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PART 2/2

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT REPORT
Accompanying the document

**Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

**on the participation of the Union in the European Partnership on Metrology jointly
undertaken by several Member States**

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Annex 1 Procedural information

1. LEAD DG, DECIDE PLANNING REFERENCES

Lead DG: Directorate General Research and Innovation (RTD)

Decide number: PLAN/2019/5303

2. ORGANISATION AND TIMING

Institutionalised partnerships are foreseen in Articles 185 and 187 of the Treaty on the Functioning of the European Union (TFEU). The preliminary agreement on Horizon Europe contained a list of possible areas for institutionalised partnerships based on Article 185 and 187. For each of these areas the Commission considered 12 potential institutionalised partnerships. Their set up involves new EU legislation and the establishment of dedicated implementing structures and therefore an impact assessment for each of these initiatives.

Following political validation in June 2019, the impact assessment process started with the publication of inception impact assessments for each initiative in August 2019.

An inter-service steering group (ISSG) on research and innovation partnerships under Horizon Europe was set up in May 2019 and held 4 meetings before submission of the Staff Working Document to the Regulatory Scrutiny Board (7 May 2019, 19 June 2019, 5 December 2019, 20 January 2020). The ISSG consisted of representatives of the Secretariat-General, Directorate-General for Budget, Directorate-General for Research and Innovation Directorate-General for Communications Networks, Content and Technology, Directorate-General for Mobility and Transport, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Directorate-General for Energy, Directorate-General for Environment, Directorate-General for Climate Action, and the Legal Service.

An online public stakeholder consultation was launched between September and November 2019, gathering 1635 replies for all 12 initiatives.

3. CONSULTATION OF THE RSB

Two upstream meetings with the Regulatory Scrutiny Board were held on 10 July 2019 and 30 September 2019.

In accordance with the feedback received from the Regulatory Scrutiny Board on 27.03.2020 the Staff Working Document has been revised as presented in Figure 1. These revisions were endorsed by the Inter Service Steering Group on 16.06.2020. The file was resubmitted to the Regulatory Scrutiny Board who gave a positive opinion with reservations. The reservations are addressed in Figure 2 below.

4. EVIDENCE, SOURCES AND QUALITY

To ensure a high level of coherence and comparability of analysis for all candidate initiatives, an external study was procured to feed into the impact assessments of the 12 candidate

institutionalised partnerships¹ (Technopolis Group, 2020). It consisted of a horizontal analysis and individual thematic analyses for each of the initiatives under review.

For all initiatives, the evidence used include desk research partly covering the main impacts and lessons learned from previous partnerships. A range of quantitative and qualitative data sources complement the evidence base, including evaluations; foresight studies; statistical analyses of Framework Programmes application and participation data and Community Innovation Survey data; analyses of science, technology and innovation indicators; reviews of academic literature; sectoral competitiveness studies and expert hearings. The analyses included a portfolio analysis, a stakeholder and social network analysis in order to profile the actors involved as well as their co-operation patterns, and an assessment of the partnerships’ outputs (bibliometrics and patent analysis). A cost modelling exercise was performed in order to feed into the efficiency assessments of the partnership options. Public consultations (open and targeted) supported the comparative assessment of the policy options. For each initiative up to 50 relevant stakeholders were interviewed by the external contractor (policymakers, business including SMEs and business associations, research institutes and universities, and civil organisations, among others). In addition the analysis was informed by the results of the Open Public Consultation (September – November 2019), the consultation of the Member States through the Strategic Programme Committee and the online feedback received on the Inception Impact Assessments of the set of candidate Institutionalised European Partnerships.

A more detailed description of the methodology and evidence base used, completed by thematic specific methodologies, is provided in Annexes 4 and 6.

Figure 1 Modifications to the draft Staff Working Document based on comments received from the Regulatory Scrutiny Board

Comments from the Regulatory Scrutiny Board	Actions taken for the Staff Working Document
(B) Summary of findings	
<p>(1) The report does not adequately describe the current situation and policy context for metrology research.</p> <p>The report does not outline the sustainability of the preferred option.</p> <p>It does not explain the underlying longer-term vision on how national metrology bodies are</p>	<p>In the revised report, section 1.2 describes systematically the elements of the current situation. Sections 1.2 and 1.3 describe the policy context, addressing the wider European context, as well as the global technological context and the standardisation and regulatory context.</p> <p>In the revised report, section 4.2 sets out the sustainability of the preferred option on the basis that it would provide metrology solutions by 2030 at least equal to the top global performers through dedicated European Metrology Networks. The sustainability of the preferred option is further elaborated in section 5.2 as well as in</p>

¹ Technopolis Group, 2020, forthcoming.

<p>to interact.</p>	<p>sections 6 and 7.</p> <p>In the revised report, section 5.2 describes a programmatic approach supported by a Steering Group that would provide a focus for longer-term interaction among national metrology bodies that they could not achieve on their own or through continued project level interaction. This approach is further elaborated in section 6.</p>
<p>(2) The report does not objectively present what worked and what did not in the previous metrology partnerships. The report does not explain how the new proposed partnership would reflect lessons learned.</p>	<p>In the revised report, in section 1.2, Box 4 describes systematically i) what has been done to date in metrology research and innovation; ii) what has been achieved; and iii) the areas for improvement and unmet challenges. How the new partnership would reflect the lessons learnt is explained in sections 2.2 and 4.4 and this is further elaborated in sections 5 and 6.</p>
<p>(3) The report is not sufficiently clear on how the different options will incentivise and engage key stakeholders and actors to deliver on the objectives.</p>	<p>In the revised report, section 4.4 sets out the required characteristics of the functionalities to incentivise and engage key stakeholders and actors to deliver on the objectives. In section 5, these are addressed in the context of the different options. In section 5.2 in particular, the need for a strategic, programmatic approach as a basis for securing the engagement of key stakeholders is clarified in detail. Section 6.1 elaborates on the extent to which the different options would incentive and engage key stakeholders and actors to deliver on the objectives.</p>
<p>(C) What to improve</p>	
<p>(1) The report should reinforce the foresight element of what is meaningful to invest in now to achieve the vision that Europe has for the future of metrology research. It should clarify the long-term strategic objectives of this institutionalised partnership. It should explore how to best ensure integration of European metrology research in the long term, i.e. either a more centralised European approach or a decentralised network of Member States. The report could better explain how metrology research and cooperation relates to sector-specific research</p>	<p>Drawing on two recent exercises, the “100 Radical Breakthroughs for the Future” study and the BOHEMIA report, the revised report reinforces the foresight element and describes in sections 1 and 2 what is meaningful to invest in now to ensure that metrology research maximises its contribution to the achieving the vision for Europe. In section 2 and in sections 4, 5 and 6 it explores the options for ensuring integration of European metrology research in the long-term. In sections 1 and 2, it elaborates on how metrology relates to sector-specific research. It addresses the</p>

<p>and the work of standardisation bodies.</p>	<p>relation to the standardisation bodies in section 2 and, section 5 and 6 explains how this can be enhanced under a future metrology partnership.</p>
<p>(2) The report should be more transparent on the current situation of the metrology partnership under Horizon 2020. It should present an overview of relevant evaluation findings and explain how the key lessons learnt have been taken on board in the problem definition and in the proposed new partnership. It should clarify how the latter differs from the existing partnership.</p>	<p>In section 1, the revised report presents a transparent analysis of the current situation of the metrology partnership under Horizon 2020. In this regard, Box 4 presents a full overview of relevant evaluation findings. In the problem definition in section 2 and in section 5, it explains how the key lessons have been taken into account and addresses these in considering the options for a possible new partnership under Horizon Europe. In section 6.4, Table 12 clarifies how the preferred option differs from the existing partnership.</p>
<p>(3) The report should better describe the baseline option and explain how it accounts for the costs of discontinuing the current partnership. The baseline should be the point of comparison against which all other options are assessed. It should thus consistently be scored as zero, while the scoring of the other options should be adjusted to reflect their impacts as compared to the baseline.</p>	<p>In section 6.2 of the revised report, a detailed explanation is provided of the baseline option and of the costs related to discontinuation of the existing initiative. The scoring has also been adjusted to reflect the baseline as zero and the other options are compared to this zero score.</p>
<p>(4) The impact assessment should clarify to what extent and how the different options appeal to the main stakeholder groups whose voluntary participation is essential to success, as well as with policy-makers and regulators. The report should clarify what is known about different stakeholder groups' views on the various options.</p>	<p>In section 4 of the revised report, the key functionalities are elaborated. On this basis, in sections 5 and 6 the extent and how the different options appeal to the main stakeholder groups, as well to policy-makers and regulators, is elaborated in detail. The views of different stakeholder groups on the various options are presented in dedicated boxes in section 6.</p>
<p>(5) The report should be more transparent about what issues remain open after this impact assessment and will be decided at a later stage, because of the particularities of this exercise where some contextual elements (e.g. the budget) remain undecided.</p>	<p>In sub-section 6.4 of the revised report, the issues that remain open after this impact assessment and that will be decided at a later stage are addressed explicitly.</p>
<p>(6) The report should better clarify the relationship between the objectives, the “expected impacts” and the “functionalities”. Impacts should be assessed with respect to</p>	<p>In the revised report, section 4 addresses systematically the objectives, the “expected impacts” and the “functionalities”. In section 5, the impacts are assessed with respect to the</p>

the specific objectives.	specific objectives in the context of the functionalities.
(7) The report should provide – as far as possible – quantified estimates of the cost of the different partnership types, to help readers compare the different options, notably on efficiency. The report should clarify why it considers the overall costs of the co-funded and institutionalised partnerships to be equal.	<p>The revised report analyses the overall administrative, operational and coordination costs of the various options. These costs are put into context to reflect the expected co-financing rates and the total budget available for each of the policy options, assuming a common Union contribution (cost-efficiency).</p> <p>In the revised report, in Part 1 (‘common part’), section 2.3.2 indicates that in order to compare the expected costs and benefits of each option (efficiency), the report broadly follows a cost-effectiveness approach to establish to which extent the intended objectives can be achieved for a given cost.</p> <p>Section 6.2 has been updated to take into account all the different cost-aspects as compared to the baseline option. The section also takes into account the common assumptions from the common part of the Impact Assessment. With the quantified costs of discontinuation and operational/administrative activities, the cost table has now been updated.</p>

Figure 2 Modifications to the draft Staff Working Document based on comments received in the second opinion from the Regulatory Scrutiny Board on 15.07.2020

Comments from the Regulatory Scrutiny Board	Actions taken for the Staff Working Document
(B) Summary of findings	
The report does not sufficiently explain how this partnership will contribute to the longer-term vision for European metrology research.	Elements have been added in section 4, to explain the creation of research excellence in metrology across selected strategic areas of application, with a main focus on the European metrology networks. The link between the end of the initiative in 2027 and the target date of 2030 is also explained.
The report is not clear on how private sector actors would be involved under the preferred partnership form (i.e. a public-public partnership) and their incentives to	In section 4.2, the central role that private sector actors will need to play in order to achieve the economic and technological objectives of the initiatives is elaborated, including an explanation of the incentive for

<p>participate.</p>	<p>them to participate in the initiative.</p> <p>This is further elaborated in section 4.3, where the specific impacts for private sector actors arising from their participation in the initiative are addressed.</p> <p>In the description of the policy options in section 5.2, the incentive for private actors to participate under the preferred option is set out.</p> <p>In section 6.4, the role of the Steering Group is elaborated to explain how it would facilitate and ensure the involvement of the private sector actors in strategic development and implementation of the partnership initiative under the preferred option, so incentivising their participation..</p>
<p>(C) What to improve</p>	
<p>As part of the objective to develop transnational metrology networks, the report explains that as of a certain point (by 2030) a partnership would no longer be necessary. The report should clarify why this is included in the impact assessment and how it links with the current initiative, which covers the financing period up to 2027. If it is confirmed, the report should bring out more clearly how the currently proposed partnership is expected to help establish the necessary conditions for its future discontinuation.</p>	<p>The text has been elaborated further under the first specific objective in section 4.2 to explain the transition from the end of the last call until the funding of that call runs out in 2030.</p>
<p>The report should explain better how private sector actors would be involved under the preferred ‘public-public’ partnership form. It should clarify the incentives for them to engage.</p>	<p>In section 4.2, the central role that private sector actors will need to play in order to achieve the economic and technological objectives of the initiatives is elaborated, including an explanation of the incentive for them to participate in the initiative.</p> <p>This is further elaborated in section 4.3, where the specific impacts for private sector actors arising from their participation in the initiative are addressed.</p> <p>In the description of the policy options in section 5.2, the incentive for private actors to participate under the preferred option is set</p>

	<p>out.</p> <p>In section 6.4, the role of the Steering Group is elaborated to explain how it would facilitate and ensure the involvement of the private sector actors in strategic development and implementation of the partnership initiative under the preferred option, so incentivising their participation..</p>
<p>The report could usefully provide more background explanation on the national metrology research bodies and how they function.</p>	<p>This is addressed by including an additional sub-section 2.2 in Annex 6.</p>

Annex 2 Stakeholder Consultation

1. OVERVIEW FOR ALL CANDIDATE INSTITUTIONALISED EUROPEAN PARTNERSHIPS

1.1. Introduction

In line with the Better Regulation Guidelines,² the stakeholders were widely consulted as part of the impact assessment process of the 12 candidates for institutionalised partnerships, including national authorities, the EU research community, industry, EU institutions and bodies, and others. These inputs were collected through different channels:

- A feedback phase on the inception impact assessments of the candidate initiatives in August 2019, gathering 350 replies for all 12 initiatives on the “Have your say” web portal during a period of 3 weeks;
- A structured consultation of Member States performed by the EC services over 2019 through the Shadow Strategic Configuration of the Programme Committee of Horizon Europe (in line with the Article 4a of the Specific Programme of Horizon Europe). This resulted in 44 possible candidates for European Partnerships identified as part of the first draft Orientations Document towards the Strategic Plan for Horizon Europe (2021-2024), taking into account the areas for possible institutionalised partnerships defined in the Regulation³.
- An online public stakeholder consultation administered by the EC, based on a structured questionnaire, open between September and November 2019, gathering 1635 replies for all 12 initiatives;
- A targeted consultation run by the external study contractors with a total of 608 interviews performed as part of the thematic studies by the different study teams between August 2019 and January 2020.

1.2. Horizontal results of the Open Public Consultation

The consultation was open to everyone via the EU Survey online system⁴. The survey contained two main parts to collect views on general issues related to European partnerships (in Part 1) and specific responses related to one or more of the 12 candidate initiatives (as selected by participants). The survey was open from 11 September to 12 November 2019. The consultation was available in English, German and French and advertised widely through the European Commission’s online channels as well as via various stakeholder organisations.

1.2.1. Profile of respondents

In total, 1635 respondents filled in the questionnaire of the open public consultation. Among them, 272 respondents (16.64%) were identified to have responded to the consultation as part of a campaign (coordinated responses). Based on the Better Regulation Guidelines, the groups of respondents where at least 10 respondents provided coordinated answers were labelled as ‘campaigns’, segregated and analysed separately and from other responses. In total 11

² https://ec.europa.eu/info/files/better-regulation-guidelines-stakeholder-consultation_en

³ In addition, a written consultation of national ministries was carried out in March 2020. Member States confirmed the need for a new metrology initiative.

⁴ <https://ec.europa.eu/eusurvey/runner/ConsultationPartnershipsHorizonEurope>

campaigns were identified, the largest of them includes 57 respondents⁵⁵. In addition, 162 respondents in the consultation also display similarities in responses but in groups smaller than 10 respondents. Hence, these respondents were not labelled as campaigns and therefore were not excluded from the general analysis.

