EURECOMP Project: European recycling and circularity in large composite components

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EuReComp in a nutshell

DURATION
48 months

9 EU countries

COORDINATOR
Prof C. Charitidis

STARTING DATE
01/04/2022

20 partners

BUDGET
~9 M euros

PROJECT ACRONYM/TITLE
EuReComp
European recycling & circularity in large composite components

GA NUMBER
101058089
CALL: A digitized, resource-efficient and resilient industry 2021

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EuReComp Consortium

20 Industrial and **academic partners** with **complementary and multidisciplinary expertise!**

- ✓ **2 IND**
- ✓ **11 RTO**
- ✓ **7 SME**

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EuReComp Mission

The **cumulating composite wastes** are more prominent than the needed new composites. The **aircraft** and **wind energy** sectors contribute to a major share.

Across all industries about 60% of waste **fibre reinforced** composites is **landfilled**, causing severe **societal and environmental issues**.

EU's **Circular Economy plan** seeks to reduce the landfill down to 10% by increasing the rate of **recycling.**

Stakeholders seek **advanced technologies** and **end-of-life options**, which promote the **recycling** of carbon fibres.

EuReComp project has a strong focus on **circularity**, setting out to provide **sustainable methods towards recycling and reuse of composite materials**, coming from components used in various industries, such as aeronautics and wind energy.

EuReComp pathways towards circularity:

- Repairing, repurposing and redesigning parts from end-of-life large scale products and
- Recycling and reclamation of the materials used in such parts

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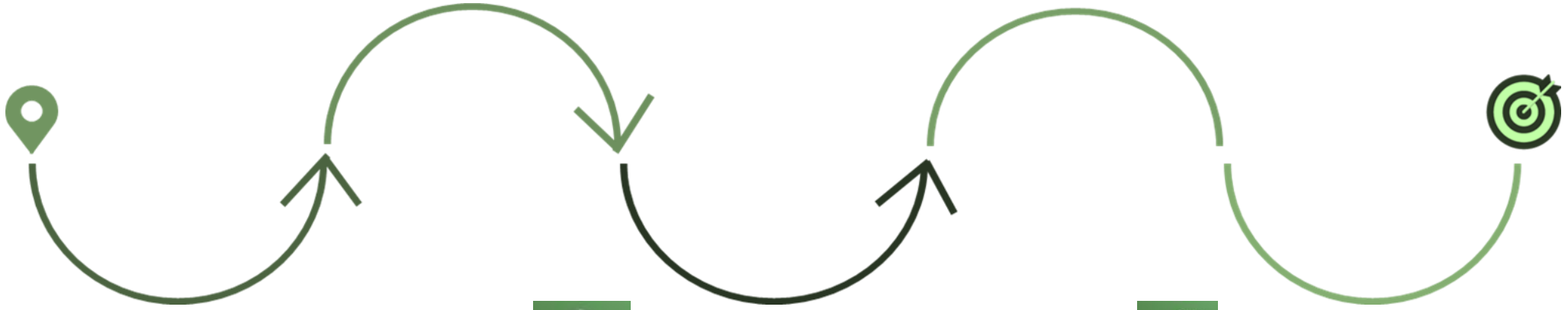
EuReComp Objectives

To develop and integrate novel solutions for a **higher reuse** of whole products and components

To develop tools to demonstrate the **circularity** and the **environmental benefits** of the solutions tested



To propose innovative **dismantling** and **sorting** systems enabling reuse and recycling of complex composite materials

Pilot demonstration of reuse/recycling approaches of composites & secondary raw materials

To consider the **co-design of learning resources** together with local and regional educational organizations for current and future generations of employees

