

FUNDING OPPORTUNITIES IN THE CIRCULAR ECONOMY

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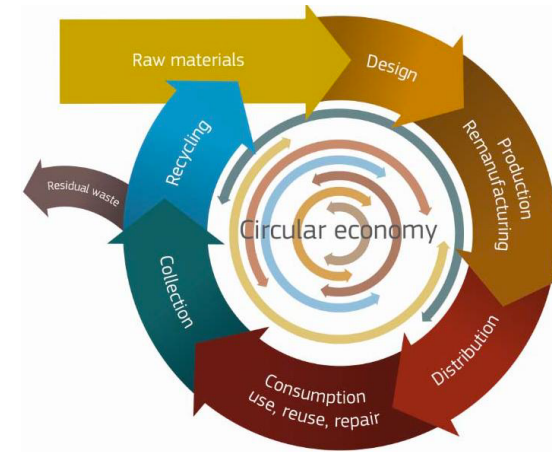
FROM A TAKE-MAKE-CONSUME-DISPOSE TO A CIRCULAR ECONOMIC MODEL

Take-make-consume-dispose

- ▶ Not sustainable
- ▶ Scarce importance attributed to the (*mis*-)use of new materials and energy
- ▶ No reduction of the environmental pressures over the resources extraction

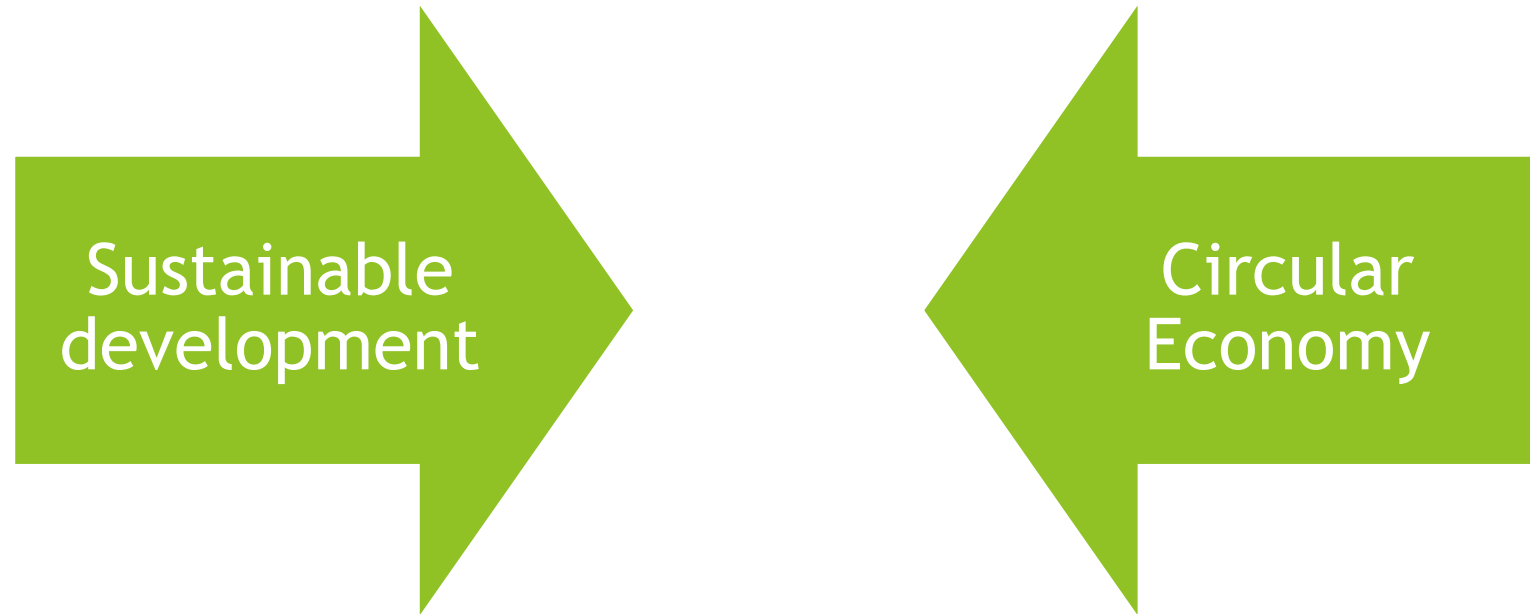
Circular

- ▶ Sustainable
- ▶ Reduction of the consumption of raw materials and energy
- ▶ Reduction of the emissions
- ▶ Reduction of the material losses
- ▶ Increasing the environmental pressures over the resources extraction

