

EUROPEAN COMMISSION

Member States participation in European Partnerships with industry

**Results of the three workshops held on November 2019 in
the areas of mobility, digital and industrial technologies**

DRAFT REPORT

Directorate-General for Research and Innovation
Directorate-General for Mobility and Transport
Directorate-General for Communications Networks, Content and Technology
Maria Reinfeldt, Paola Chiarini, Carlos Pires Morais, Eleftherios Bourdakis and Gustaf Winroth

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Executive summary

Introduction

During the structured consultation of Member States (MS) on the portfolio of future European Partnerships, many countries replied that they would like to contribute and participate in the proposed partnerships with industry. Notably, there was interest for aligning priorities, testing and deployment activities and developing synergies in the context of Cohesion Funds and Connecting European Facility. Importantly, many countries also indicated that they have activities and infrastructure at national level (e.g. R&I strategies, plans and programmes, research infrastructure, testbeds etc.) that are of relevance to the respective partnerships.

As a follow-up, the Commission organised three workshops in November 2019 with Member States to **understand better the possible benefits for both sides, and to reflect what shape the collaboration between Member States and the candidate European Partnerships with industry could take** so that this could be considered already in the early co-creation process of partnerships. Importantly, the ambition was on exploring opportunities and willingness from the side of Member States for stepping up collaboration with industry partnerships in terms of increasing impacts at national level, beyond mere information exchange and discussion over funding.

The series of workshops were part of efforts ensuring the early involvement of Member States in the preparation of European Partnerships. The process for defining the ambition and scope of these partnerships together with possible industry partners are still in the early stages. Discussions with Member States were important to detect early on opportunities to align on joint priorities, as well as to consider in design and preparation of implementation of the partnerships. Member States and their stakeholders will, of course, have further possibilities to provide input at later stages, notably through the consultation process for the Strategic Research and Innovation Agenda (SRIA) /roadmap of the partnerships.

A thematic approach was taken, around three priorities: mobility, digital technologies, and industrial technologies. It ensured that the discussions would be embedded in policy developments of a concrete field and to ensure high engagement of sectoral ministries.

This report outlines the approach taken at these workshops, highlights the key ideas discussed in each of the three workshops, and draws some overall learnings and conclusions in developing collaboration between partnerships with industry and Member States under the future Horizon Europe. The report contributes to the ongoing preparations of the candidate partnerships by offering guidance on how to better link to and create complementarities with national R&I activities.

The report has been presented to and discussed with the members of the Shadow Strategic Configuration of the Horizon Europe Programme Committee on 17 December 2019.

Key cross-cutting messages

Most Member States are currently in the process of defining priorities and developing programmes for the next strategy period, which opens up possibilities for better alignment and complementarities, including with Cohesion Funds. As this work is ongoing, it is challenging for many countries at this stage to discuss concrete alignment and contributions at national level that they would be ready to coordinate. However, starting discussions a year before the actual launch of European Partnerships is a real opportunity to start a dialogue on a more **concrete and focused collaboration in the future**. Therefore, **the workshops were about exploring the way forward**, and not about Member States taking concrete commitments. For the latter, continued dialogue is needed to agree more concretely what to move forward in a constructive way.

Discussion highlights regarding *alignment and complementarities*:

- **Member States and the EU are targeting largely the same challenges and priorities, so good coordination is important** to ensure better planning of activities, complementarities and avoid duplication of effort.
- **Alignment could be challenging due to different structuring of EU and national programmes**. For instance, the digital partnerships follow a technology-driven, and mobility partnerships largely mode-specific logic, whilst the related programmes in several Member State are rather challenge-driven or even bottom-up (notably in smaller countries).
- **A number of countries have real life testing sites, infrastructures, and innovation hubs** that could be used for testing and demonstration of innovation produced in the context of partnerships (e.g. for 5G CAM or data test centres).
- **Knowledge on European Partnerships with industry, possibilities for creating synergies and related EU Funds (e.g. Innovation Fund) is quite low**, which may pose serious impediments for generating greater complementarities in the future.

In terms of *benefits and added value* from collaboration with partnerships with industry:

- The interest of Member States ranges from narrower, country-specific (e.g. providing access to SMEs to transnational networks) to collective ones that are often cross-cutting the individual candidates (e.g. related to achieving zero-emission targets).
- It was generally acknowledged that engaging with partnerships with industry is a **two-way street** that should be **based on added value and impact**.
- The main added value for future collaboration is seen in **the take-up of results** produced in the context of partnerships by e.g. **providing a ‘pipeline’ support for large-scale demonstrators** to facilitate market take-up of the R&I results in partnerships (reaching TRL 7 or higher) and/or by supporting the future **skills that industry needs**.
- For countries, good collaboration is also important **for better planning of national policies and activities** to avoid duplications, reinforce some sectors, develop niches in a country, etc.

Regarding *what form the involvement of Member States could take* in future partnerships involving industry, the attitude at the workshops was very **constructive** and **pragmatic**. While, there is a clear **interest from the countries to be more involved in programming** of these partnerships, it was clearly acknowledged that this **should not hamper the industry partners from delivering the partnerships’ objectives**. It was also understood that expanding partnerships where industry are at the core to Member State participation as partners is a fundamental decision that requires a collective approach. It requires that a large number of

countries have **substantial national R&I programmes** that they are **ready to integrate** at the EU level and that can **match in terms of volume** what the Union invests. There is currently **no interest from the Member States in rolling out the tripartite model of ECSEL Joint Undertaking** to other partnerships with industry. Rather the discussions showed that there is a clear **preference of keeping national and EU funding streams separate** as in most cases countries are investing at national level in complementary R&I activities. In a similar manner, it is **unlikely that all countries will want or agree to same level of involvement**, meaning that future models need to allow more flexible levels and types of involvement.

