

EU Process Industry: a roadmap for climate and circular solutions

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PROSIN CONFERENCE

Green Opportunities, Battery and the Industrial Circular Value Chain
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WHO ARE WE

A vibrant community with a joint strategic Vision

New partnership

A.SPIRE – European Cross-Sectoral association



DG R&I
DG Grow



PROCESSES4PLANET

2050
Process
Industries
Ambitions

- ✓ Develop & deploy climate-neutral solutions
- ✓ Closing the energy and feedstock loops to achieve near zero landfilling and near zero water discharge
- ✓ Achieve global leadership of the EU Process Industry
- ✓ Accelerate innovation & unlock public-private investments

OPEN APPROACH: inclusive of different stakeholders and welcoming Newcomers

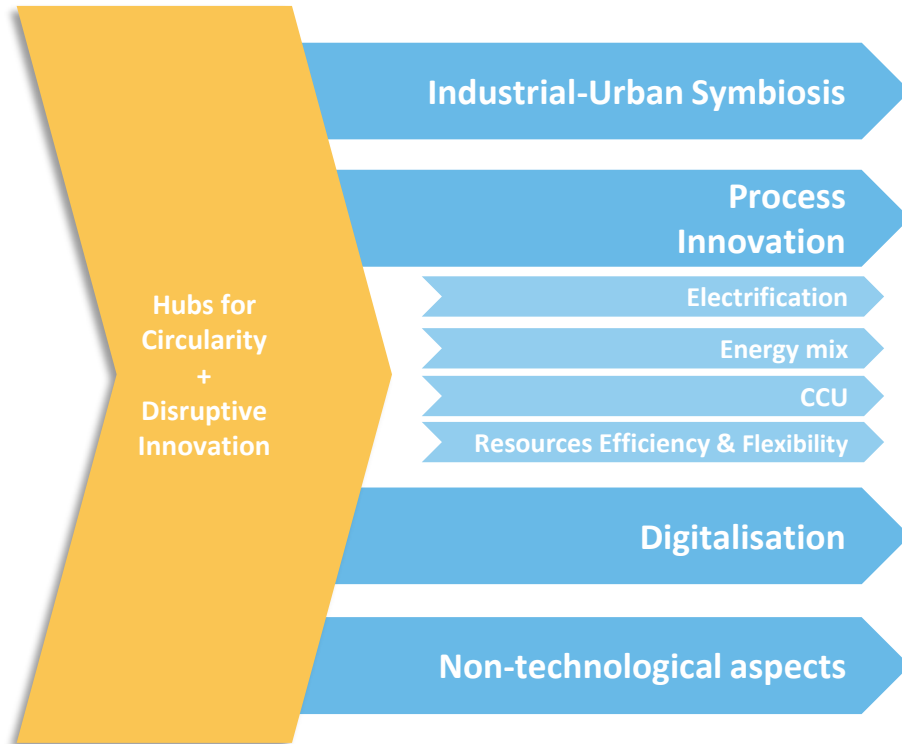
- Industries, incl. SMEs
- Industrial Associations & Clusters
- Consultancies

- RTOs
- Higher Education Institutions
- NGOs

- Public institutions
- Innovation Agencies
- MS and Regional representatives

- Partnerships & EITs
- Financial parties
- New sectors

We need to start now, the way is long



Innovation area	Progress up until milestone year ¹			
	2024	2030	2040	2050
Renewable energy integration				
Heat reuse				
Electrification of thermal processes				
Electrically-driven processes				
Hydrogen integration				
CO ₂ capture for utilisation				
CO ₂ utilisation in minerals				
CO ₂ & CO utilisation in chemicals and fuels				
Energy and resource efficiency				
Circularity of materials				
Industrial-Urban symbiosis				
Circular regions				
Digitalisation				
Non-technological aspects				