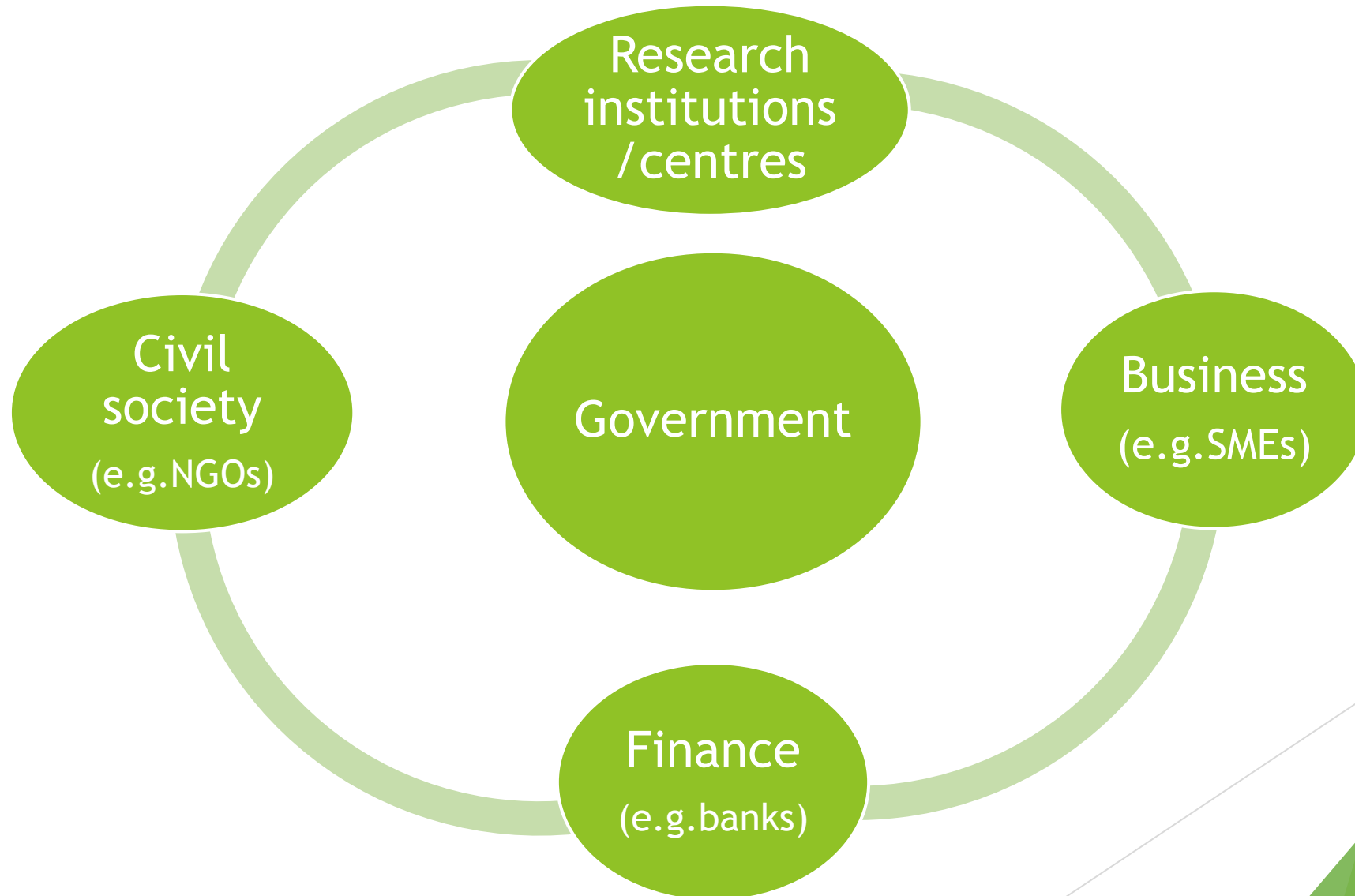


WHERE DOES THE CONCEPT OF CIRCULAR ECONOMY COME FROM?

- ▶ The concept of circular economy is not entirely new within the European Union's framework.



THE KEY STAKEHOLDERS INVOLVED IN THE CIRCULAR ECONOMIC MODEL



THE BENEFITS RELATED TO THE CIRCULAR ECONOMY



- ▶ Smarter and more sustainable use of resources.
- ▶ The value of products and materials is held as long as possible.
- ▶ Waste and resource use are reduced.
- ▶ Creation of new and secure jobs within the EU context.
- ▶ To promote innovations, which guarantee a strong competitive advantage.
- ▶ To ensure a high level of protection for humans and environment.
- ▶ To offer consumers more innovative and durable goods providing monetary savings and a better quality of life.

