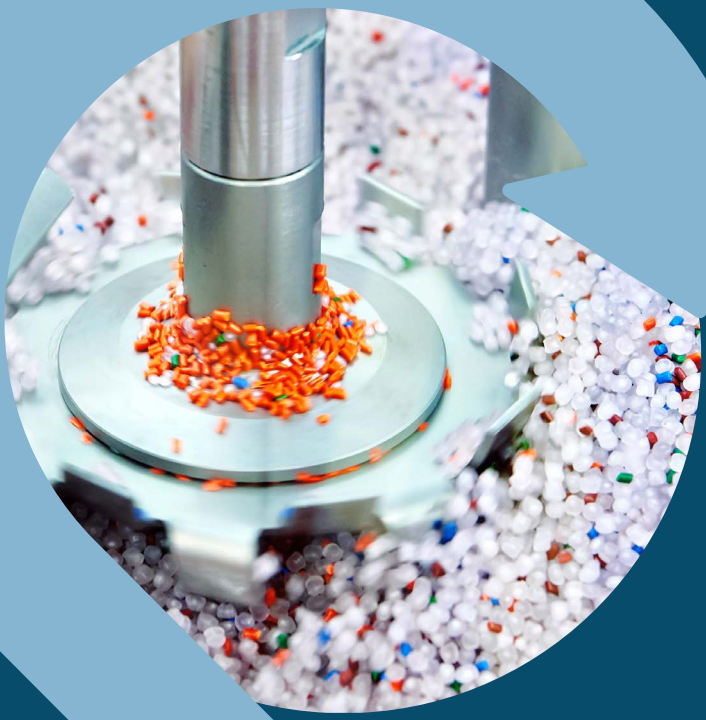


Plastic, Packaging

Strategies to solve the problem of hardly recyclable Packaging Materials

Bio-Waste

Extracting valuable compounds from different Bio-waste streams

Water

Water Symbiosis Strategies in Industry, Agriculture, and Urban contexts

CIRCSYST Circular Systemic Solutions

PLASTIC • PACKAGING • BIO-WASTE • WATER

Demonstrator 8

Circular approaches to sustainable valorisation of food waste plastics under social inclusion

THESSALONIKI, GREECE

CIRCSYST | Circular Cities & Regions Initiative | UK Research and Innovation | Funded by the European Union

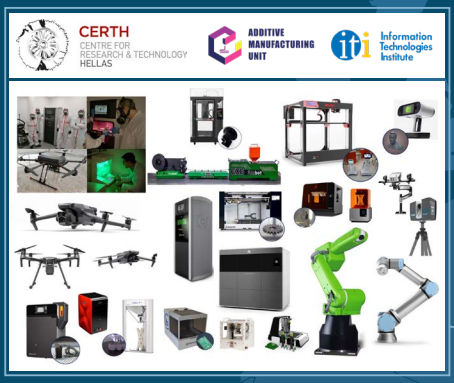
Start 2024

36 mo

€ 10.24 M

32 partners

9 pilots / 8 regions



Demo 5
Paijat-Hame-Lahti
Finland

Demo 4
Visby
Sweden

Demo 3
Flanders
Belgium

Demo 9
Leányvár
Hungary

Demo 2
Maribor
Slovenia

Demo 8
Thessaloniki
Greece

Demo 1
Valencian Community
Spain

Demo 6
Castilla la Mancha
Spain

Demo 7
Alicante
Spain

About CircSyst

Resource extraction is responsible for nearly half of global greenhouse gas emissions and the vast majority of biodiversity loss. With 90% of world economy still linear, plastics, water and bio waste are treated as single use commodities rather than valuable resources. The CircSyst project addresses this challenge by developing Circular Systemic Solutions (CSS) that drive sustainable, circular economic models.

Over 36 months, 32 partners led by AIJU will run nine large-scale pilot systems spread across eight European regions, targeting three priority value chains from the EU Circular Economy Action Plan: water management, bio-waste valorisation, and plastics & packaging. The pilots exchange by-products and know-how so that, for example, a plastic fraction recovered in Greece can feed a recycling line in Spain. In this way, CircSyst forms an industrial-symbiosis network that supports the EU's Circular Cities and Regions Initiative (CCRI) and provides replicable and scalable solutions.

About Demonstrator 8: Circular approaches to sustainable valorisation of food waste plastics under social inclusion

In Thessaloniki, Greece, fifteen MASOUTIS supermarkets are being transformed into living labs that foster social awareness and citizen engagement in circular practices. Customers are encouraged to dispose of their food packaging waste—PET, mPET, PP, and LDPE—into clearly labeled sorting containers as part of the CircSyst initiative. The collected plastics are then shredded, washed, and mixed with virgin plastic pellets and plasticizers to enhance mechanical properties, producing high-performance 3D printing filament. As a reward for their participation, customers earn points on their MASOUTIS Loyalty Card based on the amount of waste they contribute. These points can be redeemed for store discounts, visits to CERTH-ITI facilities (amu.iti.gr), training in 3D printing with recycled materials, and access to CERTH-ITI's equipment for learning, personal projects, or entrepreneurial activities. CERTH-ITI uses the resulting filament to manufacture new secondary life products such as shopping trolleys and baskets, demonstrating a closed-loop system where food packaging waste is repurposed within the same community. This process transforms consumers into active prosumers and raises circular economy awareness at the regional level. A portion of the recovered multilayer PET is sent to Spain's Demonstrator 7 for advanced mechanical recycling, contributing to the development of Extended Circular Systemic Solutions (ECSS). By integrating recycling, education, and hands-on reuse, the initiative embodies social manufacturing, creating a culture where communities co-create value and actively contribute to the circular economy.

Who is involved?

MASOUTIS, one of Greece's largest food retailers, is transforming its supermarkets into hubs of social awareness and circular innovation by collecting plastic waste and rewarding customers for their participation. CERTH-ITI contributes its expertise in Additive Manufacturing and manages the conversion of collected plastic waste into 3D printing filament, which is then used to create added-value plastic products such as supermarket trolleys and baskets. Citizens not only supply materials but also engage in training and co-design activities, shifting from passive consumers to active prosumers. Demo 8 fosters social manufacturing by integrating recycling and raising awareness, while providing a circular solution for cost-effective plastic management.

CIRCSYST
Circular Systemic Solutions

Citizen engagement

Circular solution for cost-effective plastics and raising citizen awareness

Social manufacturing

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