

IMPACT-SC5

ASSESSING THE IMPACT PATHWAYS OF IA/RIA SC5 PROJECTS THROUGH THE USE OF PORTFOLIO ANALYSIS

D4.2 Co-creation and validation events report

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1 Introduction

The current document constitutes the **Deliverable D4.2: Co-creation and validation events report** elaborated in the framework of our [IMPACT-SC5](#) project, which has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 869746.

In a nutshell, the IMPACT-SC5 – “*Assessing the impact pathways of IA/RIA SC5 projects through the use of portfolio analysis*” – aims to review the impacts of the projects granted under Horizon 2020 Societal Challenge 5 (SC5) as well as its supplementary Work Programmes and calls (e.g. Water-2014, Waste2015, EE-2014, etc.). This evaluation and impact assessment focusses on the 87 RIA and IA projects funded under the SC5 Work Programme 2014-2015 and looks at them in terms of their scientific, economic, societal and environmental performance, both individually and across portfolios of projects.

In this context, **five (5) thematic policy co-creation workshops** have been successfully organised with a view to discuss the results of our portfolio analysis regarding the impacts of the Horizon 2020 SC5 projects and along with the participants to collectively identify how policy on national and European level can facilitate the enhancement of SC5 impacts' diffusion and uptake across the EU. In total, more than **130 participants actively participated** in the workshops sharing their views on the topics of discussion.

As such, this deliverable encapsulates the way we structured the thematic co-creation workshops as well as the outcomes obtained. Overall, the information obtained from the thematic co-creations will be triangulated and synthesised within our Synthesis report (Deliverable 4.1) and the IMPACT-SC5 Actionable Knowledge Toolkit (Deliverable 4.3) so as to produce forward-looking policy and evaluation recommendations.

To this end, and in order to facilitate the reading of this deliverable, we have structured it in the following manner:

- **Chapter 1:** offers introductory information about the context in which this deliverable has been elaborated;
- **Chapter 2:** outlines the overarching aim and the specific objectives of the 5 thematic co-creation workshops organised in the framework of IMPACT-SC5;
- **Chapter 3:** presents the methodology used for the organisation and implementation of the thematic co-creation workshops;
- **Chapter 4:** summarises the outcomes and insights collected during the course of our thematic co-creation workshops.

Finally, the agendas of the IMPACT-SC5 thematic co-creation workshops are annexed in the end of the current report.

2 Aim and objectives

The **overarching aim** for organising and holding the IMPACT-SC5 thematic co-creation workshops was to collect meaningful insights from a wide spectrum of stakeholders with a view to **discuss and validate the results of our portfolio analyses** as well as **co-create policy recommendations** concerning the diffusion of SC5 impacts as well as in the area of evaluation and impact assessment practices and methodologies used for the assessment of R&I projects.

Towards this end, the **specific objectives** of the workshops were to:

- discuss the results of our portfolio analysis regarding the Societal Challenge 5 projects under scrutiny; and
- collectively identify how policy on national and European level can facilitate the enhancement of SC5 impacts' diffusion and uptake across the EU.

With the above in mind, the following chapter provides further details on the methodology employed for the implementation of the IMPACT-SC5 Co-Creation Workshops and their distinct sessions.

3 Our approach on delivering the co-creation workshops

3.1 Shift from physical workshops to digital workshops due to COVID-19

Before starting with the methodology we used for delivering the IMPACT-SC5 policy co-creation workshops, it is to be mentioned that our initial plan was to organise 4 national physical workshops in all partners countries (Belgium, Finland, Greece, and Spain) during which we would evaluate the developed concepts and co-create with participants solutions concerning the uptake of portfolio analysis on national level. Due to the Covid-19 pandemic affecting the entire European continent since the beginning of 2020, travelling and mobility of EU-citizens was unsafe and, in some cases, completely restricted and also socialising restrictions were imposed by European countries as measure to counter the spread of the disease. Given this unprecedented situation, our team decided to switch from organising the foreseen physical events to organising five (5) thematic digital workshops instead. The digital co-creation workshops would provide the opportunity to the IMPACT-SC5 team to present and discuss the outcomes of each of the portfolio developed during the analysis and co-create policy recommendations with invited participants.

On the one hand, creating a digital event is a challenging activity for the organisers, as the attendee experience is completely different in comparison with the physical one. An event schedule that works well “in person” may not translate well to an online conference, due in part to the lack of interactivity between the speakers and the audience. Moreover, a considerable amount of time needs to be spent by organisers so as to get familiar with the digital tools and platforms.

On the other hand, online events offer the advantage that the barrier to physically participate is lowered, since the participants do not have to travel and be away from their desk and can pick and simultaneously can mix content of interest. For the organiser, the advantage is that it often attracts a higher number of registrations and participants (although retention rate is harder to maintain compared to a captive audience on location).

To overcome the challenges and capitalise on the advantages, we used of a wide range of media content, as well as two-way interactivity between the virtual attendees and organisers. Segments were kept relatively short and interspersed with interactive content such as Q&A sessions and live chat.

3.2 Delivering the policy co-creation workshops

Date/Time of the workshops

Date/Time	Workshop
28-April-2021 10:00-12:15 (CET)	Portfolio 1: Climate Change
29-April-2021 10:00-12:15 (CET)	Portfolio 3: Raw Materials
6-May-2021 10:00-12:15 (CET)	Portfolio 2: Environment, ecosystems, biodiversity
11-May-2021 10:00-12:15 (CET)	Portfolio 4: Waste
12-May-2021 10:00-12:15 (CET)	Portfolio 5: Water

Introducing the participants into IMPACT-SC5

The workshops started with an introductory session where a member of our team (*coming from the coordinating organisation*) introduced the IMPACT-SC5 to the participants. This session included the main objectives, methodology and activities of our project.

Presentation from a European Commission representative (optional)

Where possible, a European Commission representative gave a short (approximately 10-minutes) presentation, covering the following:

- Setting the policy context of the specific topic
- Evolution undergone from H2020 to Horizon Europe
- What shifts in priorities (*if any*) have occurred?
 - What are the reasons for these changes?

Presentation from an interesting SC5 project

During this session, selected SC5 coordinators were invited to present the main findings of their projects. In general, the projects were selected based on their significant results and impacts, as identified during the analyses performed on project as well as portfolio level.