Becoming a partner is not the only way to collaborate in the context of partnerships involving industry. The discussion over best practices showed that there are also other possibilities for **collaboration that benefit the national/local ecosystem** – for instance, by creating a pipeline of support from demonstration and proof of concept to early deployment. **The focus of future collaboration, therefore, is mainly about connecting national activities to partnerships with industry**, but without making countries partners. The focus would be on the use and take-up of results of partnerships. Concrete complementary activities could be built on a more **needs-based/ ad hoc basis**, and through **parallel or sequential funding mechanisms**.

For this kind of collaboration to work, it requires first, the willingness and commitment from all sides involved, notably to **agree on specific and limited number common priorities where countries, the Commission and industry partners see clear added value and common interest to collaborate**. These could include for example deployment activities, large-scale testing and scaling up solutions and/ or development of skills, depending on the objectives of the partnership. The workshops (notably on mobility and industrial technologies) suggested that **topic-driven**, as opposed to partnership-driven approach could make more sense because not all partnerships are relevant to all Member States (e.g. not all are building a train or an airplane), but all countries have users and are investing in downstream technologies. Structuring collaboration around few strategic topics, would allow to **focus on opportunities for bringing change and on achieving concrete results** (e.g. setting up circularity hubs in collaboration with regions).

Moreover, it requires setting in place necessary **modalities form collaboration** to translate the ambition into concrete policies and action. In general, it was highlighted that Member State involvement works well in initiatives where they have a clear role and are committed. The workshops were inconclusive in terms of concrete collaboration form but the discussion highlighted several *enablers for making it happen*:

- **To remove obstacles for creating a pipeline support from Member States** that could take up of results and deployment of innovation from partnerships art national level. These are for instance, **different funding requirements and rules** at national and EU level, **state aid rules** (including in the context of IPCEIs), and **intellectual property rights**.
- **To facilitate and permit greater use of Cohesion Funds** for Member States participation in partnerships, notably for complementary and downstream activities¹.
- **To improve information flow on the opportunities for developing linkages and synergies in the context of partnerships with industry**. For example currently, if a country has a test site, it is unclear to whom or how it should reach out. In a related manner, it was highlighted that it is unclear how Member States are involved in the planning and

¹ Pending the outcome of negotiations in the context of Horizon Europe, Cohesion Policy Funds and General Block Exemption Regulation.

preparation activities of the candidate partnerships with industry, as it is handled very differently across initiatives.

- **To support coordination of efforts in addressing cross-border issues** (e.g. collaboration on norms and standards, interoperability, development of infrastructure) **and regulatory barriers** that are supportive of market deployment.

There are also important *prerequisites that need to be addressed at national level* to participate in and benefit from this collaboration. **Mirroring at national level what is going on at EU level** – in terms of priorities and organisation – was seen as effective approach for creating linkages and synergies. In particular, it is important that countries would:

- **Anticipate what they would like to do in the proposed Partnerships and reflect this when developing relevant R&I / sectoral strategies** or the Operational Programmes for the Cohesion Policy Funds.
- **Develop good coordination between related ministries, innovation agencies and platforms at national level** that is essential to ensure that the opportunities arising from EU partnerships with industry are taken up.
- **Use national industry associations or innovation platforms to connect and create interfaces** with partnerships with industry at EU level.
- **Support their national industry/academia in joining** a partnership and create the necessary critical mass.

Finally, it is important to promote *sharing of good practices* on collaboration and development of synergies at national level in the context of EU R&I partnerships with industry. For instance, the **Joint Research Centre (JRC)** has recently published a report analysing collaboration mechanisms between Joint Undertakings ESI Funds in an S3 context². In the future, the **Forum for EU R&I partnerships** could take the role of reinforce these learnings and tracking impacts at national level, notably in the context of the monitoring and progress reporting activities.

² Karel Haegeman & Eskarne Arregui & Nicholas Harrap & Karolina Horbaczewska & Cristina Torrecillas & Susana Valero, 2019. "[Joint Undertakings: analysis of collaboration mechanisms with ESI Funds in an S3 context](#)," [JRC Working Papers](#) JRC116094, Joint Research Centre.

The way forward

The following **recommendations** are proposed for developing collaboration between Member States and future partnerships with industry, provided that such action is seen beneficial in achieving higher impacts and that it **contributes to achieving the objectives of the partnerships**:

1. **Ensure sufficient exchanges with Member States during the ongoing preparation of process** of partnerships involving industry to explore the possibilities for developing linkages, synergies and opportunities for joint investment at early stages.
2. **Ensure throughout the lifetime of Horizon Europe and the partnerships spaces to discuss at strategic level common priorities, concrete opportunities for synchronisation, and linkages** with resources and funding schemes at national, regional and EU level, such as CEF, DEP, Cohesion Funds, Erasmus, financial instruments etc.

Box 1. What format should the exchanges with Member States take?

The concrete format depends on the granularity needed – it can be organised either per partnership or in a cross-partnership way. For instance, in the area of mobility, the current configurations for engaging Member States per partnerships were not found fit-for-purpose for strategic discussion. So another possibility is using a higher-level setting that would allow to coordinate R&I in a specific field, and in relation to the different partnerships in that area. Currently existing examples include: Strategic Energy Technology Plan (SET Plan), Standing Committee on Agricultural Research (SCAR), Strategic Transport Technology Plan (STTP). The key to succeed is to focus on achieving something together, and avoiding reducing it to presenting information.