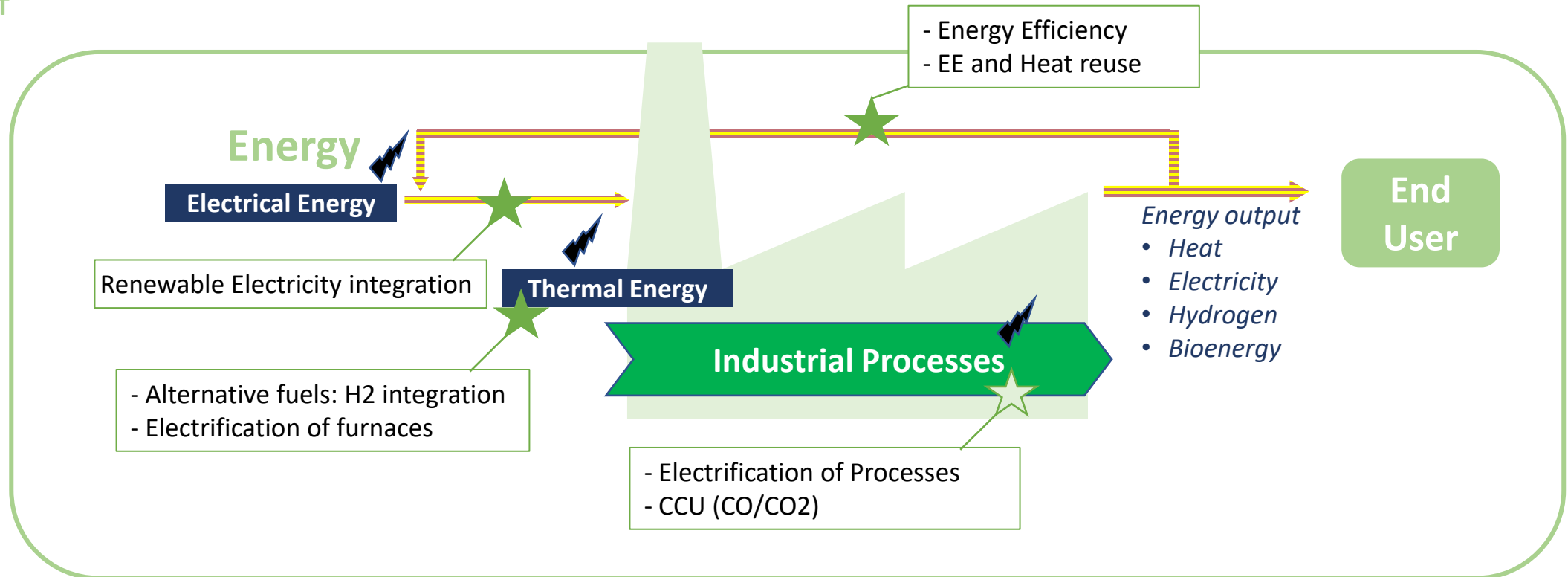
¹ Progress is depicted here as % of total TRL9 projects programmed in each area, and for circular regions, digitalisation, and non-technological aspects % of total investment needs until 2050