Panel discussion on Portfolio results

Panel discussions were held in each workshop. Panels were composed on average by three (3) people coming from the policy making side, national contact points, the European Commission or experts in the domains of the study. The invited panellists commented on our portfolio analysis findings in relation to:

- the Scientific Impacts of SC5 projects,
- the Societal/Environmental Impacts of SC5 projects, and
- the Economic Impacts of SC5 projects.

In the end of the session, time was dedicated for a Q&A from participants. Participants raised their questions in the platform's chat.

The co-creation session

During the context of the IMPACT-SC5, a series of co-creation sessions have been organised with a view to identifying how policy on national and European level can facilitate the enhancement of SC5 impacts' diffusion and uptake across the EU.

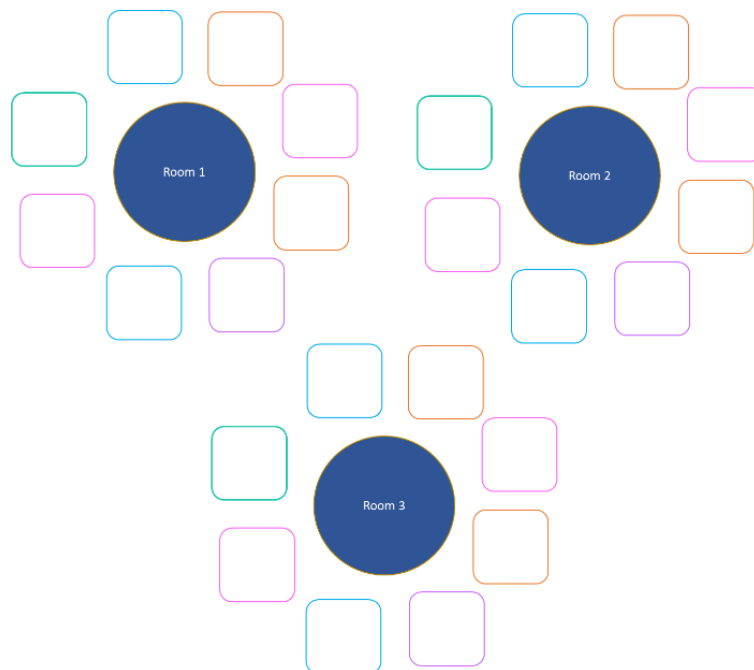
In this context, during each workshop, **digital breakout rooms** were set up to discuss how policy on national and European level can enhance the diffusion and uptake of impacts across the EU. Accordingly, the participants of the workshop were divided into different teams, including around 8-10 people. Each team was involved in a co-creation session of approximately 45 minutes duration. Each digital room was moderated by one consortium member complimented by a rapporteur. In some cases though, our team decided to run the co-creation session only in one room, due to limited participation or high number of dropouts during the co-creation.

During the course of the co-creation workshop the following questions were addressed to the participants:

- How can **impact pathways be integrated** into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced?
 - Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved?
- How can **projects be monitored** such that it allows measuring short, mid and longer-term impacts?
 - A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this

be improved? 15 minutes (*5 minutes per team*) will be allocated to rapporteurs to present each table's key findings

Participants had the opportunity to provide their insights in 2 digital canvases made by [IdeaBoardz](#), one per each question. For that reason, participants had 5-7 minutes in the beginning of the session to write their feedback in digital post-it notes sticking in them in the respective canvas. Time then was dedicated to elaborating and discuss on their ideas.



In the end, all participants returned in the same digital room where each rapporteur presented his/her table's key findings.

Platform to Facilitate the Workshops

In order to implement the co-creation session, a digital platform need to be selected that allows rooms break-down. In this framework, we used

- **Q-PLAN's Microsoft Teams**

Digital tool used

- IdeaBoardz (<https://ideaboardz.com>):

A week before the initial workshop (i.e. workshop on Climate Change), Q-PLAN trained (in a dedicated call) all consortium members in the functionalities of the platform and digital tool.

Reporting

The outcomes of each workshop have been articulated by the rapporteurs into short executive reports that included the outcomes reached.

4 Outcomes and recommendations

4.1 Climate Change

Introduction

The IMPACT-SC5 Policy Co-Creation workshop on "Fighting and Adapting to Climate Change" related projects of SC5 took place on the 28th of April 2021 and was attended by 34 participants.

Discussion during the panel discussion

During the course of the panel session, the following topics were discussed:

- **Suzanne de Cheveigné** (*Centre National de la Recherche Scientifique*): The discussion opened with Dr Suzanne de-Cheveigne, senior researcher of the Centre National de la Recherche Scientifique (CNRS). Dr Suzanne de-Cheveigne was also part of the Societal Challenge 5 Advisory Board. Dr Suzanne de-Cheveigne started by stating that she was very positive in finding out that a considerable number of projects engaged citizens into their activities through participatory process. Moreover, Dr Suzanne de-Cheveigne pointed that many projects used demonstrators, thing that was also requested by the Commission during the time that the WP was drafted. Dr Suzanne de-Cheveigne continued by touching upon the issue of gender stating that although gender issues were put forward in some cases, they did not lift up from the ground from the majority of the projects.

On top of that, Dr Suzanne de-Cheveigne reported that societal aspects are slowly coming into play— and society impacts are getting more spotlight. These societal aspects though are mainly related to citizens engagement. With respect to the success factors, Dr Suzanne de-Cheveigne mentioned the importance of long-term collaboration within the consortia. Concluding, she raised the issue in relation to the selection of the projects and the quality assessment of the evaluation process.

- **Mr. Frederik Accoe** (*CINEA - European Climate, Infrastructure and Environment Executive Agency*): Mr. Frederic Accoe, senior advisor on CINEA - European Climate, Infrastructure and Environment Executive Agency, continued the panel discussion by pointing out the issue of international collaboration and how this was measured by our analysis. Mr. Frederic Accoe pointed that a good metric would have been the Intergovernmental Panel on Climate Change (IPCC) and the degree to which climate change projects have participated in this initiative. Moreover, Mr. Frederic Accoe raised the issue of markets and how “markets” have been defined into our analysis. From a societal point of view, he pointed out that many of the projects have gained a lot of media attention, thus contributing towards the awareness raising of the general public. Mr. Frederic Accoe concluded by mentioning that many H2020 projects

tend to ask for extensions for their projects in order to disseminate their results, maybe because of poor projects design. For that reason, the EC has designed a number of tools, such as the Horizon Results Booster and now the EC is interested to see how the booster can be up taken.

