview | English edition v2.0 | 18 November 2026

Document status: Cross-reviewed editorial reference. Not a certification of software performance.

1. Research vision

The Maritime Security Forum (FSM) studies the maritime domain as a Maritime Strategic Ecosystem (MSE): a network of actors, infrastructure, functions, flows, legal norms and institutional responsibilities. A disruption in one place may affect continuity, navigation, trade or security elsewhere.

Three foundational studies established the conceptual and methodological basis. Four complementary software tools were subsequently developed to bring the framework into contact with documented evidence, synthetic scenarios, strategic hypotheses and dynamic models. Technology is a means of research, not its end.

2. Objectives and intended research products

- Operationalise the FSM concepts into explicit analytical products that can be challenged and reproduced.
- Organise documentation with provenance, versions, uncertainty and identified gaps.
- Experiment with tactical-operational scenarios without mistaking simulation for observed events.
- Develop reasoned strategic assessments of system functions, resilience and alternatives.
- Compare the added value of integrated analysis against isolated examination.
- Develop controlled interoperability without assuming all applications are already synchronised.

3. Four specialised instruments

Tool	Primary function
MN – Strategic Dynamics	Documentary core: sources, state comparisons, infrastructure, incidents, law and strategic context.
FSM Maritime Atlas	Synthetic tactical-operational scenarios, sequences of decisions, simulated outcomes.
FSM-SMEA	Integrated strategic case-file analysis, individual and team-based research, and embedded Atlas Workbench.
FSM Maritime Ecosystem Digital Twin (MEDT)	Experimental modelling of cascading dependencies, time evolution, continuity and recovery; still under development.

Each programme can be understood separately. Combined use aims to preserve the provenance of information, distinguish evidence from assumptions, and support reconsideration of findings.

4. The common methodological framework

The research uses eight complementary concepts: MSE (Maritime Strategic Ecosystem), MSCoG (Maritime Strategic Centre of Gravity), MSC (Maritime Strategic Convergence), MSR (Maritime Strategic Resilience), MSEL (Maritime Strategic Elasticity), MCS (Maritime Cognitive Superiority), MSCF (Maritime Strategic Convergence Framework), and IMSA (Integrated Maritime Security Architecture).

They are not a mandatory eight-step checklist: each should generate an intelligible analytical output, grounded in sources, assumptions, uncertainties and explicit limitations.

5. Architecture and interconnections

The intended Integrated and Interoperable Systems Architecture is federated in spirit: specialised autonomous components with compatible descriptions and controlled transfer of results. It is not a claim that every automatic link has been implemented.

Atlas Workbench is accessible within FSM-SMEA as a tactical module in the research case. Team analysis of tasks and results is organised in SMEA; the stand-alone Atlas does not possess its own multiuser facility. SMEA team collaboration is reported as implemented and internally tested; a concurrent authenticated online test is still pending.

MEDT RC1 is an offline experimental application, with no verified live synchronisation with MN, Atlas or SMEA. MN data may serve as documented reference; imports and transfer rules must be checked in each deployed installation.

6. An integrated study case

A cross-cutting research case concerns the deterioration of commercial navigation safety and freedom of navigation in the Black Sea amid the Russia–Ukraine war. MN documents sources, incidents, maritime routes and infrastructures. Atlas examines hypothetical tactical trajectories. SMEA evaluates ecosystem consequences and justified alternatives. MEDT can experimentally model how declared disturbances propagate across dependencies over time.

Observed facts, analytical hypotheses and simulated outputs must remain clearly separated; this example is an evaluation programme, not proof of complete empirical validation.

7. Users, access and evaluation

Researchers, maritime analysts, educators, experts in the law of the sea and institutions can choose the relevant tool according to their goal. Consult the individual scientific and functional dossiers for the actual functions, outputs, limitations and version status.

Open research means critical scrutiny and cooperation; it does not automatically grant unlimited access to private databases or protected interfaces. Feedback: contact@forumulsecuritatiimaritime.ro.

8. Editorial and evidentiary limits

MN is considered functionally completed by its coordinator, with ongoing source and database verification. Atlas is a built simulation tool; independent version v40.53 and embedded Atlas Workbench v40.30 should not be conflated. FSM-SMEA multiuser collaboration is implemented and internally checked according to the coordinator; online validation remains pending. MEDT v3.0 RC1 is demonstrative and is not an operational digital twin.

Sources: FSM research vision, three foundational studies and programme documentation; MN WordPress v3.25; public Maritime Atlas v40.53; FSM-SMEA v10.72 RO/EN; MEDT v3.0 RC1; and coordinator clarifications. Editorial v2.0, 18 November 2026.