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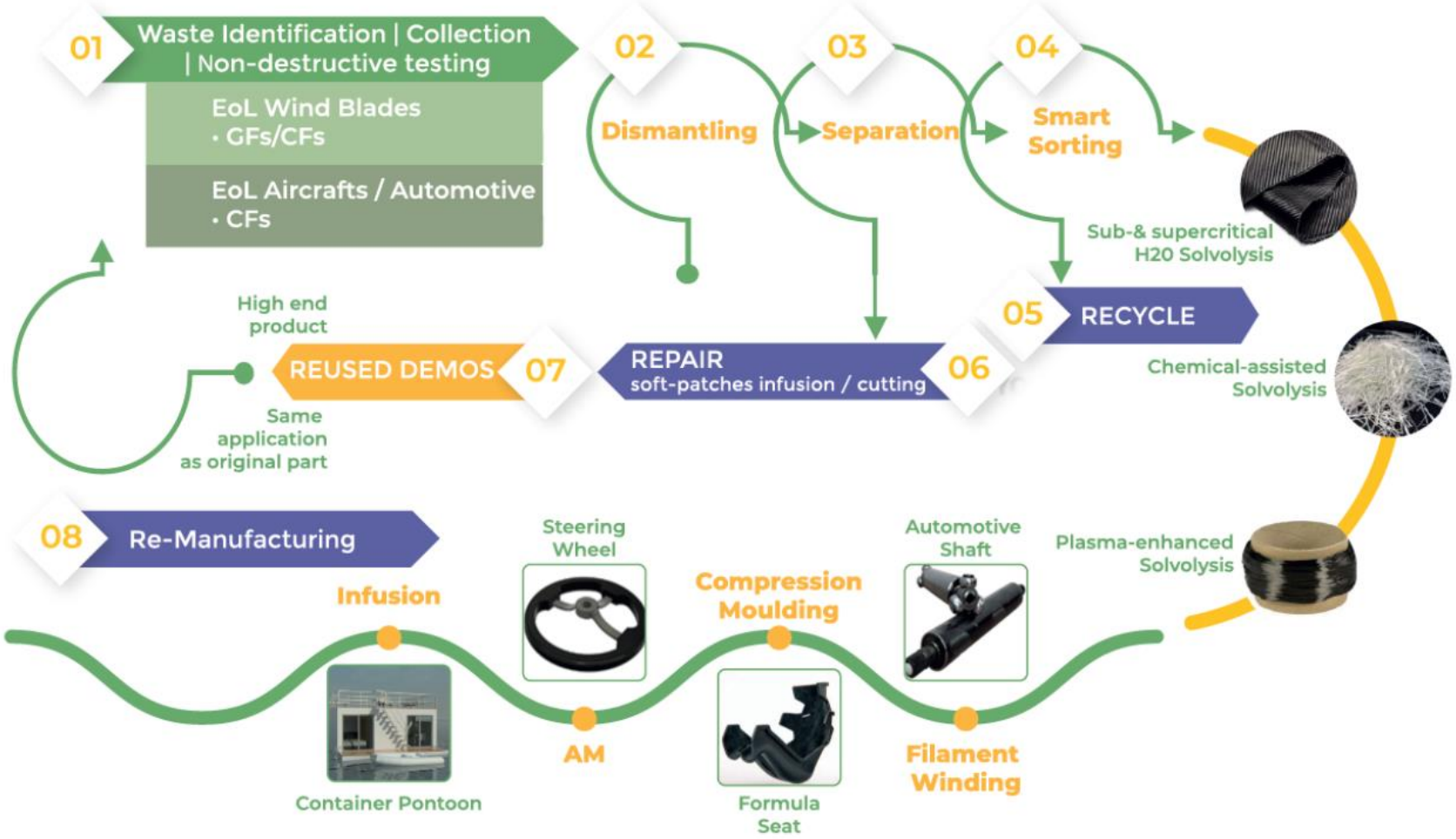
EuReComp Concept



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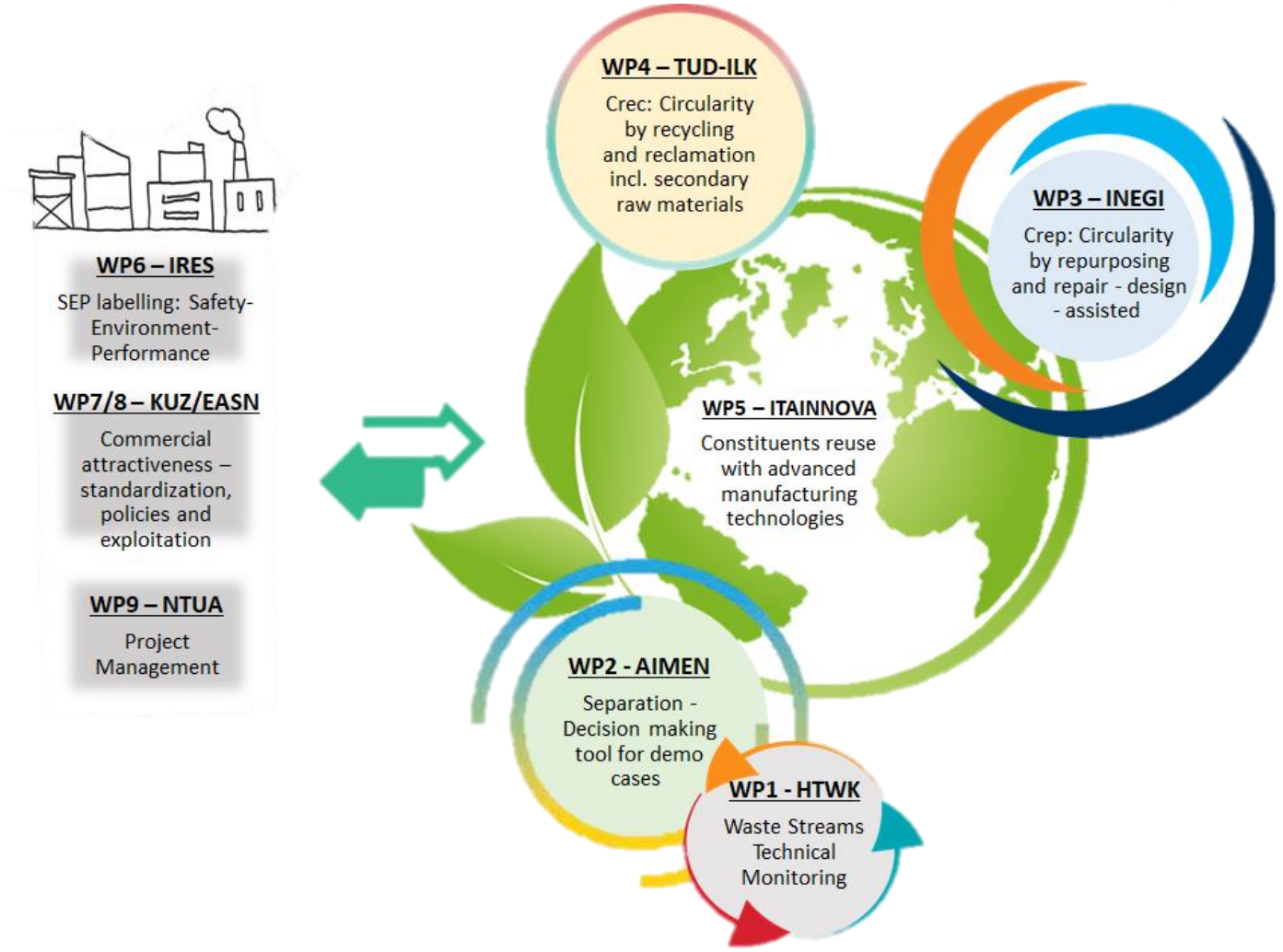
Work Plan



