



Potenziamento del modello di economia circolare per la raccolta e il recupero di Compositi Fibrorinforzati contenenti rifiuti  
Izboljšanje modela krožnega gospodarstva za zbiranje in predelavo kompozitov, ojačanih z vlakni, ki vsebujejo odpadke

# RECREATE






Improving the circular economy model for  
collection and processing of fibre-  
reinforced composites, containing waste

Bruxelles, Belgium

23.04.26

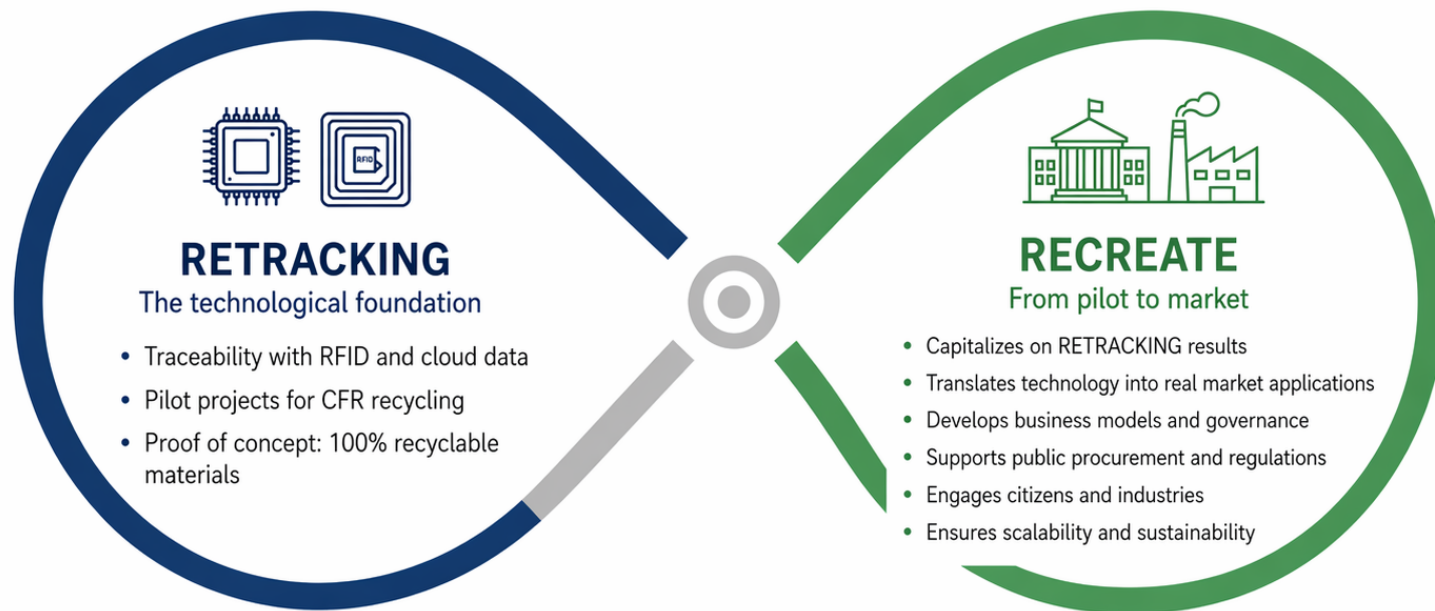


# The problem

-  **Growing amount of composite fiber-reinforced (CFR) waste**
  - Originating from sectors like sports, marine, automotive, and construction.
-  **Lack of structured systems for CFR recovery and recycling**
  - CFR materials are not easily recyclable with standard technologies.
-  **Unsustainable disposal practices**
  - CFR waste often ends up in landfills or incinerators, harming the environment.
-  **Limited reintegration of recycled materials into the market**
  - There are few real-life examples of circular use of recycled CFR products.
-  **No shared guidelines for public bodies and companies**
  - There's a gap in clear protocols for collection, treatment, and procurement of recycled products.

## RECREATE: building on RETRACKING results

From technology to market deployment of CFR recycling



**OVERALL GOAL:** Create the conditions (technical, market, and regulatory) to reuse and recycle CFR in a **sustainable and scalable** way.