R&I AND CIRCULAR ECONOMY

- ▶ Support given by R&I can be a major factor in realizing a circular economy.
- ▶ R&I funding opportunities represent one of the strategic tools.
 - ▶ Example: *Bio-based materials and their advantages in terms of renewability and biodegradability for creating multiple new products and innovations.*

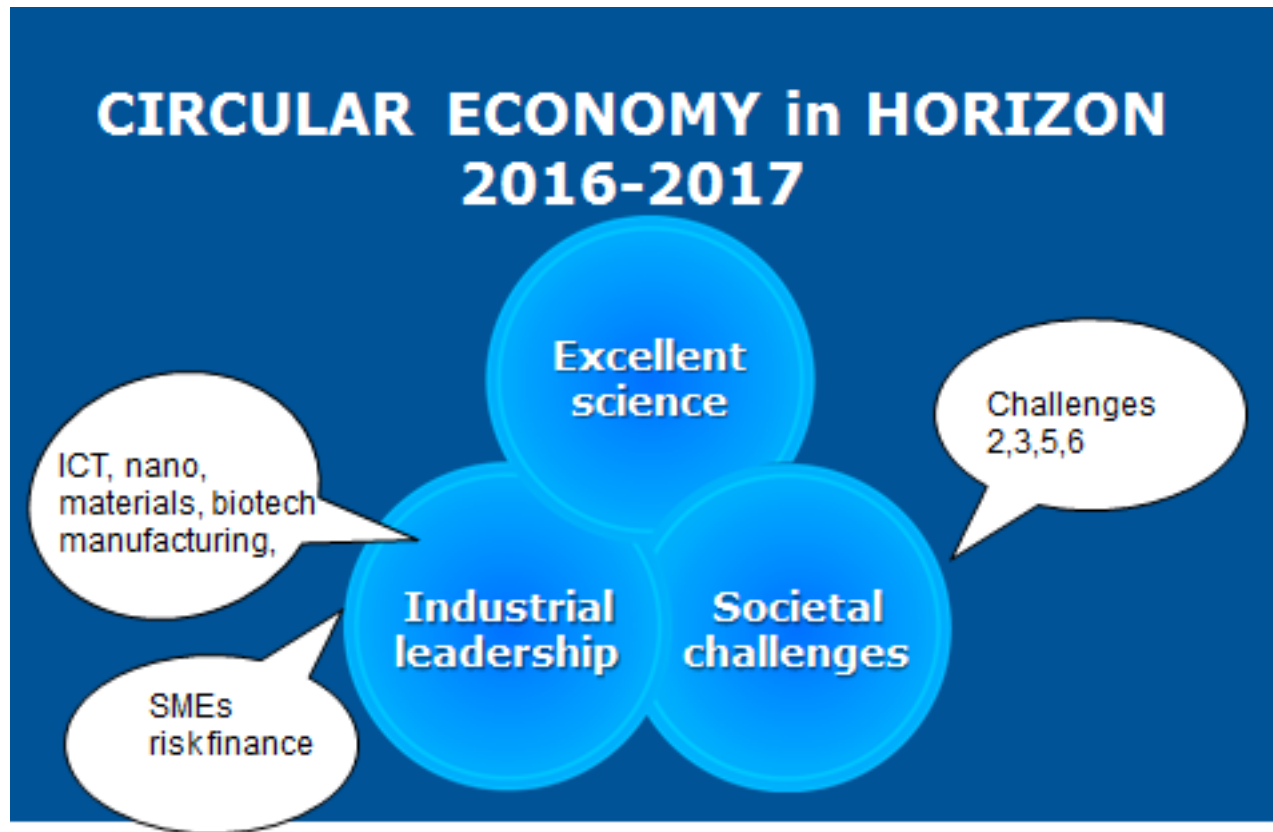
R&D AND CIRCULAR ECONOMY

- ▶ Strong cooperation among researchers, technology centres, industries, governments, civil society.
- ▶ Mission: reinforcing Sustainable Development Goals, through:
 - 1) Best use of resources, such as energy and raw materials
 - 2) Significant reduction in terms of waste and pollution
 - 3) Using and improving natural cycles
 - 4) Making existing businesses more competitive
 - 5) To facilitate openness for new innovative businesses

FUNDS FOR CIRCULAR ECONOMY

- ▶ EU programmes such as:
 - ▶ **H2020**: €725 million of Horizon 2020 funding for circular economy calls in Work Programmes 2016-17.
(example: “Industry 2020 in the circular economy” will grant over EUR 650 million).
 - ▶ **LIFE** programme 2014-2020: over EUR 100 million set out for 80 circular economy projects during its first two years.
 - ▶ **COSME** - EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs)
- ▶ National initiatives such as:
 - ▶ FCT projects
 - ▶ Era-nets
 - ▶ COST Actions
 - ▶ FITEC

CIRCULAR ECONOMY IN H2020



Focus Area: Connecting economic and environmental gains - the Circular Economy



Cross-cutting call- actions from the LEIT-NMBP, and Societal Challenges 2, 3 and 5.