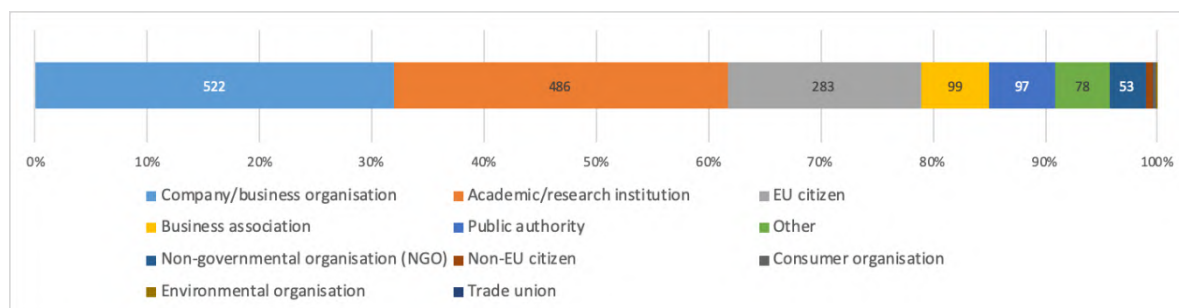
Table 1: Country of origin of respondents (N=1635)

Country	Number of respondents	Percentage of respondents
Germany	254	15.54%
Italy	221	13.52%
France	175	10.70%
Spain	173	10.58%
Belgium	140	8.56%
The Netherlands	86	5.26%
Austria; United Kingdom	61	3.73%
Finland	49	3.00%
Sweden	48	2.94%
Poland	45	2.75%
Portugal	32	1.96%
Switzerland	28	1.71%
Czechia	24	1.47%
Greece	23	1.41%
Norway; Romania	22	1.35%
Denmark	20	1.22%
Turkey	19	1.16%
Hungary	14	0.86%
Ireland	12	0.73%
United States	11	0.67%
Estonia; Slovakia; Slovenia	10	0.61%
Bulgaria; Latvia	9	0.55%
Bosnia and Herzegovina	7	0.43%
Lithuania	4	0.24%
Canada; Croatia; Israel	3	0.18%
China; Ghana; Iceland; Japan; Luxembourg; Morocco	2	0.12%
Bhutan; Botswana; Cyprus; Iran; Malta; Mexico; Moldova; Mongolia; Palestine; Russia; Serbia; South Africa; Tunisia; Ukraine; Uruguay	1	0.06%

As shown in Figure 2, the three biggest **categories of respondents** are representatives of companies and business organisations (522 respondents or 31.9%), academic and research institutions (486 respondents or 29.7%) and EU citizens (283 respondents or 17.3%). Among the group of respondents that are part of campaigns, most respondents are provided by the same groups of stakeholders, namely company and business organisations (121 respondents or 44.5%), academic and research institutions (54 respondents or 19.8%) and EU citizens (42 respondents or 15.4%).

⁵⁵ The candidate Institutionalised Partnership Clean Hydrogen has the highest number of campaigns, namely 5. A few initiatives, such as Innovative SMEs, Smart Networks and Systems, were not targeted by campaigns. Some campaign respondents decided to provide opinions about several partnerships.

Figure 2 Type of respondents (N=1635) - For all candidate initiatives



Among all consultation respondents, 1303 (79.69%) have been **involved in the on-going research and innovation framework programme** Horizon 2020 or the preceding Framework Programme 7, while 332 respondents (20.31%) were not. In the group of campaign respondents, the share of those who were involved in these programmes is higher (245 respondents out of 272 or 90.07%) than in the group of non-campaign respondents (1058 out of 1363 or 77.62%). When respondents that participated in the Horizon 2020 or in the preceding Framework Programme 7 were asked to indicate in which capacity they were involved in these programmes, the majority stated they were a beneficiary (1033 respondents) or applicant (852 respondents). The main stakeholder categories, e.g. companies/business organisation, academic/research institutions, etc., show a similar distribution across the capacities in which they ‘have been involved in Horizon 2020 or in the Framework Programme 7’ as the overall population of consultation respondents.

Among those who have been involved in Horizon 2020 or the preceding Framework Programme 7, 1035 respondents (79.43%) are/were **involved in a partnership**. The share of respondents from campaigns that are/were involved in a partnership is higher than for non-campaign respondents, 89.80% versus 77.03% respectively. The list of partnerships under Horizon 2020 or its predecessor Framework Programme 7 together with the numbers, percentages of participants is presented in Table 2, the table also show the key stakeholder categories for each partnership. Most consultation respondents participated in the following partnerships: Fuel Cells and Hydrogen 2 (FCH2) Joint Undertaking, Clean Sky 2 Joint Undertaking, European Metrology Programme for Innovation and Research (EMPIR) and in Bio-Based Industries Joint Undertaking. The comparison between the non-campaign and campaign groups of respondents shows that the overall distribution is quite similar. However, there are some differences. For the campaign group almost a half of respondents is/was involved in the Fuel Cells and Hydrogen 2 (FCH2) Joint Undertaking, a higher share of campaign respondents is/was participating in Clean Sky 2 Joint Undertaking and in Single European Sky Air Traffic Management Research (SESAR) Joint Undertaking.

When respondents were asked in which **role(s) they participate(d) in a partnership(s)**, over 40% indicated that they act(ed) as partner/member/beneficiary in a partnership. The second largest group of respondents stated that they applied for funding under a partnership. The roles selected by non-campaign and campaign respondents are similar.

Table 2: Partnerships in which consultation respondents participated (N=1035)

Name of the partnership	Number and % of respondents from both groups (n=1035)	Number and % of respondents from a non-campaign group (n=815)	Academic/research institutions	Business associations	Company/business organisations	Company/business organisations	EU citizens	NGOs	Public authority
Fuel Cells and Hydrogen 2 (FCH2) Joint Undertaking	354 (33.33%)	247 (30.31%)	97	9	37	43	41	8	5
Clean Sky 2 Joint Undertaking	195 (18.84%)	145 (17.79%)	57	2	10	27	37	1	7
European Metrology Programme for Innovation and Research (EMPIR)	150 (14.49%)	124 (15.21%)	64	0	13	9	14	2	19
Bio-Based Industries Joint Undertaking	142 (13.72%)	122 (14.97%)	39	8	20	27	14	1	6
Shift2Rail Joint Undertaking	124 (11.98%)	101 (12.40%)	31	7	5	31	14	3	7
Electronic Components and Systems for European Leadership (ECSEL) Joint Undertaking	111 (10.72%)	88 (10.80%)	42	2	7	20	12	0	5
Single European Sky Air Traffic Management Research (SESAR) Joint Undertaking	66 (6.38%)	46 (5.64%)	10	3	3	20	3	2	3
5G (5G PPP)	53 (5.12%)	47 (5.77%)	20	1	6	14	5	0	1
Eurostrars-2 (supporting research-performing small and medium-sized enterprises)	44 (4.25%)	40 (4.91%)	17	0	6	1	7	0	6
Innovative Medicines Initiative 2 (IMI2) Joint Undertaking	37 (3.57%)	35 (4.29%)	18	2	3	3	2	4	3
Partnership for Research and Innovation in the Mediterranean Area (PRIMA)	28 (2.71%)	26 (3.19%)	15	0	3	1	2	0	2
European and Developing Countries Clinical Trials Partnership	25 (2.42%)	24 (2.94%)	12	0	1	2	3	3	2
Ambient Assisted Living (AAL 2)	22 (2.13%)	21 (2.58%)	11	2	1	1	3	0	3
European High-Performance Computing Joint Undertaking (EuroHPC)	22 (2.13%)	18 (2.21%)	6	0	2	3	5	0	2

For the remaining of the consultation respondents could provide their views on each/several of the candidate initiatives. The majority of respondents (31.4%) provided their views on the Clean Hydrogen candidate partnership. More than 45% of respondents from the campaigns selected this partnership. Around 15% provided their views for European Metrology, Clean Aviation and Circular Bio-based Europe. The share of respondents in the campaign group that chose to provide views on the Clean Aviation candidate partnership is of 20%. The smallest number of respondents provided opinions on the candidate initiative ‘EU-Africa research partnership on health security to tackle infectious diseases – Global Health’.

Table 3: Candidate Institutionalised Partnerships for which consultation respondents provide responses (N=1613)

Name of the candidate Institutionalised European partnership	Number and % of respondents from both groups (n=1613)	Number and % of respondents from a non-campaign group (n=1341)
Clean Hydrogen	506 (31.37%)	382 (28.49%)
European Metrology	265 (16.43%)	225 (16.78%)
Clean Aviation	246 (15.25%)	191 (14.24%)
Circular bio-based Europe	242 (15%)	215 (16.03%)
Transforming Europe’s rail system	184 (11.41%)	151 (11.26%)
Key Digital Technologies	182 (11.28%)	162 (12.08%)
Innovative SMEs	111 (6.88%)	110 (8.20%)
Innovative Health Initiative	110 (6.82%)	108 (8.05%)
Smart Networks and Services	109 (6.76%)	107 (7.98%)
Safe and Automated Road Transport	108 (6.70%)	102 (7.61%)
Integrated Air Traffic Management	93 (5.77%)	66 (4.92%)
EU-Africa research partnership on health security to tackle infectious diseases – Global Health	49 (3.04%)	47 (3.50%)

1.2.2. Characteristics of future candidate European Partnerships

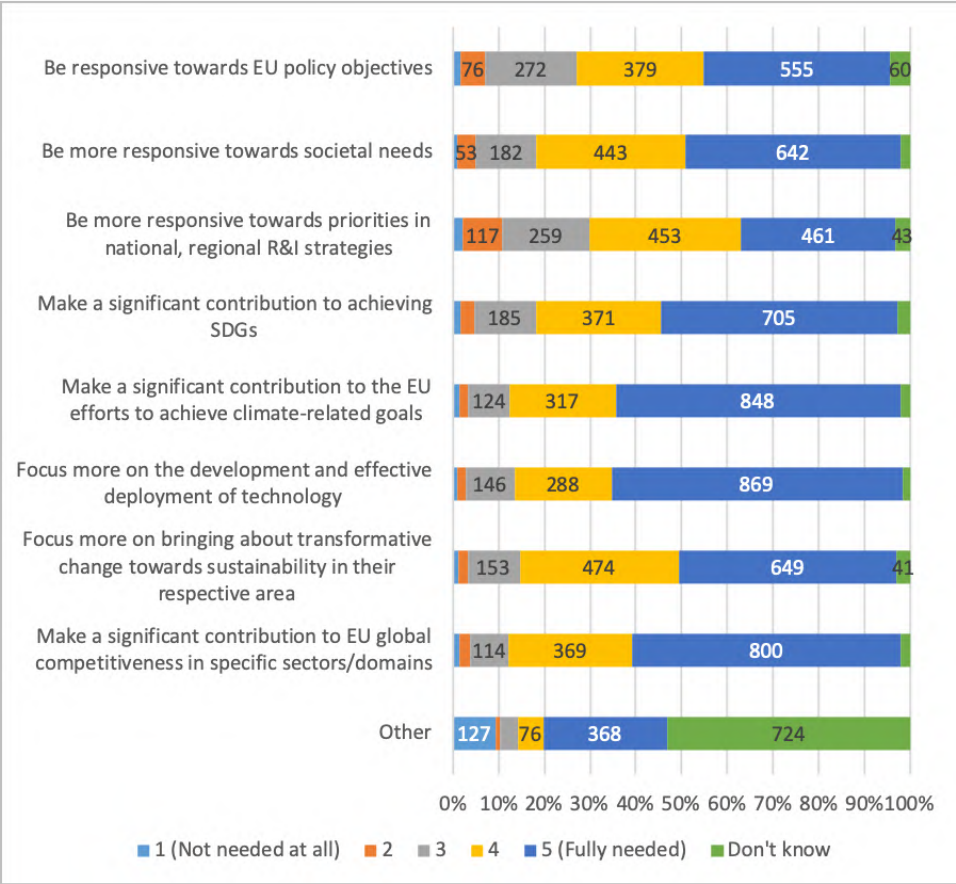
Respondents were asked to assess what areas, objectives, aspects need to be in the **focus of the future European Partnerships** under Horizon Europe and to what extent. According to Figure 3, a great number of respondents consider that a significant contribution by the future European Partnerships is ‘fully needed’ to achieve climate-related goals, to the development and effective deployment of technology and to EU global competitiveness in specific sectors/domains. Overall, respondents’ views reflect that many aspects require attention of the Partnerships. The least attention should be paid to responding towards priorities of national, regional R&D strategies, including smart specialisation strategies, according to respondents.

Overall, only minor differences can be found between the main stakeholder categories. Academic/research institutions value the responsiveness towards EU policy objectives and focus on development and effective deployment of technology a little less than other respondents. Business associations, however, find that the future European Partnerships under Horizon Europe should focus a little bit more on the development and effective deployment of technology than other respondents. Furthermore, business associations, large companies as well as SMEs value the role of the future European Partnerships for significant contributions

to EU global competitiveness in specific sectors domains a little higher than other respondents. Finally, both NGOs and Public authorities put a little more emphasis on the role of the future European Partnerships for significant contributions to achieving the UN SDGs. The views of citizens (249, or 18.3%) do not reflect significant differences with other types of respondents. However, respondents that are/were directly involved in a partnership under Horizon 2020 or its predecessor Framework Programme 7 assign a higher importance of the future European Partnerships to be more responsive towards EU policy objectives and to make a significant contribution to achieving the UN Sustainable Development Goals.

A qualitative analysis of the “other” answers highlights the importance of collaboration and integration of relevant stakeholders to tackle main societal challenges and to contribute to policy goals against which fragmentation of funding and research efforts across Europe should be avoided. Additionally, several respondents suggested that faster development and testing of technologies, acceleration of industrial innovation projects, science transfer and market uptake are needed. Next to that, many respondents provided answers related to the hydrogen and the energy transition, which corresponds to the high number of respondents that provided answers to the candidate initiative on this topic.

Figure 3: To what extent do you think that the future European Partnerships under Horizon Europe need to (N=1363) (non-campaign replies) For all candidate initiatives



1.2.3. Main advantages and disadvantages of Institutionalised European Partnerships

An open question asked to outline the main advantages and disadvantages of participation in an Institutionalised European Partnership (as a partner) under Horizon Europe (1551 respondents). The advantages mentioned focus on the development of technology, overall

collaboration between industry and research institutions, and the long-term commitment. Disadvantages mentioned are mainly administrative burdens. An overview is provided below.

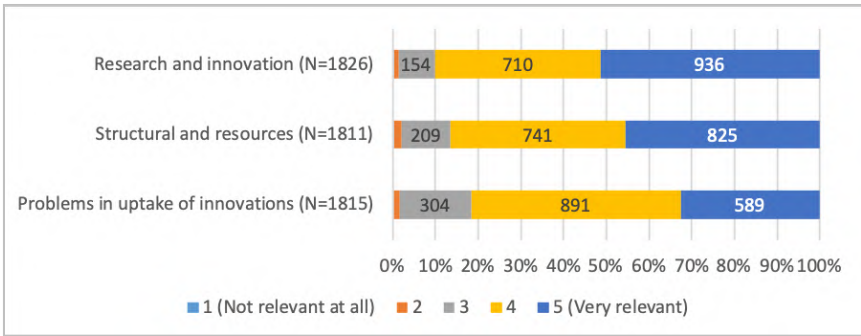
Advantages mentioned: Long term commitment, stability, and visibility in financial, legal, and strategic terms; Participation of wide range of relevant stakeholders in an ecosystem (large/small business, academics, researchers, experts, etc.); Complementarity with other (policy) initiatives at all levels EU, national, regional; Efficient and effective coordination and management; High leverage of (public) funds; Some innovative field require high levels of international coordination/standardisation (at EU/global level); Ability to scale up technology (in terms of TRL) through collaboration; Networking between members; Direct communication with EU and national authorities

Disadvantages mentioned: Slow processes; System complexity; Continuous openness to new players should be better supported as new participants often bring in new ideas/technologies that are important for innovation; Lower funding percentage compared to regular Horizon Europe projects; Cash contributions; Administrative burdens; Potential for IPR constraints.

1.2.4. *Relevance of EU level to address problems in Partnerships’ areas*

Respondents were asked to rate the **relevance of research and innovation efforts at EU level efforts to address specific problems in the area of partnerships**. Research and innovation related problems were rated as most relevant across all candidate initiatives, followed by structural and resources problems and problems in the uptake of innovations. Overall, all three areas were deemed (very) relevant across the partnerships, as more than 80% of respondents found these challenges (very) relevant. Only minor differences were found between stakeholder categories. Research and innovation problems were found slightly more relevant by academic/research institutions, yet slight less relevant by large companies and SMEs. Structural and resource problems were indicated as slightly more relevant by NGOs, but slightly less by academic/research institutions. While both NGOs and public authorities find slightly more relevant to address problems in uptake of innovation than other respondents. The views of citizens are not differing significantly. Respondents that are/were directly involved in a current/preceding partnership find, however, the need to address problems related to the uptake of innovations slightly more relevant than other respondents.

Figure 4: To what extent do you think this is relevant for research and innovation efforts at EU level to address the following problems in relation to the candidate partnership in question? (non-campaign replies) Aggregation of responses of all candidate initiatives

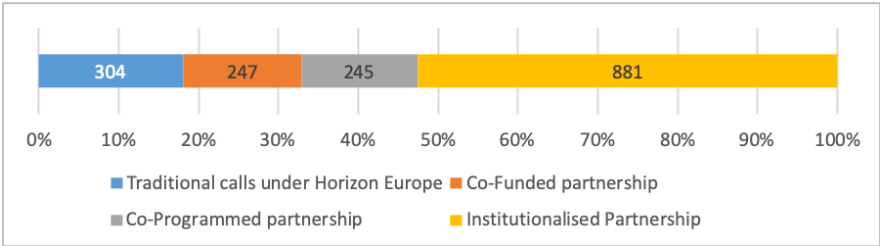


1.2.5. *Horizon Europe mode of intervention to address problems*

Respondents were asked to indicate how these challenges could be addressed through **Horizon Europe intervention**. Just over 50% of all respondents indicated that

institutionalised partnerships were the best fitting intervention, with relatively strong differences between stakeholder categories. The use of Institutionalised Partnership was indicated more by business associations and large companies, but less by academic/research institutions and SMEs. While academic/research institutions valued traditional calls more often, this was not the case for business associations, large companies and public authorities. Public authorities indicated a co-programmed intervention more often than other respondents. Citizens indicated slightly less often that institutionalised partnerships were the best fitting intervention. Respondents that are/were directly involved in a current/preceding partnership, selected the institutionalised partnership intervention in far higher numbers (nearly 70%).

