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PROCESS INDUSTRIES: GLOBAL CHAMPIONS ROOTED IN EUROPE

A.SPIRE 2040 Innovation4Competitiveness Vision

PROCESSES4PLANET

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EMERGING STRONGER FROM TODAY'S TIPPING POINT

Europe's Process Industries Vision for industrial renewal

Dear A.SPIRE stakeholders,

We are delighted to introduce A.SPIRE's new Vision 2040: Innovation4Competitiveness. This Vision signals Europe's Process Industries' determination to rise to new challenges marked by global geoeconomic shifts and uncertainties, positioning us as global champions rooted in Europe.

This Vision comes at a decisive moment. We, Europe's Process Industries, stand today at a tipping point which requires us to compete, innovate and act decisively. Our choice is clear: we choose to lead. Our purpose is to architect a thriving industrial renaissance with lasting benefits for Europe and its citizens.

In this spirit of leadership and strategic renewal, we have developed a Vision that charts the innovation pathway for the European Process Industries to succeed and win the global competition race through our Next-Generation Partnership and cross-sectoral collaboration.

Our Vision reflects strategic urgency. Europe's Process Industries are facing a convergence of contextual and structural challenges that directly threaten their long-term European viability. Accelerating innovation and scaling up towards deployment through ecosystem orchestration is an essential condition for recovery and leadership.

Competitiveness guides our decisions, which, more than ever, focus on strategic innovation that secures our production lines, value chains, and jobs in Europe. This requires high-impact governance that maximises funding and investment leverage, while creating complementary innovation streams from industry and the public sector.

It is precisely this urgency that underpins our choice of a 2040 horizon. The transformation of European Process Industries must be largely achieved by then to deliver the economic, environmental and societal impacts expected by 2050, supported by flagship initiatives that power Europe's strategic autonomy.

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1 European Process Industries: Delivering value in a changing world

1.1 A strong Europe requires strong Process Industries on its territory

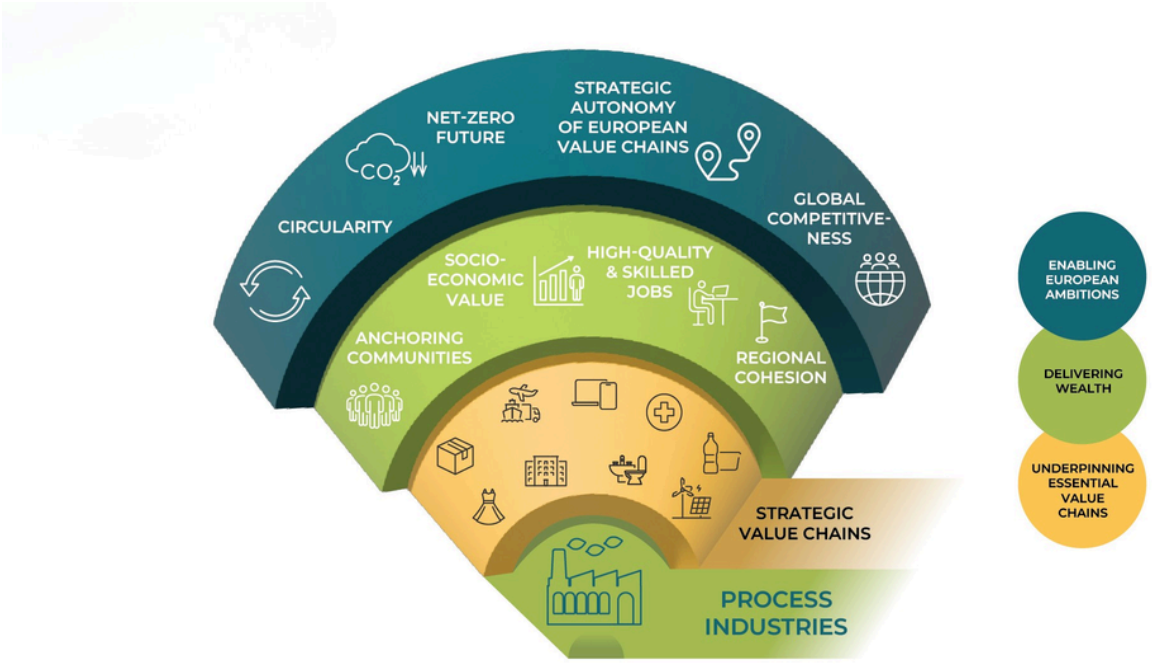
We, the European Process Industries, are at the heart of Europe's industrial production, economy and everyday life. We transform raw resources into the essential materials and products that make modern life possible. We sit at the centre of the economy because we generate a systemic effect across three other dimensions: underpinning essential value chains, delivering wealth, and enabling European ambitions (see Graph 1).

