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7 Large Enterprises:  
AVIENT, ARÇELİK, CRF, MEYER  
WERFT, MEYER TURKU, FARPLAS,  
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3 Small-Medium Enterprises:  
FLOREON, BRINTER, ICONIQ

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## InnoVative processing Technologies for bio-based foamed thermoPlastics

PROJECT SUMMARY:  
Start date: JUNE 2022  
Duration: 42 MONTHS  
EU Contribution: EUR 5,6 M.

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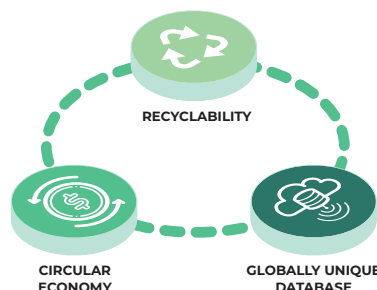
## Challenge

Bio-based ThermoPlastics (b-bTPs) are not currently being adopted as a part of “circular by design” business models to replace fossil-based solutions across thermoplastic processing value chains. This situation will only change when the price and processability of b-bTPs become commercially viable. As more b-bTP production capacity is brought on-line globally, the price of commercially available b-bTPs is expected to reduce significantly. However, even when the costs of b-bTPs become comparable with synthetic alternatives, a number of critical processing limitations must still be overcome by thermoplastic processors to enable increased b-bTP uptake by the industry commercially.

The foamed polymer product market sector in particular is a critical part of global economy and is **predicted to expand from €123B in 2021 at a compound annual growth rate (CAGR) of 3.6% to 2030**

## Objectives

- To develop 3 different b-bTPs manufacturing processes across 3 different value chains
- To develop a digitally optimised mechanical recycling approach for b-bTPs
- To develop an optimised recycling additives package
- To develop b-bTP blends with optimised carbon balance
- To create a database of foamed b-bTPs parameters
- To create Circular/Sustainable by Design Business Models
- To up-skill workforce through creating a VITAL “Learning Factory”
- To industrially manufacture chemically or physically foamed b-bTPs



optimised formulations of existing and cutting-edge b-bTPs and additives

## End applications



**Automotive**



**Marine**



**Home Appliances**

The overall aim of VITAL is to develop innovative processing solutions for foamed bio-based Thermoplastics (b-bTPs), based on three processing value chains that cover the requirements for commercial scale processing in terms of: volume, size, materials, functionality and application. These processes will include:

- 1. Modification of high-volume production processes that are already highly controlled and automated:**
  - a. Foam Injection Moulding (FIM)**
  - b. Bead foaming of b-bTPs**
- 2. Globally-unique 3D b-bTPs foam printing for mould-free, additive manufacture for rapid prototyping and bespoke production and massively reduce lead time and costs.**



A global initiative