H2020 WORKPROGRAMME 2018-2020

- **Pillar I - Excellent Science** (*bottom-up approach*)
 - ERC
 - FET
 - MSCA
 - Infrastructures
- **Spreading Excellence and Widening Participation**
 - Twinning
 - Era-Chairs
- **Fast Track to Innovation Pilot**
 - promote close-to-the-market innovation activities

H2020 WORKPROGRAMME 2018-2020

- Pillar II - Industrial Leadership

LEIT* NMBP - Nanotechnologies, Advanced Materials, Biotechnology
and Advanced Manufacturing and Processing

**Leadership* in Enabling and *Industrial* Technologies.

H2020 Workprogramme 2018-2020

Pillar II - LEIT NMBP

Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing (LEIT NMBP)

| | | Opening date (tbc) |
|------------------------|--|--------------------|
| CE-BIOTEC-04-2018 | New biotechnologies for environmental remediation | 15 Oct 2017 |
| CE-BIOTEC-05-2019 | Microorganism communities for plastics bio-degradation | 15 Oct 2018 |
| CE-NMBP-24-2018 | Catalytic transformation of hydrocarbons | 15 Oct 2017 |
| CE-NMBP-25-2019 | Photocatalytic synthesis | 15 Oct 2018 |
| CE-NMBP-26-2018 | Smart plastic materials with intrinsic recycling properties by design | 15 Oct 2017 |
| CE-SPIRE-01-2020 | Industrial symbiosis | tba |
| CE-SPIRE-02-2018 | Processing of material feedstock using non-conventional energy sources | 15 Oct 2017 |
| CE-SPIRE-03-2018 | Energy and resource flexibility in highly energy intensive industrie | 15 Oct 2017 |
| CE-SPIRE-04-2019 | Efficient integrated downstream processes | 15 Oct 2018 |
| CE-SPIRE-05-2019 | Adaptation to variable feedstock through retrofitting | 15 Oct 2018 |
| CE-SPIRE-07-2020 | Recovery of industrial water, thermal energy and substances contained therein | tba |
| CE-SPIRE-08-2020 | Improved Industrial Processing using novel high-temperature resistant materials | tba |
| CE-SPIRE-09-2020 | Making the most of mineral waste, by-products and recycled material as feed for high volume production | tba |
| CE-SPIRE-10-2018 | Efficient recycling processes for plastic containing materials | 15 Oct 2017 |

Example



CE-NMBP-26-2018

SMART PLASTIC MATERIALS with INTRINSIC RECYCLING PROPERTIES by DESIGN (RIA)

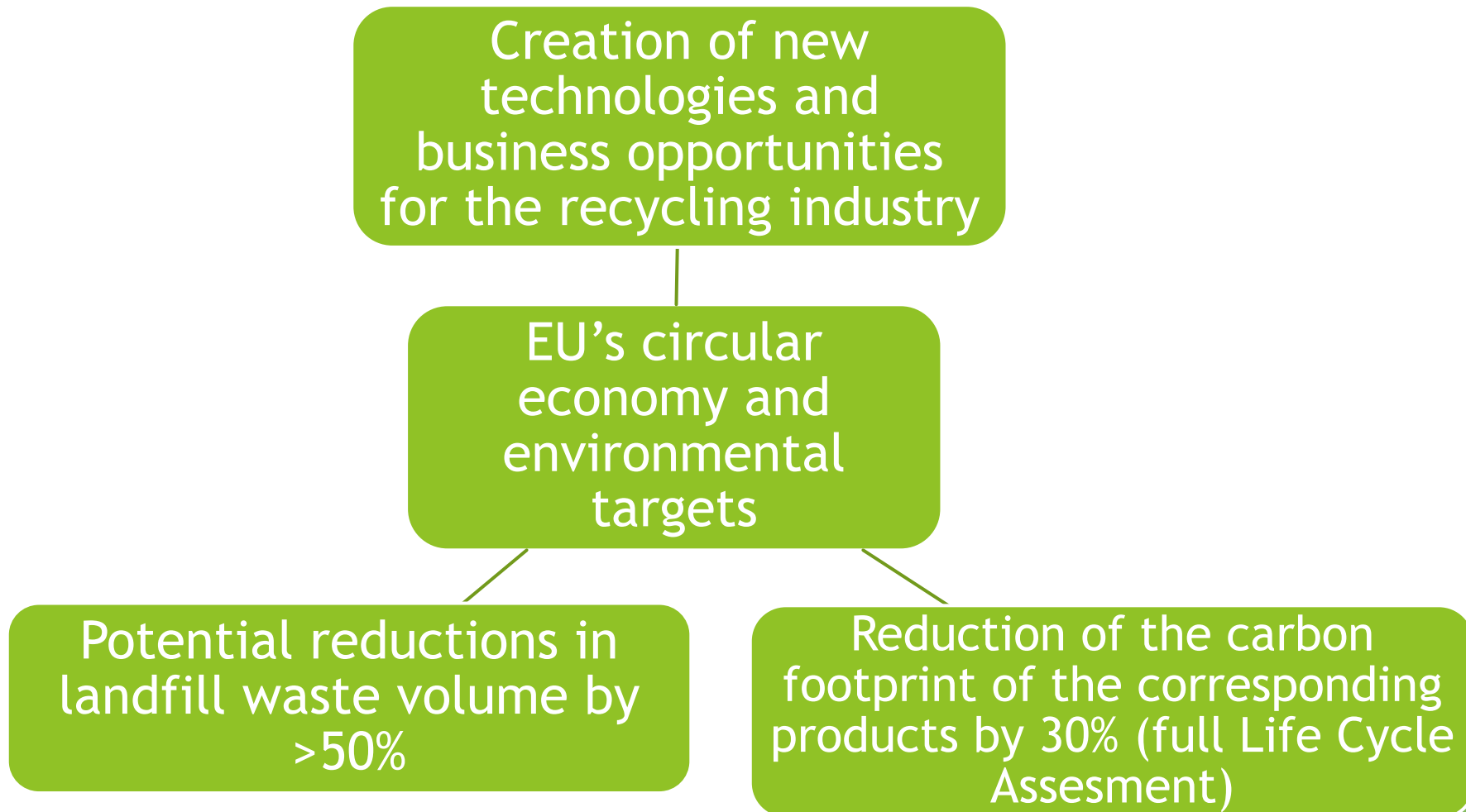
Scope:

- ▶ Design of polymer material structures with intrinsic sorting/recycling abilities such as: composite and reinforced composite materials, mix of plastics, reinforced polymers, design of polymer formulations with smart additives (allowing adequate sorting, separation and recycling).
- ▶ Design of smart polymer materials for recycling/re-processing (ex: development of resins of thermoplastic nature, development of new smart polymers like nano-structured block co-polymers).
- ▶ Developments of separation and recycling technologies: the removal of organics, contaminants or novel chemical recycling and/or biodegradation technologies (not cost effective or still must be validated).

CE-NMBP-26-2018

SMART PLASTIC MATERIALS with INTRINSIC RECYCLING PROPERTIES by DESIGN (RIA)

Expected impact:



CE-NMBP-26-2018

SMART PLASTIC MATERIALS with INTRINSIC RECYCLING PROPERTIES by DESIGN (RIA)

- ▶ BUDGET (EUR MILLION): 71.50
- ▶ The Commission looks at that proposals requesting a contribution from the EU between EUR 4 and 6 million . Nonetheless, this does not exclude other proposals requesting other amounts.
- ▶ OPENING DATE: 15 OCT. 2017

SINGLE STAGE PROCEDURE:

- Information on the outcome of the evaluation: MAX. 5 months from the final date for submission.
- Indicative date for the signing of Grant agreement. MAX. 8 months from the final date for submission.

TWO STAGE PROCEDURE:

- Information on the outcome of the evaluation: MAX. 3 months from the final date for submission for the second stage.
- Indicative date for the signing of Grant agreements: MAX. 8 months from the final date

H2020 Workprogramme 2018-2020

Top-down approaches

- **Pillar III - Societal challenges - 2, 3, 5 and 6**

Most relevant: **SC5 - Climate action, environment, resource efficiency and raw materials**

H2020 Workprogramme 2018-2020

Pillar III - SC2

Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy

Dates (tbc)

Example

| | | |
|--------------------------|--|-------------|
| CE-SFS-24-2018 | Integrated system innovation in valorising urban biowaste | 27 Oct 2017 |
| DT-SFS-25-2019 | Innovative and citizen-driven food system approaches in cities | 25 Oct 2018 |
| CE-SFS-36-2020 | Diversifying farmers' income through small bio-based concepts | tba |
| CE-SFS-39-2019 | High-quality organic fertilisers from biogas digestate | 25 Oct 2018 |
| CE-BG-06-2019 | Sustainable solutions for bio-based plastics on land and sea | 25 Oct 2018 |
| CE-RUR-08-2018-2019-2020 | Closing nutrient cycles | 27 Oct 2017 |
| CE-RUR-10-2019 | Circular bio-based business models for rural communities | 25 Oct 2018 |
| | Other Action: Circular Bioeconomy Thematic Investment Platform (risk-sharing financial instrument) | tba |

