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# IMPACT-SC5

## D1.3: Data availability and mapping

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## 1 Introduction

This document represents the deliverable **D1.3 “Data Availability and Mapping”** of the “Assessing the impact Pathways of RIA and IA SC5 projects using portfolio analysis” (IMPACT SC-5 project).

The objective of the IMPACT-SC5 project is to identify and analyse the **scientific, societal and environmental and economic impacts that the SC 5 RIA and IA projects** resulting from the 2014 and 2015 calls, individually but also at project portfolio level and understand why certain impacts have or have not been achieved.

Under this general objective, the objective of this deliverable is mapping the indicators selected in Task 1.2 “Development of indicators” and gathered in deliverable D1.2 “Final list of indicators” against the available sources of data and information and relevant methods to collect data that are not yet available.

The document includes two kinds of elements:

- An Evaluation Fiche for each evaluation question as listed in Deliverable D1.1 “Guidebook for the Evaluation of SC5 RIAs and IAs”. The Evaluation Fiche presents the indicators linked to each evaluation question and how the data needed to calculate each indicator will be collected (primary and secondary information sources)
- A Summary Evaluation Matrix which summarizes the information of the Evaluation Fiches in a matrix format.

The document is structured as follows:

- Chapter 2 lists the sources of data
- Chapter 2 collects the Evaluation Fiches corresponding to the evaluation questions.
- Chapter 3 summarizes the Evaluation Fiches in a Summary Evaluation Matrix.

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## 2 Sources of data and information

For the purpose of this deliverable two types of sources of data and information will be used:

- Primary data and information sources, this is data collected from first-hand sources such as a survey, interviews and workshops.
- Secondary data and information sources, this is data already accessible via the following sources:
  - Public databases with data at the macro level such as Eurostat<sup>1</sup> and OECD<sup>2</sup>.
  - Private databases such as Orbis<sup>3</sup> or CrunchBase<sup>4</sup> containing also data at the macro level on business and investments.
  - The European Commission's CORDIS database<sup>5</sup> containing the results from the projects funded by the EU's framework programmes for research and innovation (FP1 to Horizon 2020). This database will be described in more detail hereafter.
  - Websites of the 87 investigated projects.
  - Scientific publications of the 87 projects analysed:
    - Open access publications available via OpenAire<sup>6</sup> database.
    - Web of Science<sup>7</sup> (WOS) abstract and citation database.
    - Scopus<sup>8</sup> abstract and citation database.
  - Dissemination materials of the project analysed: press releases, social media contents, etc.
  - The Interim Evaluation of Horizon 2020<sup>9</sup>.
  - The most recent success stories from EU-funded research and innovation<sup>10</sup>.
  - The interactive platform H2020 dashboard<sup>11</sup>.
  - Data from the European Commission services complementing those already publicly accessible via the CORDIS database and the H2020 Dashboard and including more detailed information about H2020 project results, notably intellectual property.

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<sup>1</sup> Eurostat: <https://ec.europa.eu/eurostat>

<sup>2</sup> OECD Data: <https://data.oecd.org/>

<sup>3</sup> ORBIS database: <https://www.bvdinfo.com/en-gb/our-products/data/international/orbis>

<sup>4</sup> CRUNCH database: <https://www.crunchbase.com/>

<sup>5</sup> CORDIS database: <https://cordis.europa.eu/about/en>

<sup>6</sup> OpenAIRE: <https://www.openaire.eu/>

<sup>7</sup> Web of Science: <https://clarivate.com/webofsciencegroup/solutions/web-of-science/>

<sup>8</sup> Scopus database: <https://www.scopus.com/search/form.uri?display=basic>

<sup>9</sup> Horizon 2020 Interim Evaluation: [https://ec.europa.eu/info/publications/interim-evaluation-horizon-2020\\_en](https://ec.europa.eu/info/publications/interim-evaluation-horizon-2020_en)

<sup>10</sup> H2020 Success Stories: [https://ec.europa.eu/research/infocentre/fp\\_en.cfm](https://ec.europa.eu/research/infocentre/fp_en.cfm)