3. **Create a structured two-way information flow** between partnerships with industry and Member States on elements that would promote national take-up of the results of EU projects. This should be arranged in a practical way – virtually, electronically, and/or through informal expert workshops (e.g. back-to-back programme committee meetings).

Box 2. What type of information is needed from all sides?

From Partnerships on opportunities for collaboration and needs in terms of follow-up funding for the take-up of results/solutions/technologies. Moreover, it would be useful if calls for proposals with the ambition / need for sequential support from other programmes, would include a clear and traceable reference to that.

From Member States on their investments, funding programmes, and other resources (e.g. research institutions, infrastructure, testbeds etc.) in the sector.

From the Commission on possibilities for synergies with other EU programmes (e.g. Innovation Fund, CEP, DEP etc.)

4. It is important that **Member States would increase efforts in mapping their national ambitions and resources against the objectives of the proposed partnerships**, as well as **plan funding possibilities** in their national R&I programmes.

5. For creating a critical mass of investments along joint priorities, there are **three broad possibilities for involving and combining possible funding from Member States**, presented in Table 1.

Table 1. Funding related models of collaboration between Member States and partnerships with industry

Funding model	Description	Examples
Sequential	Follow-up to projects funded by partnerships that move into next stages (demonstrator, proof of concept phase) towards deployment with the support by national or regional funding programmes (including Cohesion Funds) or through EU programmes (such as CEF, EFSI).	Replication of first of its kind demonstrators for bio-based products (bio-refineries); Establishment hubs for circularity to deploy the circular economy at scale.
Parallel	A call launched by the partnership that invites submission of proposals to implement joint testing. This would allow bringing national infrastructure/ testbeds into the scope of partnership for common testing and development of standards. It would also ensure that technologies developed by partnerships are tested in the national testbeds.	Use of 5G infrastructure on smart applications in large scale pilots (e.g. connected and automated driving).
Bringing national co-funding	Support to national/research funders (e.g. CSA, Co-fund) that allows countries to pool their competitive R&I programmes at the EU level in areas that are complementary to the industry partnerships.	Photonics21: dedicated joint calls for transnational projects funded by participating states (under previous FPs supported by ERA-NETs).

In terms of practical next steps:

- The report will be presented to and discussed with the Shadow Strategic Configuration of the Horizon Europe Programme Committee on 17 December 2019.
- The conclusions and recommendation of this report will feed the preparations at the level clusters and of individual partnerships.
- The future Forum for EU R&I Partnerships (as part of strategic coordinating process) will look into tracking impacts of industry partnerships at national level, notably to trace down connections to national innovation ecosystems.
- There will be a follow-up workshop for industrial technologies in spring 2020 (to be decided in due course whether for all four partnerships or in a different configuration).

Introduction and overview

Background: More impactful and ambitious European Partnerships

Transition towards greener, socially relevant and digitally-enabled economy requires coordinated joint research and innovation efforts of the public and the private sector, and a contribution from citizens and users in co-creating solutions. **Partnerships allow to forge such coalitions and create large-scale testing and experimental platforms to develop systemic innovative solutions for societal challenges and industrial transformation.** They can be linked with other programmes and initiatives at the national, regional and EU level to ensure deployment and scaling up of new clean technologies and solutions, such as Important Projects of Common European Interest (IPCEI), Digital Europe Programme, Connecting Europe Facility, and Cohesion Funds. Resulting from an initial proposal by the Commission and a strategic coordinating process, a total of 48 candidates European Partnerships are proposed for the whole Horizon Europe.

Three forms of European Partnerships will be supported under Horizon Europe: co-funded partnerships involving public authorities, and the **co-programmed** and **institutionalised partnerships (based on Article 187 or Article 185 TFEU)** in many cases targeting industry as core partners. Notably, in **Clusters “Digital, Industry and Space”** and **“Climate, Energy and Mobility”** there are many partnership proposals largely targeting industry that potentially has direct interest for scaling up and testing R&I project results. Given that the focus of the workshop was on partnerships with industrial dimension, it focused on candidates based co-programmed and institutionalised.

All Partnership candidates for Horizon Europe need to **demonstrate effectiveness in achieving the objectives of the programme, common vision on achieving impacts** in relation to EU policy priorities (‘directionality’), as well as firm commitment on the **additional public and private investments** (‘additionality’)³. Justification for setting up a European Partnership is closely linked to the added value beyond what can be achieved through other activities funded from the framework programme, notably traditional calls for proposals. To achieve higher level of impact, Partnerships have to cover a much wider set of activities (by going beyond R&I projects) and better engage all relevant actors to ensure scale up and implementation of new solutions and R&I results produced in the context of partnerships.

Rationale for organizing the workshops

During the consultation of Member States on possible future European Partnerships, many Member States expressed interest to align their policies and exploit synergies with the proposed industry-driven partnerships, and even readiness to contribute resources.

To achieve the ambitious objectives and desired change envisaged in the future partnerships with industry at the necessary scale and speed, it is important to **explore possibilities for more focused and objective-driven collaboration with Member States** to align R&I agendas and efforts, and ensure deploying and scaling up the solutions produced in the context of partnerships. In this context, there is a need to have a better understanding of relevant national

³ The provisions for European Partnerships are in Article 8 and Annex III of the Horizon Europe Regulation (common understanding): <https://data.consilium.europa.eu/doc/document/ST-7942-2019-INIT/en/pdf>

R&I programmes and how we could achieve synergies and mutual benefits with the proposed partnerships involving industry.

