EUROPEAN DEFENCE AGENCY

Fact sheet

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Incubation Forum for Circular Economy in European Defence (IF CEED)

Project idea: Digital Product Passport (DPP) for Armour Inserts

Context

The typical lifetime of an armour insert is about 5 to 10 years. Currently, due to safety and security reasons, the only option at the presumed end of life is disposal. Digitalisation could lead to more circular management of soldiers' protective equipment.

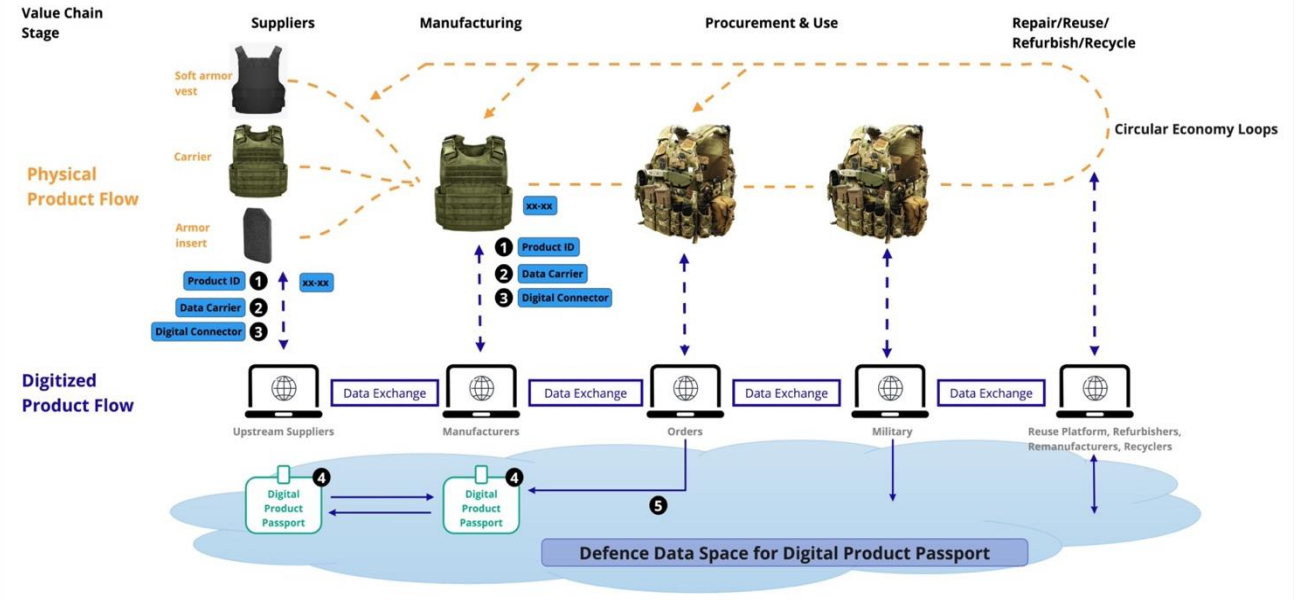
Circular strategies are needed at every step of the value chain (e.g., eco-design, recycling technologies, use of secondary materials) to allow for reuse, repair or recycling of armour components. Efficient access to reliable product data is crucial to enable cost-effective implementation of these circular strategies (e.g., ceramic grade of the insert, fibre composition, manufacturer identification).
Even if an armour insert is designed to be disassembled and/or manufactured based on recyclable materials, it can only be used if authorised parties have access to the product composition. In this respect, DPP-type solutions could unlock business opportunities such as reusing the armour insert, extending service life or recovering high-valuable materials (e.g., aramid, ceramic).

The **DPP system** itself is to be composed of:

(1) A unique persistent ID for the product
(2) A persistent data carrier (RFID, QR Code, digital watermark, Bluetooth tag, etc.)
(3) A digital connector between the physical product and the digital data
(4) DPP containing product information from manufacturer and on its use phase
(5) An IT architecture facilitating the data exchange and access.

Objectives

The stake for the defence sector is to assess, at prototype level, the benefits and challenges of the DPP concept for a given product category.



The objective is to **develop and test a DPP solution for armour inserts**.

The **specific objectives** of the project idea are to:

- Define a product data model for the DPP of the armour insert based on stakeholders' business needs and a circular use case analysis.
- Identify and assess requirements in terms of product identification and tracer technology.
- Identify requirements and develop a Proof of Concept of the IT architecture.
- Develop and test a DPP prototype for armour insert.
- Make recommendations for the future implementation and deployment of the DPP in Defence.

This project proposal is in line with the wider objectives of the Incubation Forum for Circular Economy in European Defence (IF CEED).

Expected impacts

- Waste reduction
- Increased supply chain resilience
- Costs reduction

Stakeholders

- Entities engaged in the IF CEED Project Circle "Circular Data"
- Industry and IT solutions providers

Timeline

The foreseen project duration is 24-30 months.

Expected Outcome

- DPP data set for armour inserts
- Recommended specifications for product identification and tracer technology
- Proof of Concept of the IT architecture
- Economic analysis of the DPP solution
- Recommendations for deployment of the DPP in Defence.

Operational benefits

- Improved stock management and handling
- Enhanced interoperability through the use of a common data set
- Easier compliance/verification with legal and contractual requirements.

Budget & Funding

Type of project: Collaborative project.

Budget: EUR 500 000 - 800 000