- **Mr. Vassilis Stavrakis** (*University of Piraeus Research Centre*): The panel discussed closed with Mr. Vasilis Stavrakis from Technoeconomics of Energy System Laboratory of University of Piraeus Research Centre and project coordinator of the TRANSrisk project. Mr. Vasilis Stavrakis started by pointing out how important the distinction between RIAs/IAs is as every action created different impacts. Moreover, Mr. Vasilis Stavrakis mentioned that TRL could be a useful indicator to be measured. In this context, he raised the issue of how can the TRL be measured and evaluated effectively at the end of the project.

With respect to open access Mr. Vasilis Stavrakis pointed out the following:

- there is always an issue of allocation of resources to secure the publication of open access articles after the end of the project
- how about open-source information/datasets?

On top of that, Mr. Vasilis Stavrakis pointed out that no central hub of projects / research outcomes is existing at the moment focusing more on a theme basis. Therefore he raised the hereunder questions:

- How can the information be operational for other users?
- How can the information be retained intensifying collaborations or thinking in this direction even from the proposal phase?

Mr. Vasilis Stavrakis concluded by mentioning that collaboration between projects / calls is pivotal. In this context, he finds it very important that this aspect has been already introduced in Horizon Europe.

Recommendations and insights received during the co-creation session

<p>Question 1: How can impact pathways be <u>integrated</u> into the policy-programme cycle</p>	<ul style="list-style-type: none"> • The calls could be clearer in the type of impact is expected (e.g. science, economic...) compared to now • Definition of terminology to avoid (or minimise) interpretation differences e.g. gender issues are interpreted very differently by partners • Assign someone from the consortium to be responsible for assessing the impact of the project (also after the project has ended) • Communication plan for different audiences integrated into a single platform • Better define long-term impact indicator • Think about an after-life (maybe going beyond the requirements which are there) for the project results and already include that in the proposal (or deliverables) • Organise events/ initiatives dedicated to valorising impact pathways could help • ‘Gender’ not as an add-on, but the angle should already be present in the topic itself. • Training to those involved in WP drafting in 'impact pathways' methodology • Write very explicitly expected impact into call topics (the only thing that applicants really read) • Good practices sharing on citizens' engagement • To first agree on a longer-term roadmap before starting to draft topics • If impact pathways are included in the calls, for sure the proposal will take into account (as happened for the social) • Not follow too strictly - issue of no environmental impact • To improve 'expected impact' sections in topic descriptions
<p>Question 2: How can impact pathways be <u>monitored</u> into the policy-</p>	<ul style="list-style-type: none"> • At national level short-term results are measured only. The impact in the long term is difficult to measure • An important aspect is how impacts are measured. For example, many projects often use Key Performance Indicators (KPIs), focusing on different aspects that makes it often confusing. We need clear impacts and a clear suggestion on how these shall be measured standardisation of the process would be nice.

**programme
cycle**

- Measuring TRL could be a more concrete way to monitor or measure progress (in a standardised way) but now not really used
- Reporting/data from projects after they are finished would be needed in order to assess e.g. longer-term economic impact
- Thinking about short term data I think that more information on funded projects would have to be included in the CORDIS Database: Gender, innovations, patents, policy interactions, etc
- Allow smart companies with AI solutions to mine and analyse the data e.g. Cordis and make it more accessible
- Change deliverables from projects such that they are more relevant for other users and follow up
- Structure reporting according to the framework
- Expanding or foreseeing an exploitation period could be very important
- To report regularly on outcome/impacts/etc. reached by portfolio (at aggregated level)
- Go beyond official reporting periods, and have more frequent friendly-consulting interactions

4.2 Raw Materials

Introduction

The IMPACT-SC5 Policy Co-Creation workshop on "Raw Materials" related projects of SC5 took place on the 29th of April 2021 and was organised by Tecnalia. The workshop was attended by 9 external participants.

Discussion during the panel discussion

During the course of the panel, the following topics were discussed:

- **Mr. Jonas Hedberg** (HaDEA): Mr. Jonas Hedberg started by explaining that low international participation in the 2014-2015 projects was expected due to the fact that this aspect was encouraged and requested by the Commission during the next two Work Programmes. With respect to the citizens engagement, Mr. Jonas Hedberg stated that during the initial Work Programme (that is the 2014-2015), citizens engagement and participatory approach were not demanded. It was mentioned that only from the 2017 calls onwards citizens participation was required. Therefore, increased citizens engagement and activities towards awareness raising are observed near the end of the Work Programme. In further detail, Mr. Jonas Hedberg specifically mentioned some success cases of citizens engagement in the course of some exploration projects of the last Work Programme.

Regarding the high participation of private companies (incl. SMEs), it was pointed out that this was due to the fact that raw material calls asked for high (or higher in comparison with the rest of the calls) TRLs.

In terms of disseminating and spreading the results of projects, Mr. Jonas Hedberg mentioned the hereunder tools and initiatives:

- **Environment and resources data hub:** An interactive map set-up by EASME where information on EU funding programmes could be found as well as the countries from which the participants come from.
- **Horizon Dashboard:** The Horizon Dashboard is an intuitive and interactive reporting platform, composed of a set of sheets that allows series of views to discover and filter the Horizon 2020 data.
- **Horizon Results platform:** An initiative where you can discover the wealth of EU-funded research results and get in contact with their creators.
- **Horizon Results Booster:** The Horizon Results Booster is an initiative backed by the European Commission which aims to maximise the impact of research projects funded by FP7, Horizon 2020 and HE.

- **Innovation Success Stories:** A repository presenting success stories coming from H2020 projects and their results.
- **CORDIS:** A traditional repository containing the FP7 and H2020 projects information and results.
- **Raw Material Information System (RMIS):** The RMIS is an information system related to raw materials in the wider sense. The RMIS structure supports the collection, organization, storage and communication of information on raw materials, and to a certain degree on materials, and components and products made of them.
- **Mr. Daniel Cios (DG GROW):** Mr. Daniel Cios continued from the point made on private companies participation and explained that calls specifically asked from the market uptake of the solutions produced. Therefore, this is another aspect that stimulated high participation from private companies. In terms of citizens engagement and disseminating the results on the general public, Mr. Daniel Cios indicated that the Commission is really interested towards this end and specifically asks projects to have such activities (like surveys, public consultations, media presence, interactive videos, etc.). On top of that, Mr. Daniel Cios was surprised by the low participation of civil society organisations and NGOs as part of the consortia. Mr. Daniel Cios reported that these types of companies really aid the social acceptance of the processes and tools developed mainly from exploration projects.

