

# Processes4Planet Partnership

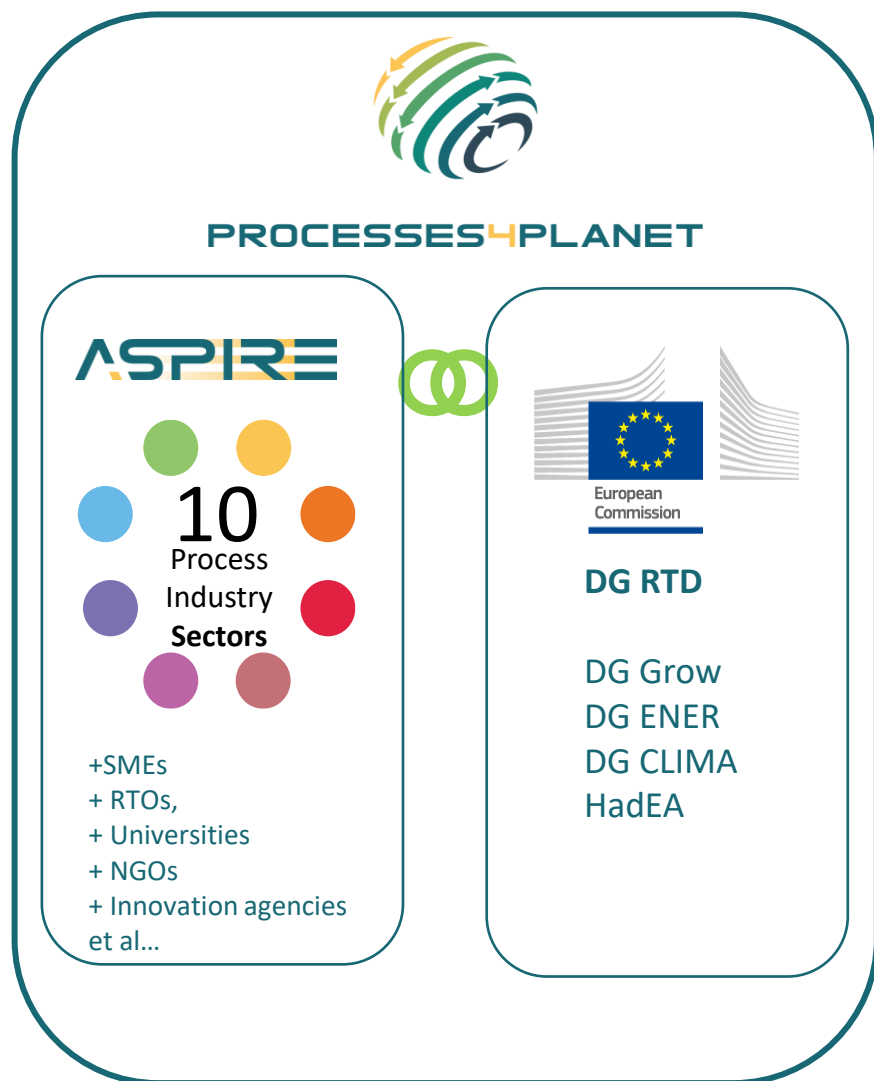
## A.SPIRE

### 2024



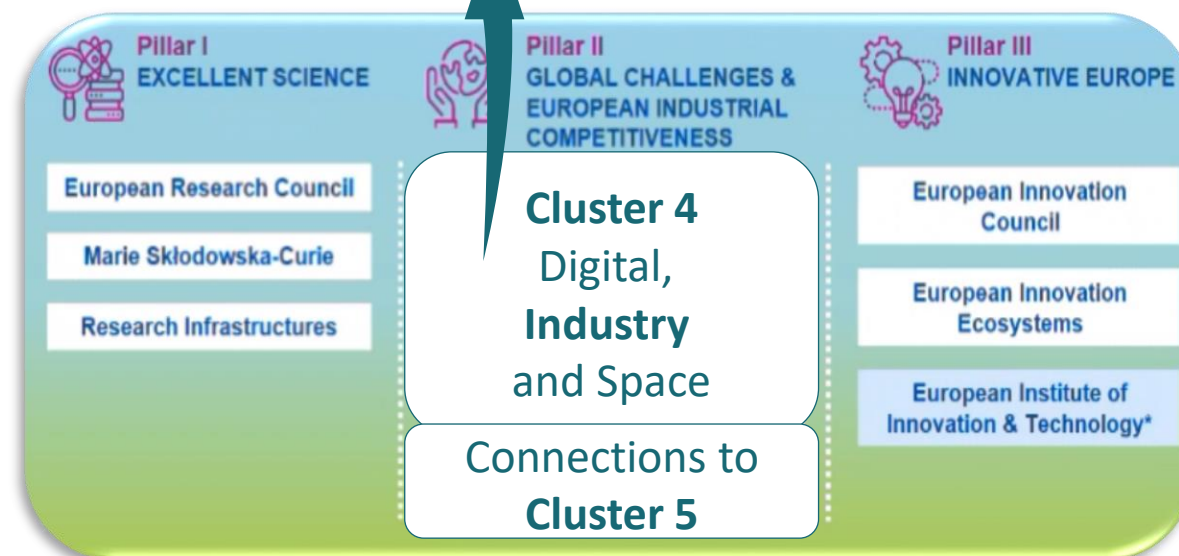
AquaSPICE Final Conference  
Final Conference 12 December 2024  
Andrea Rubini  
Processes4Planet APG Collaboration Leader