Our industrial sectors are the backbone of nearly all value chains in the European economy. We are the providers of solutions that enable the green and digital transitions across strategic European value chains.

Facts & Figures 1: SOCIO-ECONOMIC IMPACT

- *13,1 million direct jobs*
- *Up to 27 million direct + indirect jobs*
- *€590 billion total GVA*
- *23% contribution to Europe's GVA*

We deliver materials and products that are essential for safe and resilient housing, efficient mobility of goods and people, reliable and affordable clean energy, modern infrastructure, advanced healthcare, critical defence capabilities, and universal digital connectivity, amongst others.



Graph 1: The strategic role of Process Industries in interconnected value chains.

The presence of a Process Industry site generates significant socio-economic value and is often crucial to the vitality of an entire region. It anchors communities, attracts services and suppliers, and strengthens both territorial and social cohesion. By underpinning essential value chains, the Process Industries directly contribute to regional prosperity and stability.

In a world of growing geopolitical uncertainty, the Process Industries are also an engine of Europe's strategic autonomy and green transition. We are central actors in delivering the EU's objectives to become the first climate-neutral continent in the world through sustainable and globally competitive European products. By sustaining strong, resilient, and adaptive Process Industries, we strengthen their value chains, support European communities, and ultimately drive European ambitions.

At the core of this contribution lies a clear purpose: delivering high-performance, competitive materials and products that reflect Europe's environmental and social values. These are differentiated materials and products "processed-in-Europe", proudly carrying these values into both European and global markets.

These high standards in product performance, environmental protection and social responsibility represent a compelling and differentiated value proposition for conscientious customers worldwide. But sustaining these high standards and making them available and affordable requires globally competitive industries. Competitiveness is, therefore, not optional; it is the condition to maintain Europe's industrial base, uphold its standards, and secure its strategic autonomy.

1.2 At a crossroads: Process Industries rising up to new challenges

The evidence points to an alarming reality: today, the risk of industrial decline in Europe is no longer hypothetical but already unfolding. Since 2022, production has declined across most energy-intensive sectors, with some industries falling back to levels last seen over a decade ago.

Facts & Figures 2: EXAMPLES OF SECTORAL COMPETITIVENESS DYNAMICS

- *36% cement production decrease from 2008 to 2024 (Cement Europe)*
- *9% of total chemical production capacity and 20 000 jobs affected by industrial plant closures, alongside up to 31% increase in imports from 2008 to 2024. (CEFIC)*
- *7% reduction of pulp & paper mills from 2020 to 2024, alongside a decline of 8% in production and 5% in employment (CEPI)*
- *28 out of 100 refineries in Europe closed or transformed (Fuels Europe)*
- *16% decrease in steelmaking capacity in the EU from 2008 to 2024 (Eurofer)*
- *Around 8 percentage points drop in the EU27 share of global production of ferroalloys and related products from 2000 to 2024 (from 10% to 2% approx.)*

More broadly, the share for manufacturing in the EU's GDP has declined steadily over the past two decades, reflecting a structural reduction in the relative weight of industry in the European economy.

This adverse trend results from a combination of contextual and structural challenges that are currently working to the competitive disadvantage of European Process Industries. Europe must tackle the challenges facing the Process Industries depicted below from different angles, including rapid industrial policy action and acceleration of innovation. Europe is changing, but it must change faster.

Challenge 1: Resource scarcity, high energy costs and uneven global competition

The cost of energy is between 50% to nearly 100% higher for European Process Industries compared to their competitors in the USA and China. The energy price gap challenge is aggravated by rising barriers to global trade, new additional tariffs, overcapacity in some global regions, and low-cost imports from jurisdictions with weaker regulation, which undermine a level playing field.

Europe's dependency on imported resources stands at 55–60% of energy, largely in the form of oil and natural gas[1]and for up to 100% of a number of critical raw materials[2]. This dependency exposes the industry to price volatility and external shocks, jeopardises access to strategic resources and disrupts supply chains. Access to water creates additional pressure on production units. Furthermore, reliance on non-European digital infrastructure, particularly cloud and data services, adds to the competitiveness gap.

