

EU Research and Innovation challenges for fibre-reinforced composites

The role of collaborative actions and the RECREATE project

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EU Composites Advantage Unveiled

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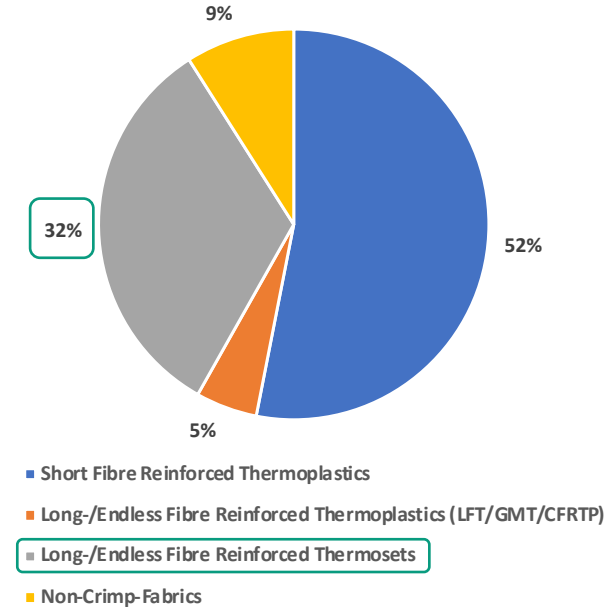
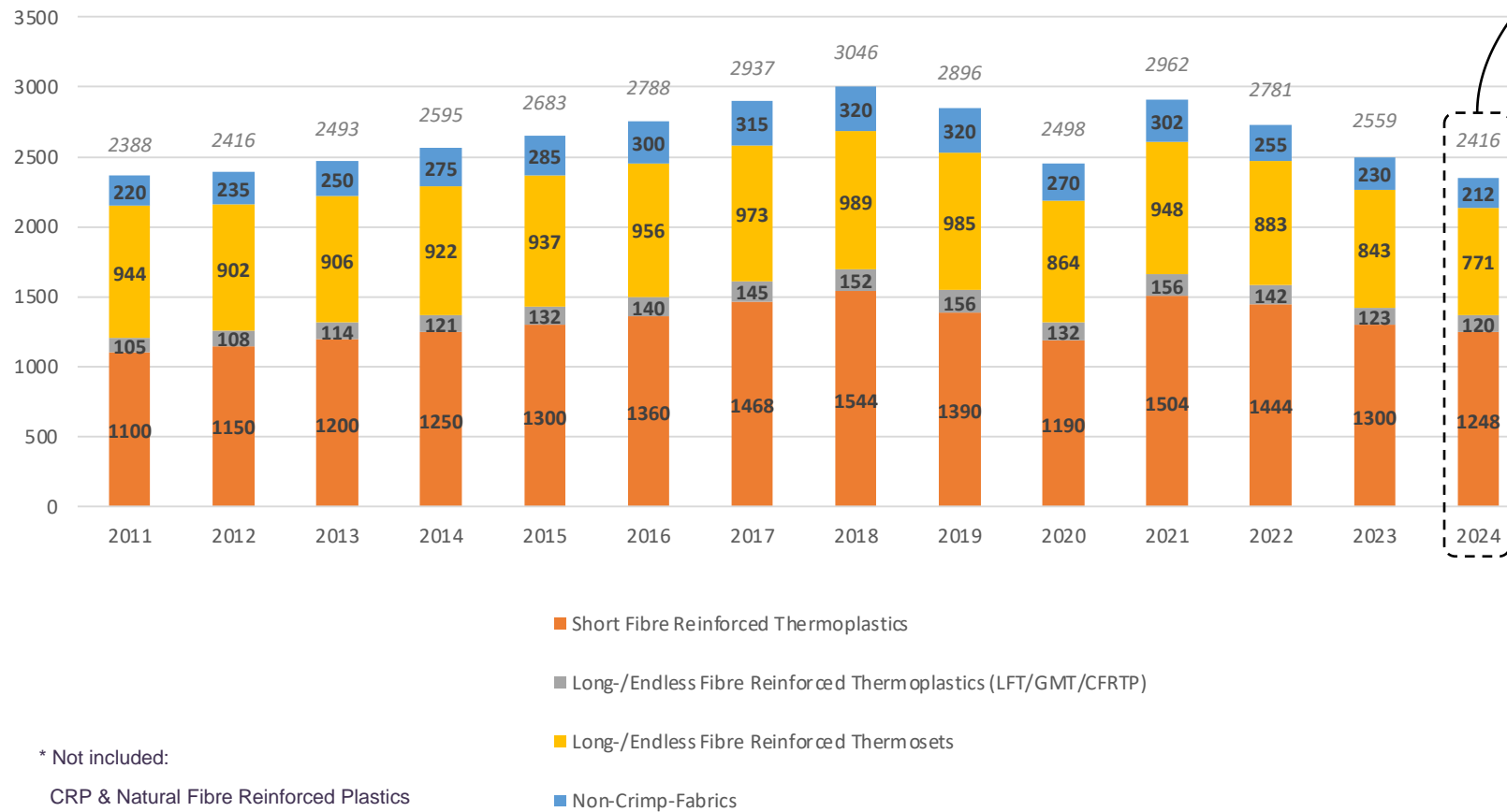