As a follow-up, the Commission organised three workshops on the future involvement of Member States in candidate European Partnerships with industry participation:

- Workshop covering **mobility** sector on 25 November 2019, Brussels
- Workshop covering **digital technologies, infrastructures and services** on 28 November 2019 in Brussels
- Workshop covering **industrial technologies** on 29 November 2019, in Brussels

The participants were expected to represent the Government or Ministries responsible for the sectoral (mobility/ digital/ industrial technologies) research and innovation policies, and to have a good knowledge of related national R&I strategies / plans.

The workshops provided space for Member States to present their ideas and discuss modalities for their possible future participation in partnerships with industry. The aim was to identify areas and models that would have value-added for future collaboration in progressing towards the strategic objectives of the related partnership areas. The outcome of these workshops feeds into the ongoing preparations and co-design of candidate partnerships.

Approach and structure of the discussions at the workshops

In discussing possible areas and models for future collaboration between Member States and future partnerships with industry, it is important to consider two levels:

- At the strategic level, it is necessary to understand the **motivations and added value** for collaboration, as well as **relevant national policies and R&I programmes** where synergies can be generated and opportunities for collaboration identified.
- After understanding the added value, it is important to discuss the **possibilities and potential to develop linkages and synergies** between national R&I activities and the proposed partnerships with industry.
- Finally, the ambition needs to be translated into concrete possibilities to collaborate (the so-called modalities and models) in the context of future partnerships. First, it is important to consider that it is possible to collaborate in a European Partnerships both, as a partner and non-partner (with respective rights and obligations). Moreover, it is important to understand whether there is willingness from the side of MS to set up joint activities by combining funds or rather contribute through sequential and/or complementary activities.

Box 3. Partners and non-partners in a partnership

Partners in a partnership have obligations to contribute (defined in the legal base), and in return they have a right to decide on the agenda and topics (= voting rights in the Governing Board).

A partnership has to be open to all relevant stakeholders that are interested and add value to the partnership, but without compromising the ownership and commitment from the partners.

Participation opportunities as a non-partner:

- In programming (by replying to consultation activities of the Partnership)
- At project level (by applying to open calls for proposals)
- Ad-hoc collaboration in areas of common interest (including through formal agreements, e.g. by signing a Memorandum of Understanding)
- Informal collaboration (by liaising directly with the partnership e.g. on information or dissemination events)

Box 4. Examples of creation of a critical mass of investments along joint priorities, by possible additional contributions from national/regional programmes:

- Integrated funding brings investments together from EU and national funding → tripartite model, like today's ECSEL Joint Undertaking.
- Parallel funding for a connected use of funds/resources/investments in national projects/activities complementing partnership investments → for upstream activities (e.g. skills, infrastructure), and downstream activities (e.g. test beds, deployment)
- Sequential funding → e.g. for downstream, building a pipeline for take-up of project results. E.g. financial instruments supporting market uptake.

Consequently, the discussion in all three workshops focused broadly on the following three blocks (with small variations):

1. **The convergence and complementarities between the R&I priorities and plans of the EU and Member States in the related area.** The starting point for all workshops was to better understand the emerging relevant national policies, R&I programmes and investments, as well as readiness to align and commit to the related partnerships.
2. **The added value of joint collaboration** in the context of proposed partnerships with industry in terms of how future collaboration could contribute to achieving the objectives of the respective partnerships with industry and the related EU priorities, as well as increase impacts of the partnerships at national level.
3. **What is needed to make this collaboration happen** in terms of contributions, programming, modalities, governance and synergies, and how MS commitment could be reflected in the design of future partnerships with industry?

Key Takeaways from per workshop

Mobility

Candidate partnerships covered in the scope of the workshop: Transforming Europe's rail system, Integrated Air Traffic Management, Clean Aviation, Clean Hydrogen, Safe and Automated Road Transport, Towards zero-emission road transport (2ZERO), Zero-emission waterborne transport, Batteries: Towards a competitive European industrial battery value chain.

The workshop on “mobility partnerships” took place on 25 November 2019 in Brussels. It started with a welcome by the chairperson of the meeting, Robert Missen (DG MOVE), and with a presentation by Joerg Niehoff (DG RTD) on the new policy approach to European Partnerships, relevant results of the consultation of Member States, and rationale for organizing the workshops. This was followed by presentations from Commission Services on individual candidates with an overview of the current thinking on objectives and scope of the candidate partnerships in the mobility sector. This was followed by discussions in three sessions: 1) Potential areas for cooperation, including opportunities for synergies in the context of future partnerships with industry. 2) Possible collaboration models for Member States' participation and contributions to partnerships with industry participation. 3) Member States and the governance of partnerships with industry participation. Five Member States presented their national point of view on possible complementarities and modalities for future collaboration: the Netherlands, Poland, Romania, Finland and Czechia.

The discussion can be summarised in the following key topics:

Alignment and complementarities

- **Member States and the EU are targeting largely the same challenges so good coordination is needed to ensure better planning of activities and a more consistent approach** to achieve the overall mobility objectives set in Horizon Europe's Cluster 5
- There is consensus that the **areas proposed for the mobility partnerships are relevant** to achieve the mobility challenges at EU and national level.
- **Alignment of national and EU programmes may be challenging in countries** where strategies tend to focus on transport integration, mobility as a service and a multimodal approach to mobility, while most proposed partnerships are mode-dependent. .
- In several countries, there is a **strong specialisation on a transport area with national strategies, agendas and R&I programs for mobility** from fundamental research to market deployment, and covering different industries (automotive, aerospace, shipbuilding, drones etc.) and challenges (zero emissions, electrification). Examples of areas of mutual interest include: automation of transport, reducing transport exclusion, increasing road safety, cutting down CO2 emissions, digitalisation, decreasing high costs for infrastructure building and maintenance.
- **All Member States have users in transport and invest in downstream technologies.** It is therefore important to discuss holistically how to make transformation happen and what investments are needed from the EU and from MS (e.g. so to avoid investing in same infrastructure twice – for testing connected and automated mobility, Hyperloop etc.). However, no country signalled the interest to co-invest.
- **National clusters/ platforms are already existing in some countries (e.g. National Innovation Ecosystem in Poland) can act as interfaces** between national transport innovation programmes and candidate partnerships related to mobility.

