



CGREEN
GREEN CHEMISTRY
AND ADVANCED MATERIALS



HORIZON EUROPE: La scelta della call 21 luglio 2021

Maria Rosa Contardi

Soggetti aggregati in ATS



proplast

PLASTICS INNOVATION POLE



Parco Scientifico e Tecnologico
in Valle Scrivia S.p.A.



REGIONE
PIEMONTE

per una crescita intelligente,
sostenibile ed inclusiva

www.regione.piemonte.it/europa2020

INIZIATIVA CO-FINANZIATA CON FESR



Gli obiettivi strategici EU

KSO A – *Promuovere un'autonomia strategica aperta guidando lo sviluppo di tecnologie, settori e catene del valore digitali, abilitanti ed emergenti chiave per accelerare e guidare le transizioni digitali e verdi attraverso tecnologie e innovazioni incentrate sulla persona*

KSO B – *Promuovere un'autonomia Ripristinare gli ecosistemi e la biodiversità dell'Europa e gestire le risorse naturali in modo sostenibile per garantire la sicurezza alimentare e un ambiente pulito e sano*

KSO C – *Fare dell'Europa la prima economia circolare, climaticamente neutra e sostenibile e abilitata digitalmente attraverso la trasformazione dei suoi sistemi di mobilità, energia, costruzione e produzione*

KSO D – *Creare una società europea più resiliente, inclusiva e democratica, preparata e reattiva alle minacce e ai disastri, affrontare le disuguaglianze e fornire un'assistenza sanitaria di alta qualità e responsabilizzare tutti i cittadini ad agire nelle transizioni verdi e digitali.*