CE-SFS-23-2019

INNOVATIVE and CITIZEN-DRIVEN FOOD SYSTEM APPROACHES IN CITIES

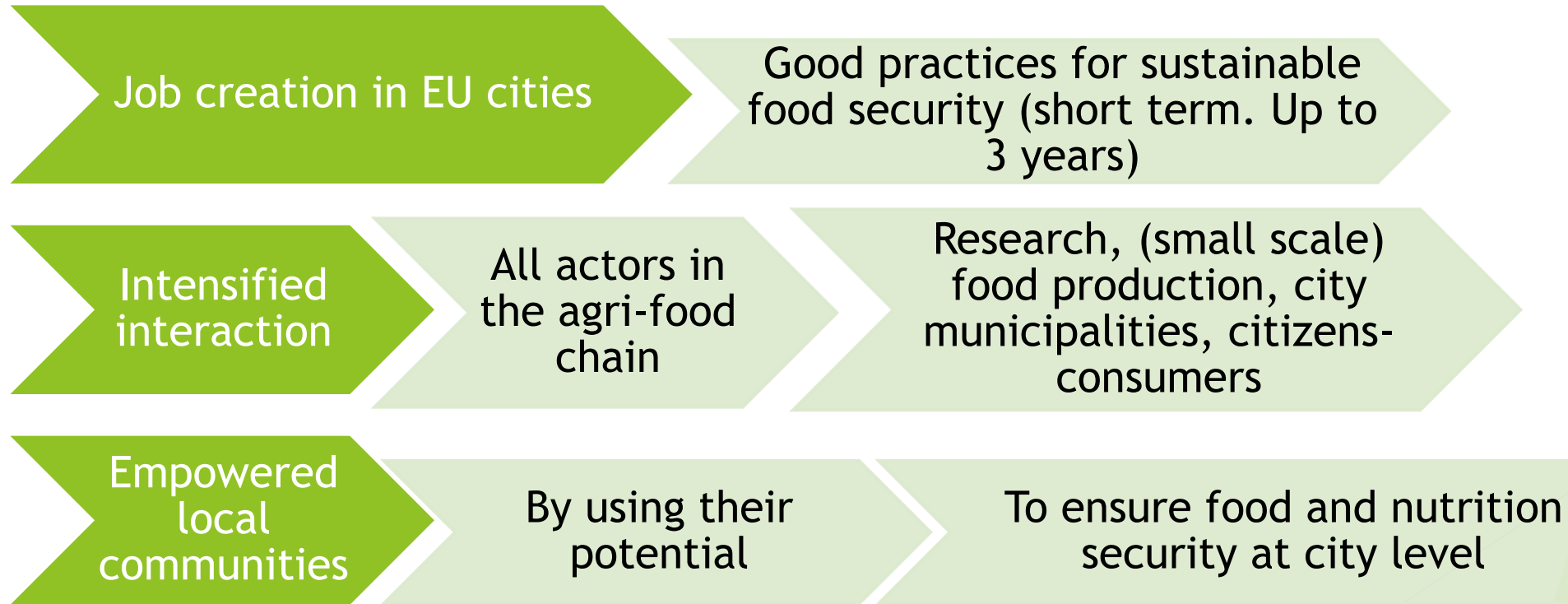
Scope:

- ▶ Proposals shall identify food-related innovative approaches based on citizen science and engagement, to be practised in cities to foster sustainability of the food system.
- ▶ Proposals could comprise activities like prototyping testing and piloting in a (near to) operational environment.
- ▶ Proposals shall include the development of a classification and assessment of existing approaches for dissemination purposes, accessible online.
- ▶ Proposals may include limited R&D activities and clear focus on validating the benefits of pilot activities for citizens with a view of increasing engagement and replication.
- ▶ Proposals shall include co-creation between social and innovation and technological innovation.

CE-SFS-23-2019

INNOVATIVE and CITIZEN-DRIVEN FOOD SYSTEM APPROACHES IN CITIES

Expected impact:



CE-SFS-23-2019

INNOVATIVE and CITIZEN-DRIVEN FOOD SYSTEM APPROACHES IN CITIES

- ▶ **BUDGET (EUR MILLION): 12.00**
- ▶ The Commission considers proposals requesting a contribution from the Eu of the order of EUR 6 million. Nonetheless, this not excludes submission and selection of those proposals requesting other amounts.
- ▶ **Opening date** - 25 October 2018
- ▶ **Deadline:** 23 january 2019

H2020 Workprogramme 2018-2020

Pillar III - SC3

Secure, Clean and Efficient Energy

CE-SC3-NZE-2018

Conversion of captured
CO₂

02 May 2018

Example



Conversion of captured CO₂

Scope:

- ▶ Development of energy - efficient CO₂ conversion technologies for chemical energy storage or displacement of fossil fuels that allow for upscaling in the ST and MT.
- ▶ Proposals must clarify the potential for the proposed CCU solution(s) as CO₂ mitigation option by conducting a LCA in conformity with guidelines established by the Commission or the relevant ISO standard.

CE-SC3-NZE-2018

Conversion of captured CO₂

Expected impact:

- 1) New solution for the conversion of captured CO₂ (power plants, carbon-intensive industry, fuels or chemicals for energy storage) to create new markets for innovative industry sectors.
- 2) To diversify the economic base in carbon-intensive regions.