<sup>11</sup> H2020 Dashboard: <https://webgate.ec.europa.eu/dashboard/sense/app/93297a69-09fd-4ef5-889f-b83c4e21d33e/sheet/a879124b-bfc3-493f-93a9-34f0e7fba124/state/analysis>

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## 2.1 Structure of the CORDIS database

The CORDIS database is the backbone of the secondary information sources that will be used in the assessment. CORDIS is built up by the following datasets:

**H2020 Projects dataset:** contains the public grant information for each H2020 project. This dataset includes, among others, the following data per project:

- Project ID: grant agreement number
- Project acronym
- Project status
- The funding programme and the topic
- The project title
- The project's start and end dates
- The project objective
- The project total cost and the EC max contribution
- The organisation coordinating the project and its country of origin
- The participating organisations and their countries of origin

**H2020 Organisations:** lists the participating organisations, and includes data such as:

- Project ID and project acronym the organisation has participated in
- Role of the organisation in the project: participant of coordinator
- ID, name and address of the organisation
- Type of organisation: private companies (PRC), higher education establishments (HES), research organisations (REC), public sector (PUB) or other (OTH)
- EC contribution to the organisation in this project

**H2020 Project deliverables:** contains the list of deliverables from H2020 projects including the following information:

- Deliverable title
- Project ID and project acronym the deliverable is linked to
- Description of the deliverable
- Type of deliverable: document, report, website, demonstrator, pilot, prototype, patent filling, video, etc...
- The URL to the deliverable document

**H2020 Project publications:** contains the list of publications linked to H2020 projects. It includes the following information:

- Title of the publication
- Project ID and project acronym the publication is linked to
- Authors
- Journal title and journal number the publication was published at
- Year of publication
- ISSN code
- The publication's digital object identifier (DOI) used to link to it on the web

- Type of publication, category: peer reviewed article, non peer reviewed article, book, monographic book, conference proceeding, thesis dissertation, other.

**H2020 Report summaries:** contains the periodic or final publishable summaries from the projects. This dataset includes the following information:

- Title of the report
- A summary of the report
- A description of the work performed
- A description of the final results up to the moment the report is created
- Project ID and project acronym the report corresponds to

## 2.2 Additional data from the EC services

There are some additional H2020 project related data needed for the sake of the assessment which cannot be accessed via CORDIS. These data correspond to the periodic reports of the project assessed and may be potentially accessed via the European Commission (EC) services<sup>12</sup>.

The datasets requested to the Commission are the following:

- Intellectual property rights. This dataset contains the following information per project:
  - Number of Intellectual Property (IP) rights resulting from the project .
  - Per each IP right:
    - Type of IP right (Patent, Trademark, Registered design, Utility model, Other)
    - Application reference
    - Date of application
    - Applicants
    - IPR protection awarded or not (Yes, no, no applicable)
    - Official publication number of award of protection
- Innovation. This dataset contains the following information per project:
  - Number of prototypes developed.
  - Number of testing activities performed.
  - Number of clinical trials performed.
  - Will the project lead to launch new products/services? (Yes/No)
  - Will the project lead to launch new processes? (Yes/No)
  - Will the project lead to launch new methods? (Yes/No)
  - Number of companies introducing innovations new to the market
  - Number of SMEs introducing innovations new to the market
  - Number of companies introducing innovations only new to the company
  - Number of SMEs introducing innovations only new to the company

<sup>12</sup> Data availability is pending verification by the EC services.

