STRATEGY INSIGHTS

BLUEMONT INDUSTRY REPORT

Sustainably Ready to Defend

Europe's Opportunity: How More Circularity Strengthens the European Defence Industry

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EUROPEAN POLICY DEMANDS CIRCULARITY

EUROPEAN GREEN DEAL

Climate neutrality in Europe
by 2050

SELECTION

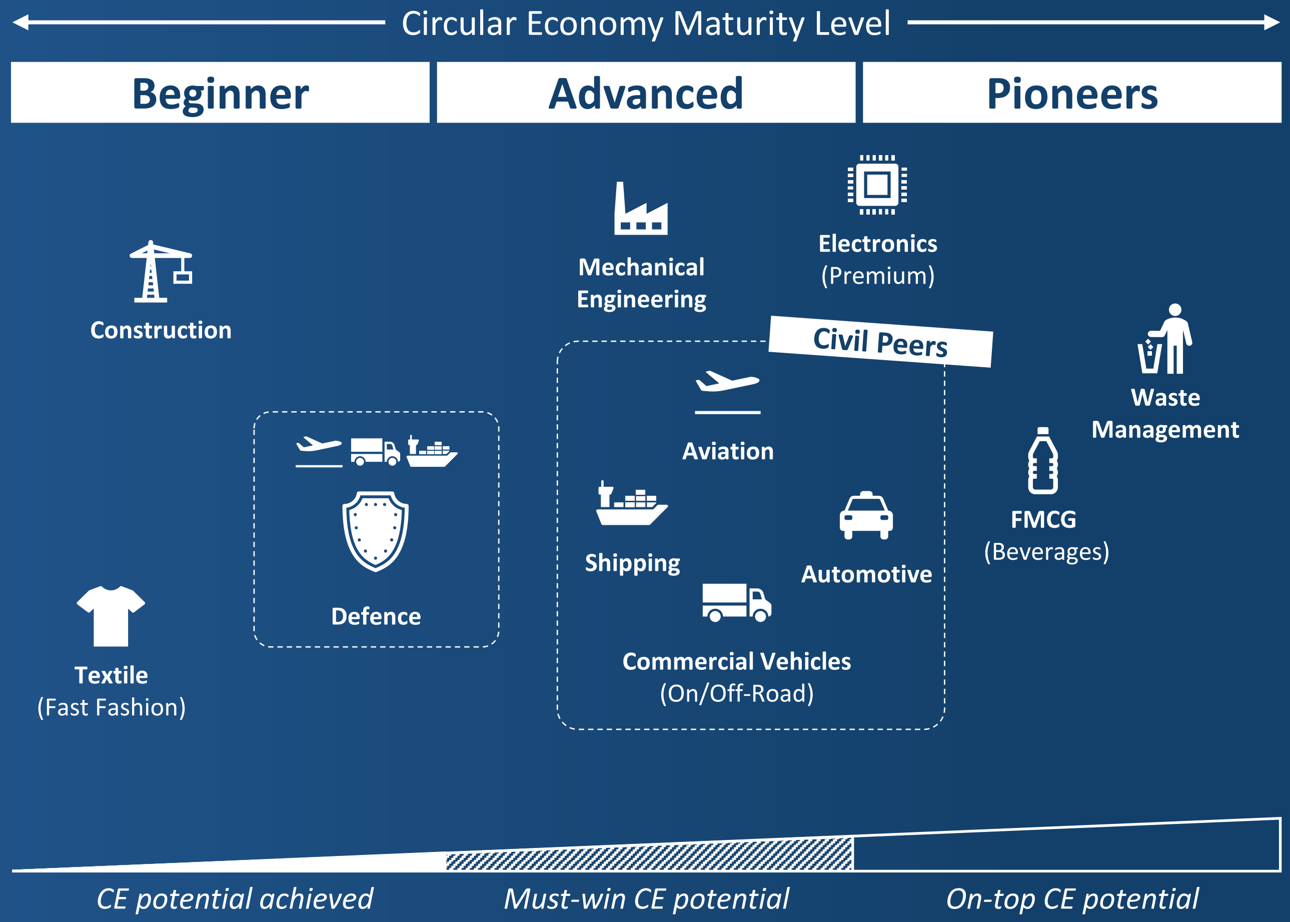
WHAT DOES THIS MEAN FOR DEFENCE?

1. **Circular Economy Action Plan -** EU master plan for the cross-sectoral anchoring of the circular economy in the EU economy.
2. **Critical Raw Materials Act -** Creation of transparency and avoidance of raw material risks, e.g. via material monitoring, recycling of certain waste.
3. **Ecodesign for Sustainable Products Regulation -** Ensuring ESPR conformity of the civilian supplier components used in defence goods.
4. **Digital Product Passport -** Mandatory integration of a Digital Product Passport for civilian supplier components in military end systems.
5. **Incubation Forum for Circular Economy in European Defence -** Development of CE standards for defence (possibly basis for future normative standards)

COMPARISON OF CIRCULAR ECONOMY MATURITY

Statement from the industry

In the defence industry we are way behind when it comes to ***Circular Economy****!*



Civil peers show potential for defence companies – yet the industry must overcome specific CE barriers.