CE-SC3-NZE-2018

Conversion of captured CO2

- ▶ **BUDGET (EUR MILLION): 12.00**
- ▶ The Commission considers proposals requesting a contribution from the EU, between EUR (million) 3 and 4.
- ▶ **Opening date** - 02 May 2018
- ▶ **Deadline:** 06 September 2018

H2020 Workprogramme 2018-2020

Pillar III - SC5

SC5 - Climate action, environment, resource efficiency and raw materials



Scoping paper SC5 sets out **strategic priorities for 2018-2020** and translation into calls:

- Climate action in support of the Paris Agreement
- Circular economy
- Water for our environment, economy and society
- Innovating cities for sustainability and resilience
- Raw materials
- Protecting and valorizing our natural and cultural assets (Earth observation, Nature based solutions, disaster risk reduction and natural capital accounting, Heritage alive)

H2020 Workprogramme 2018-2020

Orientations

*Call Building a low-carbon, climate
resilient future:
Climate action in support of the
Paris Agreement*

Decarbonisation

Climate adaptation, impacts and services

Inter-relations between climate change,
biodiversity and ecosystem services

The Cryosphere

Knowledge gaps

Earth Observation

*Call Greening the economy in line with
the Sustainable
Development Goals (SDGs)*

Connecting economic and environmental gains
– the circular economy

Raw materials

Water for our environment, economy and
society

Innovating cities for sustainability and resilience

Protecting and leveraging value the value of our
natural and cultural assets - Earth observation

Protecting and leveraging value the value of our
natural and cultural assets - NBS, disaster risk
reduction and natural capital accounting

Protecting and leveraging value the value of our
natural and cultural assets - Heritage alive

H2020 Workprogramme 2018-2020

Pillar III - SC5

Climate action, environment, resource efficiency and raw materials

| | | Dates (tbc) |
|--------------------------|--|-------------|
| CE-SC5-01-2018 | Methods to remove hazardous substances and contaminants from secondary raw materials | 02 Nov 2017 |
| CE-SC5-02-2018 | Independent testing programme on premature obsolescence | 02 Nov 2017 |
| CE-SC5-03-2018 | Demonstrating systemic urban development for circular and regenerative cities | 02 Nov 2017 |
| CE-SC5-04-2019 | Building a water-smart economy and society | 14 Nov 2018 |
| CE-SC5-05-2018 | Coordinated approaches to funding and promotion of research and innovation for the circular economy | 02 Nov 2017 |
| CE-SC5-06-2018 | New technologies for the enhanced recovery of by-products | 02 Nov 2017 |
| CE-SC5-07-2018-2019-2020 | Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes | 02 Nov 2017 |
| CE-SC5-08-2018-2019-2020 | Raw materials policy support actions for the circular economy | 14 Nov 2018 |
| CE-SC5-13-2018 | Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems | 02 Nov 2017 |

Example



SC5-13-2018:

Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems

Scope:

- ▶ Actions develop tools, strategies, decision support systems for the design, construction, deployment and monitoring of nature-based solutions and restoration, rehabilitation and maintenance measures for urban ecosystems and integrity of the cities.
- ▶ The strategies and tools must support an ecologically coherent urban planning and city making process in promoting the equitable distribution of benefits from the restored urban ecology.
- ▶ Actions must contribute to: awareness raising, outreach activities, education of citizens and school children about the benefits of nature for their social, economic and cultural well-being.
- ▶ Involved stakeholders: research partners, government agencies, urban authorities, private sector, civil society.

SC5-13-2018

Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems

Scope:

- ▶ Actions shall address only one between the following options:
 - A) Strengthening **EU-China** collaboration
 - B) Strengthening **EU-CELAC*** collaboration

** Comunidade de Estados Latino-Americanos e Caribenhos*

SC5-13-2018

Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems

Expected impact:

Urban ecosystems

- Restored.
- Functioning with an enhanced capacity to deliver their services.

Making a business and investment case for nature-based solutions

- Increased evidence on the benefits from restored urban ecosystems.
- Urban liveability, social inclusion, public health, well-being.

SC5-13-2018

Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems

- ▶ Budget: EUR (million) 15.00
- ▶ The Commission looks at those proposals requesting a contribution from EU in the range of EUR 5 million.
- ▶ Dates: 02 nov 2017
 - ▶ First stage: 27 feb 2018
 - ▶ Second stage: 05 sep 2018

LIFE



- ▶ LIFE as a catalyst of shift from linear to circular economy
- ▶ LIFE finances projects demonstrating viability of circular economy since 1992 (e.g. over 670 waste reduction, recycling, re-use projects totalling to over ~EUR 1 billion of EU funding)

For the sub-programme for Environment, it covers action grants for "Traditional projects", Preparatory projects, Integrated projects, Technical Assistance projects.


For the sub-programme for Climate Action, it covers action grants for "Traditional projects", Integrated projects, Technical Assistance projects.