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- Impact on SMEs. This dataset contains the following information for each project and for each SME participating in the project:
    - Turnover of the company at the beginning of the project
    - Number of employees at the beginning of the project
    - Turnover of the company at the end of the project/ or most recent accountability period
    - Number of employees at the end of the project/or most recent accountability period
  - Open research data. This dataset contains the following information for each project and for each research dataset in it:
    - Digital Object Identifier (DOI, if available) or Title/identifier (if DOI not available)
    - Openly accesible (Yes/No)
    - Reusable (Yes/No)
    - DOI of publication the dataset is linked to (if any)
  - Gender. This dataset contains the following information for each project and for each beneficiary participating in it:
    - Name of beneficiary
    - Number of women researchers involved in the project
    - Number of men researchers involved in the project
    - Number of women other than researchers involved in the project
    - Number of men other than researchers involved in the project
  - Dissemination and communication activities. This dataset contains the following information per project:
    - Number of conferences
    - Number of workshops
    - Number of press releases
    - Number of non-scientific and non-peer reviewed publications (popularised publications)
    - Number of Exhibitions
    - Number of Flyers
    - Number of Trainings
    - Number of communication campaigns (e.g radio, TV)
    - Number of participations to conferences
    - Number of participations to workshops
    - Number of participations to events (other than conferences or workshops)
    - Number of videos/films
    - Number of brokerage events
    - Number of pitch events
    - Number of trade fairs
    - Number of participations in activities organised jointly with other H2020 project(s)
    - Type of audience reached:
      - Estimated number of Scientific Community audience reached
      - Estimated number of Industry audience reached
      - Estimated number of Civil Society reached
      - Estimated number of General Public reached

- Estimated number of Policy makers reached
- Estimated number of Media audience reached
- Estimated number of Investors reached
- Estimated number of Customers reached

### 3 Evaluation fiches

Evaluation fiches map the relationship between the evaluation questions defined in the intervention logic (D1.1 Guidebook for the evaluation of SC5 RIAs and IAs), the indicators listed and described in deliverable D1.2: Indicators for the evaluation of SC5 RIAs and IAs and the sources of data and information needed to both calculate the indicators and answer the evaluation questions.

It should be noted that not all the evaluation questions (27) will be associated with a numeric indicator. Some of them will be answered by qualitative information obtained both through primary and secondary sources.

This is a preliminary version of the identification of the information sources needed to answer the evaluation questions and calculate the indicators where appropriate.

Evaluation fiches have been organized into three dimensions (just as the evaluation questions):

1. Scientific dimension
2. Societal and environmental dimension
3. Economic dimension

Fiches are identified the same way as the evaluation questions they are related to:

- SCn: for fiches that correspond to the scientific dimension
- SEN: for fiches that correspond to the societal&environmental dimension
- Ecn: for fiches that correspond to the economic dimension

Information in the evaluation fiches is structured as follows:

- Evaluation question
- Evaluation sub-questions
- Relevant indicators for the evaluation question
- Existing evidence
- Evidence gaps and collection strategy (survey, interviews)
- Comments

#### 3.1 Scientific dimension

##### 3.1.1 SC1 Evaluation Fiche (Output)

**Evaluation question:**

SC1: To what extent has the project (project portfolio) achieved the expected outputs?

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**Evaluation sub-questions:**

SC1.1: To what extent has the project (project portfolio) achieved the expected outputs in the following terms:

- SC1.1.1: In terms of scientific reports and or formal publications generation.
- SC1.1.2: In terms of new research tools and techniques, models and simulations developed.
- SC1.1.3: In terms of researchers having benefitted from upskilling activities (PhD, post-docs, by gender).
- SC1.1.4: In terms of innovative technological green solutions: technologies, processes, products, services.
- SC1.1.5: In terms of the development of joint databases, platforms, test beds.
- SC1.1.6: In terms of the generation of interoperable data or the provision of data in open access.
- SC1.1.7: In terms of the creation of consortia with extra EU participation.
- SC1.1.8: In terms of cross-disciplinary consortia (cross-sectorial and multi-agent).