CIRCULAR ECONOMY BARRIERS

SELECTION

	Defence	Peers
CE Regulation	No **legal requirements**, but soft law since around 2021 **due to increasing political pressure** (European Green Deal)	**Automotive - up to 25 years ahead** in meeting legal requirements, e.g. EU ELV Directive since 2000
Compliance	**Free exchange of components** mostly prohibited **by arms law and export controls** (e.g. ITAR, dual use)	**Aviation - cross-border flow of components** via established networks
Confidentiality	Many components are subject to **confidentiality** - recycling, reuse and remanufacturing **not permitted**	**Peers -** Implementation of circular economy is a **business decision** (profitability, feasibility)
Scalability	Small quantities, e.g. for tanks, frigates, high product complexity **- few economies of scale**	**Automotive -** high volumes, homogeneous products, **enabling the economies of scale** required for CE
Second-Life Markets	**No free secondary markets** for operational equipment, regulation at European and national level	**Aviation - standardized, global MRO networks** **Automotive - huge, high-margin aftermarket**
Infrastructure	**Lack of CE infrastructure**, e.g. spare parts logistics geared towards maintenance, not circularity	**Peers - Extensive circularity infrastructure**, e.g. reverse logistics for spare parts or recycling centers for ships
Product Development	R&D focus on **performance, robustness, long lifecycle, less on modularity**. Lengthy change processes	**Automotive -** high standardization and modularity as a **basis for design-for-circularity**
Culture	Historically little focus **on sustainability** in companies - e.g. as they were exempt from requirements in the past	**Peers - Growing focus on sustainability**, e.g. circular economy as an additional sales channel

DRIVERS OF CIRCULAR ECONOMY

SELECTION

political-strategic

Defence Companies	Ministries and Armed Forces
Resilience in supply chains through greater independence from suppliers and competition for raw materials	Securing critical raw materials - reducing political dependencies on individual countries
Better positioning towards governments and politics, e.g. for funding programs or awards (supply chain resilience)	Security of supply for armies by protecting supply chains from targeted attacks
Strengthening of modularity and interoperability in the defence industry	Advantages in the allocation of government budgets due to increased political acceptance of defence

Defence Companies *VS.* **Ministries and Armed Forces**

financial-commercial

Defence Companies	Ministries and Armed Forces
Reduction in development and manufacturing costs, e.g. via reduced qualification or procurement costs	Protection against rising procurement prices, e.g. by adverse effects on the supply chain (e.g. customs duties, embargoes)
Increased efficiency in the value chain, e.g. by reusing titanium scrap as powder for 3D printing	Lower procurement requirements: longer use of legacy platforms, such as Fuchs (remanufacturing)
Establishment of new business models, e.g. leasing of military equipment or remanufacturing in the aftermarket	Realization of TCO reductions with a focus on operating costs - up to 80% of costs during use of equipment

7R - EXAMPLES FROM THE INDUSTRY

SELECTION

Phase	R	Company	Example
Development & Production	**R1: Rethink** Reconsider	KNDS, RHEINMETALL	**Capability-Based Modules -** Interchangeable mission modules with standardized vehicle module in the BOXER instead of new vehicle development (e.g. for ambulance)
Development & Production	**R2: Reduce** Reduce	SAAB	**Additive Manufacturing -** Use of 3D printing to reduce the use of raw materials (studies show a potential to reduce up to 90% of the raw materials used)
Take-back & recycling	**R3: Reuse** Reuse	THALES	**Refurbishment -** Upgrading sonars by reusing as many existing components as possible, e.g. racks or user consoles
Take-back & recycling	**R4: Refurbish** Refurbishment	RHEINMETALL	**Second Life -** Refurbishment of e.g. 40 Marder infantry fighting vehicles for use in the Ukraine on behalf of the German Armed Forces
Take-back & recycling	**R5: Repair** Repair	RHEINMETALL	**Repair Hub -** Development of the Rheinmetall Ukrainian Defense Industry Repair Hub for on-site repair of Marder, Leopard 1 and Leopard 2 in Ukraine
Take-back & recycling	**R6: Remanufacture** Remanufacturing	BAE SYSTEMS	**Upgrading -** Remanufacturing projects relating to Bradley armored personnel carriers on behalf of the US armed forces (complete vehicles, spare parts)
End of Life	**R7: Recycle** Recycling	KNDS	**Dismantling Services -** Recycling of metals, plastics or electronics as part of the end-of-life management of deployed military equipment

BLUEMONT SERVICES - CIRCULAR ECONOMY

I. Circular Economy Strategy

Selection & evaluation of relevant R-strategies along the company-specific value chain and product portfolio.

II. Deposit System

Development & implementation of a global deposit & return system for used parts incl. SAP integration.

III. Customer Frontends

Development and implementation of customer front-ends incl. SAP integration.

IV. Reverse Logistics

Transport optimization & bundling of reverse logistics for used parts, incl. interface & IT integration.

V. Handling of Used Parts

Development of sorting and storage processes as well as automated billing models for used parts & raw materials.

VI. Recycling of Used Parts

Design & implementation of recycling processes for used parts, incl. integration of residual material recycling into production processes to increase resource efficiency.

VII. Sale of Used Parts

Development of trading structures & marketing channels, incl. logistical handling (identification, outbound processes).

VIII. Preparation Concept

Portfolio management for planning & optimization of product preparation strategies.

IX. Supply Management

Optimization of supply management for spare parts (disposition/shortage processes).

X. Distribution of Sustainable Parts

Development & implementation of disposition & sales strategies incl. a sustainable marketing concept.

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