Recommendations and insights received during the co-creation session

Question 1:
How can impact pathways be integrated into the policy-programme cycle

- It is clear that proposals quite precisely follow call text, so any desired short- or longer-term impact needs to be included in the call text
- Activate proactive actions within each project. (e.g., develop an additional funding accessible only in the middle of the project that is accessible only when a collaboration with a different project with a different impact pathway is set)
- Include the impact pathways in the proposal submission framework and monitoring process
- Long term impacts are difficult to measure within project duration - methodology should be set up and included in call/proposal template?
- Cross-reference / learn from other topics e.g. between raw materials and climate change: what makes raw materials so attractive to private companies compared to climate services calls? Can we use maturity of sector as well as maturity of technology?

	<ul style="list-style-type: none"> • Emphasise to open access to data and increased collaboration between projects, clustering if you like (stimulated in the call through a dedicated task with budget in the proposal) • Specific KPIs could be developed for the different impact pathway, and a minimum number of KPIs should be selected • More guidance on what is expected specifically (e.g. gender impact - what is expected from projects)
<p>Question 2: How can impact pathways be <u>monitored</u> into the policy-programme cycle</p>	<ul style="list-style-type: none"> • Structured monitoring of KPIs in project reporting • Can we develop / use some kind of tag system to track developments over time? EC would of course have to tender evaluations going back over longer periods of time. • Use of Innovation Radar • Be more specific in calls e.g. make TRL explicit so that we can also monitor progress made (and perhaps also innovation readiness level?) • Having impact pathway (indicators) in proposal framework, would that allow longer term monitor? • Important to extend dissemination / exploitation beyond project lifecycle (at the moment no funding beyond completion of project allowed) • Further developing the KPIs and having them for short, medium and long term with possibility of reviewing it for the long term based on the preliminary results of the project. I also think having a minimum KPIs per impact pathway in the project proposals can be interesting.

4.3 Environment, Biodiversity and Ecosystems

Introduction

The IMPACT-SC5 Policy Co-Creation workshop on "Environment, Biodiversity and Ecosystems" related projects of SC5 took place on the 6th of May 2021 and was organised by Q-PLAN. The workshop was attended by 25 external participants.

Discussion during the panel discussion

During the course of the panel session, the following topics were discussed:

- **Ms. Chiara Pocaterra** (*Agency for the Promotion of European Research*): Ms Chiara Pocaterra started by stating that apart from open access data, there is a wealth of project outputs that are not valorised. The possibility to valorise not materialized results, to exploit the results after the end of the project, to continue the activities with new projects so as to continue working with the networks and the stakeholders put in place should be further strengthened. Important to capitalize on results obtained; every project should not start from point 0, from scratch. The barriers identified in our study will continue appearing and seem to be the same when it comes to citizens engagement.
- **Ms. Vaya Piteli** (*PRAXIS/FORTH*): Ms Vaya Piteli took the floor and pointed out that the portfolio approach is considered an interesting approach, for all sides involved, to explore and identify how impacts may be produced. The key impact pathways introduced by the EC is towards this direction and to this end they have started developing tools to promote impacts, e.g. the Open Science approach that becomes mainstream now, or the platforms produced, such as the Results Platforms that project applicants should take into consideration during proposal phase. For our portfolio (i.e. Environment, Biodiversity and Ecosystems SC5 projects), the scientific impacts seem to be successfully achieved. But the question is how to reach the ultimate goal, which is to reach the society and the economy. The new *missions* concept may structure citizens engagement, during and after the end of projects. The ECO-POTENTIAL project is exactly to this end, showcasing how results can be sustained.
- **Professor Nicolaos Theodosiou** (*Chair of the Greek UN Sustainable Development Solutions Network*)¹: Following Ms. Pocaterra's points, the sustainability of networks is an important barrier. And following Ms. Piteli's points it would be great if the people would start from the end (impacts) it would help to structure and create better projects. Another important point is about the gender: it would be interesting to see and investigate if there are still gender issues

¹ The purpose of the network is to see how to use the outcomes of research and scientific projects and the innovative solutions they propose so as to serve the SDGs

in research, especially why we see differences between researchers and non-researchers. Professor Nicolaos Theodosiou pointed out that what he missed in the report is a better presentation of the projects and the SDGs. It would benefit the report to have a better representation of other SDGs (e.g. SDG 1 or 2). In this respect, Professor Nicolaos Theodosiou proposed that perhaps a radar chart between the projects and the SDGs would be a good idea. Overall, the radar graphs were considered a very good tool in the presentation of the results.

- **Dr Antonello Provenzale** (*National Research Council of Italy, CNR*): Dr. Antonello Provenzale who acts as a member of the national Research Council of Italy was also the coordinator of the ECO-POTENTIAL project, initially discussed that contacts with local authorities are not always easy, because they are the ones usually that can uptake the results. The SDGs are important, but we should really try (as projects) to address them – not just include them as jargon. Finally, Dr. Antonello Provenzale mentioned a critical point about the emphasis put on the proposal. Right now, basic research is only funded via ERC. In Horizon projects they are trying to do basic research as well, but this way Europe misses an important innovation pathway, as basic research may lead in innovations that will have an economic impact in 10 years.

On top of that, Dr. Antonello Provenzale expressed that is important to build research infrastructures that can host the research results – when writing the proposal it would be good to have in mind the research infrastructures that can be used to host the research results. These infrastructures can also help to sustain project results, whereas websites may also be alive for a certain amount of time. Finally, Dr. Antonello Provenzale mentioned open access an important point, because it helps to avoid replication of efforts (recollection of the same data).