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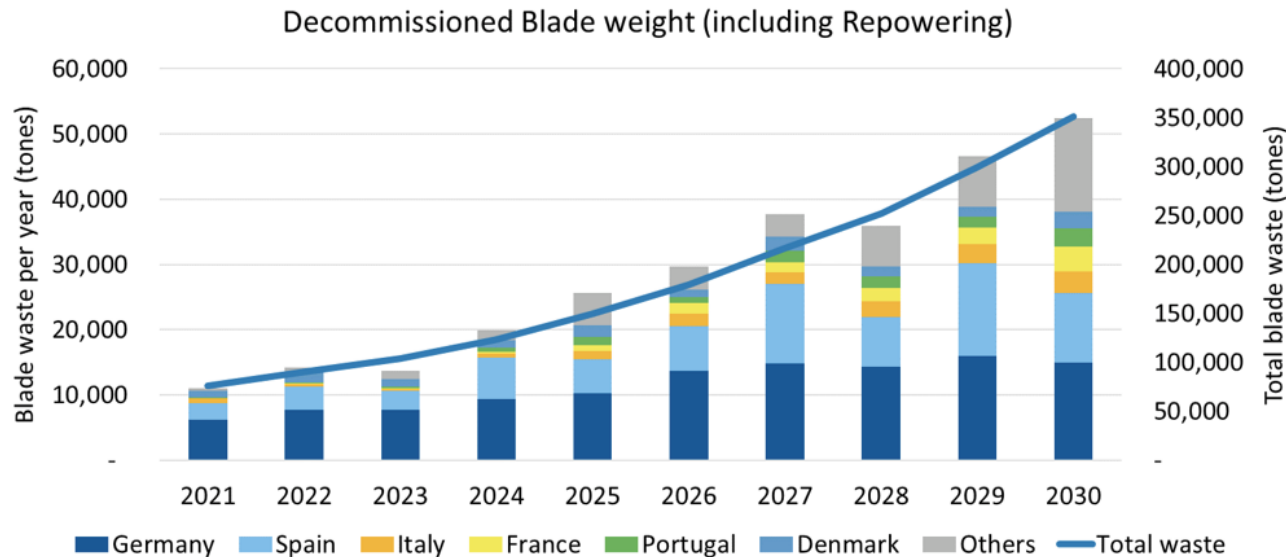
The EU composite market (kt)



Composite **waste** generation

Increasing volumes of **fiber-reinforced composite waste** generated annually:

