

# EXPLORING NEW SECTORS BY DEPLOYING AN AM-FACTORY

## EDA-AM project - EDA Additive Manufacturing Feasibility Study & Technology Demonstration



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### MOTIVATION AND SCOPE

AM have a significant potential for to enhance defence capabilities. Among them, the most likely are mobility, sustainability, ensuring platform availability, effect and protection through e.g. on-site and on-demand field repair & maintenance, reduced logistic burden of deployments and improved sustainability in warfighting and peacekeeping missions. Substantial economic benefits are also expected.

To identify and explore areas where additive manufacturing will have a wider impact, the European Defence Agency (EDA) commissioned Fundación Prodimtec ([www.prodimtec.es](http://www.prodimtec.es)) and MBDA FR ([www.mbda-systems.com](http://www.mbda-systems.com)) to conduct this project. The project targeted the entire spectrum of European defence and AM stakeholders, at all levels of defence and AM supply chains.

### WORKSTRANDS AND OBJECTIVES

- State of the art and strategic study**
  - Assess the areas where AM can make a greater contribution to defence capabilities
  - Promote a better understanding of the potential held by these technologies
- Technology demonstration, including the deployment of an AM-factory**
  - Stimulate their implementation in defence specific areas Demonstrate the deployability of these technologies in a simulated defence specific scenario
- Conference and exhibition on AM**
  - Create synergies between the R&T community and the operational staff
  - Helping the R&T community to understand the requirements from the operational side
  - Raise awareness in the defence community presenting the project results to military staff

### STATE OF THE ART AND STRATEGIC STUDY

#### INITIAL CONSIDERATIONS FOR THE STUDY:

- NEW CHALLENGES**
- CAPABILITY DRIVEN**
    - Balance capability pull and tech push in a high-tech world
    - New threats coming from misuse of AM?
  - MARKET SPECIFICITY**
    - Smaller volumes
    - High quality products
  - CAPABILITY DRIVEN**
    - Technology need to meet Defence requirements for spare parts built in AM
    - New process to built spare parts with AM (need to train technicians)



#### SUMMARY:



- > NEW AND IMPROVED PRODUCTS FOR DEFENCE INDUSTRY
- > SUPPORT TO FIELD OPERATIONS
- > SUPPORT TO IN HOUSE OPERATIONS

### DEPLOYMENT OF THE AM-FACTORY

#### State of the art and strategic study

- Self contained module
- Containing 2 different AM technologies
  - Polyjet technology
  - FDM (Fused Deposition Modelling) technology
- Deployed in the EDA sponsored Airlift Exercise
- Data gathering to better understand AM in operations



### CONFERENCE AND EXHIBITION ON AM



#### Series of presentations by experts

- High level presentations
- Covering full range of the value chain
- Civil-Military perspectives

#### Illustrating applications

Sampling the technology from initial design to the AM manufactured parts. Illustrative presentation of the deployment.

#### Direct approach to technology

Based on the direct experience with AM equipment. Involve seeing the technologies in operation.



### CONCLUSIONS

While there are different available AM technologies, current technical capacities and cases of application are wide and varied, showing a promising future for their implementation in the defence.

Non-technical factors (IPR, training, standardization and certification, etc.) represent solid limitations for AM implementation, stronger in fact than technical ones.

Although some organizations taking part on defence activities have earned a significant AM experience, defence sector still needs to increase its AM expertise to better understand the impact of AM on defence capabilities