Recommendations and insights received during the co-creation session

Question 1:
How can impact pathways be integrated into the policy-programme cycle

- Appreciate the new approach of Output-Outcome-Impact in Horizon Europe. It might be necessary to support the OUTCOME level first, with e.g. more target group orientated measures.
- Training of topic drafters would be needed. And a clear, common frame
- Wider consultations with a focus on expected impact of the overall WP and specific topics. There should be a common understanding of expected impact.
- Asking for a deliverable (figures only) after 6 months after the end of the project, to collect info.
- Many calls have already listed either RI or previous projects or GEO. This is good and should be continued.
- It would be useful to include what aspects will be most important for evaluation

	<ul style="list-style-type: none"> • Horizon projects very often have a very broad approach. I think it would be supportive for the projects and for the impact if it would be easier for beneficiaries to get in touch with representatives of other DGs during the project lifetime. • Provide training to the applicants on impact pathways focusing on the relationships between output/outcome/impacts. • There has been already a good step done in this direction asking for tangible outcomes of the projects measurable e.g. in surface of areas rehabilitated / protected; funding mechanisms to increase the impacted area, etc. this should be continued. • Think of key impact indicators already on proposal preparation from the side of "results receiver". How could be results beneficial? • One of impact indicator is number of visits to the websites of accomplished projects, perhaps long lasting of the website with all the products on it should be granted? the most successful project I know ended in 2010 and there is still number of people downloading results and methods. • Make sure to involve Human and Social Sciences in projects, it helps to engage/interact with stakeholders and citizens, and formalize project • Important to establish connections with science-policy experts/centers (e.g EC JRC).
<p>Question 2: How can impact pathways be <u>monitored</u> into the policy-programme cycle</p>	<ul style="list-style-type: none"> • A clear framework and support should be provided by the EC, especially for the long-term monitoring. • Results, recommendations, etc. should feed the Knowledge Centres • Better indicators - perhaps some mandatory, common ones? (per area) • We should be interested in the impact of projects from the past. I think a lot of potential would be wasted if we do not look at the outcome and impact of H2020 projects but just start now with the HE. • Identifying partners networks - where and with whom they work afterwards - and what they publish after the project has ended • Defining best practices /tools that are clearly targeted to the needs arising, and also defining the sustainability of the tools

- Include monitoring as part of the project and link it with decision making in the project implementation.
- perhaps data citation could be a good impact indicator and can be monitored in medium and long term. Also you need to produce good data series to be able to release them as a package with its DOI
- During the life of the project the focus must be on outcomes (not impacts and beyond outputs)
- The challenge, I think, is to follow Outcome-Impact with good indicators after the termination of a project. How can this be efficiently tracked (responsibilities, resources)?
- Maybe the last payment for the project could be delayed to 1-2 years after the project's end, and dependent on the number of visits to its website, downloads of products, citations. This would really push for long-term impact thinking.
- Long term impacts necessary but very difficult to document (quantify) especially in the case of ideas. Is doing better than documenting?
- Data / tool transfer to other project(s), coming back to AMBER - the barrier atlas could be "sold" to projects working on catchment models, identification of such projects a prior would-be part integrating pathways into policy-programme cycle.
- Produce handbooks with common indicators/policy reports from projects outcomes and disseminate after the life of the projects in stakeholders platforms
- Ask policy makers /industry if they have used projects' results

4.4 Waste

Introduction

The IMPACT-SC5 Policy Co-Creation workshop on "Waste" related projects of SC5 took place on the 11th of May 2021 and was organised by Tecnalia. The workshop was attended by 36 external participants.

Discussion during the panel discussion

During the panel, the following questions were raised by our consortium partners and were discussed with the panel members:

1. **All the projects / project portfolios should contribute to all the impact pathways to a minimum extent? What determines the scientific / policy / economic approach of the projects?**

- **Mr. Daniel Cios** (*EC - DG GROW*): Considering the three impact pathways and the different elements that have been assessed within each impact pathway, there is room for the projects to contribute to some extent to all the three impact pathways in different ways, not necessarily ranking high in all the indicators under exploration.

The description of the call and the topic determines to some extent that one project contributes further to one impact pathway. This has been the case of the urban waste cluster in which it was requested by the call to involve actively citizens, NGOs or public authorities. However, it is to highlight that the industrial cluster, not featuring this requirement, has also been considered in some of the projects for their own initiative. This is a good sign for the EC because this allows to show the impacts of what is being done by the projects and funded by the Commission.

Citizen engagement is especially relevant when you link it to the element that comes to the uptake of solutions related to the circular economy, recycling, dealing with waste. The uptake of solutions is still limited and the awareness of these solutions by citizens is still needed and the projects have a major role on this issue to facilitate the acceptance of the solutions and its use in their everyday-life.

- **Mr. David García** (*Tecnalia*): Even if our project had a strong focus on the economic and policy related indicators, the scientific impacts of the project was also considered. Indeed, we published in peer-reviewed papers and participated in several international conferences but, taking into account the sector and the type of participants involved, such as construction companies, manufacturers of construction products they were more interested in the demonstrators, the case studies, the validations and the exploitation of the project's results than on the public dissemination of the scientific outputs.

The scope of the project is highly determined by the way the topic / call has been defined but also by the sector. In sectors more innovative in which they have more opportunities to get patents or other kind of IPR protection, they are more focused on the scientific excellence.

- **Ms. Lydia Gonzalez** (*Centro para el Desarrollo Tecnológico Industrial*): Not only the topic text determines the scope of a project but also the whole call text. When the WASTE call was defined under the SC5, together with WATER, it was identified as important sectors in which it was needed to accelerate the development of innovative solutions to achieve the EU a competitive difference with regard to other geographic areas. Although there were RIAs, even those they were pretty much innovation driven and that is the reason why the participation of industry is so relevant, and the focus was on applied research.

In H2020 open publications was a novelty in the program and open publications were requested. However, open science is something that has evolved strongly and in HEU the whole “open science” concept will be applied.

These two factors could explain the underperformance of the WASTE project portfolio in the scientific impact pathway.

2. Policy outputs and interactions have been considerably relevant in this portfolio. However, it takes some time to turn the policy recommendations into specific policy shifts. How could this process be streamlined?

- **Mr. Daniel Cios**: Feedback to policy very relevant for the EC. Research has to be seen as a tool to achieve policy objectives. In HE the intention is that the calls would be coming from policy objectives and the policies will be contributing to policy objectives. The need of feedback from the projects is absolutely needed. Basically, how to streamline the information from projects to policy? Much more interaction is needed among the project participants and the policy makers in the Commission and in national level in MS. Majority of the projects were invited to participate in several conferences, and meetings and there will be more interaction with the projects, specifically, CSA are more focused on this policy dimension of activities. It would be really good to have more interactions with the technology projects and see if the results are being implemented, used by the companies, or if the innovative solutions manage to introduce solutions that improve the recycling of some metals in more efficient ways.