4 KSO (Key Strategic Orientations)

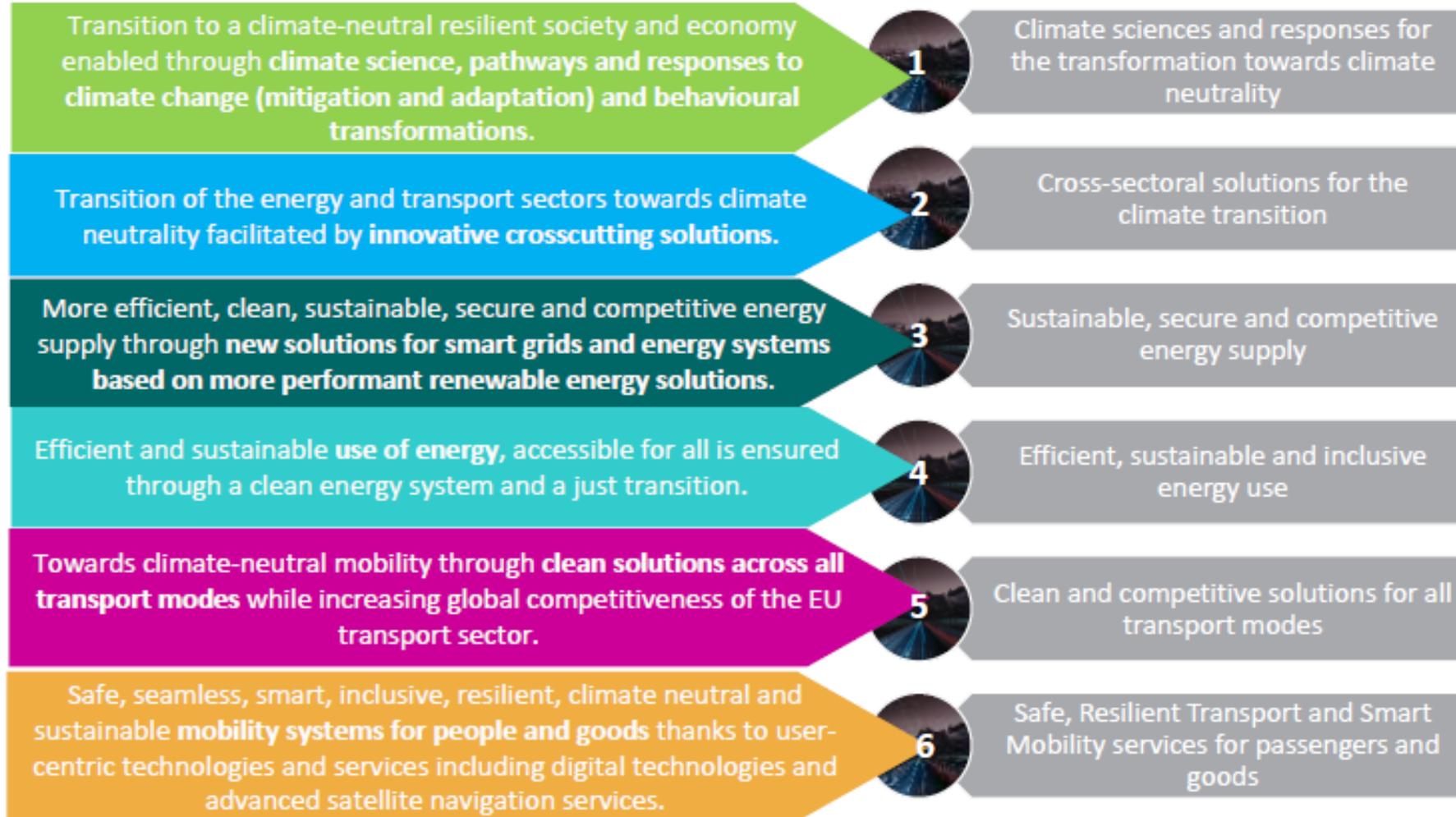


Ogni orientamento strategico è supportato da tre o quattro aree d'impatto, che a loro volta si collegano a una serie di impatti previsti (*expected impacts*) ovvero gli effetti sulla scienza, l'economia, la società a cui le attività di ricerca e innovazione devono tendere nel medio-lungo termine.

Gli expected impacts sono strutturati nei sei cluster, fornendo la base per le attività di ricerca e innovazione stabilite nei programmi di lavoro (*destinations*).

ESEMPIO CLUSTER 5

IMPATTI



DESTINATIONS

Tutte le azioni finanziate nell'ambito di ciascuna *destination* devono contribuire al raggiungimento dei relativi impatti

Cluster 4 'Digital, Industry and Space' Destinations in Work Programme 2021-22

Key Strategic Orientation	Destination
<p>Making Europe the first digitally enabled, circular, climate-neutral and sustainable economy</p>	<p>Climate neutral, circular and digitised production TWIN-TRANSITION</p>
<p>Promoting an open strategic autonomy by leading the development of key digital, and enabling and emerging technologies, sectors and value chains</p>	<p>A digitised, resource efficient, and resilient industry RESILIENCE</p>
	<p>World-leading data and computing technologies DATA</p>
	<p>Digital and emerging technologies for competitiveness and fit for the green deal DIGITAL-EMERGING</p>
<p>Creating a more resilient, inclusive and democratic European society</p>	<p>Open Strategic Autonomy in developing, deploying and using global space-based infrastructures, services, applications and data SPACE</p> <p>A human-centred and ethical development of digital and industrial technologies HUMAN</p>



Le tipologie di call: RIA vs IA



Research and innovation action (RIA)

Activities to establish new knowledge or to explore the feasibility of a new or improved technology, product, process, service or solution.

This may include basic and applied research, technology development and integration, testing, demonstration and validation of a small-scale prototype in a laboratory or simulated environment.

Le **Research and Innovation Actions** sono mirate allo sviluppo di nuovi prodotti e tecnologie tramite ricerca sia di base, sia applicata.

Obiettivo : **dimostrazione di fattibilità** e realizzazione di **prototipi**

Le **Innovation Actions** hanno l'obiettivo di migliorare prodotti, processi e servizi esistenti.