CLIMATE NEUTRALITY AMBITION

DISRUPTIVE PROCESS INNOVATION TO ABATE GHG EMISSIONS

From fossil and low energy mix

To efficient integration of renewables and valorisation of process emissions



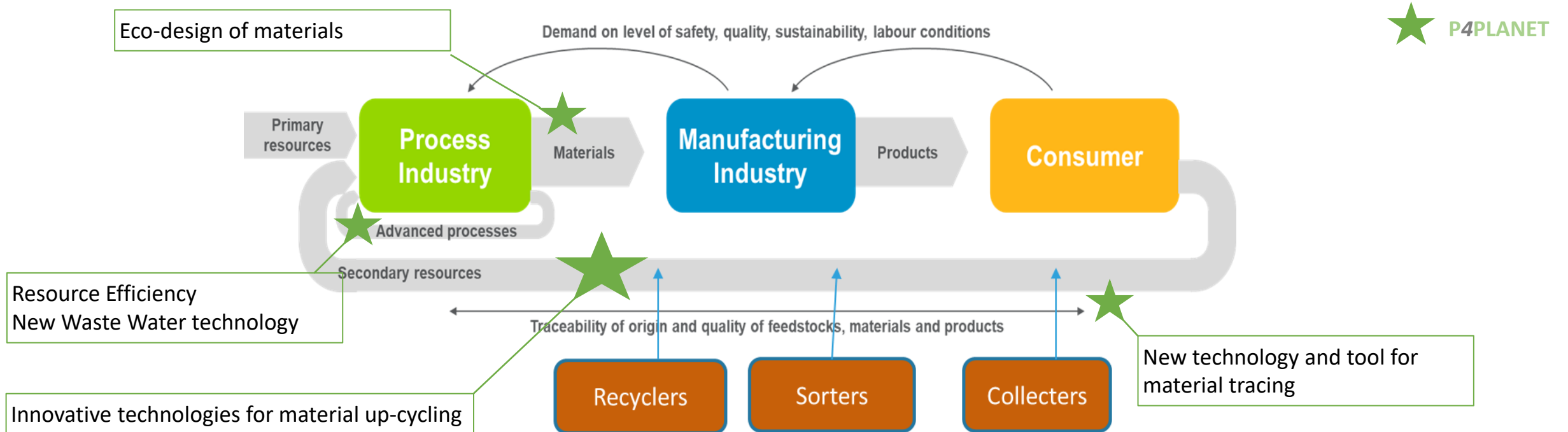
Towards net-zero CO₂ emissions

CIRCULAR RESOURCES AMBITION

DISRUPTIVE PROCESS INNOVATION TO CLOSE THE LOOPS

Moving away from: Landfilling, Incineration and Recycling at the end of a linear value chain

To UPCYCLING large volumes of secondary resources reused by the PI in a circular value chain



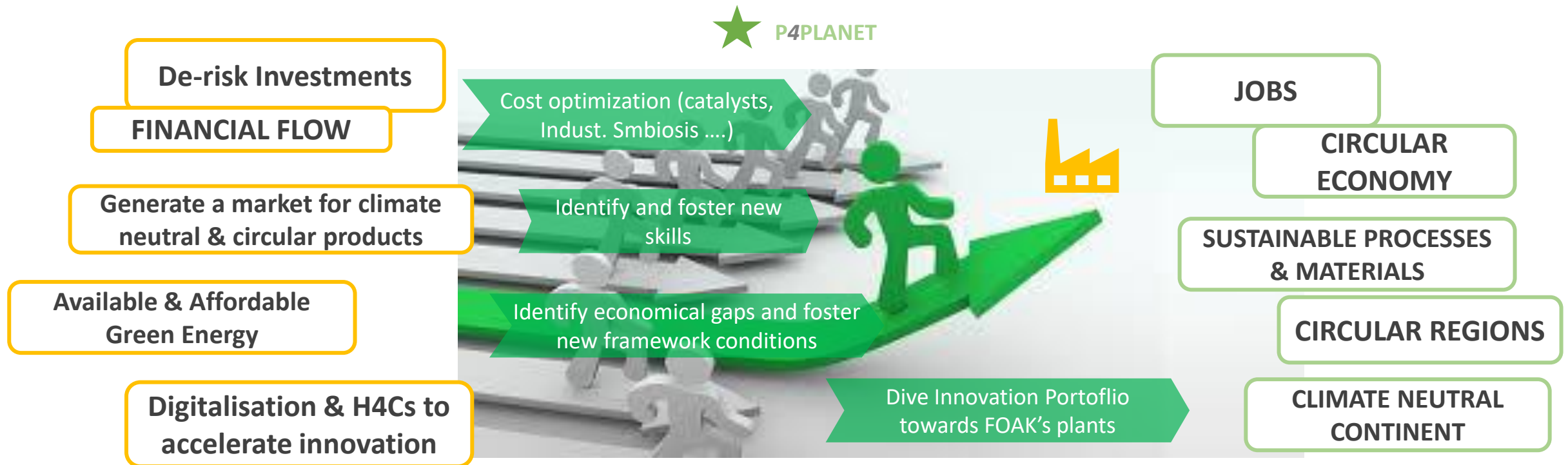
Near zero-landfilling / Near zero-water discharge

