



Work Package 2 – Concept Development

Version History

Version	Changes	Author
1.0	Initial version	Sami L.
1.1	Reviewed, reworded and specified parts 3 and 5.	Tõnu N.
1.2	Minor updates after TNO WP kick-off	Ivan Z.
1.3	Change in format, wording, added deliverable table to part 6	Urmas T.
1.4	Change in deliverable table	Urmas T.
1.5	Change in EMA-DEL-05 deadline	Urmas T.

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1. Glossary

EMA	Estonian Military Academy (Eesti Kaitseväe Akadeemia)
ELSA	Ethical, Legal, and Societal Aspects (Ethical Framework)
LandOps	Land Operations
UGS	Unmanned Ground System
MDMP	Military Decision-Making Process
OITL	Operator-In-The-Loop
RoE	Rules of Engagement
CONUSE	Concept of Use
ConOps	Concept of Operations
EMCON	Emission Control
CUAS	Counter Unmanned Aircraft Systems
UGV	Unmanned Ground Vehicle

2. Objective

The objective of EMA's work within the iMUGS2 scope is to ensure that all WP2 activities maintain ethical, doctrinal, and operational coherence in line with current and emerging defence standards.

EMA supports Milrem Robotics by providing military-academic expertise that bridges research objectives with practical application. This includes aligning doctrinal approaches across partners, contributing to the development of realistic operational scenarios and mission threads, and validating the operational soundness of key technological components such as networking, counter-UAS (CUAS), and emission control (EMCON). Through this collaboration, EMA strengthens the project's credibility and ensures that WP2 outputs are consistent with military doctrine and operational realities.

3. Scope & Outputs

- **T2.1 Ethical, Legal, Societal Aspects & Regulations of LandOps with Unmanned Autonomous Systems**
 - Capitalize on IMUGS results, hand-over to task lead.
 - Contribute doctrinal/ethical input:
 - Doctrine extraction, MDMP mapping, OITL points;
 - Analyse changes in accountability chain, RoE cross-ref;
 - Asses the Ethical Design Framework, validate domain related training solutions in the Baltics.
- **T2.2 Operational Framework**
 - Validate Operational Framework against Baltic States Defence Forces (in collaboration with Baltic Defence College) doctrine and training practices.
 - Support Milrem Robotics in Scenarios and Mission Threads development .
 - Review and co-author Operational Framework.
 - Support in Mission Concept Review Workshop facilitation.
- **T2.3 Scenario Development: T2.3.2 Trial Plan**
 - Support in the development of a trial plan (10–12 pages) including objectives, scenarios, and expected outcomes, integrating Estonian Defence Forces' expertise.
- **T2.4 CONOPS: T2.4.2 Wingman Concept for Mechanised Units / T2.4.3 Distributed Multi-Layer Counter-UAS / T2.4.5 EMCON Levels for UGVs**
 - Support Milrem in defining operational aspects of wingman and CUAS employment (within Mission Scenarios and Threads development).

- Contribute to EMCON level definitions and validation of communication limitations
- **T2.5 Manned Unmanned Teaming (MUM-T) concepts: T2.5.10 Deployment Case Studies**
 - Contribute to the definition of 8 deployment case studies (8–10 pages each) on UGS use in MUM-T operations in different armies.

4. Methods & Approach

- Use military SME workshops and wargaming to assess CONOPS
- Provide academic/military research and doctrine review (Estonian/Baltics/NATO perspective)
- Co-develop and review scenarios, mission threads, and operational roles

5. Deliverables & Milestones description

5.1. Contributions to consortium deliverables

D2.1 Ethical Framework (operational aspects, changes from iMUGS)

T2.1.1- Ethical Design Framework:

Contribute to the ethical design framework (20–25 pages) consolidating best practices for AI-enabled defense systems. Framework must include auditable criteria for compliance verification. Circulate draft to at least 2 external reviewers for auditing feedback.

T2.1.5 - iMUGS1 ELSA adaptation report:

Contribute to reviewing the ethical, societal, and legal studies from iMUGS1 (minimum 3 documents). Produce an adaptation report (10–12 pages) identifying transferable insights and gaps and propose adjustments for current project context.

D2.2 Operational Requirements

Give input in operational aspects, support in reviewing and specifying requirements.

D2.3 Operational Framework

Co-author and review sections of Light/Medium Infantry Battalion Group augmented with Robotics, Concepts for Heavy Infantry/Armor Wingman, CUAS, EMCON.

5.2. Participate in WP2 workshops:

- Kick-off Workshop at MLT (Tallinn) M2
- 2nd Workshop at TNO (Netherlands) M4 (ELSA and Operations WS happens at the same time separately).
- Scenario and MUM-T Workshop PIAP (Poland) M7
- Trial scenarios workshop FFI (Norway) M12

5.3. Participate in T.2.2 workflow:

ONLINE: Intro meeting: setting of goals and work procedures, introduction to WS1 (Operational Analysis Workshop), validation meeting.