- wind
- aerospace
- automotive



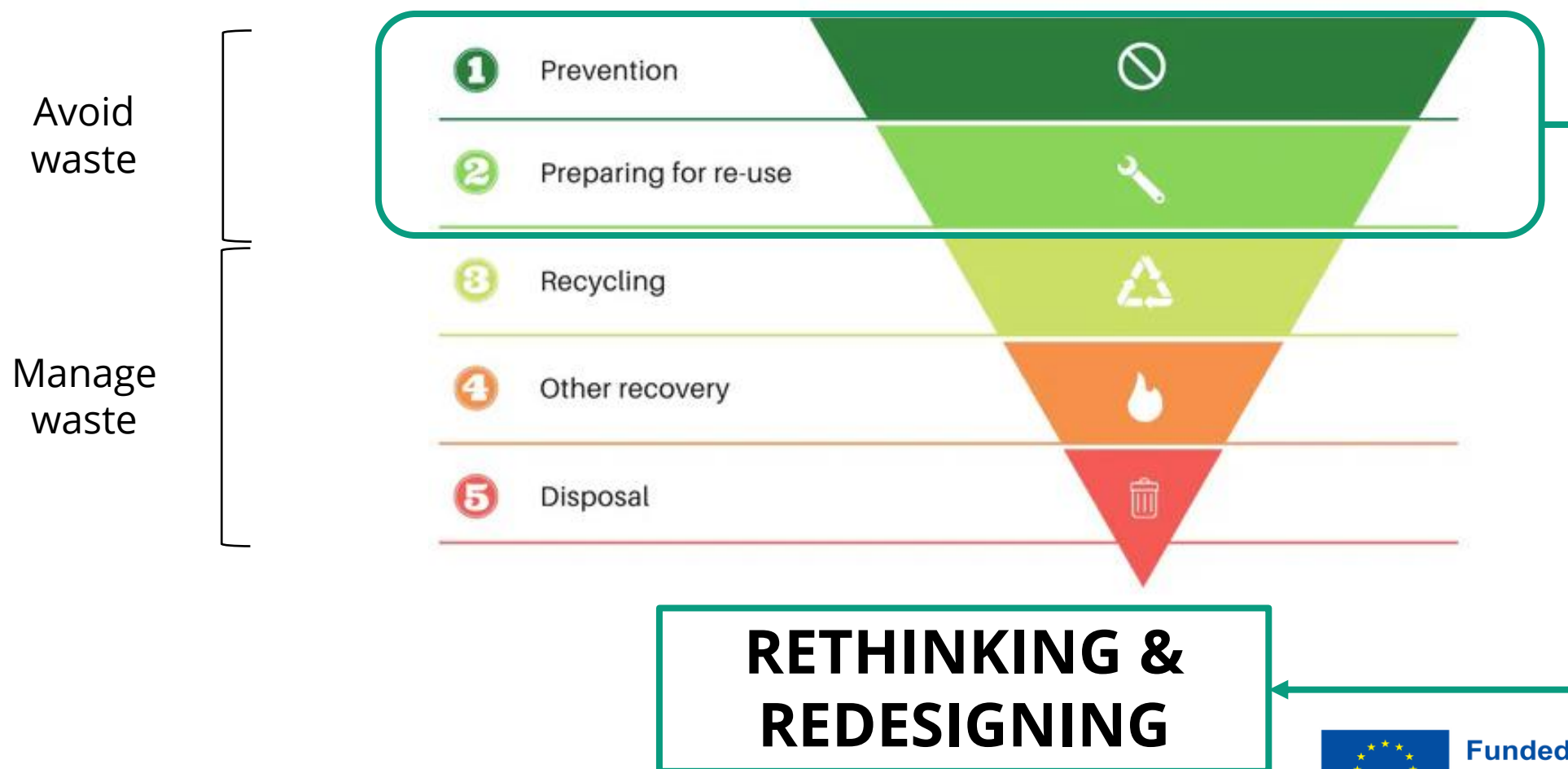
Source: WindEurope



End-of-life management: it's all about **hierarchy**!



End-of-life management: it's all about **hierarchy**!



End-of-life management: it's all about **hierarchy**!



EU actions: **collaboration** is key



Academia

Industry



RTOs



Associations



Civil society

Legislators



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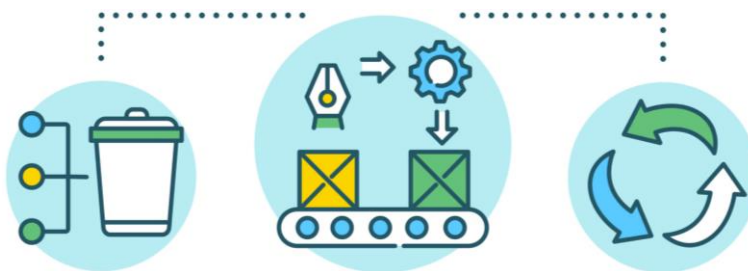
RECREATE

REcycling technologies for Circular REuse and remanufacturing of fiber-reinforced composite mATERIALs