Added value

- Access to research and innovation **results** developed in the context of partnerships, and sequential **take up / funding of results via CEF or other European or national funds**.
- Participating in partnerships provides access to an extensive network of key research actors and industrial players in the mobility sector to either create or access and make use of emerging innovative technologies.
- Collaborate on **standardisation** and regulatory action to support the deployment of solutions.
- Collaborate on ensuring **interoperability** of transport technologies and services across Europe.
- MS and EC active role is considered important to **safeguard the public interest in developing the future of mobility**.
- **Regulatory action** to achieve the set policy objectives for mobility, notably when industry and public interests do not match.
- To increase the impact of the mobility partnerships, it is important that they try to **collaborate with European regions broadly** so that also regions with big mobility bottleneck would be included.
- Several countries have **real life testing sites**, and are investing in infrastructure development (e.g. for alternative fuels). These could be considered as assets for some candidate partnerships.

Box 5. Mobility Infrastructure Test Centre (MITC) in Flevoland, Netherlands

Felovoland has taken the initiative to set up a MITC that aims to

- Test and experiment to go towards daily use
- Responsible introduction of a new generation of vehicles and environment
- Build experience with the use of data and connectivity

Source: slides presented by the Dutch delegation during the workshop

What is needed to make this happen?

- **Some MS asked for a more strategic discussion on the future mobility challenges and how to tackle them, beyond the objectives of the partnerships.** In fact, while not all the MS have a strong industrial base to participate in the partnerships, all the countries have to contribute to solve the mobility challenges, e.g. decarbonisation, reducing congestion, etc.
- Important to ensure **better 2-way information exchange between a partnership's roadmap and relevant Member States' programmes, resources and infrastructures** that could contribute to the partnership - both in the planning phase and during implementation.
- Important to involve Member States during the development of SRIAs/ industry roadmaps.
- **Important to enable synergies with other EU and national programmes**, notably with Cohesion Funds for innovation development and demonstration, and CEF for deployment and market uptake. However, relevant national programmes were not identified.
- Exchange existing good practices on collaboration and development of synergies in the context of current PPPs.
- Important to have mechanisms for **building a pipeline for projects** to encourage deployment by other programmes and funds, both at EU (CEF, Cohesion Funds) and

national level. Currently, if a country has a test centre, it is unclear how and where to reach out.

- **Deployment via CEF** is seen particularly as an opportunity.
- Important to collaborate between standardisation bodies.
- As they already group the relevant players (e.g. industry, academia, research establishments, users) of a transport sector, **existing European Technology Platforms** can play a role in defining the partnerships' roadmaps. This is already the case in most sectors.
- Lessons-learned: Member States involvement works well in initiatives where they have clear role and formal responsibilities and commitments. The tripartite structure (EU, MS, industry) of the ECSEL JU (Electronic Components and Systems for European Leadership) is an exception, which works effectively because some countries committed large national budgets in areas of common interest.

How could this be reflected in the design of future partnerships?

- It is important to improve coordination and alignment in the preparation of joint strategic agendas and through governance. However, it was pragmatically acknowledged that only those who contribute, can participate in the Governing Board decisions. MS advice and guidance can be taken into account only as long as it does not hamper the industry members from delivering the partnership's objectives.
- Many participants were interested in discussing mobility issues more broadly, indicating that there should be cross-partnership discussion opportunities that are rather topic driven (green transport, future of mobility etc)
- It is important to enable *ad hoc* mechanisms that would allow MS and/or their industrial base to participate in deployment / take up of results during the implementation of partnerships. Formal agreements between partnerships and regions are perceived as a good practice that could be continued (especially for mobilising Cohesion Funds).

Box 6. Success story of cooperation with a European partnership under FP7/H2020: Romania - the Clean Sky 2 Joint Undertaking

A Memorandum of Understanding was signed between Romania and the Clean Sky 2 JU in 2015. Concurrently, the Romanian National Plan for Research, Development and Innovation 2007-2014 set up an instrument to support the participation of Romanian players in the JU calls, by issuing a "complement" call: The National Operational Programme Competitiveness 2014-2020, Action 1.1.3 - Creating synergies with R&DI actions of the Framework Programme. This allowed funding 3 Romanian research projects complementary with the activities of the JU.

Source: slides presented by the Romanian delegation during the workshop

- Several arrangements (comitology, State Representative Groups) are already in place to ensure information exchange between MS and the existing partnerships (as well as on the current elaboration of the candidate partnerships). However, as MS perceive them as insufficient, it is important to understand what would make these arrangements more effective (e.g. by making the exchange more structured and focused, based on common interest and focusing on results).

- Good cooperation among the various national players and authorities involved in the discussions of the candidate partnerships would also be essential to **ensure better communication and information at national level.**
- The participants pointed out that the existing mobility partnerships, the State Representatives Groups (SRGs) are not working well. In the future the exchanges with Member States should focus more on aligning national programmes and a partnership's activities of pan-European and cross-border relevance (e.g. connected and automated driving, interoperability and infrastructures).
- Currently, it is unclear for Member States how they can contribute to a co-programmed partnership.

