



# R&I challenges and needs in the plastics sector

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# Context

- EU Green Deal → EU Plastics Strategy: plastics are one of the priority areas of the CEAP
- Plastics are one of four particularly important material and product streams due to circularity potential and environmental footprint
- Some types of polymers and applications do better than others in terms of the transition to circularity
- Stimulate the **transition** of various plastics value chains into circularity
- **Systemic change** involving each actor in the chain, manufacturers, retailers and civil society organisations
- **Value chain approach** is again paramount

# Context - challenges

Lack of trust in quality of secondary raw materials

Lack of control over supply chain cooperation

Lack of focus on material efficiency and design for circularity

Unsustainable product lifetime

Lacking repair services

Price gap between primary and secondary raw material

Lack of secondary material markets

Insufficient collection and sorting systems

Insufficient and unpredictable input quality for recycling

Insufficient information about quality and quantity of materials

Knowledge about possible microplastics pollution and substances of concern

Lack of communication along the lifecycle between manufacturers and recyclers

Lack of involvement and empowerment of citizens that would allow environmentally informed purchases

Transparency and traceability

# Context

- Most plastics - polymer-based materials - are not (eco)designed for circularity and sustainability but primarily for performance
- Lacking waste management infrastructure – collection – sorting – recycling
- One of the main reasons of leakage of plastics into the environment
- Littered plastics result in degradation and release of micro-/nano-plastics into the environment
- New polymer structures are needed to prevent or mitigate release of micro-/nano-plastics

# Increasing the circularity in plastics value chains

HORIZON-CL6-2024-CircBio-02-2-two-stage



## POLICY CONTEXT

### Circular Economy Action Plan Plastics Strategy

#### Packaging and Packaging Waste Regulation

- Microplastics
- Harmful substances
- Recyclability
- Recycled content

Innovation Action

Indicative budget: EUR 10M  
(EUR 5M per project)



## EXPECTED OUTCOMES

- Increased deployment and demonstrated benefits of **advanced digital solutions**
- Emergence of **new value chains** using upcycled and/or recycled resources, e.g., through industrial symbiosis
- Increased upcycling and recycling rates
- Increased uptake of recycled material and upcycling to new higher-value products
- **Increased resource efficiency**, causing a measurable **reduction in GHG emissions** and other **environmental pollution**
- Increased diffusion of new circular business practices

# Increasing the circularity in plastics value chains

HORIZON-CL6-2024-CircBio-02-2-two-stage



## SCOPE

- Plastics is one of four particularly important material and product streams due to circularity potential and environmental footprint
- Demonstrate and deploy at **large scale innovative solutions** and designs for **increased quality, non-toxicity and durability** of secondary materials and increased share of secondary materials in new products
- Demonstrate increased recovery, recycling and upcycling rates
- Demonstrate **circular business practices**, in particular in the uptake of repair and reuse, remanufacture, product-service-systems, and in the full lifetime of products or services
- Address the different perspectives of manufacturers, retailers, consumers and civil society organisations
- Develop methods to assess the amount of recycled content in sectoral products
- Develop learning resources



## KEEP IN MIND

- Build on ongoing projects under Horizon 2020 and Horizon Europe and envisage clustering activities
- Social innovation is recommended
- Digital product passport

# Circular solutions for textile value chains

HORIZON-CL6-2024-CircBio-02-1-two-stage



## POLICY CONTEXT

### Circular Economy Action Plan Textile Strategy Waste Framework Directive

- Microplastic pollution
- GHG emissions
- Hazardous substances

Research and Innovation Action

Indicative budget: EUR 15M  
(EUR 5M per project)



## EXPECTED OUTCOMES

- Roll-out of systemic solutions for textile sorting, using innovative digital technologies
- Roll-out of feasible solutions for **facilitated disintegration** to be incorporated in product design, as an enabler for recycling
- Increased uptake of mechanical recycling solutions that deliver competitive, **high-quality secondary materials**
- Roll-out of thermo-mechanical, chemical and other recycling solutions that are **sustainable from a zero-pollution, circular material** and energy efficiency perspective

# Circular solutions for textile value chains

HORIZON-CL6-2024-CircBio-02-1-two-stage



## SCOPE

- Textiles are the fourth highest-pressure category for the use of primary raw materials and water and fifth for greenhouse gas emissions and a major source of microplastic pollution
- Non-textile components or accessories affect recyclability
- Facilitation of the disintegration of textile products
- Collected volumes of post-consumer textile waste are expected to increase by a further 65,000 to 90,000 tonnes per year
- Systemic solutions for sorting
- Separate collection soon mandatory
- Further development of textile recycling technologies