Obiettivo : **validazione su larga scala** e **industrializzazione**

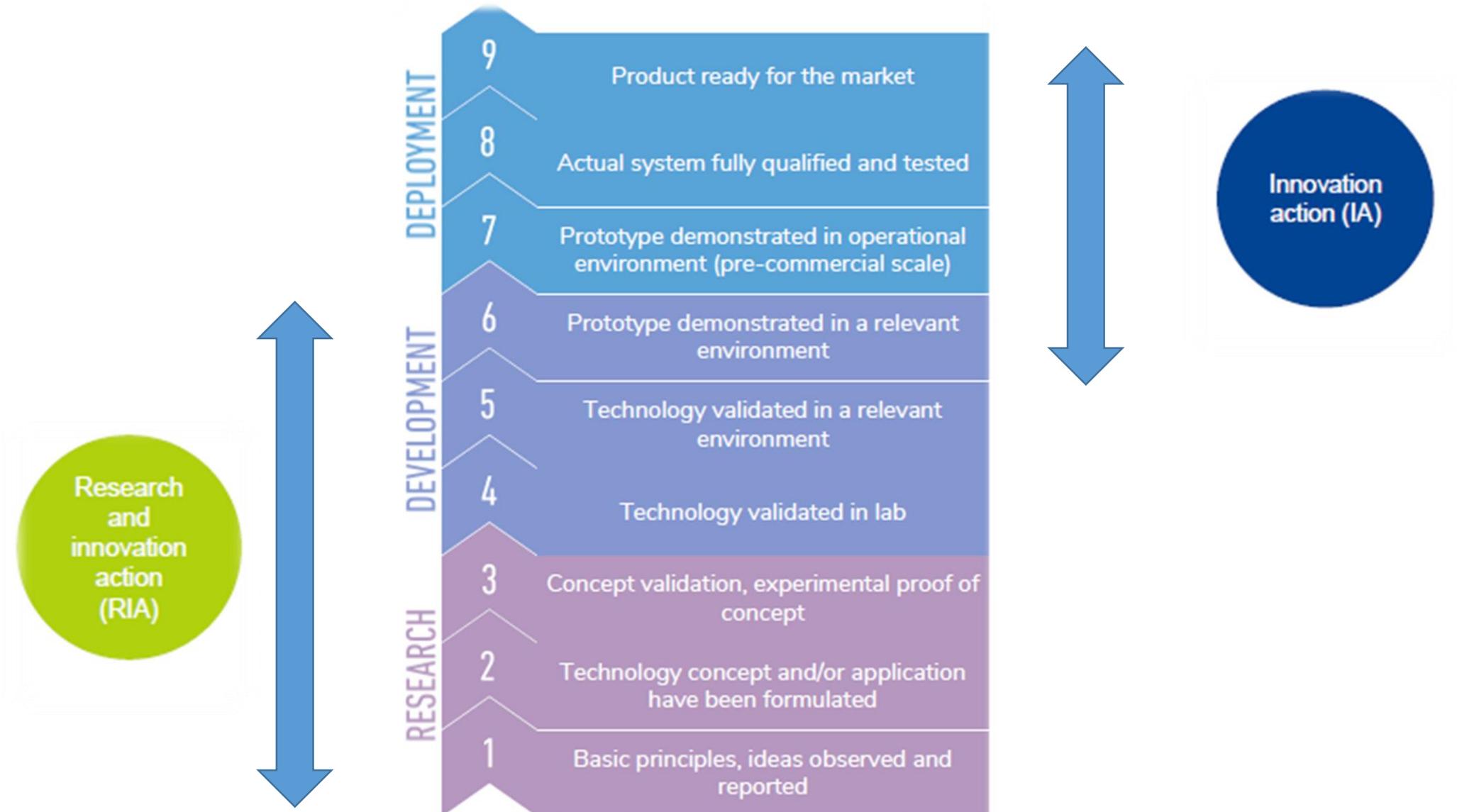


Innovation action (IA)

Activities to produce plans and arrangements or designs for new, altered or improved products, processes or services.