COMPETITIVENESS AMBITION

DISRUPTIVE PROCESS INNOVATION TO TRANSFORM PROCESS INDUSTRY GLOBALLY

EU Process Industries are highly exposed to global competition

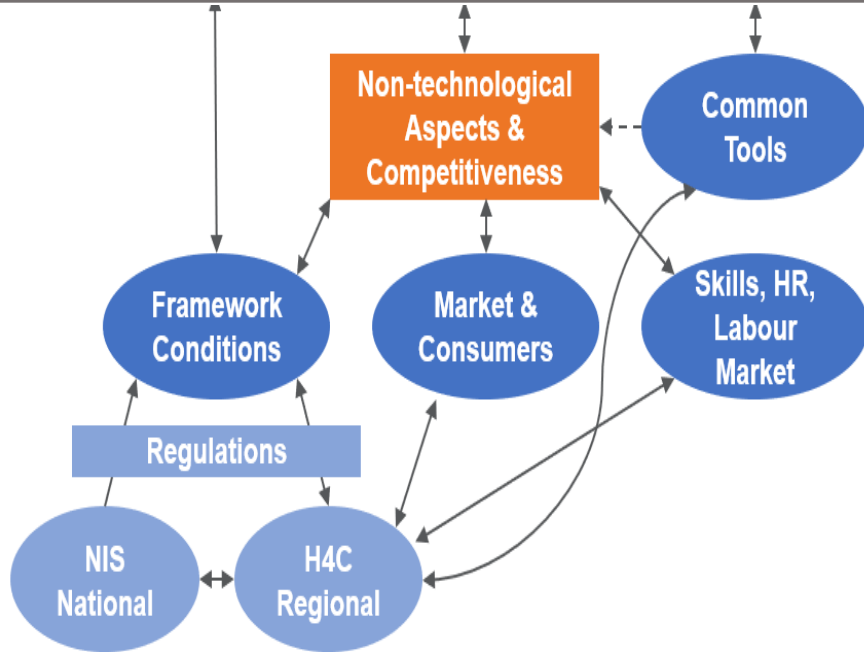
UNLOCKING PRIVATE INVESTMENTS & THE BARRIERS TO MARKET FOR CLIMATE NEUTRAL & CIRCULAR SOLUTIONS



EU Process Industry's GVA to grow quicker than the EU GDP

Processes4Planet

Non-tech innovation



SOCIAL INNOVATION APPROACH

Delivering more societal, economic and market impact.