2017 calls already closed.

Example:

Calendar 2017: **Traditional projects** Summary Table

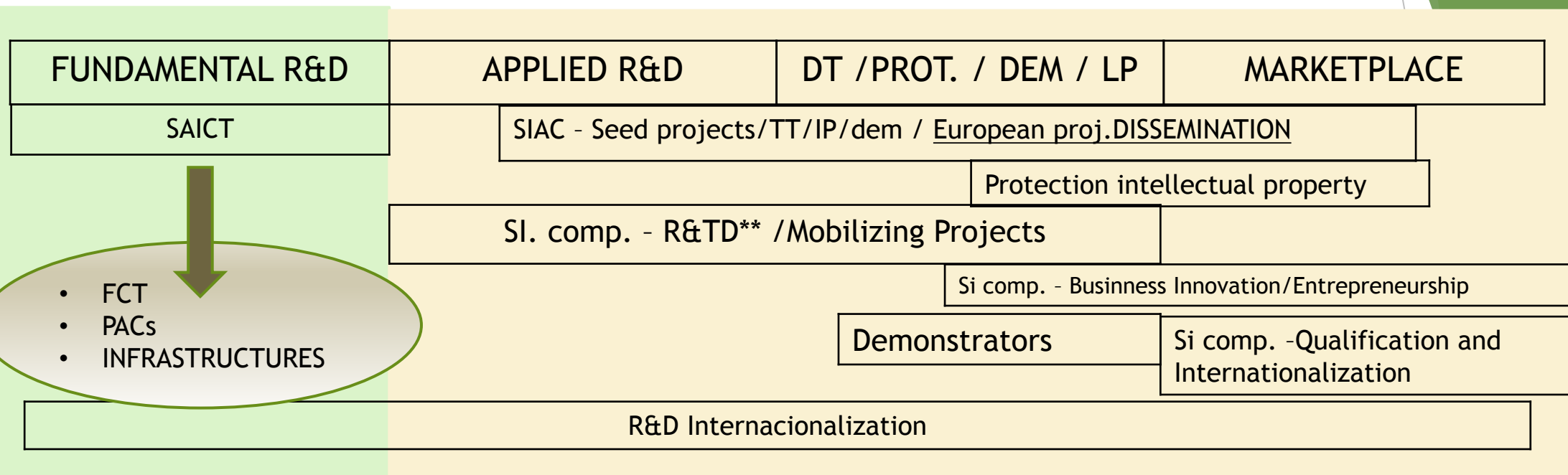
| Grant Type | Opening Date | Closing Date |
|---|---------------|--|
| <u>Climate Change Mitigation</u> | 28 April 2017 | 07 September 2017 at 16:00 Brussels time |
| <u>Climate Change Adaptation</u> | 28 April 2017 | 07 September 2017 at 16:00 Brussels time |
| <u>Climate Governance & Information</u> | 28 April 2017 | 07 September 2017 at 16:00 Brussels time |
| <u>Environment & Resource Efficiency</u> | 28 April 2017 | 12 September 2017 at 16:00 Brussels time |
| <u>Nature & Biodiversity</u> | 28 April 2017 | 14 September 2017 at 16:00 Brussels time |
| <u>Environmental Governance & Information</u> | 28 April 2017 | 14 September 2017 at 16:00 Brussels time |



Project proposals will be revised and grant agreements prepared in spring 2018, so that the new projects can be launched from **July 2018** onwards.

2018 expected calls: April or May 2018

WHAT ABOUT PORTUGAL?



**Universities,
Technological Centers,
etc** - but companies may participate
in some tipologies



Companies, but R&D institutions may participate in some
tipologies

- Axis I - Support the transition to a low carbon economy in all sectors
- Axis II - Promote climate changes adaptation and risk prevention and management
- Axis III- Protect the environment and promote resources efficiency



- Support to the CITEC (Technological Interface Centers)
- Competitvity Clusters
- Colabs
- Suppliers Club



FITEC - Fundo de Inovação, Tecnologia e Economia Circular

Useful links/ sources

▶ Circular Economy

▶ http://ec.europa.eu/environment/circular-economy/index_en.htm

▶ LIFE

▶ <http://ec.europa.eu/environment/life/index.htm>

▶ GPPQ - NCP's

▶ http://www.gppq.fct.pt/h2020/contactos_ncp.php

▶ ERA-nets

▶ <http://www.fct.pt/apoios/cooptrans/eranets/index.phtml.pt>

▶ Plano Liderar a Transição

▶ <http://eco.nomia.pt/pt/recursos/noticias/planoeconomiacircular>

Thank you for your attention.

Danilo DiStefano
Research Support Office
University of Aveiro

► September 27, 2017

*The presented information has a preliminar, previsional and not vinculative nature.
The workprogrammes have neither been approved nor published yet.*