Challenge 2: Barriers for scaling up and deployment

Persistent structural bottlenecks slow down bringing innovations from the pilot stage to large industrial scale, delaying or preventing deployment investments. European regulatory frameworks and standards are fragmented and do not evolve at the pace of technological progress. Permitting remains complex and takes several years, despite recent simplification efforts. Fragmentation and complexity generate uncertainty for investment decisions, delay industrial projects, scaling up and deployment of new technologies and key infrastructures, and constrain the market uptake of innovative solutions.

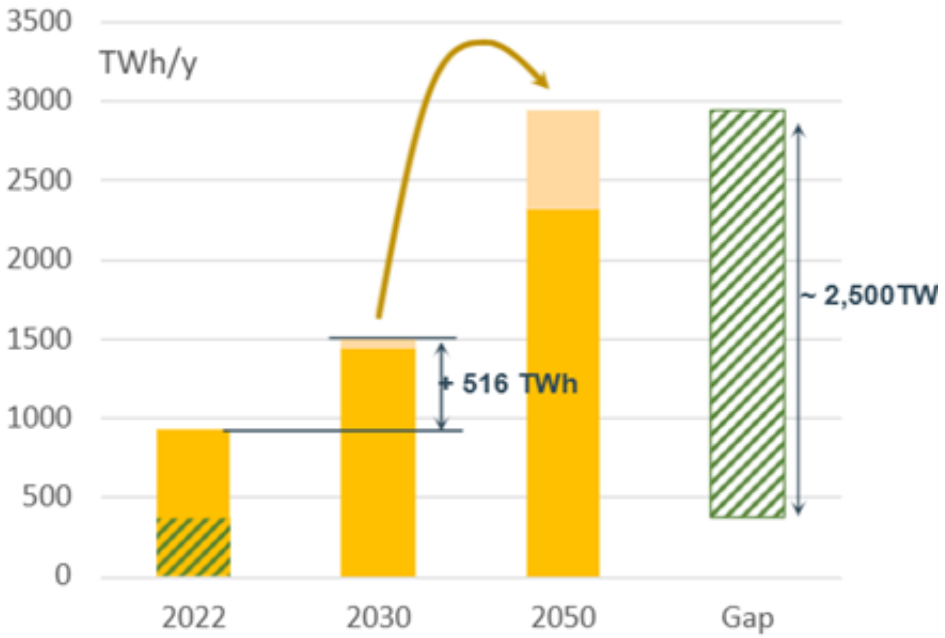
European and national public mechanisms to finance new technologies – covering both CAPEX and OPEX – are scattered and show difficulties in accelerating the scaling up of industrial innovations. Despite strong support at earlier stages, gaps in the TRL scale and in the coordination across instruments result in many innovations being unable to move beyond TRL7. Finally, the ageing workforce, skills shortages, and the difficulty in attracting young professionals add further pressure. New competences related to the green and digital transition are becoming increasingly critical.

[1] *https://ec.europa.eu/eurostat/web/products-eurostat-news/w/wdn-20260318-1*

[2] *Critical raw materials - Internal Market, Industry, Entrepreneurship and SMEs*

Challenge 3: Slow development of enabling conditions for industrial transformation

The transition to a low-carbon industrial system will significantly increase energy demand from renewables and alternative sources. Industrial electricity needs could triple by 2050, requiring around 2 500 TWh of renewable electricity for full decarbonisation (compared to 2022 demand levels) (see Graph 2). The European Union's renewable energy directive estimates that the use of hydrogen by industry should increase to 60% by 2035[3].



Graph 2: Estimation of the annual electricity demand of European Industry. Source: EnergyVille

According to Eurostat, the manufacturing sector, including process manufacturing, has reduced emissions by 18% from 2013 to 2024[4]. Industrial decarbonisation is already taking place in Europe. Nonetheless, efforts are to be intensified to reach the net-zero target by 2050 while keeping our industries in Europe. Ensuring access to abundant, affordable and low-carbon energy is therefore a prerequisite for European industrial competitiveness.

Delivering such energy at scale depends on infrastructure. Europe needs to accelerate the creation of infrastructures that will ensure a mix of energies to supply our industries. For the first time, in 2025, the European Union got more power from wind and solar (30.1%) than from all fossil power sources (29%)[5]. This is a positive trend that Europe needs to keep supporting to compete with global regions like China, which controls, for example, the production of global PV panel manufacturing (around 85% of global production)[6]. The expansion of renewable generation, electricity grids and storage, as well as hydrogen and CO_2 transport and storage systems, must be accelerated.