Figure 5: In your view, how should the specific challenges described above be addressed through Horizon Europe intervention? (non-campaign replies) For all candidate initiatives



When asked to reflect on their answers, respondents that pointed to the need for using institutionalised partnership mentioned the long-term commitment of collaboration, a common and ambitious R&I strategy as well as the overall collaboration between industry and research institutions. Others shared positive experiences with other modes of interventions:

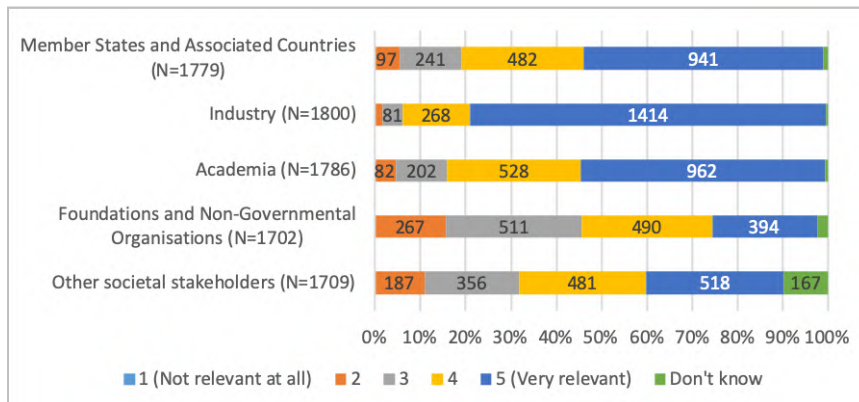
- Traditional calls, because of their flexibility and integration of a wide range of actors, as long as the evaluation panels do not deviate from the policy premier. This was mentioned by 94 participants, including companies (25), academics (26) and EU citizens (25).
- Co-funded partnership, as a mechanism to ensure that all participants take the effort seriously, while allowing business partnerships to develop. This approach was deemed suitable based on previous experiences with ERANETs. This was raised by 84 participants, 36 of them academic respondents, 18 companies and 16 EU citizens.
- Co-programmed partnerships, to tackle the need to promote and engage more intensively with the private sector. This was mentioned by 97 participants, most of them companies (34), followed by academics (22), business associations (15) and EU citizens (11).

1.2.6. Relevance of a set of elements and activities to ensure that the proposed European Partnership would meet its objectives

Setting joint long-term agendas

Respondents were asked how relevant it is for the proposed European Partnerships to meet their objectives to have a strong involvement of specific stakeholder groups in setting joint long-term agenda. All respondents see stakeholders from industry as the most relevant, followed by academia and governments. The involvement of foundations and NGOs as well as other societal stakeholders were, however, still found to be (very) relevant by more than 50% of the respondents. Most respondents indicated the stakeholder group they belong to themselves or that represent them as relevant to involve.

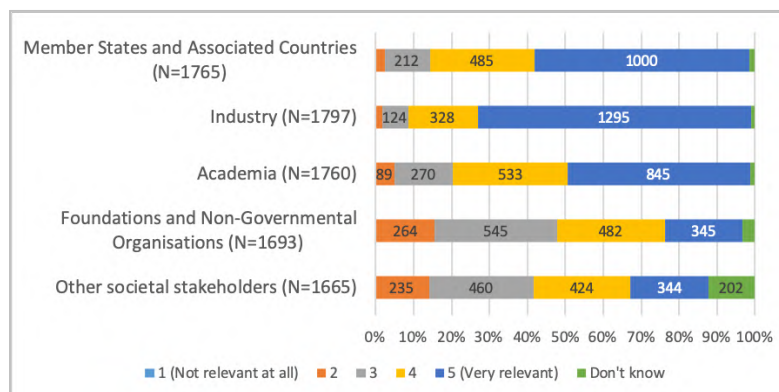
Figure 6: In your view, how relevant are the following elements and activities to ensure that the proposed European Partnership would meet its objectives - Setting joint long-term agenda with strong involvement of: (non-campaign replies) For all candidate initiatives



Pooling and leveraging resources through coordination, alignment and integration with stakeholders

Respondents were asked how relevant it is for the proposed European Partnership to meet its objectives to pool and leverage resources (financial, infrastructure, in-kind expertise, etc.) through coordination, alignment and integration with specific groups of stakeholders. Respondents see stakeholders from industry as the most relevant, followed by academia and governments (Member States and Associated Countries). The involvement of foundations and NGOs as well as other societal stakeholders are also still found to be (very) relevant for more than 50% of the respondents. Similarly as described for the question on setting joint long-term agendas, most stakeholder categories valued their own involvement higher than other respondents – although also here differences between stakeholder categories were minor.

Figure 7: In your view, how relevant are the following elements and activities to ensure that the proposed European Partnership would meet its objectives – Pooling and leveraging resources (financial, infrastructure, in-kind expertise, etc.) through coordination, alignment and integration with: (non-campaign replies) For all candidate initiatives

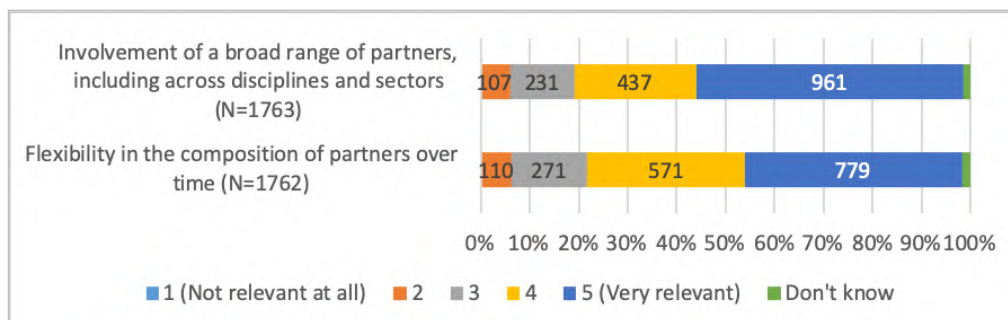


Composition of the partnerships

Regarding the composition of the partnership most respondents indicated that for the proposed European Partnership to meet its objectives the composition of partners needs to be flexible over time and that a broad range of partners, including across disciplines and sectors, should be involved (see Figure 8). When comparing stakeholder groups only minor

differences were found. Academic/research institutions and public authorities found the involvement of a broad range of partners and flexibility in the composition of partners over time slightly more relevant than other respondents, while large companies found both less relevant. SMEs mainly found the flexibility in the composition of partners over time less relevant than other respondents, while no significant differences were found regarding the involvement of a broad range of partners. Citizens provided a similar response to non-citizens. Respondents that are/were directly involved in a current/preceding partnership, when compared to respondents not involved in a current/preceding partnership, indicated a slightly lower relevance of the involvement of a broad range of partners and flexibility in the composition of partners over time.

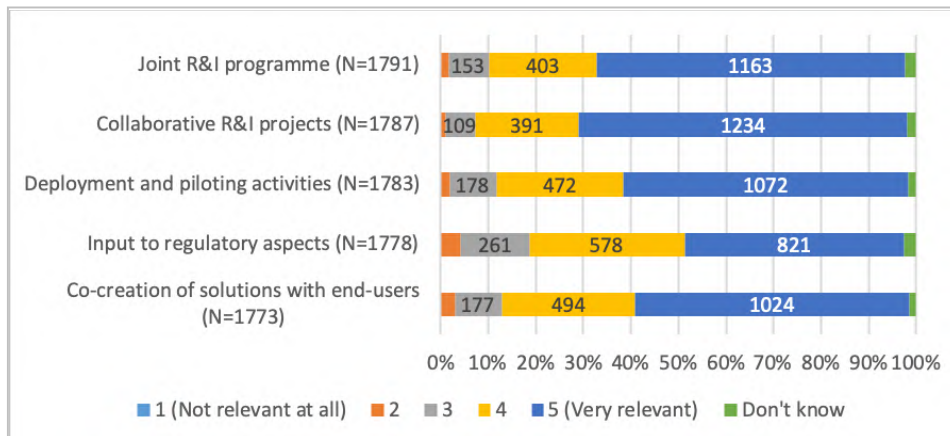
Figure 8: In your view, how relevant are the following elements and activities to ensure that the proposed European Partnership would meet its objectives – Partnership composition (non-campaign replies) Aggregation of responses of all candidate initiatives



Implementation of activities

Most respondents indicated that implementing activities like a joint R&I programme, collaborative R&I projects, deployment and piloting activities, providing input to regulatory aspects and the co-creation of solutions with end-users are all (very) relevant for the partnerships to be able to meet its objectives. Minor differences were found between the main stakeholder categories; the differences found were in line with their profile. As such, academic/research institutions found joint R&I programme & collaborative R&I projects slightly more relevant and deployment and piloting activities, input to regulatory aspects and co-creation with end-users slightly less relevant than other respondents. For SMEs an opposite pattern is shown. Large companies, however, also found collaborative R&I projects slightly more relevant than other respondents, as well as input to regulatory aspects. The views of citizens are similar to non-citizens. Respondents that are/were directly involved in a current/preceding partnership, when compared to respondents not involved in a current/preceding partnership, show a slightly higher relevance across all activities.

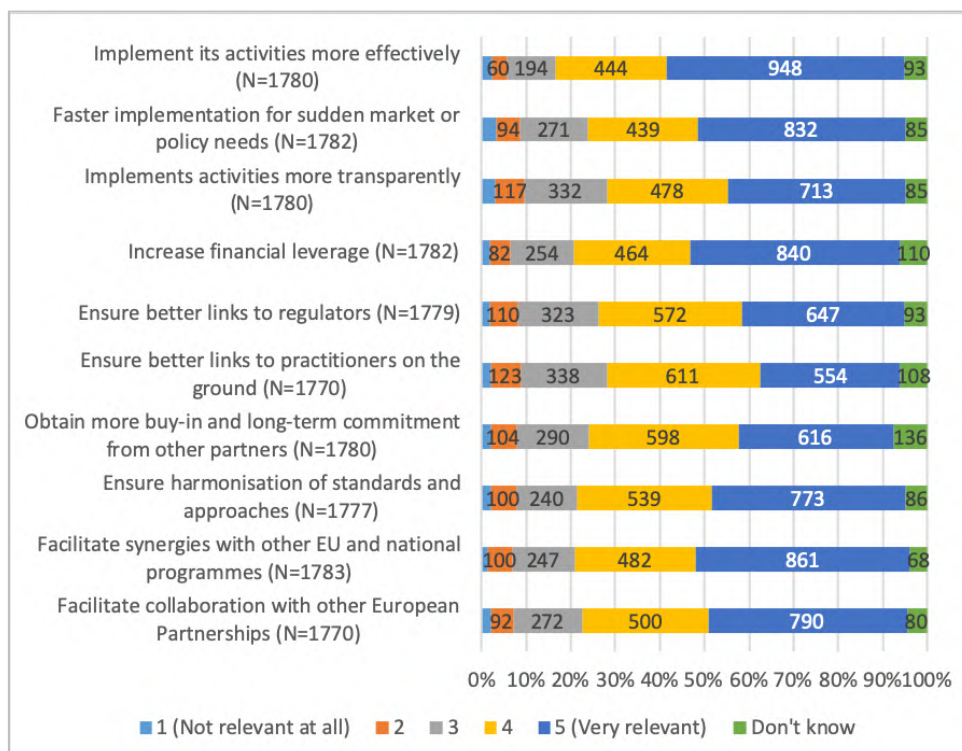
Figure 9: In your view, how relevant are the following elements and activities to ensure that the proposed European Partnership would meet its objectives – Implementing the following activities (non-campaign replies) For all candidate initiatives



1.2.7. Relevance of setting up a legal structure (funding body) for the candidate European Partnerships to achieve improvements

Respondents were asked to reflect on the relevance of setting up a legal structure (funding body) for achieving a set of improvements, as shown in the Figure below. In general, 70%-80% of respondents find a legal structure (very) relevant for these activities. It was found most relevant for implementing activities in a more effective way and least relevant for ensuring a better link to practitioners on the ground, however differences are small.

Figure 10: In your view, how relevant is to set up a specific legal structure (funding body) for the candidate European Partnership to achieve the following? (non-campaign replies) Aggregation of responses of all candidate initiatives

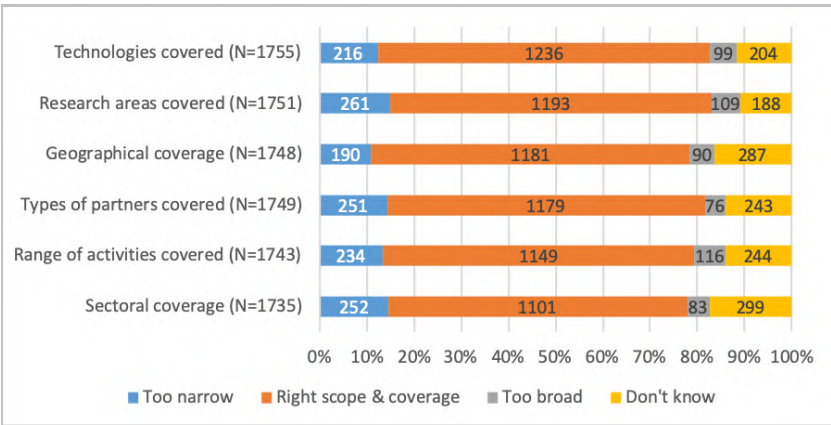


When comparing stakeholder categories there are only minor differences. Academic/research institutions indicated a slightly lower relevance for transparency, better links to regulators as well as obtaining the buy-in and long-term commitment of other partners. SMEs also indicated a lower relevance regarding obtaining the buy-in and long-term commitment of other partners. Large companies showed a slightly higher relevance for implementing activities effectively, ensure better links to regulators, obtaining the buy-in and long-term commitment of other partners, synergies with other EU/Member States programmes and collaboration with other EU partnerships. NGOs find it slightly more relevant to implement activities faster for sudden market or policy needs. Public authorities, however, find it slightly less relevant to facilitate collaboration with other European Partnerships than other respondents. The views of citizens show a slightly lower relevance for a legal structure in relation to implementing activities in an effective way. Respondents that are/were directly involved in a current/preceding partnership indicated a higher relevance across all elements presented.

1.2.8. Scope and coverage of the candidate European Partnerships based on their inception impact assessments

Consulted on the scope and coverage for the partnerships, based on their inception impact assessments, the large majority feels like the scope and coverage initially proposed in the inception impact assessments is correct. However, about 11% to 15% of the respondents indicated the scope and coverage to be too narrow. About 11%-17% of respondents answered “Don’t know”. Overall, differences between the main stakeholder categories were found to be minor. Academic/research institutions indicated slightly more often that the research area was “too narrow” than other respondents. SMEs on the other hand indicated slightly more often that the research area and the geographical coverage were “too broad”. NGOs and public authorities, however, found the geographical coverage slightly more often “too narrow”. Large companies found the range of activities slightly more often “too broad” and the sectoral focus slightly more often “too narrow” when compared to other respondents. The views of citizens are the same as for other respondents. Respondents that are/were directly involved in a current/preceding partnership more often indicated that the candidate institutionalised European Partnership have the “right scope & coverage”.

Figure 11: What is your view on the scope and coverage proposed for this candidate institutionalised European Partnership, based on its inception impact assessment? (non-campaign replies) Aggregation of responses of all candidate initiatives



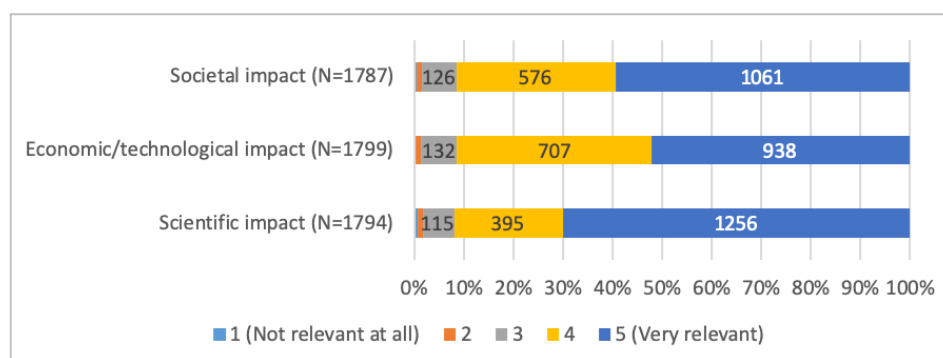
1.2.9. Scope for rationalisation and alignment of candidate European Partnerships with other initiatives

When asked whether it would be possible to rationalise a specific candidate European Institutionalised Partnership and its activities, and/or to better link with other comparable initiatives, nearly two thirds of respondents answered “Yes” (1000, or 62%), while over one third answered “No” (609, or 39%). Nearly no differences were found between stakeholder categories, only large companies and SMEs indicated slightly more often “Yes” in comparison to other respondents. The views of citizens are the same as for other respondents. Respondents that are/were directly involved in a current/preceding partnership, indicated “No” more often, the balance is about 50/50 between “Yes” and “No” for this group.

