





ADDITIVE MANUFACTURING – A CAPABILITY ENABLER FOR LOGISTIC SUPPORT

Additive Manufacturing (AM) – commonly known as 3D-Printing – has been identified as a technology that could significantly reduce the logistic footprint of armed forces deployed on missions. While AM is considered within industry as an established technology producing components and parts, for the armed forces AM is still at the beginning of its introduction as a technology with the potential to enhance military logistic capabilities.

From R&T to Capability Development

In 2018, EDA delivered the result of its project "Additive Manufacturing (3D-Printing) Feasibility Study & Technology Demonstration" to its Member States. The purpose of the study was to identify and explore areas in defence where AM will have an impact and can significantly enhance military capabilities.

The comprehensive study drew several conclusions:

- While there are a variety of available AM technologies, current technical capacities and cases of application are wide and varied, showing a promising future for their implementation in defence.
- Non-technical factors such as intellectual property rights, training and education, standardisation and certification pose serious limitations for the implementation of AM into the armed forces.

The findings and conclusions of this R&T study, especially in regard to standardisation, training and intellectual property

rights became objects of a dedicated work strand in the Capability Development domain in EDA and a new AM project.

Additive Manufacturing for Logistic Support – Project Objectives

The new project 'Additive Manufacturing for Logistic Support (AMLS)' will provide the contributing Member States and their experts a platform to discuss, elaborate, and determine standards which are related to the eight identified areas of project activities.

The elaboration and determination of common standards as the basis for interoperability are the main objective of AMLS. The project will act as a communication bridge between the area of Capability Development, R&T, and industry to monitor future AM developments and to communicate military requirements in this regard.

EDA will facilitate all project activities and will support its Member States to achieve the project objectives as laid out in a dedicated Project Plan.

8 areas of activities driving AM capability development

In preparation of the 'Additive Manufacturing for Logistic Support' project, EDA and its Member States identified eight areas of activities where common activities, approaches and determining common standards would have the most impact on AM in defence.

1. Technology

Common technology standards in terms of material specifications and manufacturing methods are fundamental for the exchange of Mutual Logistic Support and cooperation.

2. Logistic Procedures

Logistic procedures should follow a common approach, in terms of identification and traceability of printed parts. Facilitating the ease of exchange of service support in terms of supply chain management and spare part supply.

3. Procurement Procedures

AM is at the beginning of its use within the armed forces as a manufacturing method. The contracting and procurement management process need to be prepared and supported to take advantage from AM and its potential.

4. Personnel & Education

Utilising AM and its collaboration potential a common skillset is required to ensure harmonised producing procedures. A harmonised syllabus and a standardised qualification and certification for personnel will enhance the wider use of AM.

5. Quality Management

To achieve quality standards and to be coherent with civil quality standards, a structured framework with regards to health and safety, certification and verification and norms and standards need to be defined and agreed on. This is necessary to enhance and enable civil – military cooperation in this area.

6. Information Management & IT

Common IT-standards for software and hardware, harmonised IT-security requirements, a database network for sharing AM files and documentation will support the development of AM to use all its advantages as an integral part of the digitalisation process even in field logistics.

7. Legislation & Regulations

Member States need clarity on all legal aspects to produce and use AM spare parts in different scenarios such as in peacetime or on missions. The question on intellectual property rights is an important hurdle to overcome.

8. Strategy & Communication

A common strategy to advertise AM as a potential manufacturing method to reduce the logistic footprint and to increase the availability of spare parts needs to be developed to receive support from the AM community. Capability demonstrations, expert forums and symposia - underpinned with progress in the concrete AM areas - will support AM to be better known, becoming accepted and further used in the military environment.