[3] *Directive - EU - 2023/2413 - EN - RED III - EUR-Lex - -Article 22a (1)*

[4] *2024 EU greenhouse gas emissions: -20% since 2013 - News articles - Eurostat*

[5] *EER 2026*

[6] *China – World Energy Investment 2025 – Analysis - IEA*

In addition, creating strong demand for responsible, high-standard products is essential for industrial transformation. Demand creation requires coordinated action between industry, citizens and regulators, including greater transparency, clear regulatory frameworks and mechanisms that recognise sustainability while maintaining affordability.

Despite these pressures, the European Process Industries are determined to innovate and act decisively to restore their global competitiveness. The Antwerp Declaration[7] represents a mobilising call for a strong European industrial policy supporting competitiveness. Alongside the high-level dialogues at the industry's yearly summits, the European Process Industries seek more strategic innovation with a focus on acceleration and scaling up to gain the competitive advantage.

1.3 Accelerating innovation to power industrial renewal

The Process Industries are determined to compete and accelerate innovation as a driver for industrial renewal in Europe. Today's environment also brings significant opportunities for our industries' future, delivering lasting benefits for our citizens, economy and strategic autonomy. The opportunities identified below set the focus on aspects of the challenges depicted in section 1.2 that can be supported by innovation.

Opportunity 1: Energy mix integration and efficiency

We can drive industrial renewal through leadership in the efficient integration of different sources of energy and alternative carriers. This includes boosting energy efficiency across all processes and integrating the full range of energy sources available in Europe in a smart and flexible way, including the full use of renewables, thermal energy, energy derived from bio-waste, hydrogen, and low-carbon heat, while exploring the safe integration of nuclear energy. This should be matched with an efficient carbon management for emissions reduction and valorisation.

Opportunity 2: Material resources integration and circularity

We can strengthen our resilience through the intelligent and efficient use of Europe's material resources. A more independent and competitive production requires innovation to optimise the two feedstock streams available in Europe: the integration of Europe's own strategic resources and the maximised use of secondary resources through innovative circular economy models.

While Europe's natural resources might be more limited than in other regions of the world, they remain a strategic asset that must be responsibly developed and integrated. Maximising the use of secondary resources, in turn, requires keeping waste materials within Europe and developing the technological capabilities to maximise value. Crucially, circularity is also a very powerful lever to cut energy use and advance on net-zero greenhouse gas emissions.

[7] *https://antwerp-declaration.eu/*

Our historically dense industrial fabric is itself an asset. Currently, new plants are mainly built in China. Keeping the investment capacity in Europe will not necessarily imply investing in greenfield but mostly in brownfield sites: existing industrial facilities can be repurposed to produce new products, and their location can enable the development of efficient infrastructures for industrial-urban symbiosis, connecting value chains and regions across Europe. Smaller plants closer to the feedstock, biogenic or secondary materials, could make industries and the management of feedstock more cost-efficient.

The development of more adaptive, flexible and robust industrial processes and value chains can be a strong asset for our industries in managing increasing instability in resource availability and in securing supply chains.

Opportunity 3: High-performance materials and products

Innovative high-performance, high-value materials and products can be designed to meet the expectations of discrete manufacturing and, ultimately, to meet the evolving societal expectations and more specific user needs across generations. Output innovation offers major opportunities for differentiation and value creation, reinforcing market access and global competitiveness. On the other hand, innovation in materials goes hand-in-hand with innovation in the processes, thus sustaining the green and digital transition.

Opportunity 4: Deployment of digital technologies and Artificial Intelligence (AI)

An accelerated deployment of digital technologies (including AI) across the European Process Industries' plants, and value chains, from design and production to maintenance, supply chains and customer solutions, can further increase efficiency, flexibility, and enable new business models.

Digitalisation can act as an accelerator of innovation in our industries, thus contributing to competitiveness. It could also change the business models and the value chains of the Process Industries through, for example, remote process control to manage feedstock pre-treatment closer to the source of the input materials (e.g. in rural areas for biogenic feedstock) before this is used in the production plants.

Artificial Intelligence could also contribute to the cybersecurity of our industries' data by keeping our data out of reach of competing countries.

