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European High-Tech Consortium Submits Proposal for EDF Call to Develop Multipurpose Unmanned Ground Systems

The consortium that successfully delivered the groundbreaking iMUGS (Integrated Modular Unmanned Ground System) project in 2023 has submitted the iMUGS2 proposal, together with new consortium members, in response to the European Defence Fund's (EDF) call to develop next-generation Multipurpose Unmanned Ground Systems (UGS). Building on the success of iMUGS, the production-capable Consortium is set to revolutionize European military capabilities, enhance battlefield effectiveness and enable the fielding of European unmanned ground systems.

Brief summary:

- *The first iMUGS project laid the foundation by enhancing robotic capabilities on the battlefield. The iMUGS2 consortium has expanded to 29 partners from 15 EU member states, including all partners from the first iMUGS project.*
- *iMUGS2 will transition experimental UGS technology into a cost-effective System-of-Systems (SoS) solution that delivers practical deployable defence capabilities and is mature for national procurement and force integration by 2030.*
- *iMUGS2 aims to deliver combat-ready Unmanned Ground Systems, operational concepts at the battalion level, enhanced modular architecture for UGS and optionally manned ground platforms and a 72-hour operational trial to demonstrate the solutions' operational capacity.*

Continuing the experience gained from iMUGS, which was successfully carried out and delivered between 2020 and 2023, the Consortium's recent proposal to the European Defence Fund EDF-2024-DA-GROUND-UGS-STEP call seeks to develop and field cost-effective modular unmanned systems capable of supporting dismounted, mechanized, and motorized infantry across all European environments, including GNSS denied environments and adverse climate conditions. The Consortium has named the project iMUGS2.

Unmanned vehicles (UxVs) have become one of the most significant innovations in modern military operations, as demonstrated during the war in Ukraine. Effective cooperation between UxVs, manned vehicles, operators, and soldiers is essential for increasing combat effectiveness. This collaboration intends to reduce the loss of life, minimize collateral damage, and lower the cognitive burden on warfighters.

The first iMUGS project laid the foundation by enhancing robotic capabilities on the battlefield. Its key achievements included developing a System-of-Systems (SoS) open architecture, advancements in autonomous functions, cyber security measures,

communication technologies, and improved command and control systems. Progress was also made in collaborative behaviours like swarming and homogeneous teaming.

iMUGS2 aims to enhance intelligence, surveillance, target acquisition and reconnaissance (ISTAR) capabilities, survivability, situational awareness, mobility, lethality, logistics, and training.

"By leveraging the outcomes of iMUGS, the iMUGS2 project represents a significant leap forward in developing and fielding advanced, cost-effective and combat-ready autonomous ground systems," said Raul Rikk, Capability Development Director at Milrem Robotics, the consortium lead. "Our goal is to enhance European defence capabilities and develop solutions that are ready for procurement and integration by 2030," Rikk added.

Using outputs from iMUGS and other European-funded initiatives, iMUGS2 aims to expedite research and move rapidly towards practical, deployable solutions. The enhancement of operational capabilities will be demonstrated through trials with military tactical units. The project will also focus on developing interoperability among European nations and incorporate lessons from recent conflicts, including the war in Ukraine, where several Consortium member systems are deployed.

iMUGS2 has three main outcomes. First, it aims to develop, validate and demonstrate cost-effective, combat-ready UGSs that support dismounted troops at various operational levels and provide practical value in different operations. Second, the project will develop operational concepts demonstrating how UGS and unmanned aerial systems (UAS) can enhance infantry battalion and cross-domain operations capabilities. Third, the project will enhance the modular and open architecture and Through Life Capability Management (TLCM) framework that enables efficient integration of autonomous functionalities with legacy and new systems across unmanned and optionally manned ground platforms, including conversion of manned vehicles.

iMUGS2 aspires to become a European standard due to the collaboration of numerous member states working towards a sovereign modular open architecture.

"It speaks volumes that all participants, member states and companies alike, of the first iMUGS project, have decided to continue with iMUGS2. Furthermore, the iMUGS2 Consortium is twice as large as it was during the first project, now including 29 partners, 15 member states, and numerous subcontractors," said Rikk.

The Consortium's efforts reflect a commitment to strengthening Europe's defence industry, reducing dependency on non-European suppliers, and enhancing interoperability between EU member states' military forces.

About the Consortium:

The iMUGS2 consortium has expanded to include 29 partners from 15 European Union member states and associated countries, including all initial project partners. The team comprises large industries, mid-sized companies, SMEs, and research organizations. Each partner brings leading expertise in their respective fields, fostering a comprehensive vision throughout the project lifecycle. This diversity enables the consortium to address potential challenges and deliver strategic and efficient solutions.

The iMUGS2 Consortium consists of the following entities: AVL List, Bittium Wireless, Czech Technical University in Prague, Cybernetica, Delft Dynamics, Diehl Defence, dotOcean, Elettronica, Escribano Mechanical and Engineering, FN Herstal, GMV Aerospace and Defence, Huta Stalowa Wola, Insta Advance, Integrated Systems Development, John Cockerill Defense, KNDS France, KNDS Germany, Kongsberg Defence & Aerospace, Latvijas Mobilais Telefons, Łukasiewicz – PIAP, Milrem Robotics (project coordinator), Netherlands Organisation for Applied Scientific Research, Norwegian Defence Research Establishment, the Royal Military Academy of Belgium, Safran Electronics & Defense, Secura, Svensk Konstruktionstjänst, Systecon Konsult, Talgen Cybersecurity.

About the first iMUGS

The 32,6 MEUR integrated Modular Unmanned Ground System (iMUGS) project created a European-wide architecture for ground and aerial platforms, command, control, and communication equipment, sensors, payloads, and algorithms. The project addressed challenges for interoperability, perception, and decision-making.

It began in late 2020, and all contractual activities, tasks, and operative and technical objectives were reached in May 2023.

Progress was shown in periodic events arranged in all participating Member States: Estonia, Latvia, Finland, Belgium, France, Germany, and Spain.

The project and the technology developed have given the European Union a pathway to improving its ability to respond to emerging military threats and challenges.

Please find a video of iMUGS events here - <https://youtu.be/jmWXE9NPexE>

For more information, please visit <https://imugs.eu>.