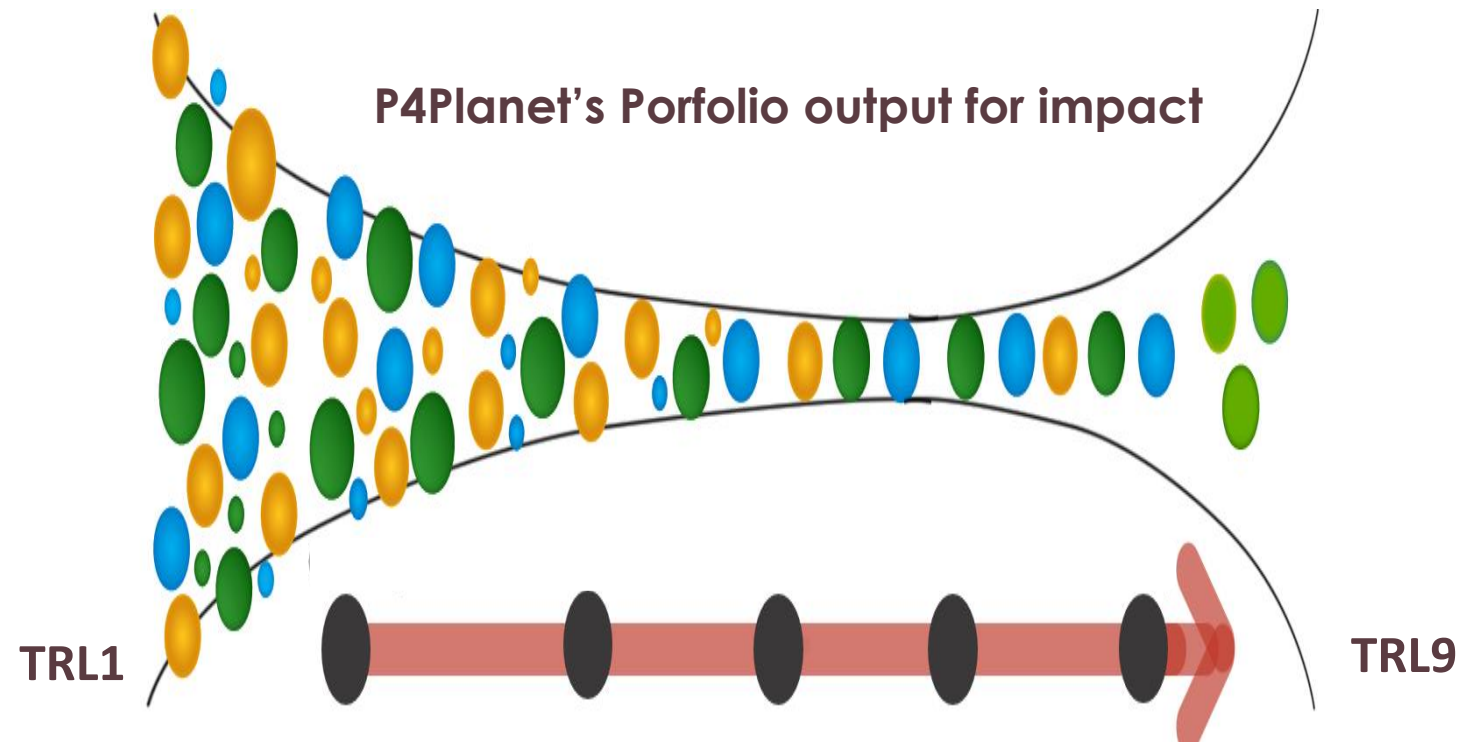
- EU, national & regional framework conditions
- Uptake & management of market & consumer demands & changes
- Effective common tools: LCA, business models, digital methodologies...
- Gender balance
- Human Resources, skills and labour market



“European Energy Intensive Industry Skills Agenda and Strategy”



MARBLES: a showcase of the Process Industry transformation



- **First-of-a-kind Large scale plants in operation**
- Combine one or several P4Planet Innovations towards the 2030/2050 ambitions to reach Climate neutrality and circularity
- Acting as Hubs of bulk amounts of resources from industry and the municipalities.
- Several marbles will likely connect to reach together the targets of the partnership's KPIs
- **50+ Marbles** identified of which ca. We aim to **launch 15 in the period 2021 – 2030**, responding to the green-deal plan, and enabled by the P4planet innovation portfolio

PRIVATE INVESTMENTS

- Industry leader commitment
- when technical and economic feasibility is proved through Horizon Europe programs.
- Public support needed to de-risk and accelerate