**Relevant indicators:**

There are 12 indicators associated to this evaluation question and its subquestions:

1. S.1.1.a: Number of peer reviewed publications produced per project, per topic and per action (IA/RIA).
2. S.1.1.b: Number of publications published in the top 10% impact ranked journals by SC5 subject category:
  - water,
  - waste,
  - resource efficiency and
  - climate action.
3. S.1.2: Number of projects that have identified further research needs (evidence of gaps).
4. S.2.1: Number of projects that have recruited early stage researchers, PhDs, post-docs for the project (i.e. number of temporary jobs created as a result of the project, giving young researchers their first experience in gaining work experience, particularly in international collaborative projects).
5. S.2.2: Number of researchers that have benefited from active skills development as part of the project (such as skills in leadership and management; professionalism; organisational; team building; analytical; life skills) through formal or on-the-job training, working in teams and working with experienced researchers.
6. S.2.3: Number and share of women participants (in total, in all functions).
7. S.3.1: Number of IA projects where the golden funding ratio has been applied in the budget allocation, which is: 50% RES, 30% SME, 20% large enterprise.
8. S.4.1: Number of open access articles published in peer-reviewed journals and/or the share (in percentage) of SC5 output available in the open access domain (The availability of FP output to other researchers should improve and accelerate the uptake.)
9. S.4.2: Number and share of projects that have made (or will be able to make) accessible and reusable scientific data and/or datasets.
10. S.4.3: Number of projects with research outputs (open data/ publication/software, etc) shared through open knowledge infrastructures.

11. S.5.1: Number and share of participations per type of beneficiary (distribution across type of beneficiary and country) to establish the extent to which SC5 projects develop cross-country and cross-disciplinary collaboration.
12. S.5.2: Share of participants and amount of EU financial contribution by EU member state, associated country<sup>13</sup> and third country (€ millions).

**Existing evidence:**

Evidences to calculate the indicators can be found in the following sources:

- CORDIS H2020 Project publications dataset for data on publications.
- CORDIS H2020 Projects dataset for data on EC contribution to the projects.
- CORDIS H2020 Organisations dataset for data on countries of origin and EC contributions to the organisations participating in the projects.
- Gender dataset potentially provided by the EC services, for information on researchers per project classified by gender.
- Open research data dataset potentially provided by the EC services, for information on open access datasets.
- OpenAire database for open access publications in the assessed projects.

**Evidence gaps and collection:**

Evidence gaps identified:

- Data on recruitment of researchers to participate in the projects.
- Data on gender may be available from the EC services just for researchers but not for other positions.
- Data on projects that have identified further research needs.

Collection strategy:

- Review of the final project reports to check if the missing information may be got there.
- Survey or interview

### *3.1.2 SC2 Evaluation Fiche (Output)*

**Evaluation question:**

SC2: What factors have hindered or influenced positively the achievement of the expected outputs of the project?

**Evaluation sub-questions:**

SC2.1: What are the main factors hindering the achievement of the expected outputs of the projects?

- SC2.1.1: In terms of creating high quality new knowledge.
- SC2.1.2 In terms of strengthening human capital.
- SC2.1.3: In terms of developing and adopting innovative technological solutions.
- SC2.1.4: In terms of fostering diffusion of knowledge and open data.

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<sup>13</sup> Associated Countries: [https://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/3cp/h2020-hi-list-ac\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cp/h2020-hi-list-ac_en.pdf)

- SC2.1.5: In terms of generating partnerships and boosting international openness.

SC2.2: What are the main factors driving the achievement of the expected outputs of the projects?

- SC2.2.1: In terms of creating high quality new knowledge.
- SC2.2.2: In terms of strengthening human capital.
- SC2.2.3: In terms of developing and adopting innovative technological solutions.
- SC2.2.4: In terms of fostering diffusion of knowledge and open data.
- SC2.2.5: In terms of generating partnerships and boosting international openness.

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### *3.1.3 SC3 Evaluation Fiche (Output)*

**Evaluation question:**

What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to the specific objectives of the SC5 WP 2014-2015 in the future?

**Evaluation sub-questions:**

- SC3.1: What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) results to reduce gaps in the knowledge base and generate skills to identify the policies, methods and tools to more effectively tackle environmental and resources related challenges?
- SC3.2: What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) results to improve coordination of research and innovation actions within Europe and beyond applying open data approaches in the short term?
- SC3.3: What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) results to enhance sectoral and cross sectoral cooperation in the short term?

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.1.4 SC4 Evaluation Fiche (Outcome)

#### **Evaluation question:**

SC4: To what extent has the project (project portfolio) contributed to the scientific specific objectives of the SC5 WP2014-2015 in the medium term?