Digital

Candidate partnerships covered in the scope of the workshop: Key Digital Technologies, High Performance Computing, Smart Networks and Services, Artificial Intelligence/data/robotics and Photonics. Other partnerships where digital has a strong impact did also take part (in energy, health and industrial technologies).

The workshop on “digital partnerships” took place on 28 November 2019 in Brussels. It started with an introduction by Director Lucilla Sioli (DG CNECT), and a presentation by Joerg Niehoff (DG R&I) on the new policy approach to European Partnerships and the rationale for the workshop. The morning session focused on discussing EU and MS investments in R&I concerning digital and possible complementarities. Deputy Director-General Khalil Rouhana explained during his presentation the key political priorities of the new Commission, and notably digital transformation. EU is performing relatively well in embedding digital to services but is lagging behind in consumer markets and applications. It is essential to align with industry and Member States to be successful and strive to compete at global level. The proposed “digital-centric” partnerships support innovation and long term competitive across the digital supply chains which should be complemented with coordination of actions for the European Digital Single Market. The afternoon session continued with presentations of the five European Partnership candidates, including a preliminary mapping on possible added value for collaborating with Member States in the context of each Partnership.

Main conclusions

- There is general agreement that an effective collaboration with Member States is important in defining the future landscape of European Partnerships.
- Europe has a dynamic and innovative industry, many of it digital, but there is a need to foster eco-systems for innovators to have a stronger impact.
- All “digital-centric” partnerships were considered of high-relevance.
- Member States have national and/or regional programmes largely coinciding with the priority areas covered by the “digital-centric” partnerships.
- Involvement of Member States does not regard only alignment of European and national strategies and investments but also feedback mechanisms for better policy-making.
- The full innovation life cycle goes from research and development of key technologies to more mature integration, prototyping and large demonstrations, including skills.
- Participation of Member States in the digital-centric partnerships is an excellent opportunity to align national strategies including those related with cohesion oriented Smart Specialisation Strategies.
- Sharing information on best practice and experience in preparing national programmes and combining national and EU funding, notably in developing Operational Programme for Cohesion Policy Funds.
- Structured information flow between industry roadmaps and related national strategies in order to sought alignment and synergies in areas of common interest. Such interactions should be active and mutually beneficial (not just passively receiving info).

Discussion highlights

The following points summarise the main points discussed:

- There is a broad consensus that the proposed digital partnerships cover important areas, and are complementary to national activities and priorities. Some strategic topics are not clearly addressed in the partnership proposals such as quantum technologies and

applications in fields beyond High-performance Computing. Ethics in cybersecurity were also mentioned as important areas in the context of making Europe fit for the digital age. In this context, it was reminded that not all R&I in digital will be covered by partnerships, but also addressed via traditional calls in the Horizon Europe work programmes.

- Countries and the EU are investing in digital priorities very much aligned with the partnerships addressed. The examples mentioned during the workshop include nano-electronics and components, artificial intelligence, photonics, electronics, data, robotics, quantum computing and technologies, 5G networks etc.
- It was also highlighted the importance of digital technologies integrated in other sectors, such as health, public services and space, cybersecurity. For Artificial Intelligence, several countries are following the AI coordinated plan (e.g. on skills).
- Member States have investments related to quantum computing aligned with EuroHPC and are planning activities for the next phases.
- Member States are interested in developing digital strategies in the context of planning of synergies with Cohesion Funds and Smart Specialisations. Member States are preparing their strategies for the next phase of cohesion policies/funds. They would appreciate share of best practice to preparer these types of programmes and align at EU level.
- Member States have centres of excellence and innovation hubs in the area of digital (e.g. Bulgaria has a new research institute on AI and data in partnerships with Sweden), and there is interest in linking with Digital Innovation Hubs (DIH).
- An important challenge will be ensuring integrated thinking across the proposed digital partnerships. In order to encourage deployment, it is necessary to integrate the different technologies, and create spaces where technology providers can think how their innovation fits application areas and the needs of end-uses.
- Alignment may be challenging due to difference in the way the digital partnerships and national programmes are structured. While some national programmes are technology oriented, others have taken a more challenge-oriented or a portfolio approach to investments.
- Participants highlighted the importance to ensure complementarities with the IPCEI, Digital European Programme (to strengthen capacities to bring research closer to market and for testing and experimentation), CEF-2 and KIC Digital.
- Partnerships should feed policy-making (meaningful work being done covering automotive and health and manufacturing 4.0. sector). When industry/private sector is heavily involved, it is important to analyse impact and results that benefit policy developments.

Added value partnering with the Member States

The Commission Services presented preliminary ideas for added value in partnering with the Member States for each candidate partnership:

- Key Digital Technologies builds on good existing collaboration with Member States under ECSEL, and aims to ensure EU/national alignment through combined financing, as well as increase collaboration in testing of components. Coordination is needed to create robust industrial value chains and building dynamic ecosystems around these value chains.
- In Smart Networks and Services, an added value of a closer collaboration with Member States and Associated Countries, in comparison to the current PPP, would be the alignment of R&I agendas on e.g. the following topics: 6G, terabit connectivity, next generation IoT, cloud computing continuum made possible by high-speed connectivity, standardisation for interoperability. The partnership would also enable a structured collaboration on 5G deployment key issues, like the cross-borders corridors for connected and automated mobility (CAM), or some regulatory issues.