Opportunity 5: Boosting change & unlocking impact through cross-sectoral collaboration

Across all these innovations, stronger cross-sectoral collaboration can further expand the field of opportunities. This is at the very core of A.SPIRE's DNA: accelerating change and amplifying impact by bringing together industrial sectors facing similar challenges, by fostering industrial symbiosis, and by establishing dialogue between sectors and across value chains.

Building on these insights, the next chapter outlines our Vision 2040 for the European Process Industries.

2 Our shared destination: A Vision of global industrial leadership

The A.SPIRE's Vision for 2040 will guide the priorities of the next R&I Partnership (2028-2034) led by the Process Industries, building on our past achievements and on the value the predecessor partnerships have delivered. We will focus on the innovations that must be developed and matured by 2040 to enable the long-term transformation of European Process Industries.

Throughout the 2028–2034 period, R&I projects will be launched under the new Horizon Europe. Key innovations will be progressively scaled up to reach the deployment phase through different tools, including the European Competitiveness Fund tools. The full impact will progressively materialise as solutions are deployed at an industrial scale. The expected horizon for full-scale impact is 2050.

A.SPIRE 2040 Innovation4Competitiveness Vision

Powering global Process Industry leadership in high-value materials & products

Shaping a net-zero & circular future and Europe's strategic autonomy for all generations

Leading through high-value and high-performance

Our Vision is that the future of our Process Industries lies in producing materials and products with superior performance, durability, reliability and functionality.

These solutions must be produced at globally competitive costs so that they remain affordable and accessible, delivering value for all. The global leadership of our industries will be powered by the acceleration of innovation and scaling-up, and by the large-scale deployment of advanced process technologies, enabling a step change, both in competitiveness and performance, that will root our industries' global championship in Europe.

Reconciling net-zero and circularity with industrial prosperity

We will deliver practical solutions that will enable our industries to fully contribute to a Net-Zero and Circular Europe while ensuring their global competitiveness. We will accelerate innovation in industrial energy efficiency, in the smart integration of all low-carbon energy sources available in Europe, in the most efficient use of Europe's own strategic resources, and in the valorisation of secondary resources at their highest possible value.

We will further leverage our territorial presence across Europe to develop net-zero, circular and smart industrial networks that connect industrial value chains, regions, and people. Powered by digital technologies, including AI, these systems will enable changes in the value chains and industrial-urban symbiosis at scale with highly efficient use of energy, material resources and water.

We will aim to make these industrial systems more adaptive, flexible and robust. In other words, better able to manage the increasing volatility of resource availability, quality and supply chains.

We will also deliver solutions to drastically reduce emissions and substances of concern for the environment and human health.

Building resilient and autonomous industrial value chains in Europe

Our innovative solutions will help reduce risky external dependencies on energy and strategic raw materials, thereby building more autonomous strategic European value chains. They will help retain industrial capabilities in our continent: Europe must be a place where industrial value is created, deployed and re-invested.