The involvement of EU associations based in Brussels is a very good idea as a mean to reach EC policy makers as they are well aware of who is who in the EC. EC can also be directly contacted.

Feedback to policy is a long process and can take up to a few years to create a policy document. But the scientific knowledge is needed to know what the situation in the EU is, which are the bottlenecks, where the barriers and the gaps are and how they can be improved. Thus, public consultations, studies, scientific data are very welcome.

- **Mr. David Garcia:** Creating opportunities and interactions is a must to be able to transfer the knowledge developed by the projects to policy makers. At project level it is necessary to take into account the importance of involving actors from the whole value chain, including EU or national industrial associations. If it is not possible to include them as participants of the consortium, it is possible to involve them in the Advisory board or by keeping them informed about the results of the project. This way, the results of the project are validated and in addition, as they have direct access to policy makers, they turn to be a useful and efficient a vehicle to influence decisions at policy level, presenting the conclusions of the projects.
- **Ms. Lydia Gonzalez:** Related to the clustering activities in the portfolio, this is something that has evolved in H2020 and continues evolving in HEU. The focus from now onwards will not be put on a single project but on a group of projects under the same or related topics. In HEU the clustering activities, not only on communication and dissemination activities, are going to be stressed with the aim to boost synergies among projects. Cluster 5 of HEU, the activities of clustering have to be considered as part of the activities inside the projects. The Commission will advise on what kind of clustering activities are expected to be conducted. This can be a stringer a more efficient way to reach policy makers.

Another issue is the procedures and timing needed to approve a regulation or a law, which many times takes longer than we would like.

Recommendations and insights received during the co-creation session

<p>Question 1: How can impact pathways be <u>integrated</u> into the policy-programme cycle</p>	<ul style="list-style-type: none"> • Go for very specific figures establishing X projects contributing to a very determined indicators foreseen in the future policy aspects. E.g. X projects to achieve a minimum of Y performance services, to reach Z increase in jobs creation. Something like that to narrow as much as possible this type of indicators • The concept of Key Impact Pathways should be clearly explained to the possible applicants. • In order to be integrated effectively, impact pathways should have a balanced focus on the 4 impacts, especially not neglecting the societal impact: without it, the risk is to address "niche" arguments
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	<ul style="list-style-type: none"> • Impact pathways need a clear continuity. Very often after the individual projects finish, the impact disappears. And there is little possibility to follow-up, with projects -combinations. - Better knowledge exchange between project and policies • In the case Horizon Europe, the concept of Impact Pathways is already embedded in the definition of the programme. A very important part will be how to do the monitoring of the projects after their end
<p>Question 2: How can impact pathways be <u>monitored</u> into the policy-programme cycle</p>	<ul style="list-style-type: none"> • Some small budget should be available for monitoring impacts for 2-3 years after the completion • Facilitate this monitoring with local, regional funding; or connecting follow-up projects or other type of activities for the next 5 years. In FoF there is a similar kind of follow-up, e.g. • Impact indicators should be kept alive and updated also after the end of projects - to ensure medium/long term sustainability • Having an actual involvement of the local, regional, national and EU level policy makers; making as easier as possible the interaction between the partners & those actors in policy could facilitate this follow-up (at least for some indicators). There is so much info from proposal to ending the project on how to proceed, but afterwards, there are no ways /webinars/ guidance to move forward in this policy field, and maybe this could be also fostered • Fostering diffusion of knowledge and Open source and Strengthening the uptake of research and innovation in society –people reached by scientific output, that is freely available beyond scientific publications. (online)

4.5 Water

Introduction

The IMPACT-SC5 Policy Co-Creation workshop on "Water" related projects of SC5 took place on the 12th of May 2021 and was organised by VTT. The workshop was attended by 28 external participants (*full list of participants available in Annex I*).

Discussion during the panel discussion

During the course of the panel session, the following topics were discussed:

- **Mr. Giulio Pattanaro** (*Research Executive Agency*): Mr. Giulio Pattanaro, project officer in the field of water research, started the panel discussion by mentioning that citizen engagement and social acceptance of project results are essential and requirements for this vary from one country to another (e.g., concerning the water reuse). Mr. Giulio Pattanaro pointed that social acceptance can be even more important than patenting in case of the water sector. Citizens are not only end users, but they can help in collecting data (the citizen science approach). With respect the scale-up and commercialisation activities after the project, Mr. Giulio Pattanaro commented that the leverage of investments after the project is not well-developed (including the SME instruments and similar instruments) and this issue should be improved by the EC (i.e., give more advice).

Mr. Giulio Pattanaro continued by reporting that the partnerships between academia and business can lead to several positive outcomes, such as joint public-private publications (these articles can also have a policy impact in some cases) and increased understanding of the benefits of research and innovation funding among companies

According to Mr. Giulio Pattanaro, the scientific impact of the water portfolio (open science, the Nexus approach, gender issues) as analysed in our projects was positive. Regarding the policy impact, he pointed that this can be improved by applying the Nexus approach. Because water is a key element in different sectors, such as climate change and energy policy, involving these sectors into the water projects is essential for achieving high policy impact. On top of that he rained the fact that the bureaucratic burden of EU projects is high for SMEs and the EC should ease this burden

About failures: Mr. Giulio Pattanaro said that he would avoid using the terms of "success" or "failure", as projects tend to report only on successes and not on failures. "Failures" should be renamed as "points of improvement in the future". At the end of the project, there should be an honest analysis of what have been done, such as a table of lessons learned, which would include positive things and negative things, as well as needs for future actions. This table of lessons learned should not be related to funding issues (sufficiency of EU funding) but bring

added value otherwise. For a project officer, it is perfectly acceptable that a project performs well in some areas, such as publishing, while not that well in other areas, such as policy outputs. It is also acceptable that the weaknesses identified can be improved in the future projects involving the same project consortium.

The funding agencies (REA) and policy DGs have established internal teams for monitoring, on a regular basis, the policy inputs produced by the projects funded.