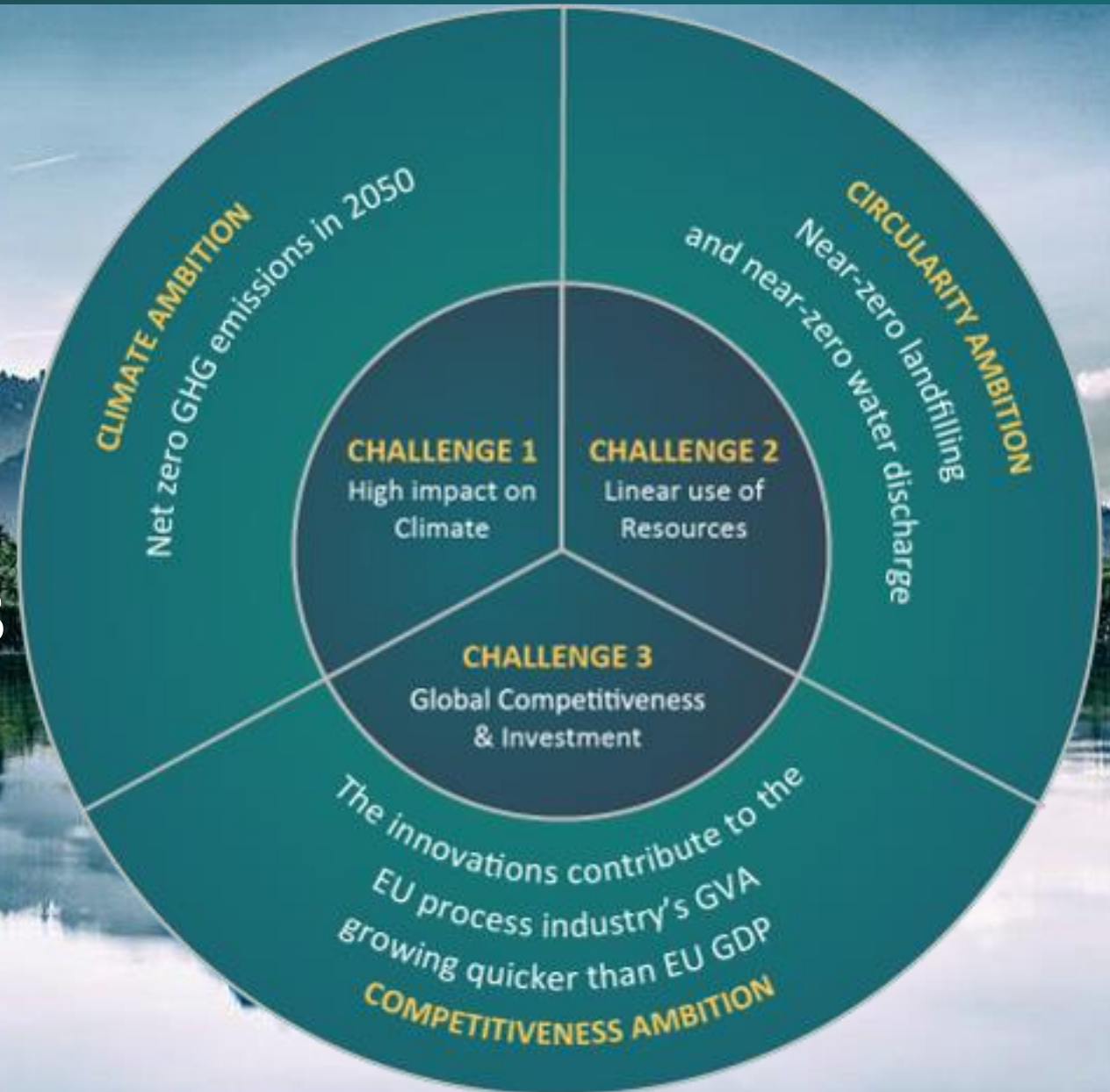
## Co-programmed Partnership

**MoU signed:**  
**€1,3 bn** exclusively for projects  
*27% more than in H2020*

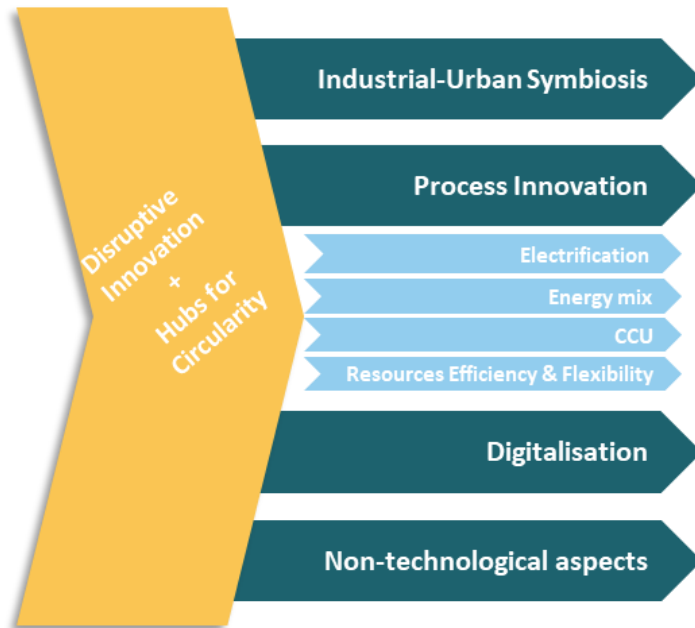


PROCESSES4PLANET

# Ambitions and Challenges







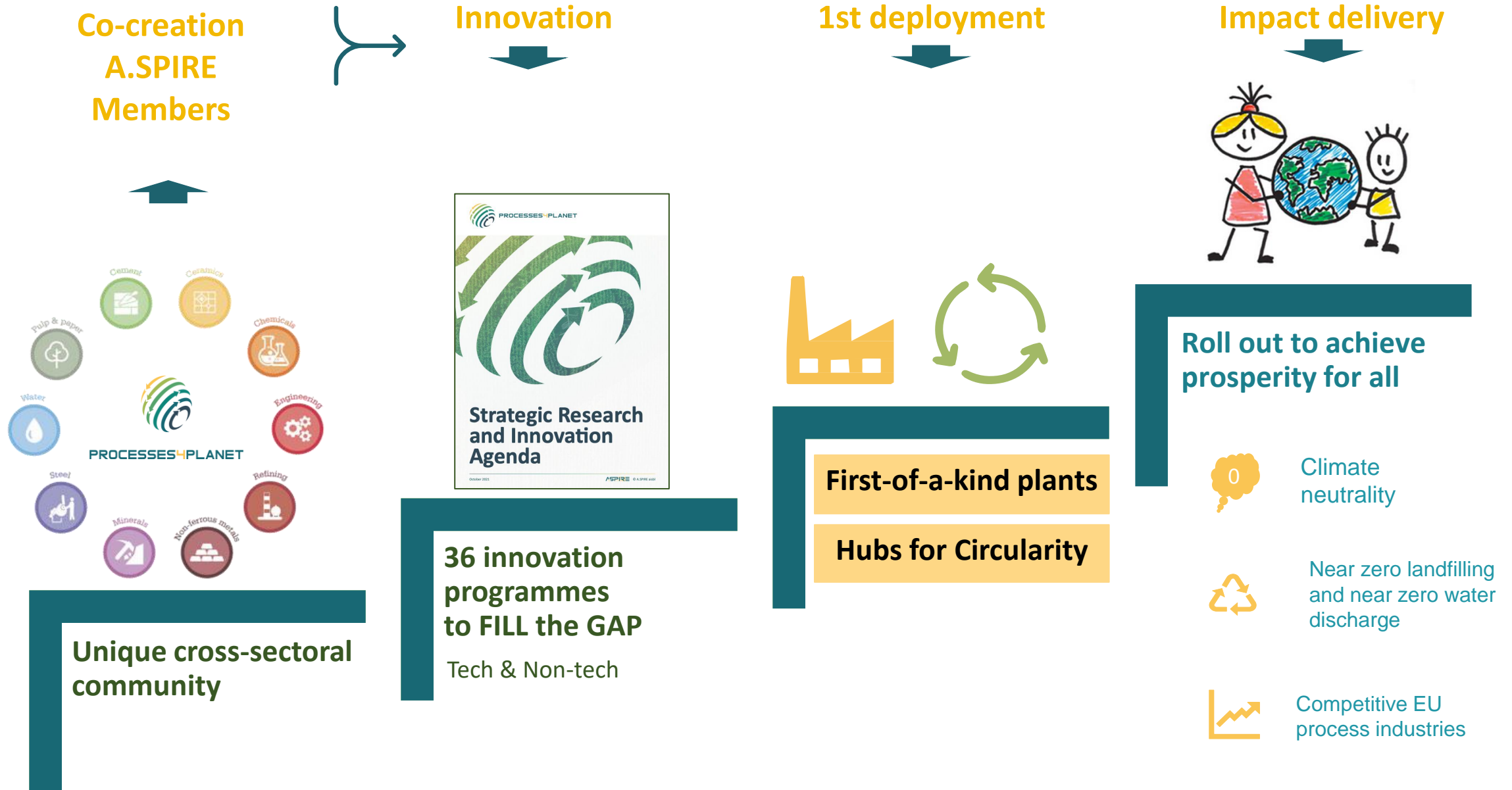
Innovation area	Progress up until milestone year <sup>1</sup>			
	2024	2030	2040	2050
Renewable energy integration				
Heat reuse				
Electrification of thermal processes				
Electrically-driven processes				
Hydrogen integration				
CO <sub>2</sub> capture for utilisation				
CO <sub>2</sub> utilisation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