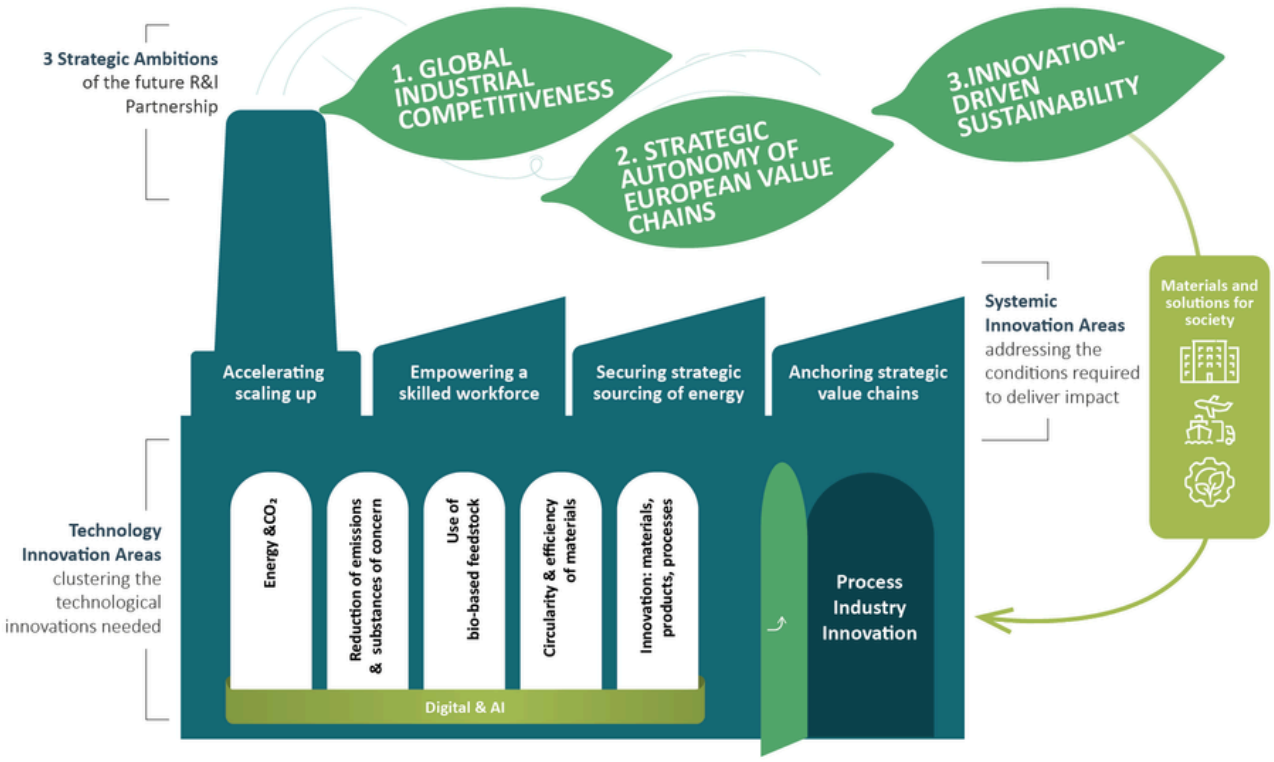
Strategic autonomy is our duty to both present and future generations, as a prerequisite for Europe's security, prosperity and well-being. Ultimately, we seek to reinforce Europe's

attractiveness as a location for industrial activity, capital investment and talent attraction, creating direct and indirect jobs and long-term socio-economic benefits across European territories.

Taken together, these transformations will position our European Process Industries as global champions, frontrunners in innovation and in economic, environmental and societal performance, delivering lasting benefits for current and future generations of Europeans.

3 Our strategic ambitions: Delivering our shared Vision

To achieve our Innovation Vision 2040 for European Process Industries, A.SPIRE sets out three overarching strategic ambitions. These ambitions respond to the new challenges faced by our industries and to the shared destination our industries aim to achieve through research, innovation and scaling up activities.



Graph 3: A.SPIRE 2040 Vision: Strategic ambitions, innovation areas (technological and systemic).

We envision five technological areas related to decarbonisation and circularity with a focus on the production processes, their inputs (energy, water, raw materials) and outputs (materials and products) alike.

All in all, our innovations aim at powering changes in systemic areas for the competitiveness of our industries and the strategic autonomy of Europe. Ultimately, our innovation will deliver materials, products and solutions for European society that can also be exported globally (see Graph 3).

3.1 Strategic ambitions: compete, innovate and act decisively

Our three strategic ambitions translate our Vision 2040 into a clear direction for action. Together, they express our determination to strengthen the competitiveness of European Process Industry, reinforce the strategic autonomy of our value chains, and advance sustainability through innovation at scale. They provide the framework for orienting our research and innovation efforts towards the transformation that European Process Industries must achieve by 2040 to deliver lasting economic, environmental and societal value.

First strategic ambition: Global industrial competitiveness

Contributing to the global competitiveness of the European Process Industries will be a central strategic ambition of the future Partnership, not a secondary outcome. Priority should be given to industry-led innovation projects that deliver the strongest contribution to industrial competitiveness by lowering costs, transforming our industries, enhancing the differentiation and value of our solutions, and enabling faster innovation, scaling up and deployment.

We see innovation as a key driver of Europe's industrial renewal, aiming at strengthening our production base, supporting efficient intensification and transformation across value chains, and empowering a skilled workforce. In doing so, innovation will also help increase Europe's attractiveness as a location for industrial investment in high-value products.

Second strategic ambition: Strategic autonomy of European value chains

Successive crises in recent years have highlighted Europe's risky dependencies and vulnerabilities in many strategic areas for the Process Industry. We aim to contribute to shaping robust value chains anchored in Europe, with reliable and affordable access to strategic material and energy resources. Our Partnership will drive innovation to make the best possible use of Europe's own primary and secondary resources (for both energy and input materials). Furthermore, our innovation focus will be on maximising the efficient integration and use of resources across industrial processes and value chains.