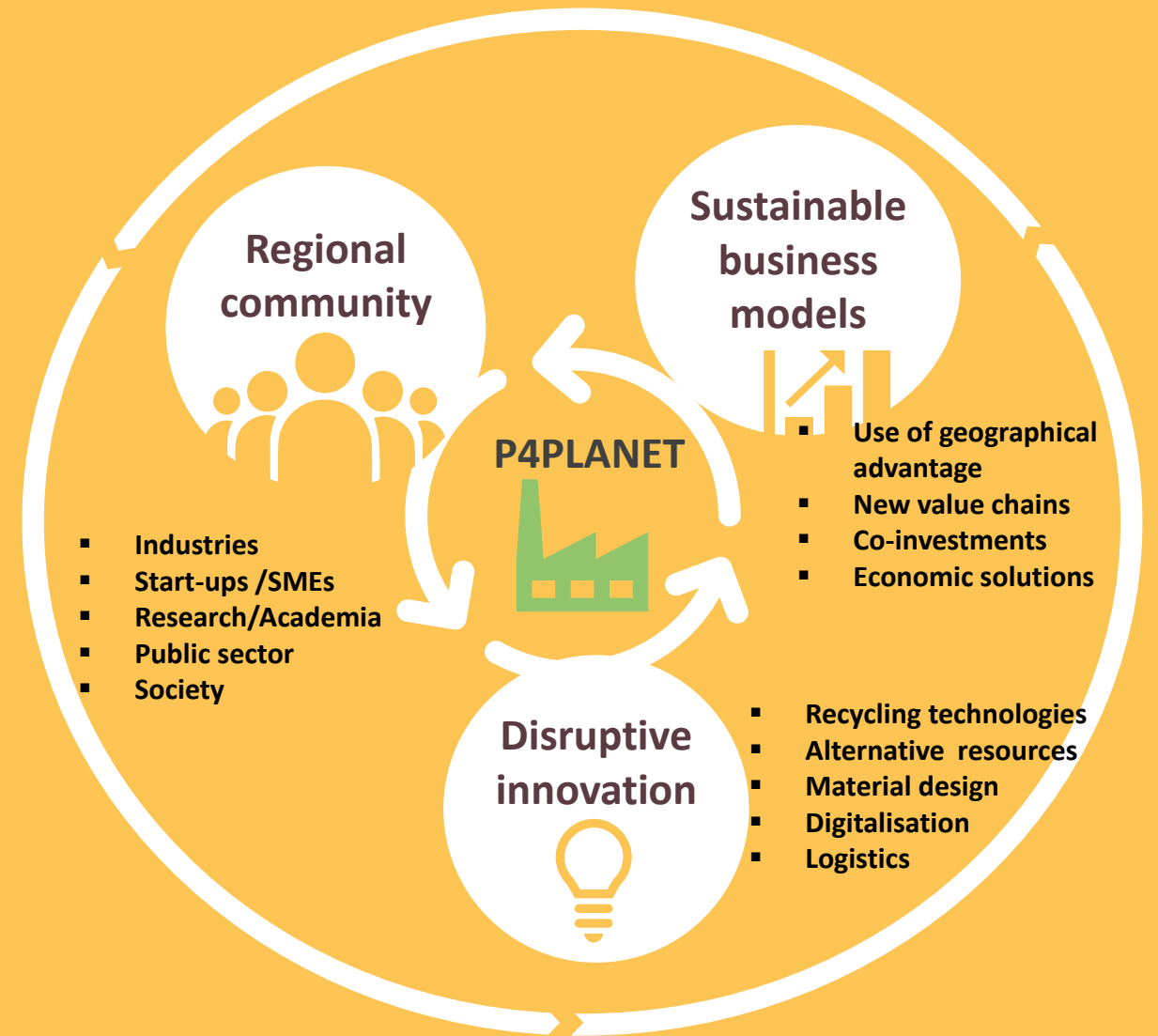
HUBS FOR CIRCULARITY

ADDITIONALITY

THE CONCEPT

*Self-sustaining economic industrial ecosystems for **full-scale Industrial-Urban Symbiosis and Circular Economy**, closing energy, resource and data loops and bringing together all relevant stakeholders, technologies, infrastructures, tools and instruments necessary for their incubation, implementation, evolution and management.*

- Territorial systemic solutions (regional approach)
- **Processes4Planet inside!**
- Facilitation necessary to overcome non-technological barriers to symbiosis