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WP1 & WP2

WP1: R6 Strategy for waste streams management

Objectives:

1) Circular design strategies with increased product durability
2) Stakeholder identification for new commercial possibilities and business opportunities
3) Networking with other clusters, networks, projects and regional initiatives
4) Establishment of waste management system and logistical framework for EuReComp

WP2: Separation Decision making tool for demo cases

Objectives:

1) Design of system for tracking quality & quantity of disassemble and separate multi-materials for reuse

2) Demonstration of an intelligent sorting system; separation of waste according to the specifications of the recycling

technologies

3) Improvement of methodologies/strategies for analysis, disassemble and separation of multi-material debris

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WP3 & WP4

WP3: Crep: Circularity by repurposing and repair - design-assisted

Objectives:

1) Assessment of repairing technologies for products life-time extension and repurposing including the development of
new methods for repairs improvements
2) Demonstrator's design for the prevention and reduction of waste using advanced modelling strategies, evaluation
and validation
3) Development of business guidance on the safety assessment of reused and repaired components

WP4: Circularity by recycling and reclamation incl. secondary raw materials

Objectives:

1) Optimization of solvolysis condition for fibre and matrix separation
2) Production of high-value long fibres for textile fabrics and continuous yarns
3) Recirculation for waste material streams minimization; Fractionation of dissolved matrix & solvents
4) Simulation of dissolution and waste treatment processes as well as the structural mechanical potential of the obtained fibre materials in new composites

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WP5 & WP6

WP5: Constituents reuse with advanced manufacturing technologies

Objectives:

Achievement of circularity through EuReComp different remanufacturing technologies/routes:

1) Manufacturing of 2nd generation new products
2) Manufacturing of demonstrators covering various sectors/applications

WP6: SEP Benchmarking: Safety-Environment-Performance

Objectives:

Holistic LCA of composite materials (WP1-5) and SEP Decision Tool

1) Cost evaluation; Cost of materials and manufacturing but also the wider implications of technology selection on company performance.
2) Market analysis; The whole life cycle will be assessed in terms of Sustainability, Impact & Performance
3) Risk assessment on innovative processes and recommendation of SbD guidelines

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WP7 & WP8

WP7: Training and life-long learning

Objectives:

1) Insurance of the recruitment and retention of skilled workers from current and future employee generations through a comprehensive training and life-long learning concept for the technologies developed in EuReComp
2) Modular training concept depending on technical/qualification level - from career changers to post-graduates
3) Innovative learning and teaching methods; blended learning, augmented reality, flexibly adjusted to individual focal points, learning tempos and regional social needs

WP8: Communication, Dissemination & Exploitation

Objectives:

Increase awareness and interest amongst stakeholders; further exploitation of EuReComp results

1) Creation effective communication & dissemination channels based on information needs of identified groups
2) Strengthen EU's industrial base and boost its competitiveness and open strategic autonomy

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WP9: Project Management

Objectives:

1) To establish an effective project management structure, communication between partners & follow the plan.
2) To prepare and maintain the Risk management plan.
3) To identify & confirm deliverables, milestones, materials, external costs, travel, depreciation, etc.
4) To ensure a smooth transfer of information to and from the Commission.
5) To distribute the financial support paid by the Commission among the partners.
6) To perform overall legal, contractual, ethical, financial and administrative management.

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Meet our Team

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Thank you!

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