These activities may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

II TRL – Technology Readiness Level



*Horizon Europe - Work Programme 2021-2022
Digital, Industry and Space*

Table of contents

Introduction 16

**DESTINATION – CLIMATE NEUTRAL, CIRCULAR AND DIGITISED
PRODUCTION**..... 19

Call - TWIN GREEN AND DIGITAL TRANSITION 2021..... 24

Conditions for the Call 24

Green, flexible and advanced manufacturing 26

HORIZON-CL4-2021-TWIN-TRANSITION-01-01: AI enhanced robotics systems for
smart manufacturing (AI, Data and Robotics - Made in Europe Partnerships) (IA)..... 26

HORIZON-CL4-2021-TWIN-TRANSITION-01-02: Zero-defect manufacturing towards
zero-waste (Made in Europe Partnership) (IA) 28

HORIZON-CL4-2021-TWIN-TRANSITION-01-03: Laser-based technologies for green
manufacturing (Photonics - Made in Europe Partnerships) (RIA)..... 29

HORIZON-CL4-2021-TWIN-TRANSITION-01-05: Manufacturing technologies for bio-
based materials (Made in Europe Partnership) (RIA)..... 31

Advanced digital technologies for manufacturing 32

HORIZON-CL4-2021-TWIN-TRANSITION-01-07: Artificial Intelligence for sustainable,
agile manufacturing (AI, Data and Robotics - Made in Europe Partnerships) (IA)..... 33

destinations = gruppi di call

call = gruppi di topic

*Horizon Europe - Work Programme 2021-2022
Digital, Industry and Space*

Table of contents

Introduction

**DESTINATION – CLIMATE NEUTRAL, CIRCULAR AND DIGITAL
PRODUCTION**.....

Call - TWIN GREEN AND DIGITAL TRANSITION 2021.....

Conditions for the Call

Green, flexible and advanced manufacturing.....

HORIZON-CL4-2021-TWIN-TRANSITION-01-01: AI enhanced robotics system
smart manufacturing (AI, Data and Robotics - Made in Europe Partnerships) (IA)

HORIZON-CL4-2021-TWIN-TRANSITION-01-02: Zero-defect manufacturing t

zero-waste (Made in Europe Partnerships)

HORIZON-CL4-2021-TWIN-TRANSITION-01-03: Additive

manufacturing (Photonics - Made in Europe Partnerships)

HORIZON-CL4-2021-TWIN-TRANSITION-01-04: Additive

based materials (Made in Europe Partnerships)

Advanced digital technologies for manufacturing

HORIZON-CL4-2021-TWIN-TRANSITION-01-05: Additive

agile manufacturing (AI, Data and Robotics)

Conditions for the Call

Indicative budget(s)⁵

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) ⁶	Number of projects expected to be funded
		2021		
Opening: 22 Jun 2021 Deadline(s): 23 Sep 2021				
HORIZON-CL4-2021-TWIN-TRANSITION-01-01	IA	28.00 ⁷	8.00 to 10.00	3
HORIZON-CL4-2021-TWIN-TRANSITION-01-02	IA	27.00	8.00 to 10.00	3
HORIZON-CL4-2021-TWIN-TRANSITION-01-03	RIA	26.00	5.00 to 7.00	4
HORIZON-CL4-2021-TWIN-TRANSITION-01-04	RIA	20.00	4.00 to 6.00	4
HORIZON-CL4-2021-TWIN-TRANSITION-01-05	IA	18.00 ⁸	4.00 to 6.00	3
HORIZON-CL4-2021-TWIN-TRANSITION-01-06	IA	24.00 ⁹	4.00 to 8.00	3
HORIZON-CL4-2021-TWIN-TRANSITION-01-07	IA	15.00	Around	3

Nelle *Conditions for the call* sono inclusi le scadenze, il budget attribuito a ciascun topic, il contributo orientativo per progetto ed il numero orientativo di progetti finanziati.



HORIZON-CL4-2021-DIGITAL-EMERGING-01-31: Functional electronics for green and circular economy (RIA)

Specific conditions	
<i>Expected EU contribution per project</i>	The Commission estimates that an EU contribution of between EUR 3.00 and 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
<i>Indicative budget</i>	The total indicative budget for the topic is EUR 35.00 million.
<i>Type of Action</i>	Research and Innovation Actions
<i>Technology Readiness Level</i>	Activities are expected to start at TRL 2-3 and achieve TRL 4-5 by the end of the project – see General Annex B.

Expected Outcome: Proposals are expected to contribute to the following outcomes:

- European leadership in the area of flexible, printed and organic electronics
- Development of new concepts, designs and technologies in electronics to support and enable circular economy and sustainability.
- Development of next generation components and systems that will deliver climate-neutral digital solutions for a wide range of sectors.