1.2.10. Relevance of European Partnerships to deliver targeted scientific, economic/technological and societal impacts

Finally, respondents were asked to rate the relevance of partnership specific impacts in three main areas: Societal; Economic/technological; and Scientific impacts. All three areas were deemed (very) relevant across the candidate partnerships. Scientific impact was indicated as the most relevant impact, more than 90% of respondents indicated that this as (very) relevant. Only minor difference between stakeholder groups were found. Academic/research institutions found scientific impacts slightly more relevant, while large companies found economic and technological impacts slightly more relevant than other respondents. NGOs found societal impact slightly more relevant, while SMEs found this slightly less important. Citizens did not a significantly different view when compared to other respondents. Respondents that are/were directly involved in a current/preceding partnership find all impacts slightly more relevant than other respondents.

Figure 12: In your view, how relevant is it for the candidate European Institutionalised Partnership to deliver on the following impacts? (non-campaign replies) Aggregation of responses of all candidate initiatives



1.3. Stakeholder consultation results for this specific initiative

There are 225 respondents who have answered (part of) the consultation for the European Metrology Partnership. Of these respondents, 36 (16.0%) were citizens. The largest group of respondents were from academic and research institutions with 112 (49.8%) respondents. There were 32 (14.2%) respondents from businesses and three from business associations (1.3%). Also, 28 respondents were from public authorities (12.4%). The remaining respondents were from NGOs (3, 1.3%) or selected other (11, 4.9%). Almost 75% of respondents, namely 168 (74.7%), have been involved in the on-going research and innovation framework programme Horizon 2020 or the preceding Framework Programme 7,

of which 124 respondents (73.8%) were directly involved in a partnership under Horizon 2020 or its predecessor Framework Programme 7.

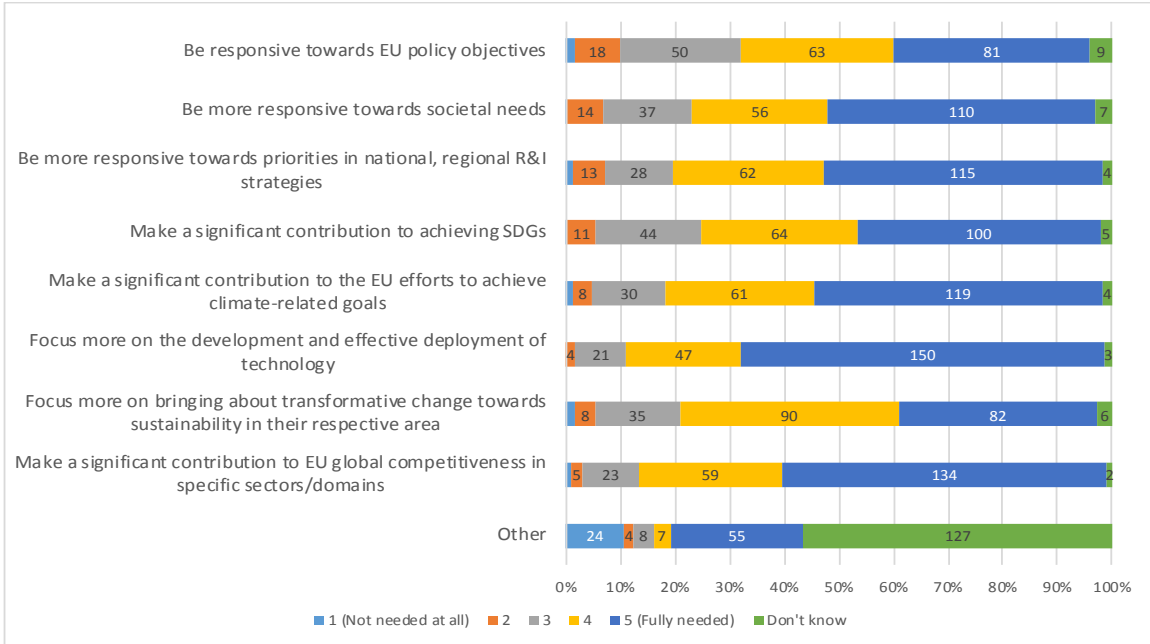
1.3.1. Results on general questions

Relevance of efforts of the candidate European Partnership to address problems

At the beginning of the consultation, the respondents of this partnership were asked regarding their views of the needs of the future European Partnerships under Horizon Europe. All 225 respondents answered these questions. Overall, a large part of respondents indicated that many of the options presented needs were fully needed. The needs where most respondents indicated this, was focusing more on the development and effective deployment of technology (150, 66.7%) and make a significant contribution to EU global competitiveness in specific sectors and/or domains (134, 59.6%). Aside from ‘other’, the options where the least amount of respondents indicated that improvements were fully needed, was making being more responsive towards EU policy objectives (81, 36.0%) and focusing more on bringing about transformative change towards sustainability in their respective area (82, 36.4%).

No statistical differences were found between the views of citizens and other respondents for most needs. However, citizens found the needs of being more responsive towards societal needs and to focus more on bringing about transformative change towards sustainability slightly less relevant.

Figure 13: Views of the respondents in regard to the needs of future European Partnerships under Horizon Europe (N=225)



The respondents also had the option to indicate other needs. The results of the analysis show that respondents have indicated the needs of involvement of relevant European partners, strategic and sustainable planning as well as significant national contributions.

Main advantages and disadvantages of participation in the Institutionalised European Partnership

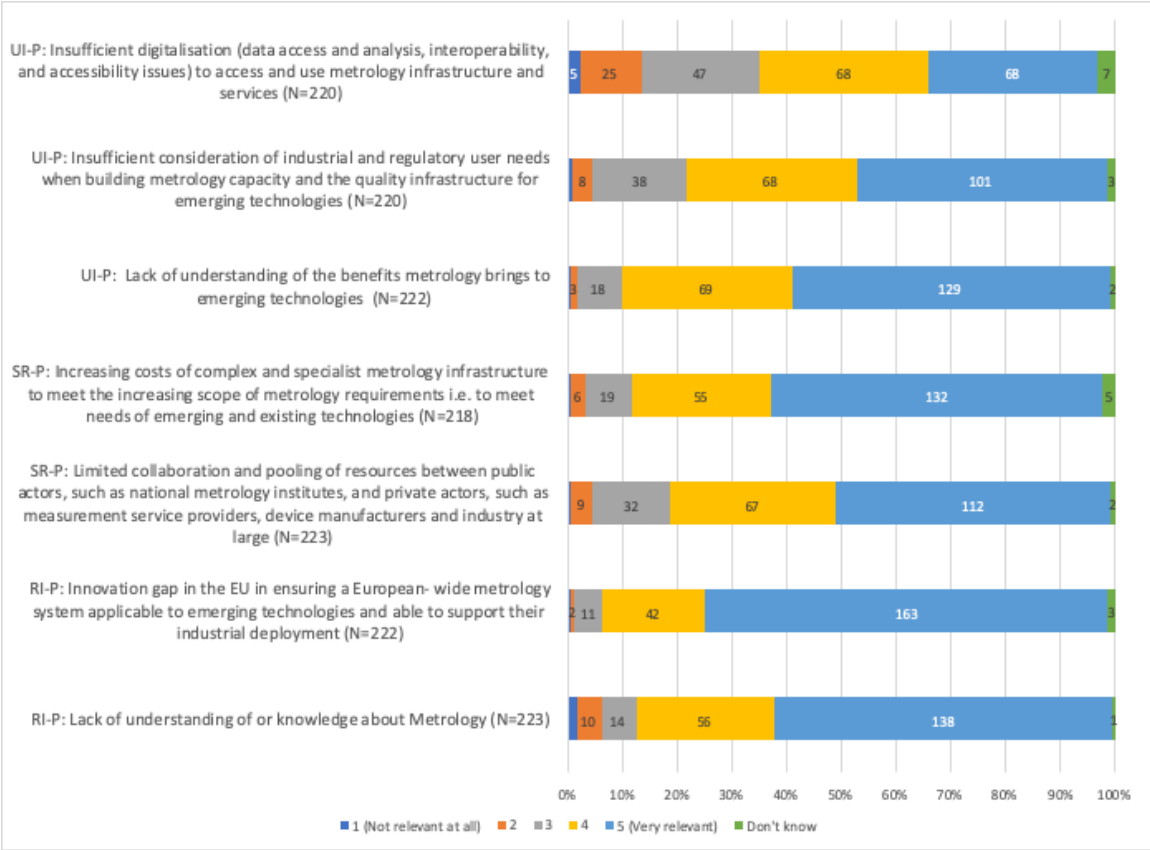
The respondents were asked what they perceived to be the main advantages and disadvantages of participation in an Institutionalised European Partnership (as a partner) under Horizon Europe. The keyword analysis showed the respondents viewed cooperation and collaboration as advantage, while mentioning the previous metrology programme in relation to a disadvantage.

1.3.2. Results on candidate European Partnership specific questions

Relevance of research and innovation efforts at the EU level to address problems in relation to metrology

In the consultation, respondents were asked to provide their view on the relevancy of research and innovation efforts at EU level to address the following problems in relation to metrology, specifically on three types of problems: problems in uptake of met (UI-P), structural and resource problems (SR-P) and research and innovations problems (RI-P). In Figure 14 the responses to these answers are presented.

Figure 14: Views of respondents on relevance of research and innovation efforts at the EU level to address problems in relation to metrology



With regard to the uptake in innovation problems, 129 respondents have indicated that the research and innovation efforts at the EU level to address the issue of lack of understanding of the benefits metrology brings to emerging technologies is very relevant (58.1%).

Of the two structural and resource problems that the respondents were asked to reflect on, increasing costs of complex and specialist metrology infrastructure to meet the increasing

scope of metrology requirements i.e. to meet needs of emerging and existing technologies, is considered the more relevant problem to address at EU level. A 132 respondents have indicated that this is a very relevant problem (132, 60.6%).

Finally respondents have indicated that research and innovation problems are considered the most relevant, as both of the problems presented in this category have received more 5-rating answers (very relevant) than any of the other problems. The innovation gap in the EU ensuring a European wide metrology system applicable to emerging technologies and able to support their industrial deployment is considered the most relevant with 163 respondents indicating it is very relevant (73.4%).

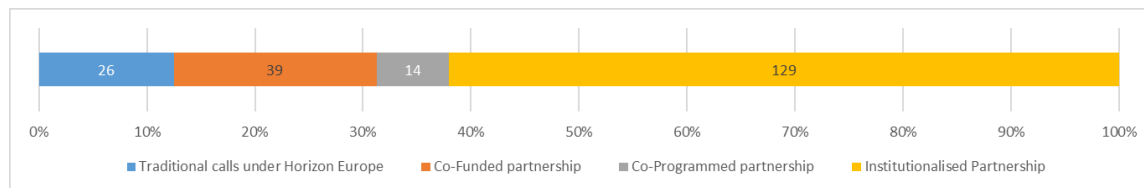
No statistical differences were found between the views of citizens and other respondents for most problems. However, citizens found structural and resource problems less relevant.

Horizon Europe interventions to address problems

After providing their views on the relevance of problems, respondents were asked to indicate how these challenges could be addressed through Horizon Europe intervention. As shown in Figure 15, just over 60% of respondents indicated that institutionalised partnerships were the best fitting intervention.

No statistical differences were found between the views of citizens and other respondents.

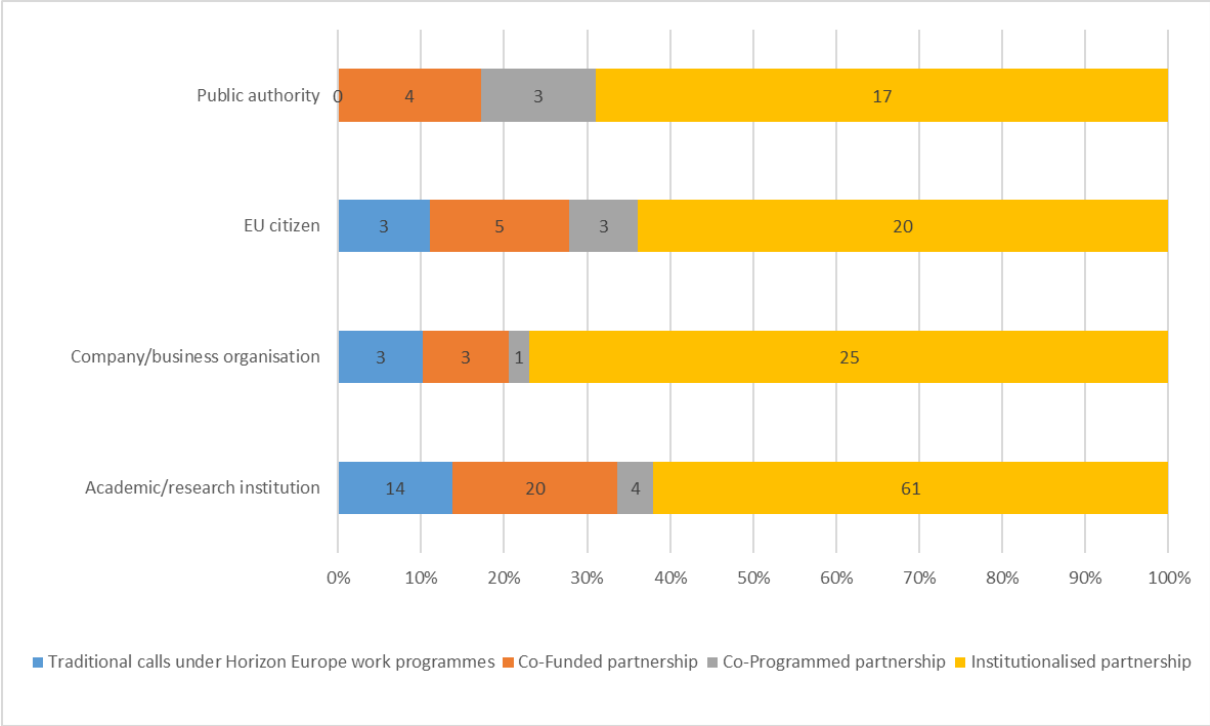
Figure 15: Assessment of Horizon Europe intervention



The respondents were asked to briefly explain their answers to the question above. People who stated that an institutionalised partnerships was the best fitting answer mentioned long term collaboration, coordination and cooperation as well as a sustainable European metrology network and effectiveness. Respondents who did not select institutionalised partnership as their preferred intervention (N=75) mentioned traditional calls, governmental financial support, long term sustainability and better tools for cooperation (not pictured).

Figure 16 shows the preference on the different intervention option of the four major sub-groups of respondents, i.e. those representing academia, company/business organisation, EU citizens and public authorities. These four groups were the 89.9% of the respondents. All four sub-groups were in favour of the institutionalised partnership as the ideal intervention option for metrology programme, with a percentage ranging from 62% (academia) to 77% (company/business organisation).

Figure 16: Assessment of Horizon Europe intervention per sub-group

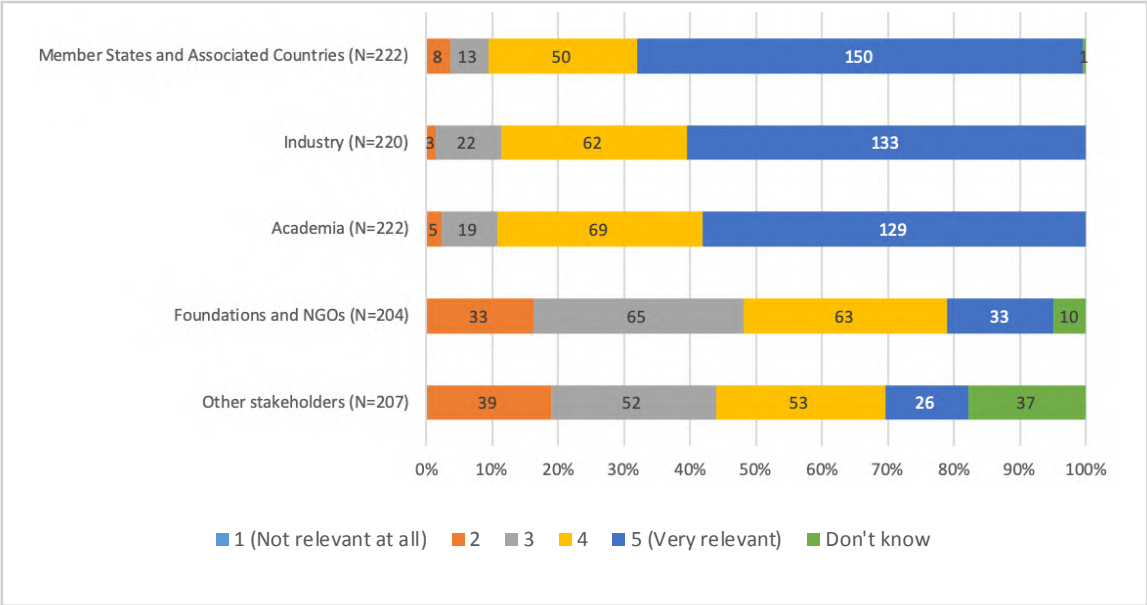


Relevance of involvement of actors in setting joint long-term agenda

Respondents were asked how relevant the involvement of actors is in setting a joint long-term agenda to ensure that the proposed European Partnership would meet its objectives. The highest amount of respondents indicated that the involvement of Member States and Associated Countries is very relevant (150 respondents or 67.6%), closely followed by Industry (133, 60.5%) and Academia (219, 58.1%). Respondents considered the involvement of foundations and NGO’s and other stakeholders less relevant, with both options being seen as very relevant by just over 10% of respondents (16.2% and 12.6% respectively).