## KEEP IN MIND

- Safe and Sustainable by Design (SSbD)
- Digital product passport



# Systemic circular solutions for a sustainable tourism

HORIZON-CL6-2024-CircBio-01-4



## POLICY CONTEXT

### Circular Economy Action Plan European Green Deal

- Pollution, hazardous substances
- Waste, energy, land, water

Innovation action

Indicative budget: EUR 10M  
(EUR 5M per project)



## EXPECTED OUTCOMES

- Diffusion of **circular tourism services**
- Deployment of replicable systemic solutions for cities and regions
- **Increased circular, zero-pollution and climate-neutral** practices among providers and users of tourism services
- Deployment of innovative solutions and new, affordable technologies including digital
- Creation of jobs that facilitate circularity for different sectors
- Uptake, replication and visibility of circular systemic solutions for sustainable tourism

# Systemic circular solutions for a sustainable tourism

HORIZON-CL6-2024-CircBio-01-4



## SCOPE

- Proposals are expected to implement and demonstrate circular systemic solutions at the level of cities and regions
- Include several sectors providing services for visitors and residents such as **hospitality, transportation, culture, attractions, nature-based activities**
- Circular tourism should consider **waste and water management, batteries and vehicles, electronics and ICT, packaging, plastics, construction and buildings, GHG emissions of local and long-distance mobility, accommodation and food services.**
- Proposals should address at least one of these above-mentioned sectors
- Multiple key resource and commodity chains
- Solutions should address economic, social and environmental dimensions of the transition towards circular tourism and include science, technology, behavioural and governance components



## KEEP IN MIND

- Joint activities with CCRI projects are encouraged

# Multi-annual programming (MAP)

2025 - 2027

# The Multi-Annual Programming (MAP) Process

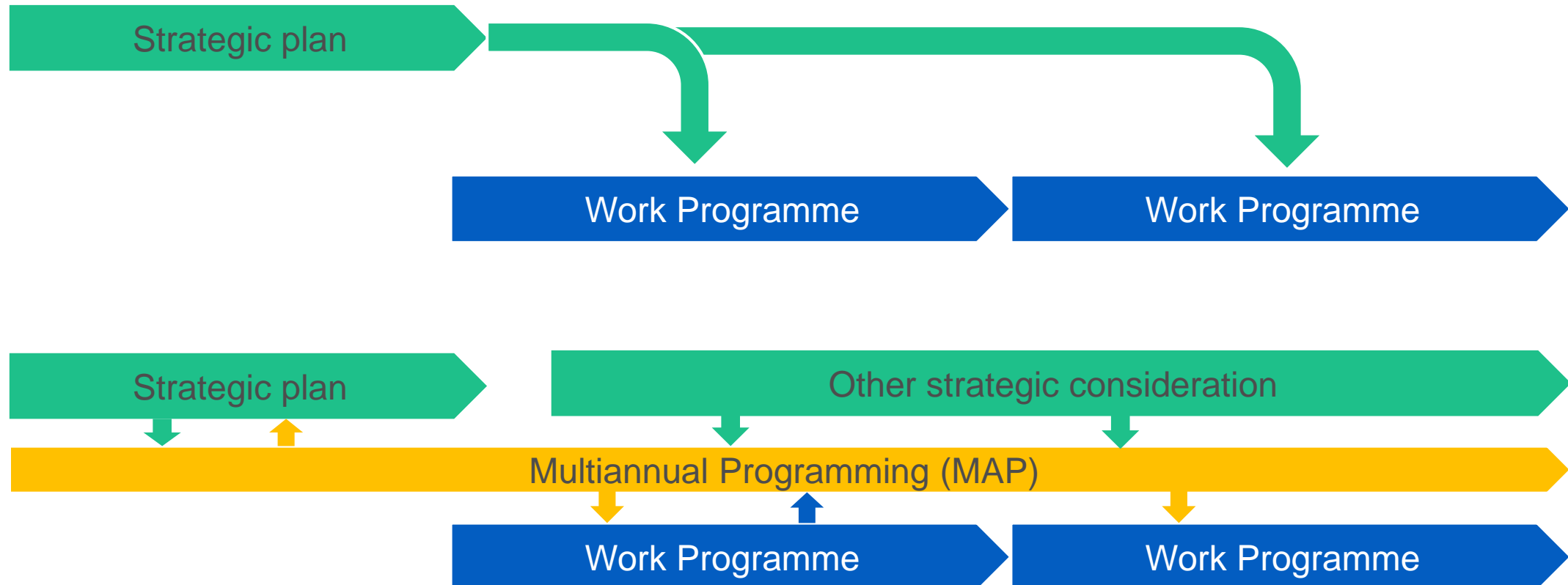
## OBJECTIVES:

- **Identify barriers and problems** across different areas → propose R&I actions that address these issues
- **Fill the gap** when formulating calls based on the Strategic Planning
- Clarify priorities and **improve effectiveness and impact of Horizon Europe**
- Two-way approach = covering **sectoral and cross-sectoral issues**, for which challenges will be identified and actions proposed

# MAP Process Overview

1. Initial agreement on primary structure: **Taxonomy of themes**
2. **Input from co-creators** on selected sectors and cross-sectoral areas:
  - Challenges: What are the challenges and barriers to enable the transition to the CE
  - Actions: Brief description of actions foreseen, including assessment of criticality and priority
3. Reconciliation of different views: Agreement between co-creators on order of **priorities** and **distribution of actions** over the programming period
4. Annual/Biennial **updates** to adjust priorities considering:
  - feedback from previous calls
  - rapid evolution of technological, social, and economic scenarios
  - changes in industry and policy landscapes

# MAP serves as a connection between the strategic and programming level



CIRCULAR ECONOMY	SECTORS/ECOSYSTEMS							
	Textiles	Plastics	Construction	ICT & Electronics	Furniture	Packaging	Batteries & Vehicles	FMCGs
Multi-annual programming								
Sustainable feedstock/ secondary raw materials								
Circular-by-design products and materials								
Uptake of secondary raw materials (manufacturing)								
Consumption patterns and business models								
Sorting and recycling								
Business models and consumption patterns								
Finance and deployment								
Life-cycle (methods, data)								
Digitalisation (exchange of info, traceability, CoC)								
Monitoring (indicators, metrics)								
Standardization								
Social transition								
Education and skills								
Communication and engagement								
Governance								

# Thank you



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# BACK-UP

# R&I on microplastics

- [LEON-T](#) - LEON-T will study both particulate and noise **emissions from tyres**. The findings will be used to define and propose practical standardised methods of tyre abrasion rates and airborne particulate emissions.
- [TOPIOS](#) – Topios improves our understanding of the way plastic litter moves through our ocean by developing an innovative, powerful and comprehensive **model for tracking marine plastic** through our ocean.
- [GLAUKOS](#) - Glaukos will develop **innovative textile fibres and textile coatings** that reconcile an excellent environmental performance with adequate technical characteristics. The focus lies on two important contributors to the (micro)plastic pollution in our oceans: fishing gear and clothing.

# R&I on microplastics

- [Cmartlife](#) – Cmartlife aim to accelerate Flemish waste management policy. The focus is on plastics, their impact on the environment, their share in residual waste and in litter. Cmartlife reinforces the existing actions of Fost Plus for the collection and recycling of packaging used out of home.
- [CUSP cluster](#) – CUSP cluster unites five research initiatives in one large cluster to help create synergies and amplify the effort of individual research initiatives between micro- and nano-plastics and human health.
- [MINAGRIS](#) – MINAGRIS aims to contribute to healthy soils in Europe by providing a deeper understanding and tools to assess the impact of micropalstics and nanoplastics in agricultural soils on biodiversity, plant productivity and ecosystem services and their disaggregation fate in the environment and provide recommendations for sustainable use of plastic in agriculture at the farm and field levels for ensuring safe and economically viable food systems in Europe.

# R&I on microplastics

- [MONPLAS](#) - The training of early stage researchers for the development of technologies to **monitor concentrations of micro and nanoplastics in water** for their presence, uptake and threat to animal and human life
- [LABPLAS](#) - Land-based solutions for plastics in the sea
- [MIMBOX](#) - Greywater optimisation and microplastic mitigation for washing machines which are **focused on microplastics**
- [REWATERGY](#) - Sustainable reactor engineering for applications on the water-energy nexus
- [HYSOLCHEM](#) - Hybrid reactor for solar CO<sub>2</sub> and N<sub>2</sub> conversion coupled to wastewater treatment which **addresses microplastics among other pollutants** in wastewater
- [ODYSSEA](#) - Operating a network of integrated observatory systems in the Mediterranean sea (H2020)
- [VORTEX](#) Plastic in the Ocean: microbial transformation of an 'unconventional' carbon substrate (H2020)
- PAPILLONS - Plastic in agricultural production: impacts, lifecycles and long-term sustainability

# R&I on microplastics

As demonstrated in the EU funded projects, EU continues to provide support for projects aiming to reduce and clean up microplastic pollution:

- [CLAIM](#) – CLAIM will power 5 new technologies to innovate the ways in which we clean our seas and oceans from marine litter.
- [GoJelly](#) - GoJelly will develop, test and promote a gelatinous solution to microplastic pollution by developing a prototype microplastics filter made of jellyfish mucus.
- [LimnoPlast](#) – LimnoPlast is analysing the sources and impacts of freshwater microplastics, and train scientists at the coal-face of the microplastics issue. The goal is to develop innovative solutions to remove microplastics from the environment, and find environmentally-friendly polymers.