Scope: Proposals are expected to make technological breakthroughs in the development of functional electronics technologies¹³²

to address the challenges and opportunities associated with green and digital transformation. Eco-design principles¹³³,

in particular reduction of energy and resource consumption should be taken into account. The emphasis of this topic will be on the advancement in the area of flexible, printed and organic electronics as low-cost/light-weight/less energy intensive approach to complement inorganic-based mainstream semiconductors.

titolo

Type of Action:
Specifica la tipologia di attività da realizzare – attenzione al TRL di partenza e fine progetto!

Expected outcomes:
Specifica gli effetti virtuosi che il progetto dovrebbe avere e gli obiettivi da realizzare

Scope:
Specifica il focus ed i confini all'interno dei quali deve porsi la proposta

I criteri di valutazione

I criteri di valutazione sono 3:

- ✓ **EXCELLENCE**
- ✓ **IMPACT**
- ✓ **IMPLEMENTATION**

EXCELLENCE

- ✓ Clarity and pertinence of the **project's objectives**, and the extent to which the proposed work is ambitious, and goes beyond the state-of-the-art.
- ✓ Soundness of the proposed **methodology**, including the underlying concepts, models, assumptions, interdisciplinary approaches, appropriate consideration of the **gender dimension** in research and innovation content, and the quality of **open science practices** including sharing and management of research outputs and engagement of citizens, civil society and end users where appropriate.

IMPACT

- ✓ Credibility of the **pathways** to achieve the expected **outcomes and impacts** specified in the work programme, and the likely scale and significance of the contributions due to the project.
- ✓ Suitability and quality of the **measures to maximize expected outcomes and impacts**, as set out in the dissemination and exploitation plan, including communication activities.

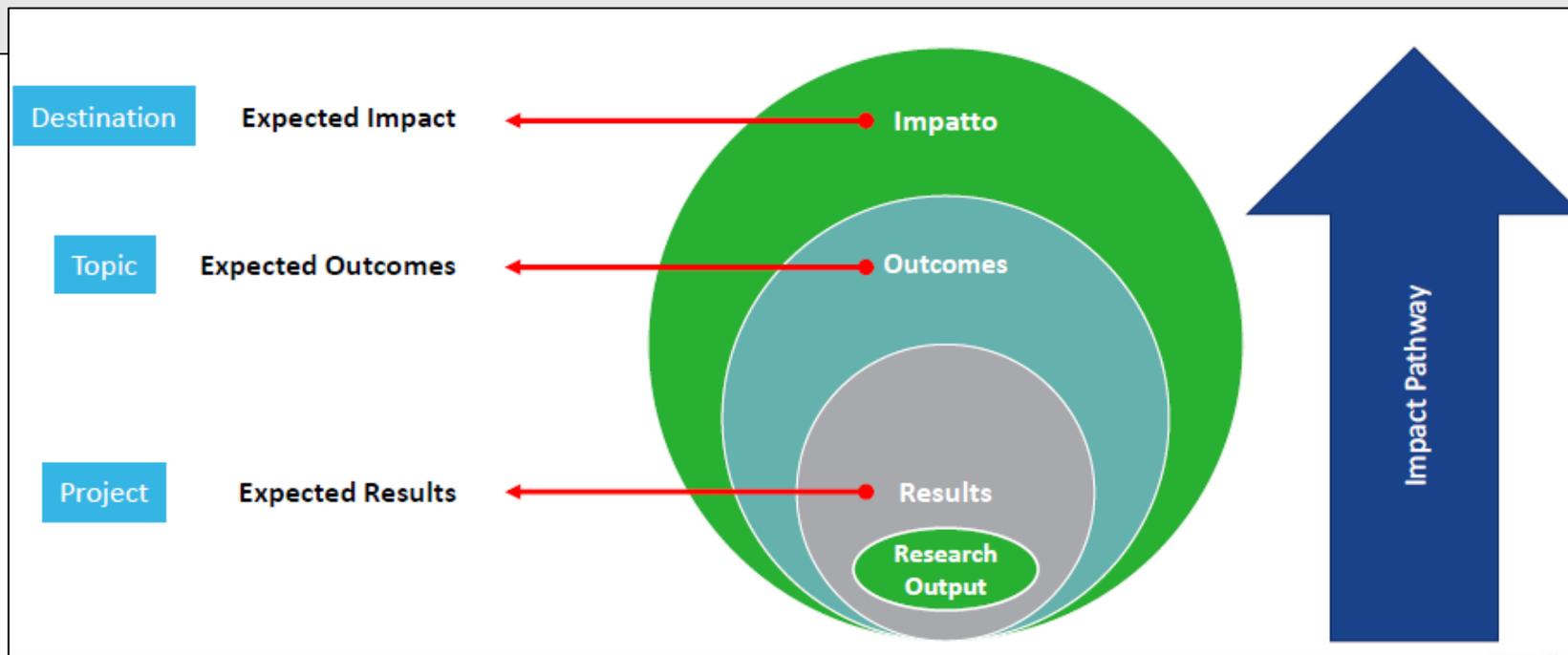
QUALITY AND EFFICIENCY OF THE IMPLEMENTATION