- In the case of EuroHPC, partnering with MS has already allowed to mobilise resources for the acquisition of 8 supercomputers, 3 precursor-to-exascale and 5 petascale machines, as well as 30 national HPC competence centres. The goal for the future is to create works class HPC & data infrastructure and capabilities in all participating countries and lay the foundations for the European post-exascale computing ecosystem.
- For AI, Data and Robotics, the added value of collaborating with Member States relate to better coordination setting international standards, in scaling-up, testing, citizen engagement (European Robotics Week), and skills.
- Photonics, to ensure broad uptake on new and adapted photonics technologies into various sectors of European end-user industry or in establishing prototyping and pilot production service infrastructure.

The following discussion provided additional insights on how the added value could be reinforced:

- Broad agreement that there needs to be clear added value in joint collaboration that goes beyond financial leverage (in the form of EU additional funding), and include other motivators (so-called ‘qualitative impacts’).
- A number of countries have test sites and infrastructure that could be used for testing and demonstration of innovation produced in the context of partnerships (e.g. for 5G CAM or data test centres).
- Collaboration between the relevant (and seemingly numerous) national innovation hubs, centres of excellence, competence centres in the digital field and the digital partnerships.
- Most Member States have large national programmes in the different digital areas which can gain from supportive framework conditions like, for example, standardisation, data repositories, certification, regulations, and skills.
- Collaboration is important also for scaling up technologies, notably in sectoral applications (in energy, health, manufacturing, public sector)
- Important topic for many countries is also developing and retaining human capital and skills. All digital partnerships have the ambition to address skills topic, including in exploring how MS could contribute to developing training and digital skills. EuroHPC already has programs for skills targeting specific user communities (dedicated masters programs, short-term visits, training at the supercomputing centre etc.).

Making it happen

Participants at the workshop discussed enablers to take a step further in collaboration:

- Sharing information on best practice and experience in preparing national programmes and combining national and EU funding, notably in developing Operational Programme for Cohesion Policy Funds.
- Structured information flow between industry roadmaps and related national strategies in order to sought alignment and synergies in areas of common interest. Such interactions should be active and mutually beneficial (not just passively receiving info).
- Information exchange is needed on resources and infrastructures that could be used/ federated at EU level (e.g. in AI: data sources made available by national governments, infrastructures, such as Gaia-X and Mydata).
- Collaborate on state aid rules, intellectual property rights and IPCEIs to support take-up of results for partnerships (e.g. in the form of sequential funding from MS).

How could this be reflected in the design of future partnerships?

- Whilst ECSEL and EuroHPC models are working relatively well with MS being active and contributing decision-making partner (alongside with EU and industry), there seems to be some questions whether to expand the tri-partied model to other digital partnerships.
- In a related manner, there is a preference of keeping national and EU funding streams separate – complementarities can be created through sequential or parallel funding, but there is no appetite for joint calls beyond KDT and HPC. The partnership can facilitate these kinds of transnational/ trans-regional initiatives.
- In terms of governance, the principle to maximise openness without compromising the commitment of partners was confirmed (i.e. voting rights go to those that contribute). In the case of Joint Undertaking solely with industry, it is important to rethink the States Representative Group and make it more meaningful for both sides – notably, it should not put MS in a passive role as just recipient of information.
- Whilst countries do not wish to see double comitology for partnerships (and fragmentation of decision-making), it is important to clarify how Member States could contribute to the programming of co-programmed partnerships and coordinate R&I strategies. Currently, there is no clear mechanism. In the future, there could be regular exchanges between executive board and national/regional leaders or annual meeting bringing together representatives from MS and European Partnerships.
- Important to deepen the understanding on when the partnership provide the best framework to address the R&I&D challenges ahead or the traditional work programme calls are more suitable as regards short-time and quick reaction planning either complementary to partnerships or for the purpose of initiating new activities.
- Co-funded model continues to be seen as a good framework for Member State participation.

Industrial technologies

Candidate partnerships covered in the scope of the workshop: Made in Europe, Carbon Neutral and Circular Industry, Clean Steel – Low Carbon Steelmaking, European Metrology

The workshop focusing on “partnerships on industrial technologies” took place on 29 November 2019 in Brussels. The workshop started with an introduction by Director Peter Dröll (DG R&I) setting the scene for the workshop, presentation by Maria Reinfeldt (DG R&I) on the new policy approach to European Partnerships, This was followed by a presentation on the four Partnership candidates. It continued with discussions in four groups per partnership candidate and structured around the themes of value added and co-design. The discussion continued in the afternoon in a plenary session where implications of greater MS involvement and commitment to the design and governance of future partnerships were discussed. The workshop was moderated by Jürgen Tiedje (DG R&I).

The discussion can be summarised in the following key topics:

Alignment and complementarities

- **Clear interest in getting more involved in programming, and to contribute to industry roadmaps.** Examples of complementarities include urban mining, coding of material, hydrogen, increasing needs for critical raw materials as regards to energy intensive industries, future jobs and skills. Some MS have specific funding lines addressing the same technologies as the EU (e.g. in clean steel, the German Funding line Clean Pro industry).
- Broad consensus that MS engagement with partnerships with industry needs to be **concrete** and a **two-way street**, beneficial for both sides and enhance the EU value added. The existing experience with the public-public partnership in Metrology was considered positive in this regard.
- **MS involvement in programming will work only when it is in line with EU objectives** and/or if MS are flexible to change at national level their priorities. There cannot just be co-design just because there is a national priority, but it is important that MS wanting to get involved contribute to EU priorities (e.g. Green Deal).
- **It is unlikely that all countries will want or agree to same level of involvement**, indicating that any future collaboration should follow the needs and interests.