#### **Evaluation sub-questions:**

SC4.1: To what extent has the project (project portfolio) contributed to reduce gaps in the knowledge base and generate skills to identify the policies, methods and tools to more effectively tackle environmental and resources related challenges in the medium term?

- SC4.1.1: In terms of scientific reports and /or formal publications and its extended use in other research initiatives.
- SC4.1.2: In terms of researchers having benefitted from upskilling activities (PhD, post-docs, by gender) and its improved position in their R&I field.
- SC4.1.3: In terms of new research tools and techniques, models and simulations applied.
- SC4.1.4: In terms of adoption of innovative technological green solutions: technologies, processes, products, services.

SC4.2: To what extent has the project (project portfolio) contributed to improve coordination of research and innovation actions within Europe and beyond applying open data approaches in the medium term?

- SC4.2.1: In terms of the generation of an interconnected European data infrastructure.
- SC4.2.2: In terms of the re-use of research data generated by projects.
- SC4.2.2: In terms of the participation of project partners in international research cooperation networks
- SC4.2.3: In terms of the better alignment of regional/national/EU/international research efforts to support the transition to sustainability

SC4.3: To what extent the outputs of the project have contributed to enhance sectoral and cross sectoral cooperation in the medium term?

- SC4.3.1: In terms of enhanced position of the EU in the international arena by participating in cross disciplinary networks

#### **Relevant indicators:**

There are 13 indicators associated to this evaluation question and its subquestions:

1. M.1.1: Number of top cited SC5 project publications.
2. M.1.2: Number of follow up calls or research agendas developed, addressing the research gap identified in SC5 projects.
3. M.2.1: Number of participant organisations that have retained researchers hired for the project.
4. M.2.2.a: Number of researchers that have obtained their degree during or as result of the project;
5. M.2.2.b: Number of researchers that have co-authored publication(s).
6. M.2.3: Number and share of female project coordinators.
7. M.3.1.a: Number of joint public-private publications.

8. M.3.1.b: Number of joint public-private technology demonstrators.
9. M.4.1: Number of open access project research outputs actively used or cited and share of outputs used or cited compared to the publications/citations indicator.
10. M.4.2: Number of projects that have engaged in an active transfer of knowledge through dissemination and training activities.
11. M.4.3: Number of projects that have provided/improved access to infrastructures and databases.
12. M.5.1: Number and share of participants that have developed new and lasting partnerships (e.g. go on to form PPP, P2P platforms or initiatives).
13. M.5.2: Number of joint development of solutions for inter-/transnational environmental challenges.

**Existing evidence:**

Evidence to calculate the indicators can be found in the following sources:

- CORDIS H2020 Project publications dataset for publications.
- Web of Science and Scopus databases for citations.
- Information on websites to identify project coordinators.
- Innovation dataset potentially provided by the EU services, for innovations.
- Dissemination and communication activities dataset potentially provided by the EC services for innovations to assess the engagement in active transfer of knowledge through different dissemination activities.

**Evidence gaps and collection:**

Evidence gaps identified:

- Evidence on partnerships between the participants.
- Evidence on follow up calls or research agendas developed, addressing the research gap identified in SC5 projects.
- Evidence on projects that have identified further research needs.
- Evidence on organisations that have retained researchers hired for the projects.
- Evidence on researchers that have obtained their degree during or as result of the project or have co-authored publications.
- Evidence on projects providing access to infrastructures and databases (may be this information could be provided by EC services)

Collection strategy:

- Interviews with project coordinators.
- Survey.
- Some information could be available via the periodic/final project reports or websites but it would be very laborious to obtain.
- Some information could be eventually available via the EC services.

*3.1.5 SC5 Evaluation Fiche (Outcome)*

**Evaluation question:**

SC5: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

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**Evaluation sub-questions:**

SC5.1: What are the main factors hindering the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SC5.1.1: In terms of creating high quality new knowledge.
- SC5.1.2 In terms of strengthening human capital.
- SC5.1.3: In terms of developing and adopting innovative technological solutions.
- SC5.1.4: In terms of fostering diffusion of knowledge and open data.
- SC5.1.5: In terms of generating partnerships and boosting international openness.

