European generic soldier systems

GOSSRA will carry out research in the development of a Soldier System Reference Architecture ready for standardization which covers electronics, voice and data communication, software, human interface devices, sensors and effectors.

The awarded project, called GOSSRA, was signed on 27 April 2018.; led by Rheinmetall Electronics (Germany), GOSSRA's consortium encompasses 8 other participants from 6 countries: GMV (Spain), iTTi (Poland), Tekever-ASDS (Portugal), Larimart (Italy), Leonardo (Italy), SAAB (Sweden), Indra (Spain) and TNO (the Netherlands). The project, which has a duration of 22 months, will receive an EU grant of roughly €1.5 million.

Technical challenges in the Soldier Systems domain

With the success of miniaturized, powerful electronics and computing capabilities in the civil domain and the need for networked systems and sub-systems with extensive information exchange in the military domain, Soldier Systems are getting more and more complex.

Moreover, Soldier Systems can be used more efficiently with all relevant data available. This data will not only be generated by the soldiers themselves, or by the systems they carry, but will increasingly be originated from other sources (higher echelon units, vehicles, other soldiers, unattended sensors, etc.). Exchange of data between Soldier Systems and these sources via a common communication network is therefore paramount.

A trend of growing diversity in communication systems that the soldier is likely to have available was observed (military radio systems with different, specific and optimized capabilities in terms of range and throughput, in addition, communication devices based on commercial technologies e.g. such as WiFi, LTE, 5G, and optical communications might be possible).

Challenges in development, procurement and interoperability

Architectures for the Soldier Systems to be procured are individually developed in many European nations by their national Soldier System companies. The architectures of these Soldier Systems are called Target Architectures as they represent an architecture for a specific Soldier System.

Today, most European nations have their own approaches to soldier modernization programmes. Many nations are still in the prototyping stage or working on concepts for the modern Soldier Systems. The results are nation specific systems which, with exceptions, are proprietary and totally lack interoperability for all electrical, electronic and IT aspects. However, operating in an EU-/ NATO-Coalition-Context or even with non-military partners, demands a high level of interoperability.

GOSSRA project aim

The purpose of GOSSRA is to develop a Generic Open Soldier System Reference Architecture (GOSSRA), which can be used as common reference architecture on EU-/NATO-Level for deriving the above mentioned Target Architectures at country-level.

This Reference Architecture for Soldier Systems should be ready for standardization to become openly available and not implying any protected intellectual property. The Reference Architecture comprehensively focuses on:

- software
- electronics
- voice and data communication
- sensors
- effectors
- human interface devices
- C4I

The architecture represents "best practice", "future trends and developments" and suggests standard interfaces. It shall be used as a reference to derive the "Target Architecture" which is the architecture for a specific Soldier System to be procured.

The Reference Architecture will be formulated according to the NATO Architectural Framework (NAF) v3 and built upon work already performed in the EDA studies STASS I and STASS II. It will be analysed and refined along the most important comprehensive aspects and validated by tests and a demonstration.

EU Preparatory Action on Defence Research (PADR) 2017

The Research Action Call on the topic 'Force protection and advanced Soldier Systems beyond current programs' with the subtopic 'Generic Open Soldier Systems Architecture', was concluded under the Preparatory Action on Defence Research (PADR) 2017.

The awarded project "Generic Open Soldier System Reference Architecture" (GOSSRA) was signed on 27 April 2018 and receives an EU grant of roughly €1.5 million over 22 months (1st July 2018 to 31st March 2020).

Future Developments Document

The intended GOSSRA Standard shall be valid and applicable in a few years. A comprehensive trend and market analysis was performed in order to cover future global, operational and technological trends in the domain of dismounted soldier system. The resulting '*Future Developments Document*' was delivered on 31-01-2019. ■