Added value

The main added value in being more involved in partnerships and their programming as suggested by the Member States during the discussions can be summarised in the following:

- **Better planning of national policies** (where to invest, what are the main results, niches, skills needed, job creation in Europe etc.). For countries with largely bottom-up R&I programmes it is important to create synergies and complementarities.
- **To connect SMEs to networks created through European Partnership.** Big industry is already well organised and does not need support from countries. But small businesses do, and there countries could take a more proactive role in facilitating access, notably on building on the experience of the Digital Innovation Hubs.
- Countries can help with **location of pilot projects:** e.g. need for electrical networks, access to materials and industry, etc.
- **Ensure the follow-up/ take up of the results** produced in the context of partnerships, thereby enhancing the impact of projects, notably on **job profiles and skills** that industry needs (including upskilling and reskilling), follow-up of EU projects seeking subsequent funding for **large scale demonstrators** at higher TRL, to **develop circularity hubs** as recently put forward by the Process Industries to deploy a circular economy at scale in collaboration with regions and cities.

- **To support regulatory environment** to facilitate large scale testing and the uptake of new clean technologies.
- **To ensure supporting infrastructure**, in particular related to the deployment of clean hydrogen and energy supply.
- **To increase the competitiveness of national projects at international scale** as linking national support with partnerships requires industry/researchers to be more international in their activities.

What is needed to make this happen?

Currently there is no openness to pool national R&I programs, but rather to fill niche areas and prepare for / follow up EU projects. To make the latter happen, the following ideas emerged from the workshop:

- Important that industry at all levels is involved, and notably SMEs. Member States could organise national initiatives to ensure broad participation of industry, and industry associations could play a role in joining partnerships and represent SMEs (such as the Lithuanian LINPRA).
- **Creation of a structured two-way feedback mechanism to support the take up of project results from partnerships at national level** (example of skills which industry needs and where there is clear lack of connection between EU project results and national activities). Currently, the flow of information takes place mostly at the level of associations. There are also examples from several countries of platforms designed to inform on relevant EU programs.

Box 7. Good practices for the take up of European research results at national level

Some Member States already actively examine what research topics from Europe could be taken up at national level. For instance, **the Netherlands** that organizes Field Labs for dissemination of result. On skills, **Spain** is creating a Steel research ecosystem from an Industrial plan, which has resulted in a technological hub in Asturias. **Norway** gives small additional funding to support national outreach of the results coming from Industry 4.0 European projects

- **It is important to ensure information from partnerships on the available funding possibilities** so that national representatives could communicate this to relevant national stakeholders (industry, national authorities, regions etc.). One practical way to do it is to include a reference to industry calls where there is the ambition and need for sequential funding from the Member States.
- **Creation of sequential and parallel funding opportunities** that allow countries to bring in their national programmes or infrastructure to the partnership (e.g. through the calls for proposals in the work programmes).
- **Important to inform and mobilise Member States on establishing synergies** with Cohesion Funds, Innovation Funds, Clean Energy Transition Fund (related to SET-Plan), Connecting Europe Facility. **The level of knowledge in Member States on practical possibilities for synergies and related funds is relatively low** – whilst a good number of MS are aware of the Funds as such, there is no clear understanding on concrete possibilities for combining and mixing these. Many Member States stressed the importance of making it possible using Cohesion Funds for participation in partnerships (e.g. Slovakia, working on a pilot in Kosice).

- **At Member State level, it is important to plan and earmark funding to support participation in EU partnerships** that are aligned with national priorities. This could include support for follow-up of project results from partnerships, as well as support for complementary activities related to infrastructure and skills development.
- **Coordination on IPCEI and state aid rules** as supporting projects at high TRL levels is seen as difficult by many countries (R&I programmes targeting lower TRL, state aid rules for TRL8-9 infrastructures with possible commercial use). A coordinated approach is seen as helpful in overcoming the hurdles related to state aid for R&I.
- **Ensuring coordination in national administrations** between related ministries and programmes and platforms.

Box 8. National interfaces to partnerships with industry

Some Member States have national platforms, associations and working groups bringing together relevant industry and stakeholders. In many countries, the Ministry is supportive but does not take an active role in linking national stakeholders to EU partnerships. National industry associations often play the role of interlocutor/ interface between national and EU level (incl. related programmes). This kind of national ‘mirroring’ of EU level associations was perceived as a useful practice by many participants.

- Although there was no immediate openness to pool national R&I programs, then the **possibility for using co-fund mechanism in the future was not completely ruled out**. Co-fund action was perceived as a format where Member States could act more concretely. But this form of engagement in the context of partnerships with industry should be complementary their roadmaps (e.g. to connect regional strategies and enable smart financing; in the areas of materials and production or clean energy transition).

How could this be reflected in the design of future partnerships?

- During the meeting, there was a lot of **pragmatism on the governance issue** in that no Member State questioned the governance structures of current cPPPs. No Member State advocated “mirror groups” without predefined priorities.
- **However, there is a clear interest to interact on specific issues**. Many topics of interest related to these partnerships are cross-cutting (e.g. skills for all partnerships, large-scale demonstrators for clean steel and CCNI). In the case of creating a space for discussion these strategic topics at a more operational level, it should reflect the cross-cutting point of view, and be topic-driven.
- To improve the **structured flow of information** on funded projects and opportunities for take-up of results in the context of future partnerships can be **arranged in a practical way** and through informal exchanges, e.g. expert workshops back-to-back with programme committee meetings. In a related manner, it was proposed to **increase the role of the industry association to improve interaction with Member States** (e.g. by inviting them to the events of the association where results are communicated).