PHYSICAL #1 WS (Operational Analysis Workshop) in Tallinn,: Kick-off for T2.2:

1. Introduce working procedure within Milrem Mission Engineering.
2. Introduce Mission Thread template.
3. Agree on the way of working and responsibilities for the assignment of Mission Threads development. Top-down (Mission Scenarios to Mission Threads) and bottom-up (Mission Threads traced to Mission Scenarios) method is being proposed.
4. Introduce template for Military Problem Statements
5. Brainstorming to mature list of problems (Milrem to add identified problems).

ONLINE: Continuation of work with:

1. Further refine Mission Scenarios
2. Evaluate problems with consortium, refine, specify, consortium cross listing of who is interested in solving what problem(s).
3. Tasking Consortium members to validate problem statements with Nations.

5.4. Participate in other workflows:

5.4.1. Three (3) agreed Mission Scenarios, Problem Statement List with cross-listing/allocation of consortium members.

ONLINE: Status-check-up meeting biweekly (1,5 mo):

1. Check up on how validation is going (EMA to validate with Estonian/Baltics MOD reps).
2. Introduction to problem prioritization.

ONLINE: Scenario Validation meeting: to prioritize problems statement to be further analysed in #2 WS: Mission Analysis WS, intro to the #2 WS.

PHYSICAL: #2 WS: Mission Analysis WS

1. Introduction of Mission Thread template and filling in procedure.
2. Developing of Mission Threads
3. Review of Mission Threads
4. Guidance for Maturing Mission Threads.
5. Guidance on Mission Thread Workshop facilitation with the Nations.
6. Tasking consortium members to validate concepts with Nations (EMA to validate with Estonia, Baltics, Finland)

5.4.2 Several Mission Threads to be shared with partnering Nations for validation of concepts.

4 x Company level Mission Threads, 12 x lower-level Mission Threads

ONLINE: Biweekly check-up meeting on progress (1,5 months), introduce a feedback format and decision matrix (EMA to come up with the format)

ONLINE: Concept Validation meeting: Analyse answers from Nations and introduce #3 WS: Concept Validation.

PHYSICAL: #3 WS: Concept Validation WS (tentative)

1. Introduction to how Concepts move on to Operational Needs and Requirements
2. Hand-over with Systems Engineers, walking through the Mission Threads with them.

5.4.3 Operational Framework structure

ONLINE: Bi-weekly sync-up: review what SE has created in the form of Operational (Stakeholder) Needs and Requirements, comment and assist in specifying the content.

ONLINE: Operational Framework authoring meeting - assign specific parts of the document to members, establish procedures of filling it in and reviewing.

ONLINE: Bi-weekly status meeting.

6. Deliverables table

Draft version – Finalized report approved by EMA

Final version – Amendments to draft version according to Milrem feedback

ID	GA task(s)	Delivery description	Format *page amount indicative	Due dates
EMA-DEL-01	T2.1.1 / D2.1	Ethical design framework consolidating best practices for AI-enabled defense systems. Framework must include auditable criteria for compliance verification.	Report of 20-25 pages*	Draft version 15.02.2026 Final version 31.08.2026
EMA-DEL-02	T2.1.5 / D2.1	iMUGS1 ELSA adaptation report identifying transferable insights/gaps and proposing adjustments for iMUGS2 context.	Report of 10-12 pages*	Draft version – submitted Final version 31.08.2026
EMA-DEL-03	T2.2.3	Mission Scenarios + Military Problem Statements package: three (3) agreed mission scenarios and a problem statement list with cross-listing/allocation of interested consortium members.	Report of 8–10 pages* per mission scenario, focus on security operations	Draft version 30.04.2026 Final version 30.06.2026

EMA-DEL-04	T2.2.3	Mission Threads package: agreed mission threads to share with Nations for validation (4× company-level and 12× lower-level mission threads).	Report of 8–10 pages* per mission thread	Draft version 30.04.2026 Final version 30.06.2026
EMA-DEL-05	T2.2.5 / D2.3 (and T2.4.1–T2.4.5 support)	Operational Framework contribution package: (a) validated structure and key operational viewpoints; (b) authored/reviewed sections on Wingman (mechanised units), Distributed multi-layer CUAS, and EMCON levels for UGVs; plus comments on stakeholder needs/requirements drafts.	Report on Operational Framework content	Draft version 29.05.2026 Final version 31.08.2026
EMA-DEL-06	T2.3.2	Trial Plan contribution: operational input to the trial plan (objectives, scenarios, expected outcomes) leveraging Estonian Defence Forces expertise.	Suggestions of 10-12 pages* for trial execution	Draft version 30.04.2026 Final version 30.06.2026
EMA-DEL-07	T2.5.10	Deployment case studies input package: contributions to defining 8 deployment case studies on UGS use in MUM-T operations (different armies).	8 – 10 pages* per case study	Draft version 30.04.2026 Final version 30.06.2026
				End of project: 31.10.2026

7. Estonian Military Academy Roles (RACI)

- T2.1.1, T2.1.5: R (Responsible for doctrine/ethics)
- T2.2, T2.2.3: R/C (Responsible/Consulted for validation)
- T2.3, T2.3.2: R (Responsible for support tasks)
- T2.4.2, T2.4.3, T2.4.5: R (Responsible for support tasks)
- T2.5, T2.5.10: R (Responsible for support tasks)
- T2.6: I (Informed, optional support if tasked)

8. References

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