# The numbers

DURATION

**24**

months

START DATE

**25**

september 2023

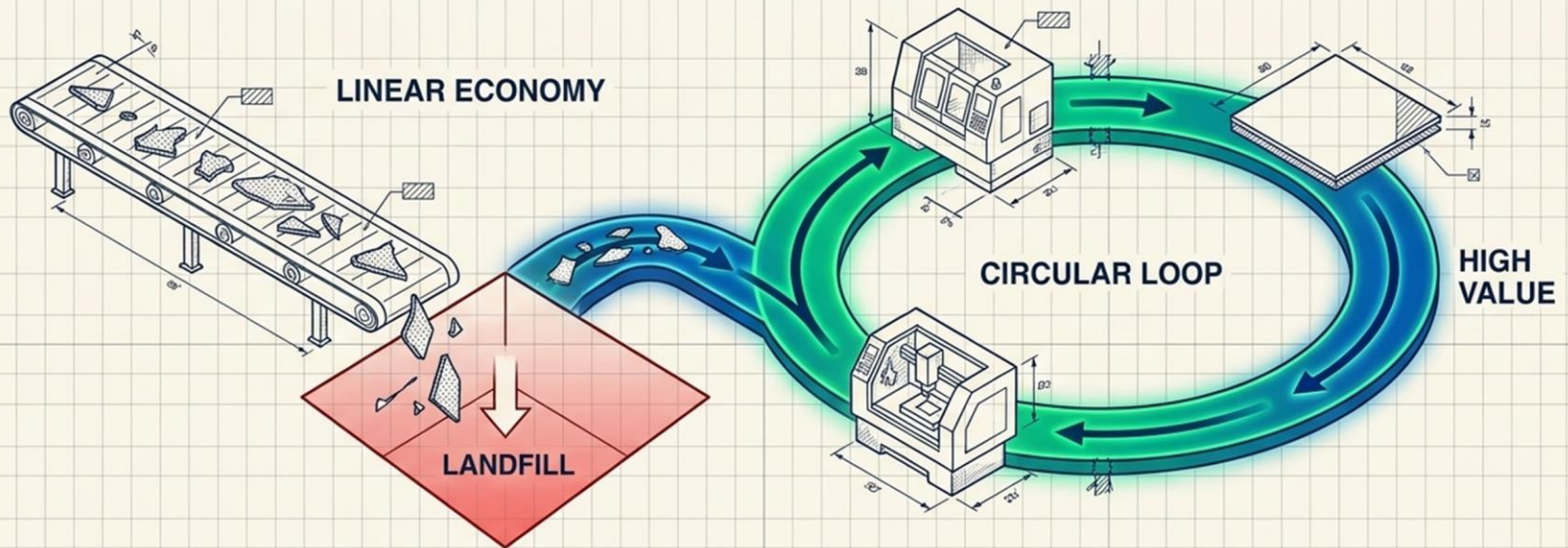
Budget

**595.740,70 €**

ERDF Budget

**476.592,56 €**

## The Challenge of Composites (CFR).

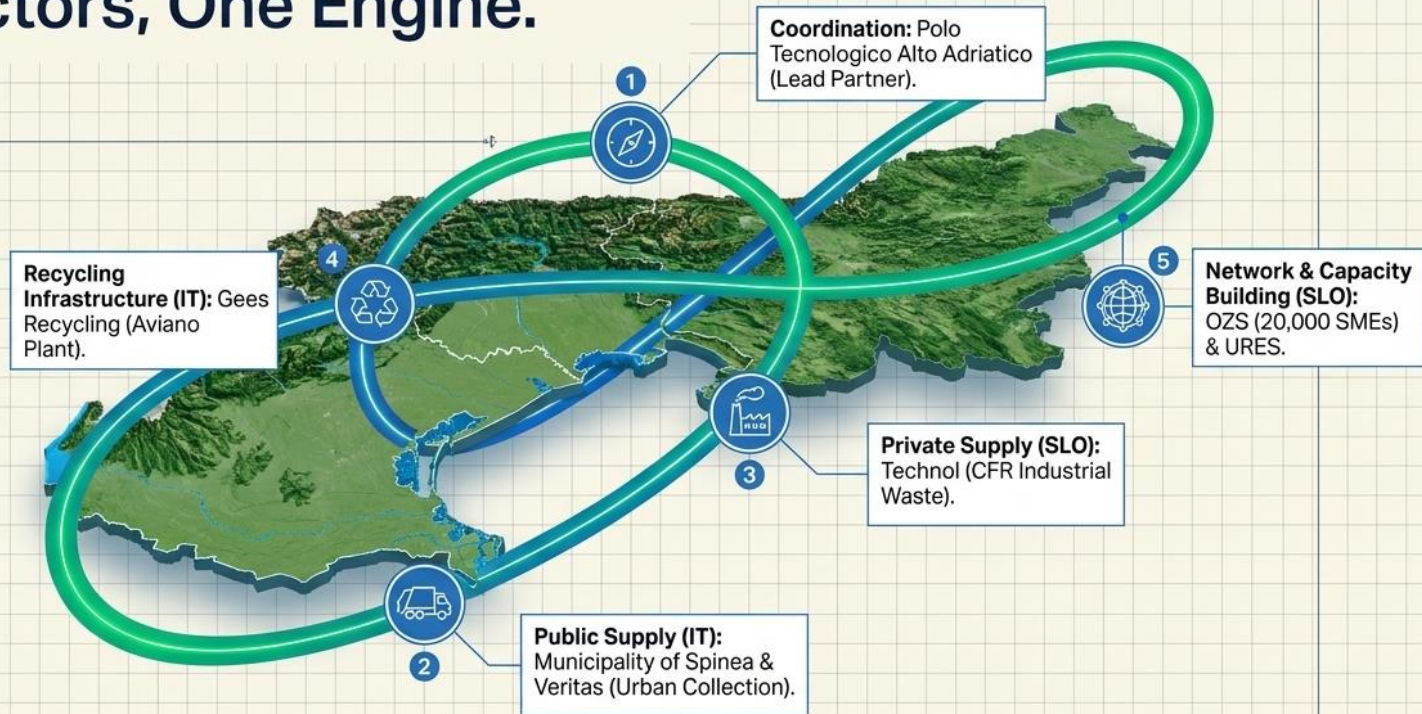


**The Material:**  
Thermoset plastics reinforced with fibers (CFR). Difficult to separate, traditionally destined for landfill.

**The RECREATE Solution:**  
An integrated system of cross-border collection, chemical validation, mechanical processing (CNC), and re-entry into the public and private market.

**The Objective:**  
Create replicable European standards ("Rules of the Game") for Municipalities and manufacturing SMEs.

## The RECREATE Ecosystem: Six Actors, One Engine.

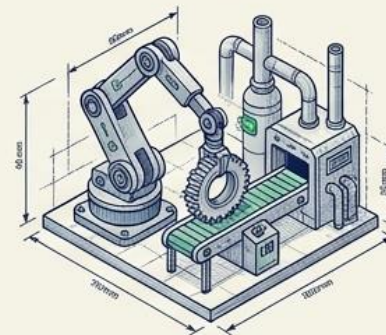


NotebookLM



## Urban Flow - Spinea/Veritas

- Active collection via Ecomobil and schools.
- Involvement of the Venezia Ambiente Basin Council (44 Municipalities).
- Specialized storage and pre-treatment in Veritas warehouses.



## Industrial Flow - Technol

Cataloging and recovery of industrial CFR production scraps (thermosets and fiberglass) from the Portorož factory.





## Waste Catalogue

D.2.1.1

Output

4.3 Catalogo rifiuti urbani

Numero, Prodotto/Origine del rifiuto	Figura	Codice rifiuto*	Descrizione del rifiuto
07 RIFIUTI DEI PROCESSI CHIMICI ORGANICI			
1. Trama in fibra di vetro da stampaggio		07 02 13	Rifiuti Plastici



## Training for mobile ecocenter operators

D2.5.1 D2.5.2

Output



Durante la sessione di training Gees Recycling ha illustrato il documento di formazione (Cfr. Allegato n.1) che è stato mosso a disposizione della Coop Cristoforo o dell'appaltante VERITAS, anche per eventuali stampo da lasciare a disposizione degli operatori durante i periodi di apertura dell'Ecocentro.