Impact pathways in the project evaluation of Horizon Europe: The evaluation of HE will not focus on a single impact pathway, such as the scientific impact pathway, but, instead, the overall impact of the project proposed will be assessed. Tangible things are important in this respect. In Horizon Europe, the project proposal should be written by focussing on all the three impact pathways as all of them are equally important. This implies that the project consortium should be built accordingly (bringing, e.g., public authorities and citizens on board). In an EU project, scientific impact can also be achieved by publishing in a journal in a new area, e.g., when a water researcher publishes an article in a journal that is oriented to public policy issues

About monitoring impact pathways: The final reports and mid-term reports of the project should be structured around the three impact pathways. The language used in project reporting should be more impact-oriented and get more to the point. The project publications that attract the interest of policy makers, e.g., local authorities, are welcome.

- **Mr. Guido Schmidt** (Fresh Thoughts Consulting): Mr. Guido Schmidt pointed out the importance of citizens engagement in regard to the social acceptance of technologies in the water sector. In further detail, Mr. Guido Schmidt mentioned the EC directive that support the active engagement of stakeholders towards this end. With respect the SMEs participation, he agreed with what has been already mentioned by Ms Pattanaro and he also commented that SMEs have a wide range of other opportunities to get involved to, such as the LIFE projects. Moreover, based on the development that SMEs would like to go forward, they decide on the type of action – and consequently on the funding rate they will receive – to participate. In addition, he pointed out that not all SMEs are interested in commercialisation (not only technology providers).

Recommendations and insights received during the co-creation session

Question 1:
How can impact pathways be integrated into the policy-programme cycle

- Consider adding an exploitation/uptake/impact post-"normal project" funded phase, allowing (some) partners to work on uptake, replication
- If the call needs input of expertise of different scientific areas, the impact will also be more holistic
- We must demand in the calls, the involvement of public institutions such as municipalities, environmental agencies ... as well as civil society associations to achieve this objective
- Taking into account impact pathways already from the very design of the proposal to the structuring of reports and deliverables + having the expertise within the consortium to cover this
- Launch of calls could be adapted to the policy-program cycle (e.g. Green Deal call)
- Qualitative knowledge through citizen consultation that could be through social media (anonymous survey)
- Citizens should be involved after project results are ready. They are difficult to involve in something which is not clear. Public consultations at the stage after end is very good. But that would need a second project.
- Project partners should involve regional/national governments and co-deliver legislative proposals and plans of actions, which are then formally discussed within the regional/national policy-making procedures.
- It is very important to clearly connect the project impacts to the SDG's, -> not only internal but also to communicate with all stakeholders
- There may be added value in including consortium partners with specific expertise in these fields to make it more explicit.
- To address future economic impacts it is also necessary to analyse the market for a given technology. If a research project is lowering a technology price, then we might expect that its market size will expand. This is a way of measuring economic impacts of research projects aiming at developing new technologies

**Question 2:
How can
impact
pathways
be
monitored
into the
policy-
programme
cycle**

- We should present the main impacts in the final report, and then individual partners should report impact after completion. It is practically impossible for the coordinator to keep track of follow up (on the medium and long term)
- Questionnaire to partners after 3 and 5 years
- In all projects, there are deliverables in which the notion of impact should be included. Likewise, this question should be dealt with during workshops which generally organized at least once a year for all projects and also in the final report.
- Questionnaire to partners and relevant stakeholders (outside the project consortium) after 1-3 years. Partners will be then more motivated to know how the project has increased their network and exploitation potential
- Structure all the reporting around impact pathways (including from the EC side) + adapt language and publications
- Mapping the outcomes: changes in behaviour in the regions/areas wherein projects are implemented

ANNEX I – Agendas of the different workshops

Workshop on Climate Change

Time (CET)	Topic	People engaged
Session 1 – Presentation of portfolio’s conclusions and panel discussion		
10:00-10:05	Welcome and brief presentation of the IMPACT-SC5	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:05-10:15	The TRANSrisk project and its results	Mr. Vassilis Stavrakas
10:15-10:30	Presentation of the portfolio results & conclusions	Ms. Linda van Duivenbode
10:30-11:15	Panel discussion on the portfolio results and conclusions Comments of each panellist on our findings on: <ul style="list-style-type: none"> Scientific Impacts Societal/Environmental Impacts Economic Impacts Q&A session from participants	Vassilis Stavrakis, <i>representative TRANSrisk project</i> Suzanne de Cheveigné, <i>former SC5 Advisory Board</i>
Session 2 – Co-Creation on Policy Recommendations		
11:15-11:20	Approach & methodology utilised during the co-creation	Mr Xabier Uriarte (Tecnalia)
11:20-12:05	Co-Creation: How policy on national and European level can facilitate the enhancement of SC5 impacts’ diffusion and uptake across the EU. <ul style="list-style-type: none"> How can impact pathways be integrated into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced? <ul style="list-style-type: none"> Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved? How can projects be monitored such that it allows measuring short, mid and longer-term impacts? <ul style="list-style-type: none"> A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this be improved? 15 minutes (<i>5 minutes per team</i>) will be allocated to rapporteurs to present each table’s key findings 	All participants
12:05-12:10	Closing remarks	Ms. Linda van Duivenbode

Workshop on Raw Materials

Time (CET)	Topic	People engaged
Session 1 – Presentation of portfolio’s conclusions and panel discussion		
10:00-10:05	Welcome and brief presentation of the IMPACT-SC5	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:05-10:15	Implementation of Raw Materials projects in H2020	Jonas Hedberg (<i>HaDEA, European Commission</i>)
10:15-10:30	Presentation of the portfolio results & conclusions	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:30-11:15	Panel discussion on the portfolio results and conclusions Comments of each panellist on our findings on: <ul style="list-style-type: none"> Scientific Impacts Societal/Environmental Impacts Economic Impacts Q&A session from participants	1. Jonas Hedberg (<i>HaDEA, European Commission</i>) 2. Daniel Cios (<i>DG GROW, European Commission</i>)
Session 2 – Co-Creation on Policy Recommendations		
11:15-11:20	Approach & methodology utilised during the co-creation	Mr. Xabier Uriarte (<i>Tecnalia</i>)
11:20-12:05	Co-Creation: How policy on national and European level can facilitate the enhancement of SC5 impacts’ diffusion and uptake across the EU. <ul style="list-style-type: none"> How can impact pathways be integrated into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced? <ul style="list-style-type: none"> Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved? How can projects be monitored such that it allows measuring short, mid and longer-term impacts? <ul style="list-style-type: none"> A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this be improved? 15 minutes (<i>5 minutes per team</i>) will be allocated to rapporteurs to present each table’s key findings 	All participants
12:05-12:10	Closing remarks	Mr. Xabier Uriarte (<i>Tecnalia</i>)