A slight statistical difference was found between the views of citizens and other respondents, citizens find other stakeholders less relevant.

Figure 17: Views of respondents on relevance of actors in setting joint long-term agenda

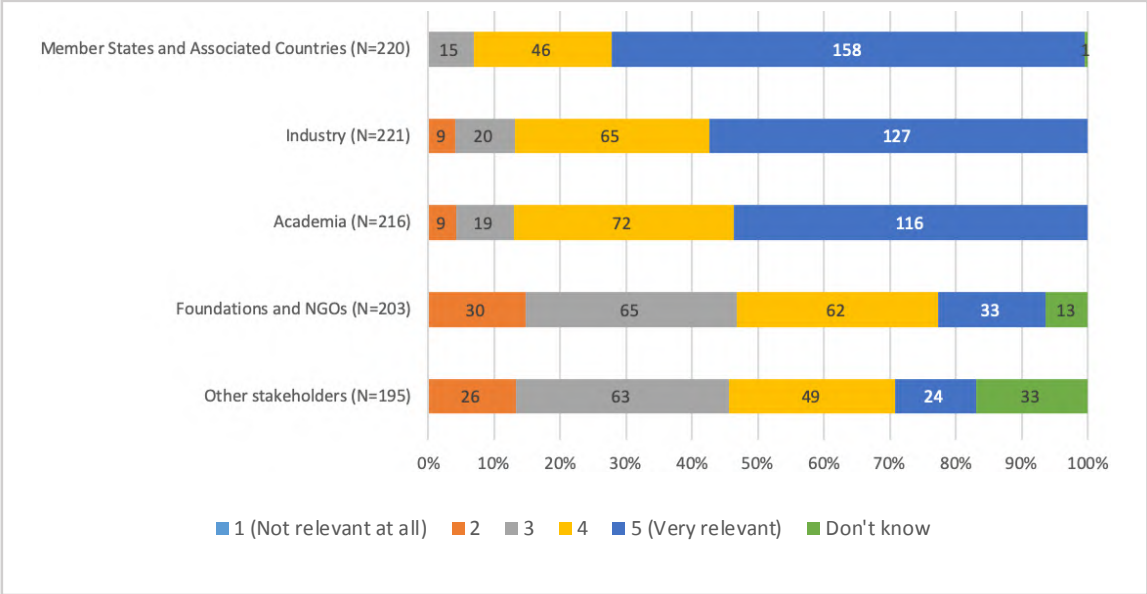


Relevance of elements and activities in pooling and leveraging resources

With respect to the relevance of actors in pooling and leveraging resources, such as financial, infrastructure, in-kind expertise etc.), to meet Partnership objectives, the patterns are similar. The highest amount of respondents indicated that the involvement of Member States and Associated Countries is very relevant (158 respondents or 71.8%), closely followed by Industry (127, 57.7%) and Academia (116, 53.7%). Foundations and other stakeholders were deemed less relevant, since only 33 (16.3%) and 24 (12.3%) respondents respectively indicated that these stakeholders were very relevant. No respondents indicated that any of the categories was not relevant at all. See Figure 18.

No statistical differences were found between the views of citizens and other respondents.

Figure 18: Views of respondents on relevance of actors for pooling and leveraging resources

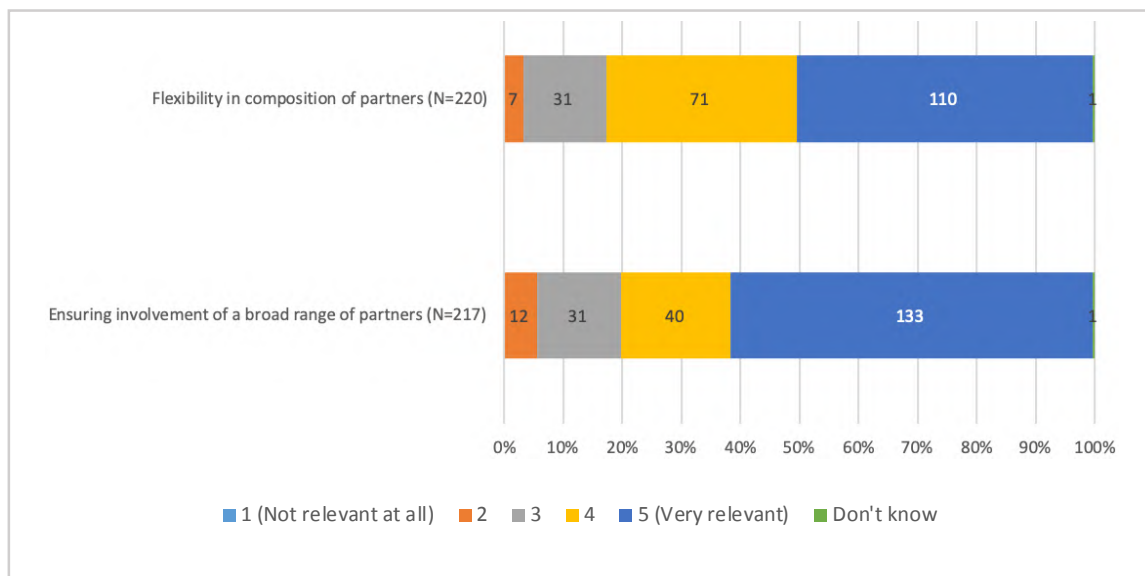


Relevance of elements and activities for the partnership composition

Respondents were asked about the relevance of Partnership composition, such as flexibility in the composition of partners over time and involvement of a broad range of partners (including across disciplines and sectors), to reach Partnership objectives. As it is visible in Figure 19, the answers are similar. Ensuring involvement of a broad range of partners has slightly more ‘very relevant’ answers (133, 61.3%) than the flexibility in the composition of partners (110, 50.7%).

A slight statistical difference was found between the views of citizens and other respondents, citizens find both the flexibility and the broad range of partners less relevant.

Figure 19: Views of respondents on relevance of partnership composition elements

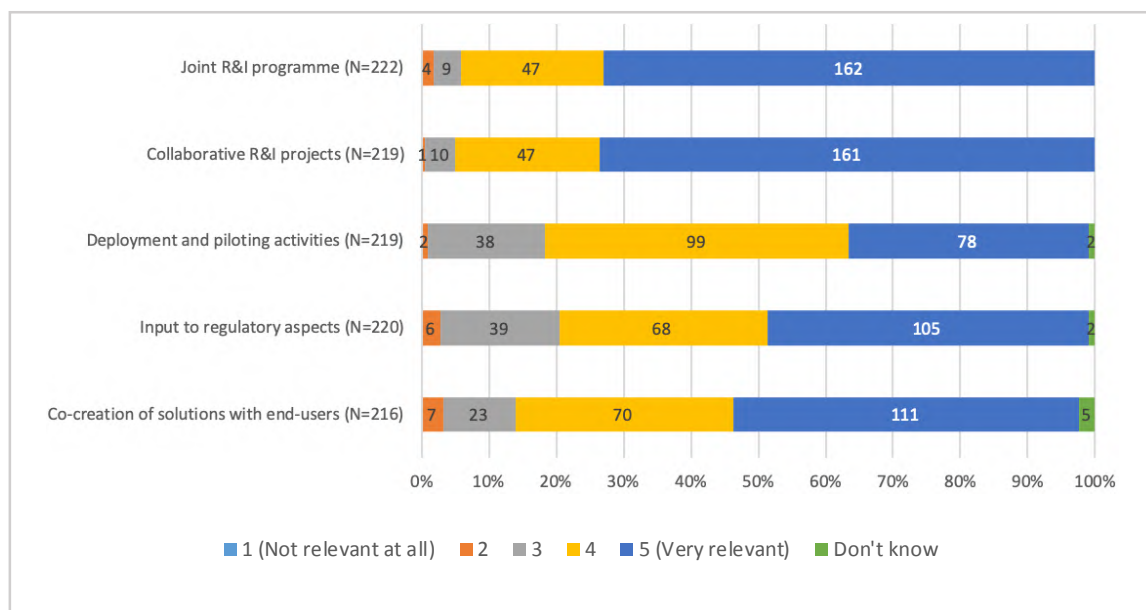


Relevance of implementation of activities

Respondents were asked to provide opinions on relevance of implementation of several activities for meeting objectives of the European Metrology Partnership. Among activities were listed – join R&D programme, collaborative Research & Development (R&D) projects, deployment and piloting activities, input to regulatory aspects and co-creation of solutions with end-users. Out of 222 respondents, 162 (73%) indicated that a Joint R&I programme is very relevant to ensure that the Partnership would meet its objectives, collaborative R&I projects is also seen as very relevant, with 161 respondents (73.5%) choosing this answer. Deployment and piloting activity has received the least 5 (very relevant) answers (78, 35.6%), however it has received the most 4 answers, which indicates that the respondents still find it to be relevant, although slightly less than the other options.

No statistical differences were found between the views of citizens and other respondents for most activities. Citizens found the implementation of collaborative R&I project slightly less relevant. However, respondents that are/were involved in a current/preceding partnership (Horizon 2020 or Framework Programme 7) found the implementation of collaborative R&I project slightly more relevant.

Figure 20: Views of respondents on relevance of implementation of the following activities

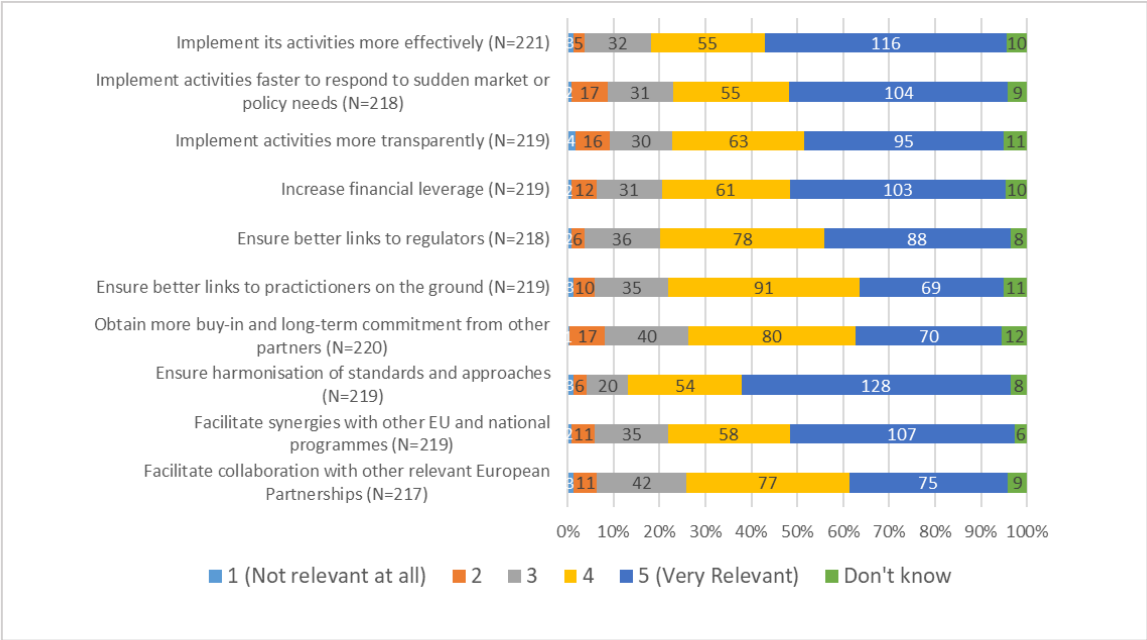


Relevance of a legal structure (funding body) to achieve specific objectives

Respondents were also asked to assess the relevance of a specific legal structure (funding body) for the candidate European Partnership to achieve several activities. According to Figure 21, respondents specifically indicated that it was very relevant to set up a specific legal structure for the partnership to ensure harmonisation of standards and approaches (128, 58.5%). Ensuring better links to practitioners on the ground has received the least 5 (very relevant) responses, however it has received the most 4's, which indicates that it is still seen as relevant by the respondents even if it is slightly less relevant than the other options.

Similar as for the previous question, citizens found the legal structure slightly less relevant for most objectives, while respondents that are/were involved in a current/preceding partnership found the legal structure slightly more relevant.

Figure 21: Views of respondents on relevance of a specific legal structure

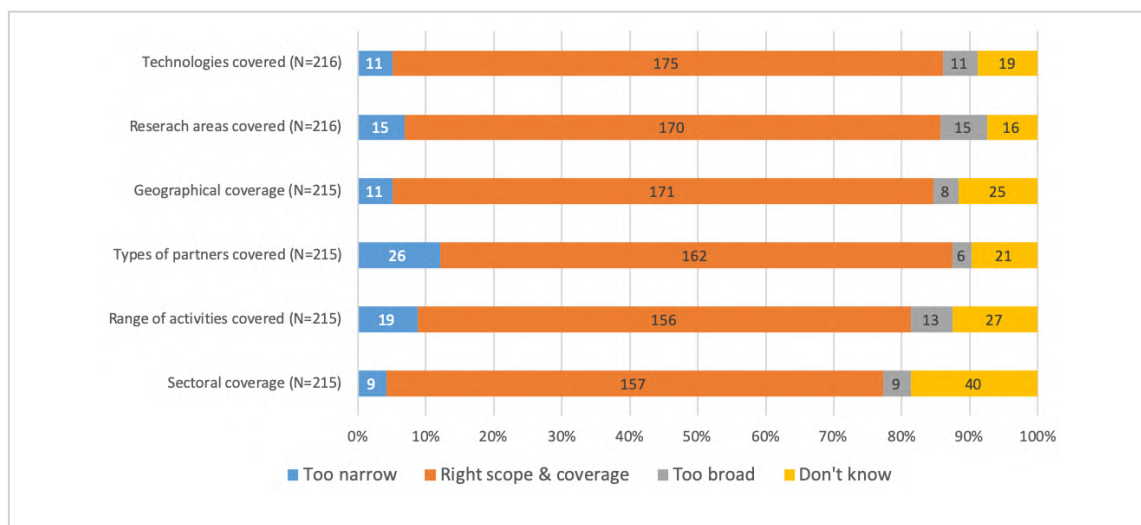


1.3.3. Feedback to the inception impact assessment on candidate initiatives for Institutionalised Partnerships

Respondents were asked to assess the scope and coverage of the European Metrology Partnership, based on its inception impact assessment. The clear majority of the respondents have indicated that the partnership has the right scope and coverage across all areas. Across the different questions over 70% of the respondents have indicated that they think the scope and coverage are correct. The respondents have been the most positive with regard to the technologies covered, where 175 respondents (81%) have indicated the partnership has the right scope and coverage.

No statistical differences were found between the views of citizens and other respondents.

Figure 22: Views of respondents on the scope and coverage proposed for the European Metrology Partnership



Aside from this multiple choice question, the respondents were also asked to provide any comment that they may have on the proposed scope and coverage for this candidate Institutionalised Partnership. The keyword analysis showed the respondents used this question to talk about the optimal and proposed scope and coverage as well as fundamental research, partner countries and non-European cooperation.

Alignment of the European Partnership with other initiatives

The respondents were also asked if they thought it would be possible to rationalise the candidate European Institutionalised Partnership and its activities, and/or to better link it with other comparable initiatives. Almost equal number of respondents selected the answer option “Yes” (98 respondents, 48%) and “No” (102 respondents, 51%).

No statistical differences were found between the views of citizens and other respondents.