Alcuni Screenshot del documento Allegato n.1



RECREATE WP2 D2.5.1 D2.5.2  
Training operatori ecocentro mobile



selezione/selection



Raccogliere/collect



Trasportare/transport

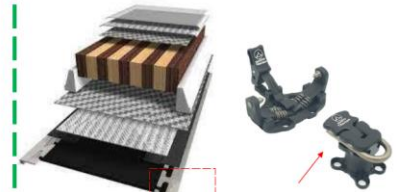
from GRP waste to furniture for public spaces



## Guidelines on waste identification - D.2.3.1

Type and selection of materials

Composit skis and snowboard



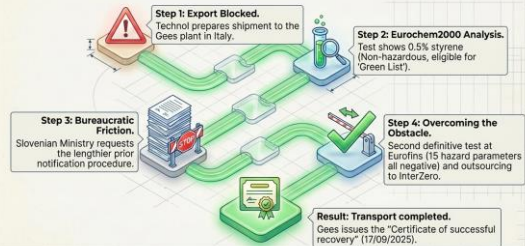
Metallic components to be removed



## Export Guidelines

D.2.4.1

Facing the Cross-border Obstacle.



## Catalogue of recycled CFR products

Output

D 3.1.1.zip





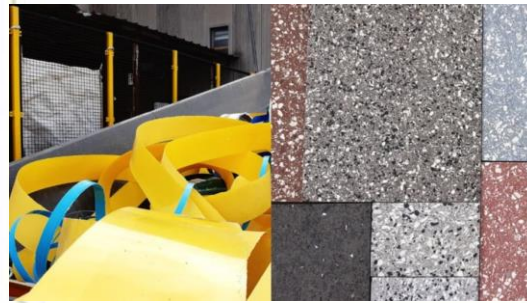
## TRANSPORTED

CFR waste has been collected and transferred across borders, overcoming regulatory and logistical barriers.



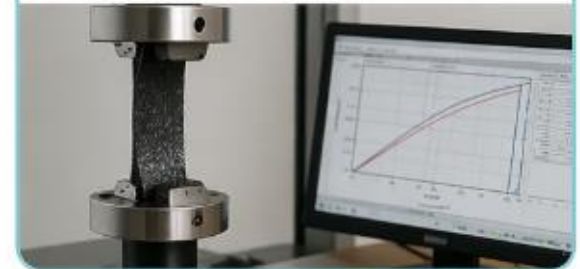
## TREATED

The material has been processed and transformed into **Secondary Raw Material (SRM)**, suitable for recycling and reuse.



## TESTED

The recycled material has been **validated** to ensure its performance and suitability for final applications and project outputs.



## Harmonize Waste Transit

Establish clear, unified EU waste codes for FRPs to guarantee 'Green List' transit and eliminate cross-border bureaucratic gridlock.

## COMPARISON MATRIX: Two paths, one model.

	Output Urban (Municipality of Spinea)	Output Industrial (Technol)
Waste Origin	Post-consumer public	Production scraps
Processing	CNC cutting for ergonomic design	Machining for structural resistance
Physical Output	Street litter bins	Structural paneling for pumping stations
Impact	Civic education and public utility	Manufacturing efficiency and cost savings

## Public Output: Circular Urban Furniture



✓ Engineered and assembled prototype in recycled CFR of various colors.

✓ Wear and vandalism resistance tests (Dent resistance)

✓ Identification tags ("Info Tags") approved by Veritas to educate citizens on the product's circular origin

✓ Donation and acquisition into municipal assets (Resolution N.119/2025) and inauguration at the Anna Frank Institute