<sup>1</sup> 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



**36 innovation programmes to FILL the GAP**

**+ Skills, Jobs, Competitive gap analysis, Framework/Standards**





## 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. Aiming 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



**First-of-a-kind plants**

**Hubs for Circularity**



**Roll out to achieve prosperity for all**



Climate neutrality



Near zero landfilling and near zero water discharge



Competitive EU process industries

# Hubs for Circularity

Towards to a new level of cooperation

Connecting the system  
to deliver the transition

Regional  
community



Sustainable  
business  
model



Led by  
Process Industry



Regional needs

What we need



Knowledge  
sharing  
through  
Community  
of Practice

<https://www.h4c-community.eu/>



Ells  
innovation



Regional benefits

IMPACT: where we  
want to go together



Full scale I-US developed &  
deployed in EU regions  
Consistently closing energy,  
resources and data loops

CONNECTING THE COMPANIES TO BUILD TRUST & DIALOGUE

Exporting &  
Importing  
innovations



Connected H4Cs  
EU transition

# P4PLANET KPIs TO BENCHMARK PROGRESS

- 1 100% of total CO2 eq emission reduction potential demonstrated through R&I projects at TRL7
- 2 80% of waste and secondary raw materials reduction potential demonstrated through R&I projects at TRL7
- 3 90% of wastewater reused/recycled potential demonstrated through R&I projects at TRL7
- 4 25 H4Cs launched into the process of development