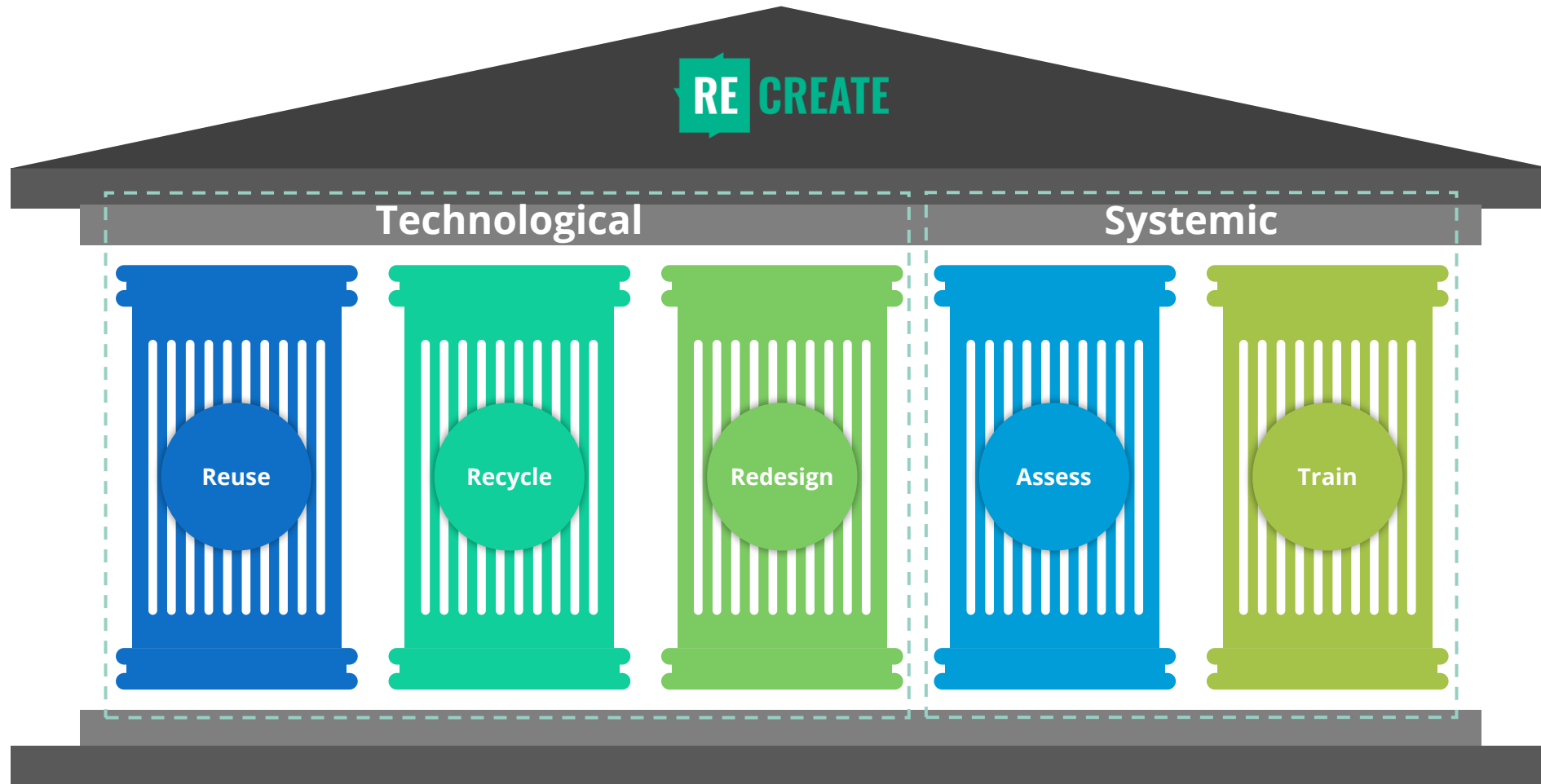
The aim and the ambition

Provide a competitive advantage to the European manufacturing industry by developing **innovative technologies** that will enable the **circularity of fiber-reinforced composite materials**.

These technologies will **turn end-of-life composite waste into feedstock** for profitable reuse and remanufacturing of parts and materials in the high-performance, lightweight-design manufacturing industry.