To reduce dependence on external resources and limit exposure to geopolitical and supply risks, both EU-sourced energy and input materials are essential. This includes all forms of energy produced in Europe, such as electricity from renewable and other clean sources, as well as direct fuel use, including fossil and biogenic fuels and hydrogen as an energy carrier.

In parallel, strengthening the use of Europe's strategic primary resources, increasing the uptake of secondary (recycled) materials, and improving resource efficiency are the material counterparts of greater energy autonomy.

Third strategic ambition: Innovation-driven sustainability

We will enable European Process Industries to deliver their full contribution to a climate-neutral and circular economy and a safe environment while maintaining market access, through competitive innovation.

We aim to enable Process Industries to reduce greenhouse gas emissions, boost circularity and resource efficiency, and minimise environmental impacts, including emissions and substances of concern. Our Partnership will drive innovation to develop competitive technologies and reduce both capital and operating costs. This will enable the scaling up and large-scale deployment of sustainable solutions across industrial processes and value chains.

By advancing towards net-zero greenhouse gas emissions, turning waste into resources, and ensuring safe industrial water use, these technological innovations will help deliver a no-harm economy through more efficient production processes and high-performance materials and products with a distinctive European value proposition and competitive edge.

For each strategic ambition, progress in transforming the European Process Industries will be monitored through high-level metrics, which will be defined in our Strategic R&I Agenda (SRIA). These metrics will help assess the extent to which our strategic ambitions are being achieved, identify areas where additional R&I effort may be needed, and support an evidence-based, mission-driven approach to the Partnership.

3.2 Technology and systemic areas: The scope of our R&I activities

Our vision identifies the technology and systemic intervention areas that will contribute to delivering the Strategic Ambitions of our industries, supported by our future R&I Partnership.

Five focus areas will progressively drive the transformation of our industrial sectors towards the shared destination defined in our Innovation Vision 2040 and will constitute the basis of the technological innovation in our Strategic R&I agenda.

- **Energy and CO2**

Advancing energy efficiency of industrial processes, optimisation of the integration of low-carbon energy sources, development of CO2 reduction technologies and enabling circular carbon solutions across sectors and value chains.

- **Reduction of emissions and substances of concern**

Technologies and systems aiming to reduce emissions (to air, water and soil). This area will also focus on decreasing the use of substances of concern in production processes and reducing the proliferation of such substances in products and residues.

- **Use of bio-based feedstock**

Advancing the use of renewable, bio-based feedstocks through innovations in infrastructure, pretreatment, conditioning and conversion processes for high-value products.

- **Circularity of materials and materials efficiency**

Increasing material efficiency, reducing the use of strategic raw materials, developing the recovery of strategic raw materials, and building sustainable and economically viable value networks for our industries. These technologies, aiming at boosting circularity in our sectors and value chains, both for industrial side streams and end-of-use waste, will deliver new business models and systems anchored in Europe.

- **Innovations in materials, products and production processes**

Exploring new production routes for new high-performance materials, helping reduce production costs and off-spec production, and innovating on materials, products and processes along entire value chains. This area will also address innovations in breakthrough production technologies.

Across all our Technology Focus Areas, the integration and adaptation of digital technologies will be systematically considered to design and produce more efficient processes, high-value materials and products. We aim to develop digital technologies and Artificial Intelligence that can be deployed across Process Industry plants in Europe, enabling accelerated innovation and the development of new business models across value chains.

These technology developments will spark further developments and innovation in the systemic intervention areas, aiming to sustain the basis of deployment of solutions at scale.

The Partnership's innovation will aim at sustaining competitiveness and sustainability by supporting intensification and transformation across value chains, scaling up to accelerate deployment, and empowering a skilled workforce for our industries. This will include the identification of barriers that slow down innovation across TRLs, establishing mechanisms to accelerate access to different funding and support opportunities, and providing actionable input to remove bottlenecks to innovation.

The Partnership will support the development of the intelligence required to preserve strategically important technology know-how in Europe and help maintain, or where necessary bring back, critical industrial value chains on our continent.