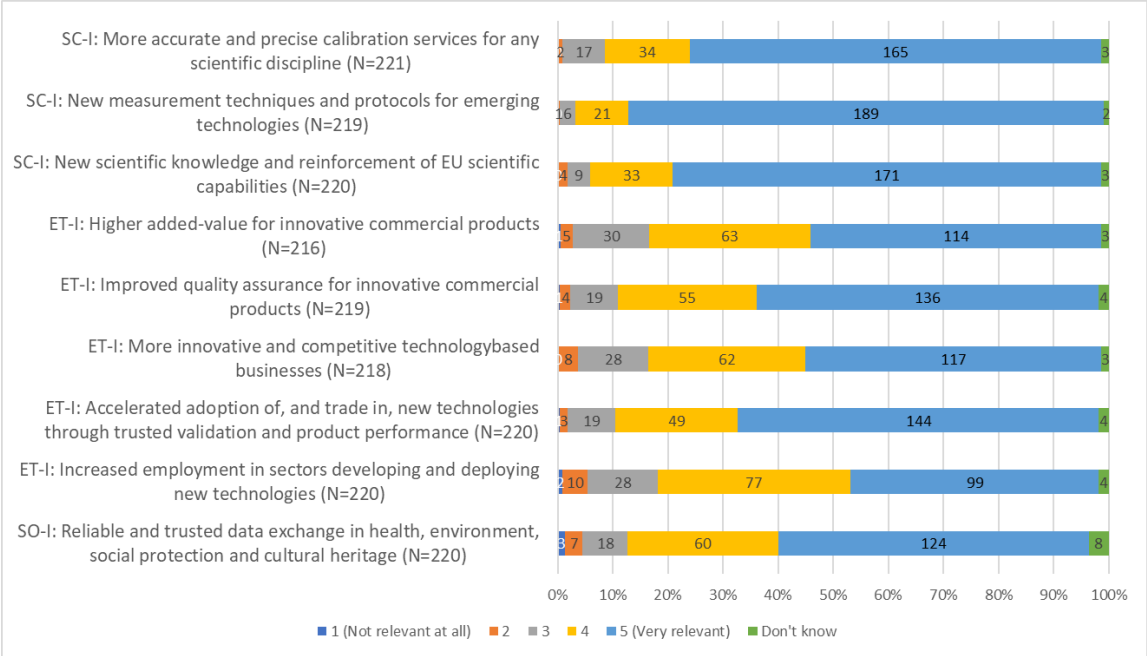
Relevance of the Candidate European Partnership to deliver impacts

Respondents were asked to assess the relevance of the candidate European Institutionalised Partnership to deliver on listed impacts. Out of 220 respondents, 124 suggest that the Partnership would be ‘very relevant’ for contributing to reliable and trusted data exchange in health, environment, social protection and cultural heritage. Among listed economic/technological impacts, a greater number of respondents, namely 144 out of 220 (65.5%), indicated that the Partnership is expected to be ‘very relevant’ for accelerating adoption of, and trade in, new technologies through trusted validation and product performance. The higher share of respondents suggest that the Partnership would have large impacts on science, in particular, on new measurement techniques and protocols for emerging technologies.

No statistical differences were found between the views of citizens and other respondents, except for the relevance of the economic/technological impacts regarding improved quality assurance for innovative commercial products and higher added-value for innovative commercial products. Respondents that are/were involved in a current/preceding partnership

(Horizon 2020 or Framework Programme 7) indicate a higher relevance of most listed impacts when compared to other respondents.

Figure 23: Views of respondents on the relevance of the candidate European Institutionalised Partnership to various impacts



Annex 3

Who Is Affected And How?

1. PRACTICAL IMPLICATIONS OF THE INITIATIVE

According to the preferred policy option, Metrology should be formed as an Art. 185 Institutionalised Partnership.

The **European Commission** will have a supervisory role, being the observer of the governance structure and being supervise the implementation of the initiative, including the implementation of the Union funding. The **Dedicated Implementing Service (DIS)** will be responsible for coordinating the metrology research, supervise the development of the Networks and for reporting towards the Commission and other stakeholders. Regarding **Participating States**, they are expected to commit funding and resources as well as political engagement for the integration of metrology capacity through the networks. **Participants** in call for proposals will be able to participate according to the rules for participation of Horizon Europe and will benefit from access to other services, such as calibration and certification.

2. SUMMARY OF COSTS AND BENEFITS

<i>I. Overview of Benefits (total for all provisions) – Preferred Option</i>		
<i>Description</i>	<i>Amount</i>	<i>Comments</i>
<i>Direct benefits</i>		
Integration of metrology research		Faster and more focussed research and development of new metrology techniques. The European Metrology Networks will provide direct channels for the entire metrology value chain within a certain application area, such as in-vitro diagnostics and smart grids.
Accelerated support to uptake of emerging technologies and industrial exploitation		With the industry acting as a direct beneficiary in a collaborative project with the metrology institutes, or as a target customer for the developed foreground. Also the metrology networks with research capabilities can address more directly emerging technologies and the needs of industry.
Strengthened support for societal challenges.		The initiative would also enable a closer pro-active interaction with policy makers in the development of fit-for-purpose standards and regulations.

<i>Indirect benefits</i>		
Global leadership		The pooling of research efforts would lead to metrology solutions at least equal to the top global performers and a net flow of knowledge and services out from Europe.
Metrology dissemination and awareness		The further integration of metrology also through societal needs, policy, standards, and regulations will pull the public appreciation towards the importance of high quality and traceable measurements.

(1) Estimates are relative to the baseline for the preferred option as a whole (i.e. the impact of individual actions/obligations of the preferred option are aggregated together); (2) Please indicate which stakeholder group is the main recipient of the benefit in the comment section; (3) For reductions in regulatory costs, please describe details as to how the saving arises (e.g. reductions in compliance costs, administrative costs, regulatory charges, enforcement costs, etc.; see section 6 of the attached guidance).

<i>II. Overview of costs – Preferred option</i>							
		Citizens/Consumers		Businesses		Administrations	
		One-off	Recurrent	One-off	Recurrent	One-off	Recurrent
Administrative costs	Direct costs			Cash contribution (~10% of EU contribution)			Supervision and follow-up (~2 FTE)
	Indirect costs			Network setup	Ancillary activities		Horizontal policy
Operational costs	Direct costs		Project proposal preparation - Limited		Running of European Metrology Networks, Capacity building, etc.		
	Indirect costs		Limited		Overheads on project implementation (~140% of direct costs)	Preparation of proposal	

(1) Estimates to be provided with respect to the baseline; (2) costs are provided for each identifiable action/obligation of the preferred option otherwise for all retained options when no preferred option is specified; (3) If relevant and available, please present information on costs according to the standard typology of costs (compliance costs, regulatory charges, hassle costs, administrative costs, enforcement costs, indirect costs; see section 6 of the attached guidance).

REFIT Cost savings table

Not applicable for the proposed Metrology Partnership. The initiative will benefit from the existing organisation/structure already in place. There are no additional regulatory costs associated, and no specific simplification measures apply in this case.

Annex 4 Analytical Methods

The methodology for each impact assessment is based on the Commission Better Regulation Guidelines⁶ to evaluate and compare options with regards to their **efficiency, effectiveness and coherence**. This is complemented by integrating the **conditions and selection criteria for European Partnerships**, as well as requirements for setting up Institutionalised Partnerships.⁷

1. OVERVIEW OF THE METHODOLOGIES EMPLOYED

In terms of **methods and evidence used**, the set of impact assessments for all candidate Institutionalised European Partnerships draw on an external study covering all initiatives in parallel to ensure a high level of coherence and comparability of analysis⁸ (Technopolis Group, 2020).

All impact assessment mobilised a mix of qualitative and quantitative data collection and analysis methods. These methods range from desk research and interviews to the analysis of the responses to the Open Consultation, stakeholder analysis and composition/portfolio analysis, bibliometrics/patent analysis and social network analysis, and a cost-effectiveness analysis.

The first step in the impact assessment studies consisted in the definition of the context and the problems that the candidate partnerships are expected to solve in the medium term or long run. The main data source in this respect was desk research. This includes grey and academic literature to identify the main challenges in the scientific and technologic fields and in the economic sectors relevant for the candidate partnerships, as well as the review of official documentations on the policy context for each initiative.

In the assessment of the problems to address, the lessons to be learned from past and ongoing partnerships were taken into account, especially from relevant midterm or ex-post evaluations.

The description of the context of the candidate institutionalised European Partnerships required a good understanding of the corresponding research and innovation systems and their outputs already measured. Data on past and ongoing Horizon 2020 projects, including the ones implemented through Partnerships, served as basis for descriptive statistic of the numbers of projects and their respective levels of funding, the type of organisations participating (e.g. universities, RTOs, large enterprises, SMEs, public administrations, NGOs, etc.) and how the funding was distributed across them. Special attention was given to analysing the participating countries (and groups of countries, such as EU, Associated Countries, EU13 or EU15) and industrial sectors, where relevant. The sectoral analysis required enriching the eCORDA data received from the European Commission services with sector information extracted from ORBIS, using the NACE codification up to level 2. These data enabled the identification of the main and, where possible, emerging actors in the

⁶ European Commission (2017), Better Regulation Guidelines (SWD (2017) 350)

⁷ A pivotal element of the present analysis is the so-called two-step ‘necessity test’ for European Partnerships, used to establish: step 1) the need for a partnership approach in the first place, followed by step 2) a justification for the form of Institutionalised Partnership. The necessity test is described in Annex 6. This impact assessment focuses on the second step of the test.

⁸ Technopolis Group (2020), Impact Assessment Study for Institutionalised European Partnerships under Horizon Europe

relevant systems, i.e. the organisations, countries and sectors that would need to be involved (further) in a new initiative.

A Social Network Analysis was performed by the contractors using the same data. It consisted in mapping the collaboration between the participants in the projects funded under the ongoing R&I partnerships. This analysis revealed which actors – broken down per type of stakeholders or per industrial sector – collaborate the most often together, and those that are therefore the most central to the relevant research and innovation systems.

The data provided finally served a bibliometric analysis run by the contractor aimed at measuring the outputs (patents and scientific publications) of the currently EU-funded research and innovation projects. A complementary analysis of the Scopus data enabled to determine the position and excellence of the European Union on the international scene, and identify who its main competitors are, and whether the European research and innovation is leading, following or lagging behind.

A cost modelling exercise was performed in order to feed into the efficiency assessments of the partnership options.

The conclusions drawn from the data analysis were confronted to the views of experts and stakeholders collected via three means:

- The comments to the inception impact assessments of the individual candidate institutionalised European Partnerships;
- The open public consultation organised by the European Commission from September to November 2019;
- The interviews (up to 50) conducted by each impact assessment study team conducted between August 2019 and January 2020 (policymakers, business including SMEs and business associations, research institutes and universities, and civil organisations, among others).

The views of stakeholders (and experts) were particularly important for determining the basic functionalities (see further below) that the future partnerships need to demonstrate to achieve their objectives as well as their most anticipated scientific, economic and technological, and societal impacts. The interviews allowed more flexibility to ask the respondents to reflect about the different types of European Partnerships. Furthermore, as a method for targeted consultation, it was used to get insights from the actors that both the Study Teams and the European Commission were deemed the most relevant. For the comparative assessment of impacts, the external contractors confronted the outcomes of the different stakeholder consultation exercises to each other with a view of increasing the validity of their conclusions, in line with the principles of triangulation.

Annex 2 includes also the main outcomes of the stakeholder consultation exercises.

2. METHOD FOR ASSESSING THE EFFECTIVENESS, EFFICIENCY AND COHERENCE OF EACH OPTION - THE USE OF FUNCTIONALITIES

Given the focus of the impact assessment on comparing different forms of implementation, the Better Regulation framework has been adapted to introduce “**functionalities**”. These are used to reflect *what is needed in terms of implementation* for each candidate initiative to be able to deliver on its objectives. The functionalities are the **distinguishing factors** between

the different options and are directly linked to the European Partnerships' selection criteria of openness and transparency, additionality and directionality. Based on the objectives identified and the targeted impact, functionalities describe what this requires in terms of implementation. Each form of implementation is then assessed to establish to which degree it would allow for these functionalities to be covered, e.g. the type and composition of actors that can be involved ('openness'), the range of activities that can be performed (including additionality and level of integration), the level of directionality and integration of stakeholders' R&I strategies⁹; the possibilities offered for coherence and synergies with other components of Horizon Europe, including other Partnerships (internal coherence), and the coherence with other EU, national or regional policy environments, including with the relevant regulatory and standardisation framework (external coherence). This approach guides the identification of discarded options and allows a structured comparison of the options against the selection criteria for European Partnerships.

Figure 24 Overview of key functionalities of each form of implementation of European Partnerships

Baseline: Horizon Europe calls	Option 1: Co-programmed	Option 2: Co-funded	Option 3.1: Institutionalised Article 185	Option 3.2: Institutionalised Article 187
Type and composition of actors (including openness and roles)				
<u>Partners:</u> N.A., no common set of actors that engage in planning and implementation <u>Priority setting:</u> open to all, part of Horizon Europe Strategic planning <u>Participation in R&I activities:</u> fully open in line with standard Horizon Europe rules	<u>Partners:</u> Suitable for all types: private and/or public partners, foundations <u>Priority setting:</u> Driven by partners, open stakeholder consultation, MS in comitology <u>Participation in R&I activities:</u> fully open in line with standard Horizon Europe rules	<u>Partners:</u> core of national funding bodies or governmental research organisations <u>Priority setting:</u> Driven by partners, open stakeholder consultation <u>Participation in R&I activities:</u> limited, according to national rules of partner countries	<u>Partners:</u> National funding bodies or governmental research organisation <u>Priority setting:</u> Driven by partners, open stakeholder consultation <u>Participation in R&I activities:</u> fully open in line with standard Horizon Europe rules, but possible derogations	<u>Partners:</u> Suitable for all types: private and/or public partners, foundations <u>Priority setting:</u> Driven by partners, open stakeholder consultation <u>Participation in R&I activities:</u> fully open in line with standard Horizon Europe rules, but possible derogations
Type and range of activities (including additionality and level of integration)				
<u>Activities:</u> Horizon Europe standards that allow broad range of individual actions <u>Additionality:</u> no additional activities and investments outside the funded projects <u>Limitations:</u> No systemic approach beyond individual	<u>Activities:</u> Horizon Europe standard actions that allow broad range of individual actions, support to market, regulatory or policy/societal uptake <u>Additionality:</u> Activities/investment s of partners, National funding <u>Limitations:</u> Limited	<u>Activities:</u> Broad, according to rules/programmes of participating States, State-aid rules, support to regulatory or policy/ societal uptake <u>Additionality:</u> National funding <u>Limitations:</u> Scale and scope depend	<u>Activities:</u> Horizon Europe standards that allow broad range of individual actions, support to regulatory or policy/societal uptake, possibility to systemic approach <u>Additionality:</u> National funding	<u>Activities:</u> Horizon Europe standards that allow broad range of individual actions, support to regulatory or policy/societal uptake, possibility to systemic approach (portfolios of projects, scaling up of results, synergies with other funds). <u>Additionality:</u>

⁹ The criterion on the ex-ante demonstration of partners' long term commitment depends on a series of factors that are unknown at this stage, and thus fall outside the scope of the analysis.

Baseline: Horizon Europe calls	Option 1: Co-programmed	Option 2: Co-funded	Option 3.1: Institutionalised Article 185	Option 3.2: Institutionalised Article 187
actions	systemic approach beyond individual actions.	on the participating programmes, often smaller in scale		Activities/investments of partners/ national funding
Directionality				
<u>Priority setting:</u> Strategic Plan and annual work programmes, covering max. 4 years. <u>Limitations:</u> Fully taking into account existing or to be developed SRIA/roadmap	<u>Priority setting:</u> Strategic R&I agenda/ roadmap agreed between partners and COM, covering usually 7 years, including allocation of Union contribution Input to FP annual work programme drafted by partners, finalised by COM (comitology) Objectives and commitments are set in the contractual arrangement.	<u>Priority setting:</u> Strategic R&I agenda/ roadmap agreed between partners and COM, covering usually 7 years, including allocation of Union contribution Annual work programme drafted by partners, approved by COM Objectives and commitments are set in the Grant Agreement.	<u>Priority setting:</u> Strategic R&I agenda/ roadmap agreed between partners and COM, covering usually 7 years, including allocation of Union contribution Annual work programme drafted by partners, approved by COM Objectives and commitments are set in the legal base.	<u>Priority setting:</u> Strategic R&I agenda/ roadmap agreed between partners and COM, covering usually 7 years, including allocation of Union contribution Annual work programme drafted by partners, approved by COM (veto-right in governance) Objectives and commitments are set in the legal base.
Coherence: internal (Horizon Europe) and external (other Union programmes, national programmes, industrial strategies)				
<u>Internal:</u> Between different parts of the Annual Work programme can be ensured by COM <u>External:</u> Limited for other Union programmes, no synergies with national/regional programmes and activities	<u>Internal:</u> Coherence among partnerships and with different parts of the Annual Work programme of the FP can be ensured by partners and COM <u>External:</u> Limited synergies with other Union programmes and industrial strategies If MS participate, with national/regional programmes and activities	<u>Internal:</u> Coherence among partnerships and with different parts of the Annual Work programme of the FP can be ensured by partners and COM <u>External:</u> Synergies with national/regional programmes and activities	<u>Internal:</u> Coherence among partnerships and with different parts of the Annual Work programme of the FP can be ensured by partners and COM <u>External:</u> Synergies with national/regional programmes and activities	<u>Internal:</u> Coherence among partnerships and with different parts of the Annual Work programme of the FP can be ensured by partners and COM <u>External:</u> Synergies with other Union programmes and industrial strategies If MS participate, with national/regional programmes and activities

On the basis of the evidence collected, the thematic impact assessments evaluate the **effectiveness** of the various policy options along three dimensions corresponding to the different categories of likely impacts: scientific, economic and technological, and societal (including environmental). Each impact assessment considers to which extent the different policy options fulfil the desirable ‘functionalities’ and are therefore likely to produce the targeted impacts. In addition, where specific impacts (e.g. on fundamental rights) are relevant for a candidate Partnership, these are assessed in the corresponding report and according to the Better Regulation Guidelines and Toolbox. This analysis results in a scoring of the policy options with a three-point scale. Scores vary from + to +++, where + refers to low potential for reaching the likely impacts, ++ to a good potential, and +++ to a high potential. The

effectiveness assessment of the different options does not use a compound score but concludes on as many scores as there are expected impacts. This is done to increase transparency and accuracy in the assessment of options. Qualitative and quantitative evidence is provided to motivate each score.