RE RECREATE – A multidisciplinary approach



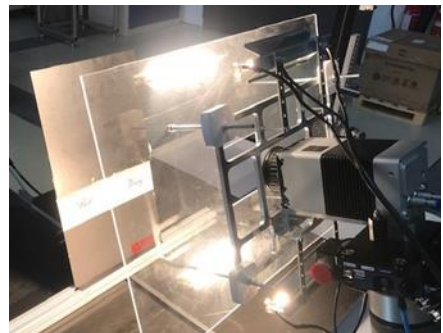
RE RECREATE – A multidisciplinary approach

Technological pillars:

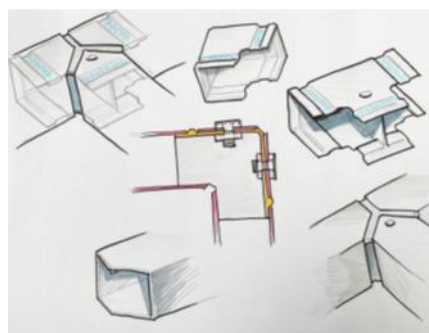
- 1) **Reuse** of current generation EoL GFRC and CFRC parts.
- 2) **Recycling** for clean-fiber liberation and recovery of a reusable organic fraction.
- 3) **Design** and development of reversible materials for next-gen circular-by-design FRCs.