Different levels of maturity coexisting

Starting Hubs

Intermediate Hubs

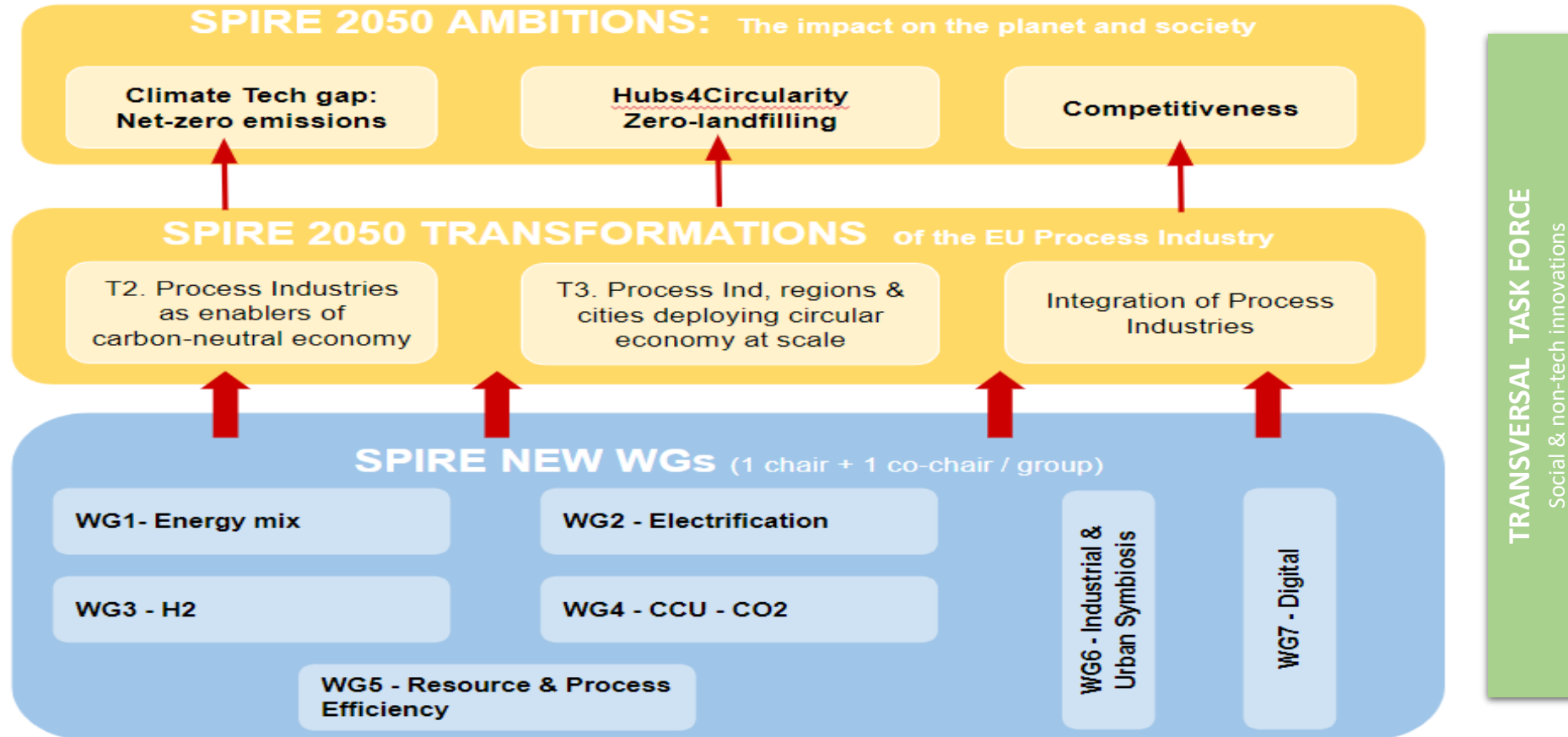
Advanced Hubs

Mature Hubs



SPIRE 2050 ROADMAP – NEW WGs

BE PART OF IT: JOIN US TO DEFINE THE NEXT DECADES OF R&I



BEING PART OF IT

THE BENEFITS

Teaming up to address the challenges of Climate Change, Circular Economy and Competitiveness together

LARGER INDUSTRIES:

- Continuous dialogue on R&I across SPIRE sectors and beyond
- Channel to raise your voice on R&I for HEU & other programmes
- Access to a pool of knowledge & talent (in Universities, research centres....)
- Direct access to SME providers
- Collaboration with the innovation ecosystem and value chain
- Access to developments by other projects, SMEs, universities...
- Protection of intellectual property
- Dialogue with the EC, MS, regions, MePs & other stakeholders

Further benefits to other members

SMEs:

- Direct Access to growth opportunities
- Direct Access to new markets
- Direct Access to large industry customers

RTOs, NGOs Innovation agencies et al.:

- Direct Access to applied innovation
- Link to deliver impact to society and regions
- Collaboration for disruptive innovations





Connected across borders and to citizens

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