A similar approach is followed to evaluate the coherence of options with the overarching objectives of the EU's R&I policy, and distinguishes between **internal** and **external coherence**. Specifically, internal coherence corresponds to the consistency between a given implementation mode and the other actions under Horizon Europe. External coherence refers instead to the alignment with other initiatives at EU, national and international level beyond Horizon Europe that are relevant to a thematic area. Each option (implementation mode) is assessed following a three-point qualitative scale.

To compare the expected costs and benefits of each option (**efficiency**), the thematic impact assessments broadly follow a cost-effectiveness approach¹⁰ to establish to which extent the intended objectives can be achieved for a given cost. A preliminary step in this process is to obtain a measure of the expected costs of the policy options, to be used in the thematic assessments. As the options correspond to different implementation modes, relevant cost categories generally include the costs of setting-up and running an initiative. For instance, set-up costs includes items such as the preparation of a European Partnership proposal and the preparation of an implementation structure. The running costs include the annual work programme preparation costs. Where a Partnership already exists, discontinuation costs and cost-savings are also taken into account¹¹. The table below provides an overview of the cost categories used in the impact assessment and a qualitative scoring of their intensity when compared to the baseline option (traditional calls). Providing a monetised value for these average static costs would have been misleading, because of the different features and needs of each candidate initiative¹². The table shows the overall administrative, operational and coordination costs of the various options. These costs are then put into context in the impact assessments to reflect the expected co-financing rates and the total budget available for each of the policy options, assuming a common Union contribution (cost-efficiency):

- The costs related to the baseline scenario (traditional calls under Horizon Europe) are pre-dominantly the costs of implementing the respective Union contribution via calls and project, managed by the executive agencies (around 4%, efficiency of 96% for the overall investment).
- For a Co-Programmed partnership the costs of preparation and implementation increase only marginally compared to the baseline (<1%),¹³ but lead to an additional

¹⁰ For further details, see Better Regulation Toolbox # 57.

¹¹ Discontinuation costs will bear winding down and social discontinuation costs and vary depending on e.g. the number of full-time-equivalent (FTEs) staff concerned, the type of contract (staff category and duration) and applicable rules on termination (e.g. contracts under Belgian law or other). If buildings are being rented, the cost of rental termination also apply. As rental contracts are normally tied to the expected duration of the current initiatives, these termination costs are likely to be very limited. In parallel, there would also be financial cost-savings related to the closing of the structure, related to operations, staff and coordination costs in particular. This is developed further in the individual efficiency assessments.

¹² A complete presentation of the methodology developed to assess costs as well as the sources used is described in the external study supporting this impact assessment (Technopolis Group, 2020).

¹³ Specifically, some additional set-up costs linked for example to the creation of a strategic research and innovation agenda (SRIA) and additional running costs linked with the partners role in the creation of the annual work programmes and the Commission's additional supervisory responsibilities. A CPP will have lower overall costs than each of the other types of European Partnership, as it will function with a smaller governance and implementation structure than will be required for a Co-Funded Partnership or an Institutionalised Partnership and – related to this – its calls will be operated through the existing HEU agencies and RDI infrastructure and systems.

R&I investment of at least the same amount than the Union contribution¹⁴ (efficiency of 98% for the overall investment).

- For a Co-Funded partnership the additional R&I investment by Member States accounts for 2.3 times the Union contribution¹⁵. The additional costs compared to the baseline of preparing and implementing the partnership, including the management of the Union contribution implemented by the national programmes, can be estimated at 6% of the Union contribution (efficiency of 98% related to the overall investment).¹⁶
- For an Article 185 initiative the additional R&I investment by Member States is equal to the Union contribution¹⁷. The additional costs compared to the baseline of preparing and implementing the partnership, including the management of the Union contribution implemented by the dedicated implementation structure, can be estimated at 7% of the Union contribution (efficiency of 96% related to the overall investment).
- For an Article 187 initiative the additional R&I investment by partners is equal to the Union contribution¹⁸. The additional costs compared to the baseline of preparing and implementing the partnership, including the management of the Union contribution implemented by the dedicated implementation structure, can be estimated at 9% of the Union contribution (efficiency of 94% related to the overall investment).

Figure 25 - Intensity of additional costs compared with Horizon Europe Calls (for Partners, stakeholders, public and EU)

Cost items	Baseline: traditional calls	Option 1: Co-programmed	Option 2 Co-funded	Option 3a - Art. 185	Option 3b -Art. 187
Preparation and set-up costs					
Preparation of a partnership proposal (partners and EC)	0				↑↑
Set-up of a dedicated implementation structure		0		Existing: ↑ New: ↑↑	Existing: ↑↑ New: ↑↑↑
Preparation of the SRIA / roadmap	0				↑↑
Ex-ante Impact Assessment for partnership		0			↑↑↑
Preparation of EC proposal and negotiation		0			↑↑↑
Running costs (Annual cycle of implementation)					
Annual Work Programme preparation	0				↑
Call and project implementation	0	0 In case of MS contributions: ↑	↑	↑	↑
Cost to applicants	Comparable, unless there are strong arguments of major differences in oversubscription				
Partners costs not covered by the above	0	↑	0	↑	↑
Additional EC costs (e.g. supervision)	0	↑	↑	↑	↑↑
Winding down costs					
EC			0		↑↑↑
Partners	0	↑	0	↑	↑

¹⁴ Minimum contributions from partners equal to the Union contribution.

¹⁵ Based on the default funding rate for programme co-fund actions of 30%, partners contribute with 70% of the total investment.

¹⁶ These costs reflect set-up costs and additional running costs for partners, and the Commission, of the distributed, multi-agency implementation model.

¹⁷ Based on the minimum requirement in the legal basis that partners contribute at least 50% of the budget.

¹⁸ Based on the minimum requirement in the legal basis that partners contribute at least 50% of the budget.

Notes: 0: no additional costs, as compared with the baseline; ↑: minor additional costs, as compared with the baseline; ↑↑: medium additional costs, as compared with the baseline; ↑↑↑: higher costs, as compared with the baseline.

The cost categories estimated for the common model are then used to develop a scorecard analysis and further refine the assessment of options for each of the 12 candidate Institutionalised Partnerships. Specifically, the scores related to the set-up and implementation costs are used in the thematic impact assessments to consider the scale of the expected benefits and thereby allow a simple “value for money” analysis (**cost-effectiveness**). In carrying out the scoring of options, the results of fieldwork, desk research and stakeholder consultation undertaken and taken into account.

3. METHOD FOR IDENTIFYING THE PREFERRED OPTION – THE SCORECARD ANALYSIS

For the **identification of the preferred option**, a scorecard analysis is used to build a hierarchy of the options by individual criterion and overall in order to identify a single preferred policy option or in case of an inconclusive comparison of options, a number of ‘retained’ options or hybrid. This exercise supports the systematic appraisal of alternative options across multiple types of monetary, non-monetary and qualitative dimensions. It also allows for easy visualisation of the pros and cons of each option. Each option is attributed a score of the adjudged performance against each criterion with the three broad appraisal dimensions of effectiveness, efficiency and coherence.

This scorecard approach also relies on a standard cost model developed for the external study supporting the impact assessment, as illustrated in Figure 26. Specifically, the scores related to the set-up and implementation costs are used in the thematic impact assessments to consider the scale of the expected benefits and thereby allow a simple “value for money” analysis (**cost-effectiveness**). In carrying out the scoring of options, the results of fieldwork, desk research and stakeholder consultation undertaken and taken into account.

These costs essentially refer to the administrative, operational and coordination costs of the various options. The figure shows how the scoring of costs range from a value of 0, in case an option does not entail any additional costs compared to the baseline (traditional calls), to a score of (-) for options introducing limited additional costs relative to the baseline and a score of (- -) when substantial additional costs are expected in comparison with the baseline. Should the costs of a policy option be lower than those of the baseline, (+) and (+ +) are used.

It is considered that while there is a clear gradation in the overall costs of the policy options, the cost differentials are less marked when one takes into account the expected co-financing rates and the total budget available for each of the policy options, assuming a common Union contribution. From this perspective, there are only one or two percentage points that split the most cost-efficient policy options – the baseline (traditional calls) and the Co-Programmed policy options – and the least cost-efficient – the Institutionalised Partnership option. A score of + is therefore assigned for **cost-efficiency** to the Co-Programmed and Co-Funded options, a score of 0 to the Article 185 option and a score of (-) for the Article 187 Institutionalised Partnership policy option¹⁹.

¹⁹ The baseline (traditional calls) is scored 0, as explained above.

Figure 26: Matrix on ‘overall costs’ and ‘adjusted cost scoring’

	Baseline: Horizon Europe calls	Option 1: Co- programmed	Option 2: Co- funded	Option 3a: Institutionalised 185	Option 3b: Institutionalised 187
Administrative, operational and coordination costs	0	(0)	(-)	(- -)	(- -)
Administrative, operational and coordination costs adjusted per expected co-funding (i.e. <i>cost- efficiency</i>)	0	(+)	(+)	(0)	(-)

Notes: Score 0 = same costs as for the baseline; score (-) = limited additional costs compared to baseline; score (- -) = substantial additional costs compared to baseline. ; score (+) = lower costs compared to baseline

1. Can the Union act? What is the legal basis and competence of the Unions' intended action?
1.1 Which article(s) of the Treaty are used to support the legislative proposal or policy initiative?
<p>This proposal is based on Article 185 TFEU which stipulates that in implementing the multiannual framework programme, the Union may make provision, in agreement with the Member States concerned, for participation in research and development programmes undertaken by several Member States, including participation in the structures created for the execution of those programmes (under Title XIX of the TFEU - Research and Technological Development and Space).</p> <p>The proposal aims to implement Article 8 of the Commission proposal for Horizon Europe - the future EU research and innovation (R&I) programme for 2021-2027, according to which, “<i>European Partnerships shall be established for addressing European or global challenges only in cases where they will more effectively achieve objectives of Horizon Europe than the Union alone and when compared to other forms of support of the Framework programme</i>”. The Horizon Europe proposal has received the political agreement of the Council and the European Parliament.</p>
1.2 Is the Union competence represented by this Treaty article exclusive, shared or supporting in nature?
<p>Research is a shared competence between the EU and its Member States according to the TFEU. Article 4 (3) specifies that in the areas of research, technological development and space, the European Union can carry out specific activities, including defining and implementing programmes, without prejudice to the Member States' freedom to act in the same areas.</p> <p><i>Subsidiarity does not apply for policy areas where the Union has exclusive competence as defined in Article 3 TFEU²⁰. It is the specific legal basis which determines whether the proposal falls under the subsidiarity control mechanism. Article 4 TFEU²¹ sets out the areas where competence is shared between the Union and the Member States. Article 6 TFEU²² sets out the areas for which the Unions has competence only to support the actions of the Member States.</i></p>

²⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12008E003&from=EN>

²¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12008E004&from=EN>

²² <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008E006:EN:HTML>

2. Subsidiarity Principle: Why should the EU act?

2.1 Does the proposal fulfil the procedural requirements of Protocol No. 2²³:

- Has there been a wide consultation before proposing the act?
- Is there a detailed statement with qualitative and, where possible, quantitative indicators allowing an appraisal of whether the action can best be achieved at Union level?

This proposal and the accompanying impact assessment were supported by a wide consultation of stakeholders, initially during the preparation of the Horizon Europe proposal and, at a later stage, all the candidates for European Partnerships. Member States were consulted via the Shadow Strategic configuration of the Horizon Europe Programme Committee. As regards candidates for institutionalised Partnerships based on Article 185/187 of the TFEU, an Open Public Consultation (OPC) was held between 11 September and 6 November 2019. Over 1 600 replies were received. In addition, targeted consultation activities were undertaken to prepare the present impact assessment. In particular, for each of the candidate partnerships, an external consultant interviewed a representative sample of stakeholders. The need for EU action as well as its added value were covered in those interviews.

The explanatory memorandum and the impact assessment (horizontal part, Section 3) contain a dedicated section on the principle of subsidiarity, as explained in question 2.2 below.

2.2 Does the explanatory memorandum (and any impact assessment) accompanying the Commission's proposal contain an adequate justification regarding the conformity with the principle of subsidiarity?

The impact assessment accompanying the proposal features a horizontal part on relevant common elements to all the candidate partnerships, including the conformity of the proposed initiative with the principle of subsidiarity (Section 3). Moreover, the individual assessments of each candidate partnership include additional details on subsidiarity, touching in particular on the specificities of a candidate partnership that could not be adequately reflected in the horizontal part of the impact assessment. This will also be reflected in the explanatory memorandum.

2.3 Based on the answers to the questions below, can the objectives of the proposed action be achieved sufficiently by the Member States acting alone (necessity for EU action)?

National action alone cannot achieve the scale, speed and scope of support to R&I needed for the EU to meet its long-term Treaty objectives, to deliver on the EU's strategic policy

²³ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12016E/PRO/02&from=EN>

priorities (including the climate and energy goals set out in the Paris Agreement, and the European Green Deal), and to contribute to tackling global challenges and meeting the Sustainable Development Goals (SDGs).

(a) Are there significant/appreciable transnational/cross-border aspects to the problems being tackled? Have these been quantified?

The thematic areas covered by the candidate partnerships feature a series of challenges in terms of cross-border/transnational aspects, need to pool resources, need for a critical mass to meet intended policy objectives, need to coordinate different types of actors (e.g. academia, industry, national and regional authorities) across different sectors of the economy and society, which cannot be tackled to the same degree by Member States alone. This is particularly true for the research and innovation (R&I) dimension of the proposed initiative: the importance of a multi-centre and interdisciplinary approach, cross-country data collection and research, and the need to develop and share new knowledge in a timely and coordinated manner to avoid duplication of efforts are key to achieve high quality results and impact. The Interim Evaluation of Horizon 2020 and the impact assessment of Horizon Europe provide extensive qualitative and quantitative evidence on the above points. In addition, Sections 1 and 2 of the individual impact assessments on the candidate partnerships include more detail on the necessity to act at EU-level in specific thematic areas. Finally, it is worth noting that not all Member States have the same capacity or R&I intensity to act on these challenges. As the desired policy objectives can be fully achieved only if the intended benefits are widespread across the Member States, this requires action at the EU-level.

(b) Would national action or the absence of the EU level action conflict with core objectives of the Treaty²⁴ or significantly damage the interests of other Member States?

As per Article 4(3) TFEU, national action does not conflict with core objectives of the Treaty in the area of R&I. The absence of EU level action in this area would however prevent the achievement of core objectives of the Treaty. Indeed, national action alone cannot achieve the scale, speed and scope of support to R&I needed for the EU to meet its long-term Treaty objectives on e.g. competitiveness, to deliver on the EU's strategic policy priorities, and to contribute to tackling global challenges and meet the Sustainable Development Goals (SDGs).

(c) To what extent do Member States have the ability or possibility to enact appropriate measures?

As foreseen by Article 4(3) TFEU, this proposal does not hamper Member States' ability to enact appropriate measures in the field of R&I. However, the scale and complexity of the policy objectives pursued by the present initiative cannot be fully addressed by acting at national level alone.

²⁴ https://europa.eu/european-union/about-eu/eu-in-brief_en

(d) How does the problem and its causes (e.g. negative externalities, spill-over effects) vary across the national, regional and local levels of the EU?

As described in the horizontal part of the impact assessment accompanying the present proposal, several problems (e.g. on competitiveness, global challenges, demographic change) and their underlying causes affect the EU as a whole rather than individual Member States. Where important differences between Member States are present, these are described in Sections 1 and 2 of the individual impact assessments.