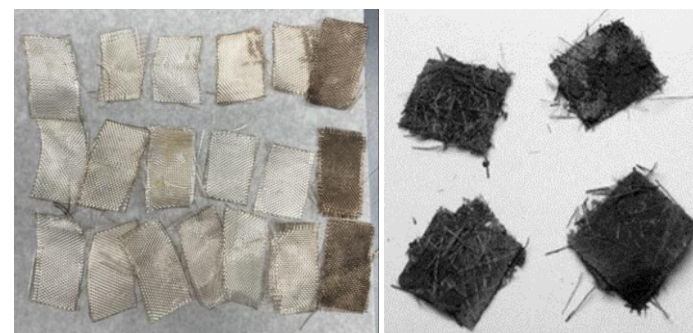
NDT and disassembly



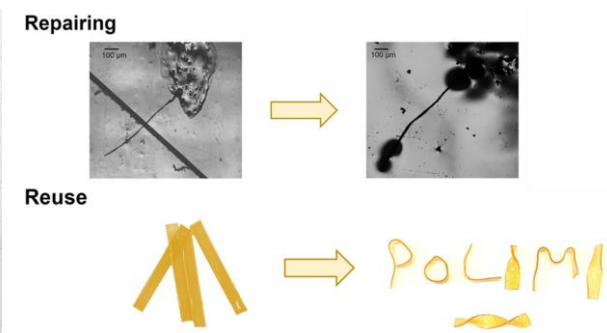
EoL part reuse and remanufacturing



Undamaged fiber liberation



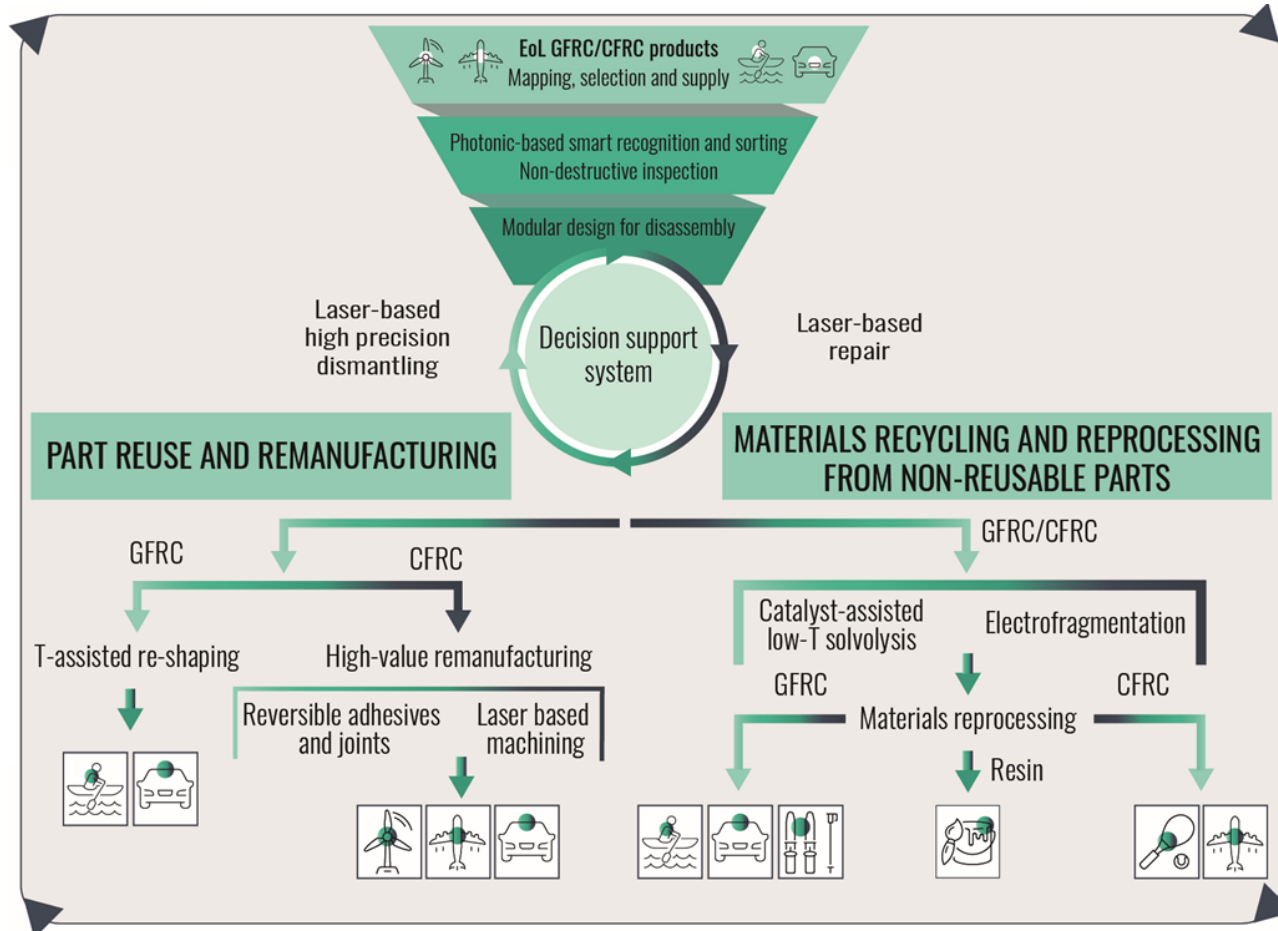
Design-for-circularity



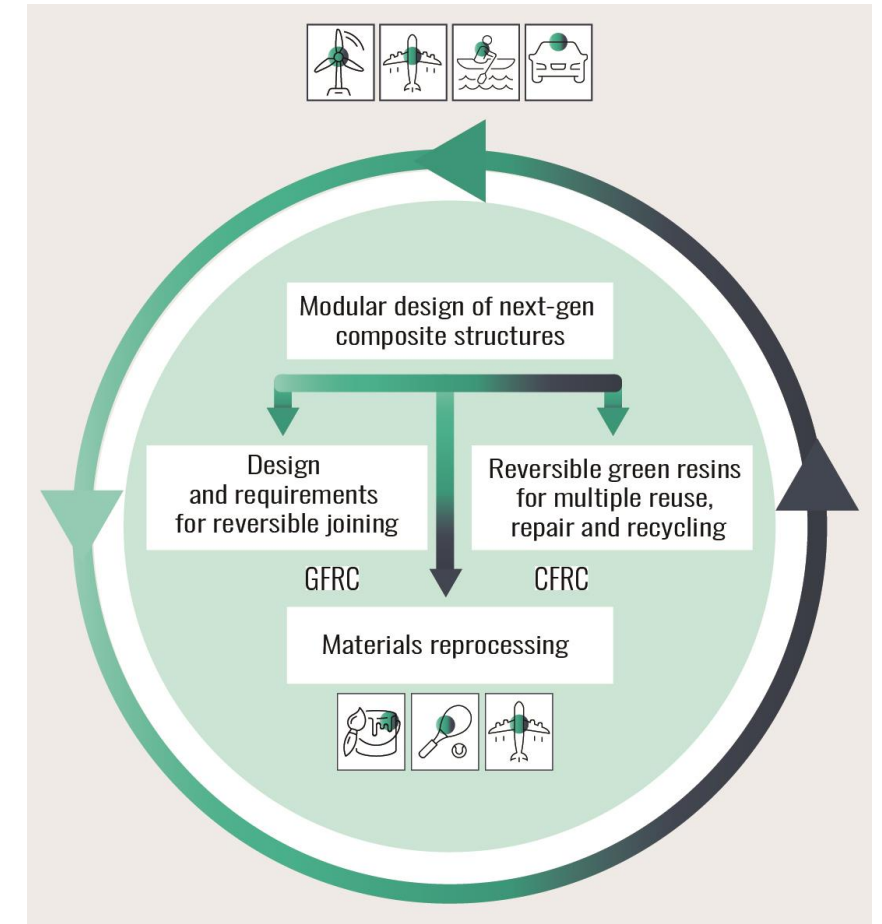
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RE RECREATE – Technological pillars