4 From Vision to action

4.1 A Next-Generation Partnership for unprecedented industrial challenge

European Process Industries are committed to co-designing a "Next-Generation" R&I Partnership with A.SPIRE members, the European Commission and other public stakeholders, including Member States and Associated Countries (MS & AC). We are ready to explore new ways of working, new instruments and new collaboration models to achieve the scale and pace required to advance our Innovation Vision 2040 for the competitiveness of our industries and the autonomy of our continent.

This Partnership should be built on a clear sense of urgency and adopt a true "innovation towards deployment" approach. This will involve both accelerating innovation and scaling up, and derisking industrial investment journeys through targeted mechanisms.

The Partnership should be connected to the European Competitiveness Fund, and its various programmes and mechanisms (Horizon Europe, Innovation Fund, the New Decarbonisation Bank, etc.) in coordination with A.SPIRE sectors, and according to the European Union regulation, once settled. It should connect to both European and national public sectors.

Its purpose is to accelerate the progress towards R&I deployment, which can be notably achieved by acting at different levels: helping bring promising solutions and products to market faster; fast-tracking industrial innovations from TRL 4 to 8 (focus on TRL6 to 8); streamlining access to EU and national support mechanisms for innovation; facilitating access to private R&I financing; unlocking the full potential of cross-sectoral collaboration; deepening engagement with solution providers for Process Industries (start-ups, scale-ups, established suppliers, energy and waste management sectors, biogenic feedstock producers, etc.), and providing support to Process Industry sectors on policies affecting innovation and scaling up. Specific sectoral needs should also be tackled and supported, as well as connections, synergies and joint developments with the value chain, led by the Process Industry.

4.2 Delivering Flagship Initiatives for Europe's Industrial Transformation

The Partnership aims to complement the support to innovation and scaling up through Horizon Europe and other EU and national tools, with flagship initiatives to activate synergies and to accelerate the delivery of our shared Vision.

This section outlines examples of tangible flagship initiatives that could realistically materialise in the coming years, bringing our Vision to life. Innovation developments and dialogue for synergies and acceleration will be at the core of these flagship initiatives.

Clean Industrial Deal

Launched in 2026, this Horizon Europe flagship call aims to scale demonstrators up to TRL8 through industry-led innovation and small consortia. Many innovations supported by the Horizon programmes get stuck at TRL7 and are unable to move to the Innovation Fund or to private investment. The Clean Industrial Deal call helps cover this gap and is fully aligned with our Innovation Vision 2040 and Strategic Ambitions. From A.SPIRE, we urge for the continuation of this type of call in the next Horizon Programme (2028–2034) and, where relevant, their further amplification.

Carbon Circularity

This initiative will explore and advance all viable pathways for CO_2 valorisation in Process Industries and related value chains, including carbon capture, CO_2 conditioning and purification, reuse of carbon as an oxygen carrier in metallurgical processes, development of closed-loop energy systems, CO_2 mineralisation, regional optimisation and integration of CO_2 streams, etc.

High-Value Materials and Products for European Value Chains

This initiative will focus on innovation to deliver high-value materials, products, and solutions best tailored to the needs of European value chains. Beyond cost competitiveness, it aims to drive differentiation by improving the economic, environmental and social performance of downstream applications, and by creating greater value for end users. By fostering cross-sectoral innovation, it will support the transition from commoditised products to higher value, "processed in Europe" solutions that help restore Europe's industrial leadership.

Joint R&I Initiative with energy providers to secure access to competitive energy for EIIs

This initiative will aim to explore pathways to affordable and competitive energy at scale for Process Industries, and to optimise the integration of all sources of low-carbon energy.

It will bring together industry and energy providers to identify joint innovation routes and to co-develop integrated low-carbon energy systems for Europe. This initiative could be kicked off along with the development of our SRIA 2028-2034.

Circular Value Chains: urban mining and valorisation of strategic and critical materials for Europe's Process Industries

This initiative will aim to foster European strategic value chains, led by Process Industries, to increase the recovery and valorisation of strategic and critical materials from end-of-use waste. It will bring together Process Industries and the waste management sector. Leveraging the recovery/recycling/upcycling capabilities of Process Industries will help reduce risky dependencies on imported materials. It could tackle value chains such as plastics, textiles, electronic waste, construction waste, etc.

These examples illustrate the type of integrated and impact-driven flagship initiatives that we aim to implement through the future Partnership. Our Strategic Research and Innovation Agenda (SRIA) will explore and develop these and other initiatives further.

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Join A.SPIRE and drive innovation across Process Industries for a competitive, autonomous, and sustainable Europe.

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