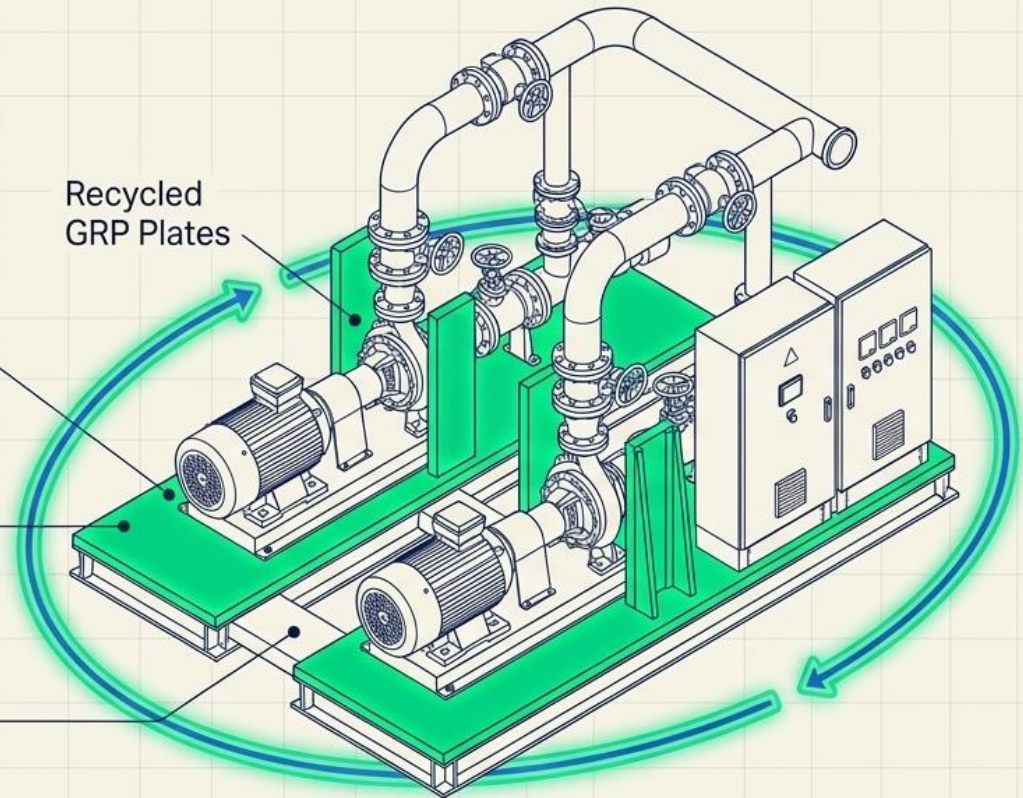
## Industrial Output: High-Performance Engineering.

Recycled GRP plates mass-produced and CNC-machined according to Technol's technical designs.

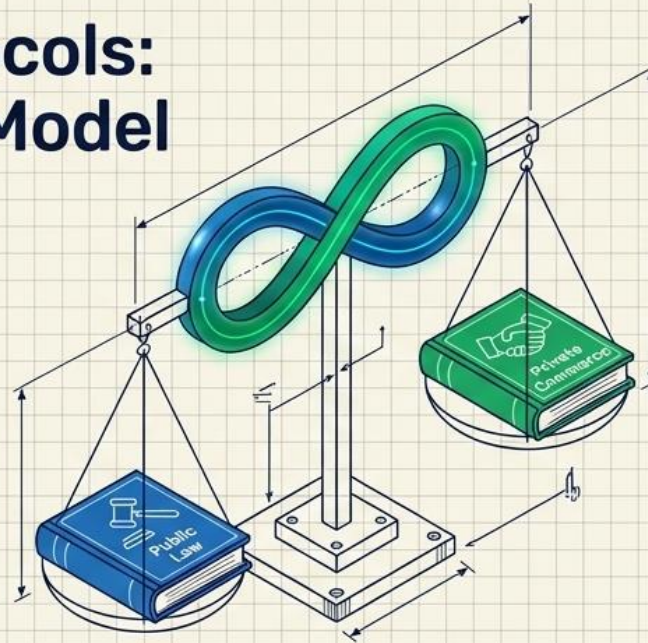
Used as structural supports for pumping and purification systems.

Utilized for the secure fixing of hydraulic pumps and heavy electrical/pneumatic components.

Recycled  
GRP Plates



## Circularity Protocols: Replicating the Model



### Public Protocol (D3.2.1)

A legal and accounting model for Municipalities in Italy and Slovenia. Includes resolution templates for acquiring circular products through regulation-compliant formulas (donation mechanism).

### Private Protocol (D3.3.1)

Standard contracts compliant with legislation for the procurement of circular products by the manufacturing industry (B2B).

# The scale up

**An engineered, tested, and certified model.** True circularity isn't just recycling a material, it's redesigning the system that governs it.





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# THANKS FOR YOUR ATTENTION

Tiziana Perin

Polo Tecnologico Alto Adriatico Andrea Galvani scpa

[Tiziana.perin@poloaa.it](mailto:Tiziana.perin@poloaa.it)    [euprojects@poloaa.it](mailto:euprojects@poloaa.it)

+39 0434 504417

+39 378 3095177