Current generation



Next generation



RE RECREATE – Technological pillars

Repair, reuse, remanufacturing and recycling technologies validated via **physical demonstrators**, with **exploitation potential** in a variety of composite/lightweight design markets:

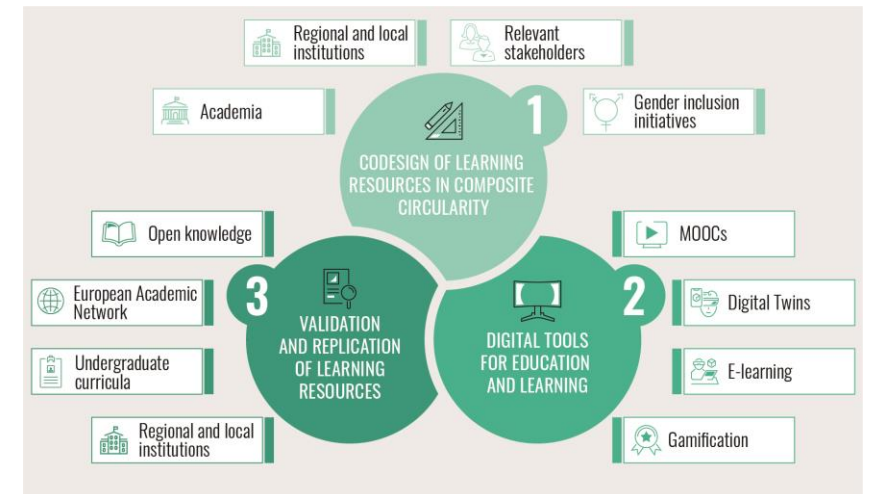
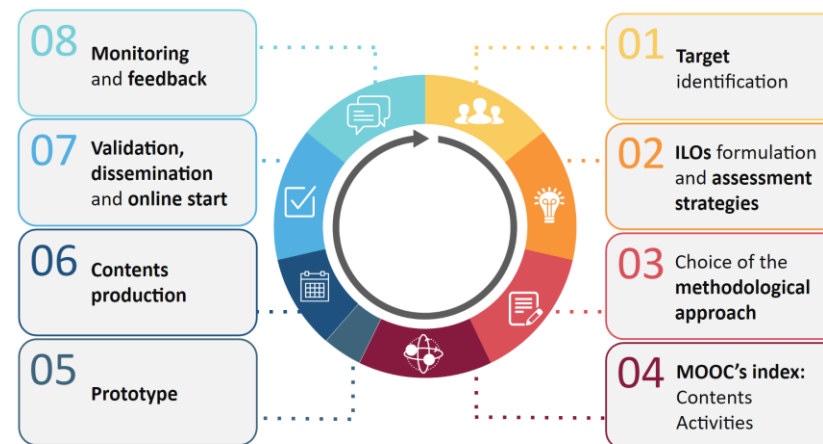
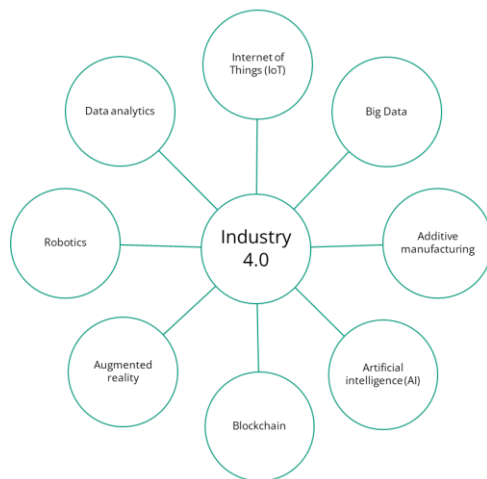


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RE RECREATE – A multidisciplinary approach

Systemic pillars:

- 1) **Assessment** and acceleration for circular economy and sustainability *via* quantitative digital tools.
- 2) **Educational** and learning instruments through digital technologies.