- ✓ Quality and effectiveness of the **work plan**, assessment of risks, and appropriateness of the effort assigned to work packages, and the resources overall.
- ✓ Capacity and role of each **participant**, and extent to which the **consortium** as a whole brings together the necessary expertise.



Impact = The benefits derived from the innovation

- The larger the benefit, the larger the impact;
- impact is not limited to economic or commercial aspects;
- it can also be societal, environmental, technical, educational, or scientific
- It must go beyond the life cycle of the project





L'impatto





Open Science across the programme



Gender dimension in R&I content



Pathway to impact



Measures to maximise impact



Do no significant harm principle (DNSH)



Artificial intelligence

Considerazioni trasversali

Questi aspetti devono sempre essere tenuti in considerazione in tutte le call di Horizon Europe, se non diversamente specificato

Alcuni consigli... (1/2)

- ✓ **Scegliere bene la call** è fondamentale: dev'essere l'idea a determinare la scelta della call, e non viceversa!
 - Controllare tutti gli obiettivi della call e del topic ('scope', 'expected outcome'), oltre che del Work Programme
 - Verificare il TRL di partenza/d'arrivo specificati dalla call

- ✓ Un alto livello di **excellence** è indispensabile per avere un progetto di qualità, soprattutto per le RIA
 - Verificare con molta cura lo '*state of the art*' e la reale portata innovativa del progetto
 - Non tutti i criteri che determinano l'*excellence* sono di tipo tecnico!

- ✓ Le previsioni circa il **possibile impatto** del progetto (in termini di posti di lavoro creati, quantità prodotte...) devono essere circostanziate e credibili, e compatibili con il programma di lavoro – in particolare per le IA

Alcuni consigli... (2/2)

- ✓ **L'implementazione** deve prevedere tutte le misure per la conduzione efficace del progetto:
 - Il partenariato deve essere adeguato in termini di competenze / strumenti / personale e risorse
 - programma di lavoro credibile e commensurato agli obiettivi
 - I meccanismi della governance del progetto devono essere ben definiti
 - piano di mitigazione dei rischi

- ✓ Verificate le possibili **sinergie** con altri progetti in corso e la **continuità** con progetti già completati

- ✓ ... e infine, la **forma**:
 - inutile riscrivere nel progetto il testo della call, i valutatori lo conoscono già!
 - diagrammi, schemi e immagini aiutano la comprensione del progetto
 - la leggibilità è importante: attenzione a sigle e acronimi

Horizon Europe Info Days 2021 (con link per accesso a tutti i webinar)

<https://www.horizon-europe-infodays2021.eu/document-library>

News EU (include eventi e webinar)

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/news>

Canale Youtube EU Science & Innovation con registrazioni degli eventi

https://www.youtube.com/channel/UC1lhGQ0C_00laS1rbxIXM5Q

Sito APRE

<https://horizoneurope.apre.it/>

<https://apre.it/>



CGREEN
GREEN CHEMISTRY
AND ADVANCED MATERIALS

Thank
you

Maria Rosa Contardi

R&D Manager - Materials Engineering Department

@ maria.contardi@proplast.it

T +39 0131 1859783

M +39 345 0977641