(e) Is the problem widespread across the EU or limited to a few Member States?

The problem of coordinating R&I efforts in the thematic areas covered by the candidate partnerships affects all Member States, albeit to different degrees. However, from a general EU perspective, available evidence shows that the EU as a whole needs to step up efforts and investments in thematic areas that are crucial to tackle present and future policy challenges on several fronts, e.g. ageing population, global technological trends, and climate change to name a few. The way these problems affect the EU and its Member States is described in the horizontal part of the impact assessment and in Sections 1 and 2 of the individual impact assessments.

(f) Are Member States overstretched in achieving the objectives of the planned measure?

As indicated in the horizontal part of the impact assessment and in Sections 1 and 2 of the individual assessments, the sheer scale, speed and scope of the needed support to R&I would overstretch national resources, without guaranteeing the achievement of the intended objectives. Acting at EU-level would achieve greater impact in a more effective and efficient manner.

(g) How do the views/preferred courses of action of national, regional and local authorities differ across the EU?

No specific differences between the views of national, regional and local authorities emerged from the stakeholder consultation.

2.4 Based on the answer to the questions below, can the objectives of the proposed action be better achieved at Union level by reason of scale or effects of that action (EU added value)?

EU funded R&I activities, including those covered by the present proposal, produce demonstrable benefits compared to the corresponding national and regional initiatives, due to the scale, speed and scope achievable by acting at the EU level. In addition, the proposed initiatives should be seen as complementary and reinforcing national and sub-national initiatives in the same area.

(a) Are there clear benefits from EU level action?

Quantitative and qualitative evidence of the benefits of EU level action are available in the interim evaluation of Horizon 2020 and in the impact assessment of Horizon Europe, among others. An analysis of the emerging challenges in each thematic areas, of the EU's competitive positioning, as well as feedback gathered from different types of stakeholders for the present impact assessment indicate that EU level action remains appropriate also for the present proposal. In addition, the benefits of acting at EU-level have been illustrated by the success and the impact achieved by the predecessors to the proposed initiative.

(b) Are there economies of scale? Can the objectives be met more efficiently at EU level (larger benefits per unit cost)? Will the functioning of the internal market be improved?

EU funded R&I activities, including those covered by the present proposal, produce demonstrable benefits compared to the corresponding national and regional initiatives, due to the scale, speed and scope achievable by acting at the EU level. This is the case both in terms of effectiveness in achieving intended policy objectives, but also in terms of efficiency. Positive impact is also visible in terms of competitiveness: recent data on EU funded R&I activities indicate that EU-funded teams grow 11.8% faster and are around 40% more likely to be granted patents or produce patents applications than non-EU funded teams. Efficiency gains are also visible in terms of dissemination of results to users beyond national borders, including SMEs and citizens. EU funded R&I is more effective in leveraging private investment. Finally, there are clear additionality benefits (i.e. EU R&I funding does not displace or replace national funding), as the EU focuses on projects that are unlikely to be funded at national or regional level. Overall, this is beneficial to the functioning of the internal market in several respects, including human capital reinforcement through mobility and training, the removal of barriers to cross-border activity for economic players including SMEs, easier access to finance and to relevant knowledge and research, and increased competition in the area of R&I.

(c) What are the benefits in replacing different national policies and rules with a more homogenous policy approach?

A homogeneous policy approach in the various thematic areas covered by the present proposal would reduce fragmentation and increase efficiency and effectiveness in meeting the intended policy objectives. Indeed fragmentation, persisting barriers in the internal market and differences in the resources available to Member States are some of the key problems that stand in the way of fully achieving the intended policy objectives and reaching the required critical mass to obtain tangible results. Specific detail on how these issues differ in each thematic area are illustrated in Sections 1 and 2 of the individual impact assessments, so as to reflect the specificities of each case.

(d) Do the benefits of EU-level action outweigh the loss of competence of the Member States and the local and regional authorities (beyond the costs and benefits of acting at

<p>national, regional and local levels)?</p>
<p>The proposed initiative does not lead to a loss of competence of the Member States. In fact, the proposed initiative should be seen as complementary and reinforcing national and sub-national initiatives in the same area. Previous quantitative and qualitative assessments of Horizon Europe and Horizon 2020 have shown that the proposed EU-level action do not displace national ones and tend to concentrate on initiatives that would not have been funded by the Member States themselves, or would not have reached the same scale and ambition without EU-level intervention, due to their complexity and trans-national nature.</p>
<p>(e) Will there be improved legal clarity for those having to implement the legislation?</p>
<p>Yes. The proposed initiatives will be implemented in line with the Horizon Europe single set of rules for participation; this will ensure increased clarity and legal certainty for end beneficiaries, other stakeholders and programme administrators. It will also reduce the administrative burden for beneficiaries, and for the Commission services. In addition, the accessibility and attractiveness of the broader Horizon Europe programme, in particular for applicants with limited resources, would be sustained.</p>
<p>3. Proportionality: How the EU should act</p>
<p>3.1 Does the explanatory memorandum (and any impact assessment) accompanying the Commission’s proposal contain an adequate justification regarding the proportionality of the proposal and a statement allowing appraisal of the compliance of the proposal with the principle of proportionality?</p>
<p>The principle of proportionality underpins the entire analysis of the candidate partnerships. Specifically, the analysis included in the accompanying impact assessment is structured along the following logic: 1. Justification of the use of a partnership approach in a given area (including considerations on additionality, directionality, link with strategic priorities) instead of other forms of intervention available under Horizon Europe; 2. If the partnership approach is deemed appropriate, proportionality considerations guide the assessment of which type of partnership intervention (collaborative calls, co-programmed, co-funded or institutionalised partnership) is most effective in achieving the objectives. This will also be reflected in the explanatory memorandum.</p>
<p>3.2 Based on the answers to the questions below and information available from any impact assessment, the explanatory memorandum or other sources, is the proposed action an appropriate way to achieve the intended objectives?</p>
<p>The proposed initiative only focuses on areas where there is a demonstrable advantage in acting at the EU-level due to the scale, speed and scope of the efforts needed for the EU to meet its long-term Treaty objectives and deliver on its strategic policy priorities and commitments. In addition, the present proposal leaves full freedom to the Member States to</p>

pursue their own actions in the policy areas concerned. This will also be reflected in the explanatory memorandum.

(a) Is the initiative limited to those aspects that Member States cannot achieve satisfactorily on their own, and where the Union can do better?

The proposed initiative only focuses on areas where there is a demonstrable advantage in acting at the EU-level due to the scale, speed and scope of the efforts needed for the EU to meet its long-term Treaty objectives and deliver on its strategic policy priorities and commitments.

(b) Is the form of Union action (choice of instrument) justified, as simple as possible, and coherent with the satisfactory achievement of, and ensuring compliance with the objectives pursued (e.g. choice between regulation, (framework) directive, recommendation, or alternative regulatory methods such as co-legislation, etc.)?

For each of the candidate partnerships, the analysis carried out in the accompanying impact assessment has explored several options for implementation. A comparative assessment of the merits of each option also included an analysis of the simplicity of the intervention, its proportionality and effectiveness in achieving the intended objectives. This is reflected in the fact that a tailored approach has been suggested for each candidate partnership, ranging from looser forms of cooperation to more institutionalised ones, depending on the intended policy objectives, specific challenges, and desired outcome identified in each case.

(c) Does the Union action leave as much scope for national decision as possible while achieving satisfactorily the objectives set? (e.g. is it possible to limit the European action to minimum standards or use a less stringent policy instrument or approach?)

The proposed approach leaves full freedom to the Member States to pursue their own actions in the policy areas covered by the present proposal.

(d) Does the initiative create financial or administrative cost for the Union, national governments, regional or local authorities, economic operators or citizens? Are these costs commensurate with the objective to be achieved?

The proposed initiatives do create financial and administrative costs for the Union, national governments and, depending on the chosen mode of implementation, for regional and local authorities. In addition, economic operators and other stakeholders potentially involved in the candidate partnerships will also incur some costs linked to implementation. The financial cost of the proposed initiative is covered under the Horizon Europe programme. Its exact amount is still subject to political decision. As regards the candidate partnerships and the different modes of implementation (co-programmed, co-funded, institutionalised), the relevant costs and benefits are assessed in the individual impact assessments covering each candidate partnership. The additional administrative costs of implementation via partnerships are

limited, when compared to the administrative costs of implementation through traditional calls. As indicated by comparable experience with previous initiatives and in feedback provided by a variety of stakeholders, these costs are expected to be fully justified by the benefits expected from the proposed initiative. Where available, additional details on costs are provided in Annex 3 of the impact assessment.

(e) While respecting the Union law, have special circumstances applying in individual Member States been taken into account?

Where relevant, differences between Member States in capacity and stage of advancement of R&I in specific thematic areas have been taken into account in the individual impact assessments.

Annex 6 Additional background information

1. BACKGROUND INFORMATION FOR ALL INITIATIVES

1.1. Selection criteria of European Partnerships

Partnerships based on Article 185 and 187 TFEU *shall be implemented only where other parts of the Horizon Europe programme, including other forms of European Partnerships would not achieve the objectives or would not generate the necessary expected impacts, and if justified by a long-term perspective and high degree of integration.* At the core of this impact assessment is therefore the need to demonstrate that the impacts generated through a Partnership approach go beyond what could be achieved with traditional calls under the Framework Programme – the Baseline Option. Secondly, it needs to assess if using the Institutionalised form of a Partnership is justified for addressing the priority.

The necessity test for a European Partnership (as set out in the Horizon Europe regulation) has two levels:

1. **The justification for implementing a priority with a European Partnership** to address Horizon Europe and EU priorities. This is linked to demonstrating that a European Partnership can produce added value beyond what can be achieved through other Framework Programme modalities, notably traditional calls in the work programmes (Option 0 – Baseline).
2. **The justification for the use of the form of Institutionalised Partnership:** Once it has been demonstrated that a partnerships approach is justified, co-programmed and/or co-funded forms are considered for addressing the priorities as they are administratively lighter, more agile and easier to set-up (Options 1 and/or 2). As Institutionalised Partnerships require setting up a legal framework and the creation of a dedicated implementation structure, they have to justify higher set-up efforts by demonstrating that it will deliver the expected impacts in a more effective and efficient way, and that a long-term perspective and high degree of integration is required (Option 3).

The outcomes of the ‘necessity test’ is presented together with the preferred option.

Figure 27 Horizon Europe selection criteria for the European Partnerships

Common selection criteria & principles	Specifications
1. More effective (Union added value) clear impacts for the EU and its citizens	Delivering on global challenges and research and innovation objectives
	Securing EU competitiveness
	Securing sustainability
	Contributing to the strengthening of the European Research and Innovation Area
	Where relevant, contributing to international commitments

Common selection criteria & principles	Specifications
2. Coherence and synergies	Within the EU research and innovation landscape
	Coordination and complementarity with Union, local, regional, national and, where relevant, international initiatives or other partnerships and missions
3. Transparency and openness	Identification of priorities and objectives in terms of expected results and impacts
	Involvement of partners and stakeholders from across the entire value chain, from different sectors, backgrounds and disciplines, including international ones when relevant and not interfering with European competitiveness
	Clear modalities for promoting participation of smes and for disseminating and exploiting results, notably by SMEs, including through intermediary organisations
4. Additionality and directionality	Common strategic vision of the purpose of the European Partnership
	Approaches to ensure flexibility of implementation and to adjust to changing policy, societal and/or market needs, or scientific advances, to increase policy coherence between regional, national and EU level
	Demonstration of expected qualitative and significant quantitative leverage effects, including a method for the measurement of key performance indicators
	Exit-strategy and measures for phasing-out from the Programme
5. Long-term commitment of all the involved parties	A minimum share of public and/or private investments
	In the case of institutionalised European Partnerships, established in accordance with article 185 or 187 TFEU, the financial and/or in-kind, contributions from partners other than the Union, will at least be equal to 50% and may reach up to 75% of the aggregated European Partnership budgetary commitments

2. BACKGROUND INFORMATION FOR THIS SPECIFIC INITIATIVE

2.1 Lessons Learnt from Previous Metrology Initiatives

In the Horizon 2020 Framework Programme support for metrology R&I was provided via an Article 185 initiative known as the European Metrology Programme for Innovation and Research (EMPIR). European funding for the current initiative is EUR 300 million and this is the totality for Union funding for this type of activity.

The key lessons learned from the programme are that it is well-run and is achieving scientific, management and financial integration of national metrology research and that EURAMET e.V. can be trusted with the delegated responsibility of an Article 185 initiative²⁵.

The initiative has brought the national metrology institutes, the NMIs and DIs, much closer together and have been very successful at coordinating research activities. Before these initiatives it was estimated that no more than 5% of research was conducted collaboratively

²⁵ Final Evaluation of the European Metrology Research Programme (EMRP) and Interim Evaluation of the European Metrology Programme for Innovation and Research (EMPIR), Expert Group Report, European Commission, 2017
<https://publications.europa.eu/en/publication-detail/-/publication/eac61c51-ae2e-11e7-837e-01aa75ed71a1/language-en>

amongst NMI/DIs. Now around 25% of national research budgets are aligned via the partnership. Country participation is broad with 28 participants (23 Member States and five non-Member States)²⁶ and increasing links with the research base and measurement users in the industrial, standards and policymaking communities have improved and continue to grow. In terms of the fundamental underpinning SI system of units, the European initiative played a key role in coordinating the European research that made a significant contribution to the recent internationally agreed redefinition of the seven measurement base units.

A mid-term evaluation of the programme was carried out in 2017. The evaluation identified key areas for action that centre on the need to focus on long term coordination of metrology research among NMIs and DIs and their user/beneficiary base at strategic level rather than just at project level. The evaluation specifically reports that while the predecessor initiative has gone a long way towards increasing coordination in the metrology system across Europe, the changes are not yet firmly embedded or sustainable. Currently the initiatives are largely centred on the processes for developing and delivering joint research projects. This works well, but when projects are complete the detailed cooperation fades and links to stakeholders revert to national concerns rather than the European level. In addition there is a need for more openness through increased participation beyond the core NMI/DI community with industry, academia and policy-makers to create a more strategically, integrated community that can better respond to society's needs. Finally, mechanisms are needed to enable more strategic, long term cooperation among stakeholders along the metrology value chain.

2.2 Functioning of National Metrology Institutes

National Metrology Institutes (NMIs) derive their functions from the Metre Convention. The Metre Convention ensures that measurements for legal and trade purposes are consistent across countries. The Paris-based International Bureau of Weights and Measures (BIPM), funded through the Metre Convention, monitors the system by which countries demonstrate that consistency.

Accordingly, each country has a system to guarantee consistency between measurements established at national level and the international measurement standards system maintained by the BIPM. NMIs are the bodies set up under national law to administer the national weights and measures system to ensure consistency with BIPM international measurement standards.

All NMIs have broadly the same three core objectives: (i) to underpin industrial needs for product quality and innovation; (ii) to support sound policy and regulation, so protecting the citizen; and (iii) to provide ever enhanced tools for other scientific disciplines.

As entities charged with delivering on a country's obligations under an international treaty, NMIs function as part of the central governmental structure. In many countries, NMIs are an integral part of the government service and report directly to the Industry of Economy Ministry, as is the case, for example, in Germany and Belgium. In other countries, NMIs operate as a public agency or a company wholly owned by the government, such as in Sweden and Finland. In all cases, NMIs develop their research programmes in consultation with national stakeholders, subject to oversight from government.

²⁶ Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Bosnia-Herzegovina, Serbia, Turkey, Norway, Switzerland

Where NMIs function as an integral part of the government structure, spending is annualised in line with financial control, with profits and losses not carrying forward between financial years. Where NMIs operate outside the direct government service, there is discretion to carry forward earnings from one year to the next.

The scale of NMIs varies significantly. At one end of the spectrum, NMIs in countries such as Cyprus, Malta and Luxembourg have fewer than five staff whereas those in countries such as France and Germany have around a thousand employees.

Most NMIs receive funding from the Ministry to which they report for delivering public metrology services. They also have an income stream from supplying calibration services to private clients. In countries with accredited private calibration laboratories, NMIs focus on providing the most demanding services to these accredited laboratories. In countries with less developed private calibration services, NMIs provide the bulk of services to end-users.

In order to ensure worldwide comparability of national measurement standards and recognition of Calibration and Measurement Capabilities (CMCs), NMIs are required to participate in the Mutual Recognition Arrangement (MRA) of the International Committee of Weights and Measures (CIPM). This obliges NMIs to participate in peer reviews and comparisons of their CMCs and of the quality management systems covering these CMCs. These reviews are performed in the framework of Regional Metrology Organisations (RMOs). Hence, membership of an RMO is essential for an NMI to secure international recognition of its national measurement capabilities and demonstrate its compliance with the MRA.

EURAMET is the primary RMO for European NMIs. EURAMET is controlled by its members, with each NMI having a single vote at the EURAMET General Assembly. The General Assembly approves the EURAMET budget, sets membership fees and appoints a Board of Directors.