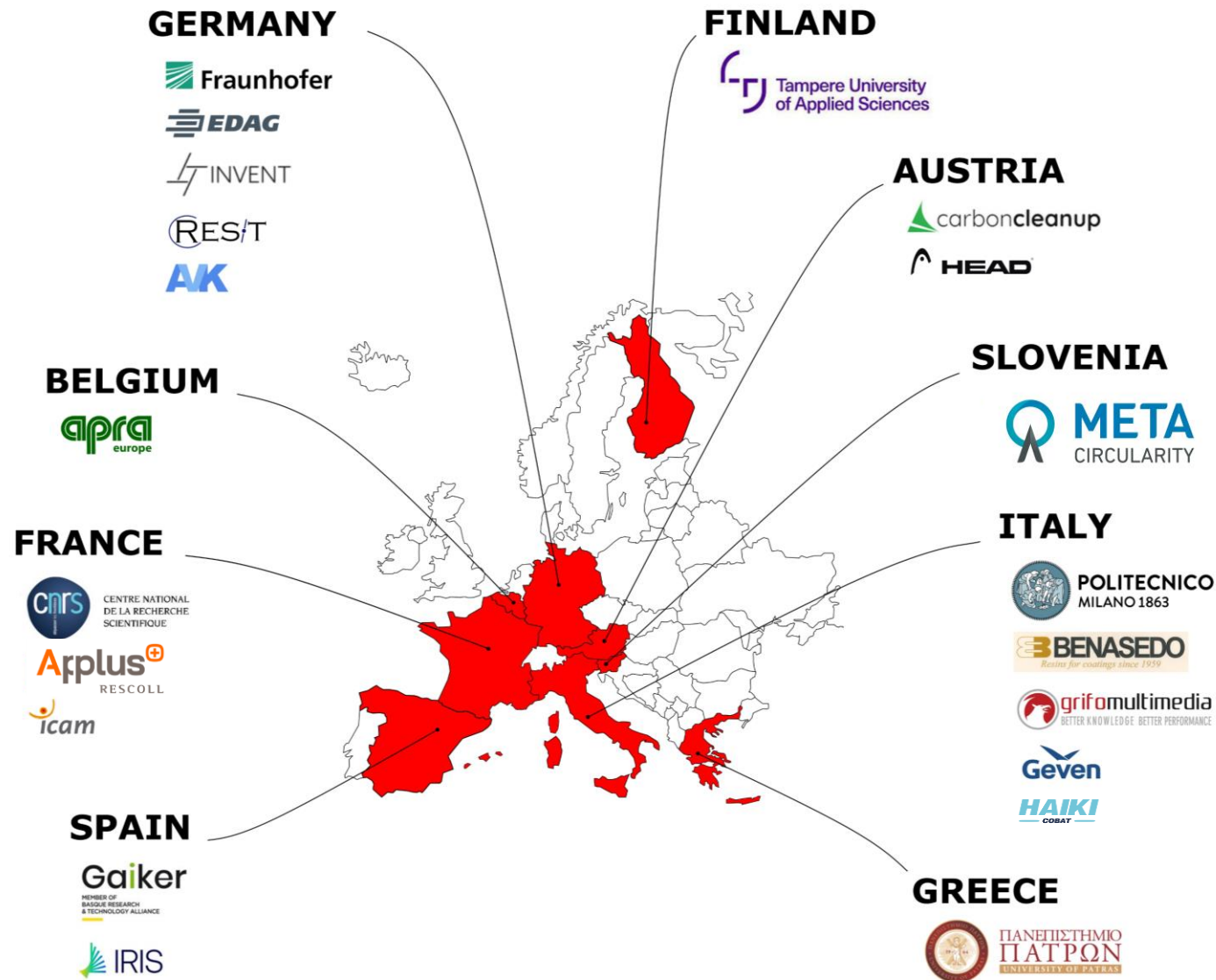


Exploitation, impact and prospective benefits

- Increased **uptake of circular composites** for lightweight design.
- Enhanced **circularity of composite sector** for the twin green & digital transition.
- **Reduction of composite landfilling** *via* safe-and-sustainable-by-design materials.
- New **cross-sectorial business opportunities** for the EU composite value-chain.
- Increased **scientific & technological knowledge** on circular economy of composites.



RE RECREATE – The Consortium



- 7 HEIs / RTOs
- 8 SMEs
- 4 LEs
- 2 Associations

Thank you for your kind attention

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