Workshop on Environment, Biodiversity and Ecosystems

Time (CET)	Topic	People engaged
Session 1 – Presentation of portfolio’s conclusions and panel discussion		
10:00-10:05	Welcome and brief presentation of the IMPACT-SC5	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:05-10:15	The ECOPOTENTIAL project and its results	Dr. Antonello Provenzale (Coordinator of the <i>ECOPOTENTIAL</i> project - National Research Council of Italy)
10:15-10:30	Presentation of the portfolio results & conclusions	Mr Kevin Trendafili (Q-PLAN)
10:30-11:15	Panel discussion on the portfolio results and conclusions Comments of each panellist on our findings on: <ul style="list-style-type: none"> Scientific Impacts Societal/Environmental Impacts Economic Impacts Q&A session from participants	<ol style="list-style-type: none"> Ms Chiara Pocaterra (Italian NCP – APRE) Ms Vaya Piteli (Greek NCP – PRAXI Network/FORTH) Prof. Nicolaos Theodossiou (AUTH and UN Sustainable Development Solutions Network) Dr. Antonello Provenzale (Coordinator of the <i>ECOPOTENTIAL</i> project - National Research Council of Italy)
Session 2 – Co-Creation on Policy Recommendations		
11:15-11:20	Approach & methodology utilised during the co-creation	Mr. Xabier Uriarte (<i>Tecnalia</i>)
11:20-12:05	<p>Co-Creation: How policy on national and European level can facilitate the enhancement of SC5 impacts’ diffusion and uptake across the EU.</p> <ul style="list-style-type: none"> How can impact pathways be integrated into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced? <ul style="list-style-type: none"> Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved? How can projects be monitored such that it allows measuring short, mid and longer-term impacts? <ul style="list-style-type: none"> A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this be improved? 15 minutes (<i>5 minutes per team</i>) will be allocated to rapporteurs to present each table’s key findings 	All participants
12:05-12:10	Closing remarks	Mr Kevin Trendafili (Q-PLAN)

Waste

Time (CET)	Topic	People engaged
Session 1 – Presentation of portfolio’s conclusions and panel discussion		
10:00-10:05	Welcome and brief presentation of the IMPACT-SC5	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:05-10:15	WASTE: From H2020 to Horizon Europe	Ms. Lydia Gonzalez (Spanish NCP, CDTI)
10:15-10:25	The HISER project and its results	Mr. David Garcia (Coordinator of the HISER project – Tecnalia)
10:25-10:40	Presentation of the portfolio results & conclusions	Ms. Naiara Uribe (<i>Tecnalia</i>)
10:40-11:15	Panel discussion on the portfolio results and conclusions Comments of each panellist on our findings on: <ul style="list-style-type: none"> Scientific Impacts Societal/Environmental Impacts Economic Impacts Q&A session from participants	<ol style="list-style-type: none"> Mr. Daniel Cios (EC, DG GROW) Ms. Lydia Gonzalez (Spanish NCP, CDTI) Mr. David García (Coordinator of the HISER project – TECNALIA)
Session 2 – Co-Creation on Policy Recommendations		
11:15-11:20	Approach & methodology utilised during the co-creation	Mr Xabier Uriarte (Tecnalia)
11:20-12:05	<p>Co-Creation: How policy on national and European level can facilitate the enhancement of SC5 impacts’ diffusion and uptake across the EU.</p> <ul style="list-style-type: none"> How can impact pathways be integrated into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced? <ul style="list-style-type: none"> Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved? How can projects be monitored such that it allows measuring short, mid and longer-term impacts? <ul style="list-style-type: none"> A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this be improved? 15 minutes (<i>5 minutes per team</i>) will be allocated to rapporteurs to present each table’s key findings 	All participants
12:05-12:10	Closing remarks	Ms. Naiara Uribe (<i>Tecnalia</i>)

Water

Time (CET)	Topic	People engaged
Session 1 – Presentation of portfolio’s conclusions and panel discussion		
10:00-10:05	Welcome and brief presentation of the IMPACT-SC5	Mr. Xabier Uriarte (<i>Tecnalia</i>)
10:05-10:15	The SMART-Plant project and its results	Dr. Francesco Fatone (Coordinator of the <i>SMART-Plant</i> project, UNIVPM - Università Politecnica Delle Marche)
10:15-10:30	Presentation of the portfolio results & conclusions	Dr Janne Lehenkari (VTT)
10:30-11:15	Panel discussion on the portfolio results and conclusions Comments of each panellist on our findings on: <ul style="list-style-type: none"> Scientific Impacts Societal/Environmental Impacts Economic Impacts Q&A session from participants	1. Mr Giulio Pattanaro (<i>REA</i>) 2. Dr Guido Schmidt (<i>Fresh Thoughts Consulting GmbH</i>)
Session 2 – Co-Creation on Policy Recommendations		
11:15-11:20	Approach & methodology utilised during the co-creation	Mr. Xabier Uriarte (<i>Tecnalia</i>)
11:20-12:05	Co-Creation: How policy on national and European level can facilitate the enhancement of SC5 impacts’ diffusion and uptake across the EU. <ul style="list-style-type: none"> How can impact pathways be integrated into the policy-programme cycle so that scientific, societal, environmental and economic impacts from projects are enhanced? <ul style="list-style-type: none"> Programmes, calls for proposals, projects need to be designed in view of impact pathways. How can this be achieved? How can projects be monitored such that it allows measuring short, mid and longer-term impacts? <ul style="list-style-type: none"> A number of information and data are reported about projects elaborated on regional, national and European level during their inception and implementation. But hardly any information is recorded with respect to the impacts after projects completion. How can this be improved? 15 minutes (<i>5 minutes per team</i>) will be allocated to rapporteurs to present each table’s key findings 	All participants
12:05-12:10	Closing remarks	Dr Janne Lehenkari (VTT)