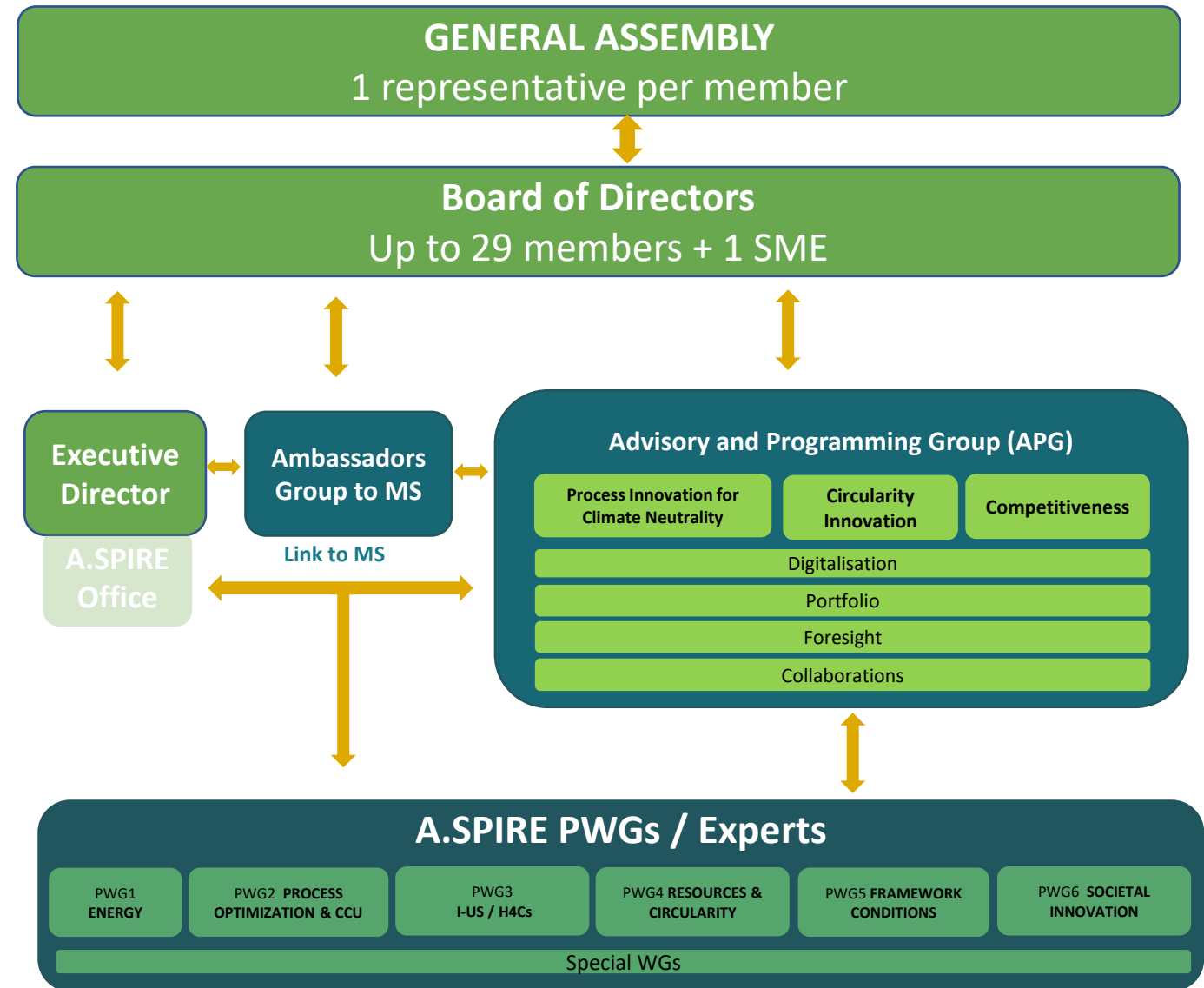


- Launch of 15+ FOAK/marbles 5
- 60 significant innovations reaching TRL7-8 6
- CAPEX&OPEX reduction through innovations 7
- Impact in SMEs through the projects and the H4Cs 8
- 20 new types of skills and jobs 9





- 6.3 million direct jobs
- 19 million indirect jobs
- 450,000 enterprises
- €1,8 trillion/y turnover
- 4.7% OF EU28 GDP







PROCESSES4PLANET

ASPIRE

## WATER in SPIRE & P4Planet Partnerships



### P4PLANET WATER PROJECTS

- WaterProof
- SYMSITES
- AshCycle
- R3VOLUTION
- RESURGENCE
- CORNERSTONE

### SPIRE WATER PROJECTS


- AccelWater
- AquaSPICE
- B-WaterSmart
- INSPIREWater
- ULTIMATE
- Waste2Fresh
- WATER-MINING
- ZERO BRINE
- Etc.

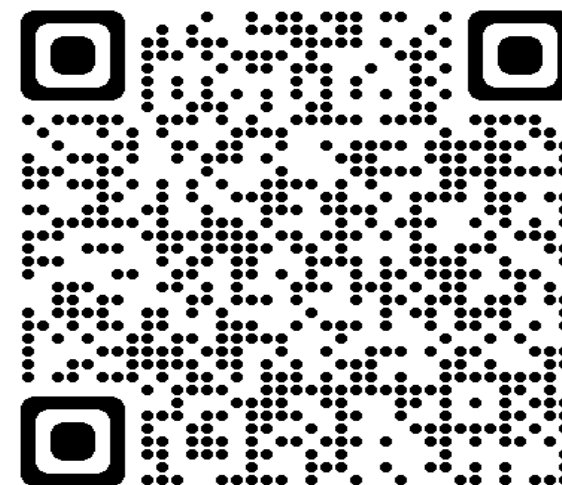
# Thank You!

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