SC5.2: What are the main factors driving the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SC5.2.1: In terms of creating high quality new knowledge.
- SC5.2.2 In terms of strengthening human capital.
- SC5.2.3: In terms of developing and adopting innovative technological solutions.
- SC5.2.4: In terms of fostering diffusion of knowledge and open data.
- SC5.2.5: In terms of generating partnerships and boosting international openness..

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### *3.1.6 SC6 Evaluation Fiche (Outcome)*

**Evaluation question:**

SC6: What actions have been undertaken or should be undertaken to ensure the spread from project's (project portfolio's) outputs to impacts of the project's (project portfolio's) results related to the specific objectives of the SC5 WP 2014-2015?

**Evaluation sub-questions:**

- SC6.1: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project (project portfolio) in relation to the reduction of gaps in the knowledge base and generate skills to identify the policies, methods and tools to more effectively tackle environmental and resources related challenges?
- SC6.2: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project (project portfolio) in relation to the improvement of the coordination of research and innovation actions within Europe and beyond applying open data approaches?

- SC6.3: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project's (project portfolio's) results related to the enhancement of the sectoral and cross sectoral cooperation?

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

*3.1.7 SC7 Evaluation Fiche (Impact)*

**Evaluation question:**

SC7: To what extent has the project (project portfolio) contributed to the scientific specific objectives of the SC5 WP2014-2015 in the long term?

**Evaluation sub-questions:**

SC7.1: To what extent has the project (project portfolio) contributed to reduce gaps in the knowledge base to identify the policies, methods and tools to more effectively tackle environmental and resources related challenges in the long term?

- SC7.1.1: In terms of generating world-class excellent new knowledge considered as core contributions to related scientific fields.
- SC7.1.2: In terms of researchers having benefitted from upskilling activities (PhD, post-docs, by gender) enjoying of improved working conditions.
- SC7.1.3: In terms of the application of technological innovations benefiting industry and citizens.

SC7.2: To what extent has the project (project portfolio) contributed to improve coordination of research and innovation actions within Europe and beyond in the long term?

- SC7.2.1: In terms of ensuring the delivery and use of the knowledge and data generated to more effectively address SC5 challenges
- SC7.2.2: In terms of the development of interdisciplinary solutions through the signature of international research cooperation long term agreements with stakeholders beyond EU.

SC7.3: To what extent the outputs of the project have contributed to enhance sectoral and cross sectoral cooperation in the long term?

- SC7.3.1: In terms of achieving a leading position of the EU in the international arena on the development of cross-sectoral green solutions

**Relevant indicators:**

There are 12 indicators associated to this evaluation question and its subquestions:

1. L.1.1: Number and share of peer reviewed publications from H2020 projects that are a core contribution to the SC5 scientific fields.
2. L.1.2.a: Number of projects with evidence (e.g. at portfolio / topic level) that their outcomes contribute to better science in priority (urgent) or promising fields.
3. L.1.2.b: Evidence of creation and consolidation of large integrated research communities (European Schools of Thought) that focus on grand societal challenges with high level research.
4. L.2.1: Number of FP researchers having progressed in their position in the organisation (seniority, management) and with improved working conditions (research facilities, research assistants).
5. L.2.2: Number of researchers attracted to or staying in the research domain (over a period of years).
6. L.2.3: Number of women project participants/coordinators taking place in EC advisory groups, evaluation panels, expert panels, etc.
7. L.3.1: Number of SC5 participants benefiting from innovations deployed and generating economic benefits (in terms of sales in euro) and having become more resource efficient (achieving savings in terms of euro or percentage).
8. L.4.1: Number of datasets and infrastructures created and made available by SC5 projects that have been used in terms of:
  - a. Identifiable downloads
  - b. Access accounts created
  - c. Visits to portals
9. L.4.2: Share of SC5 project beneficiaries having developed new transdisciplinary/trans-sectoral collaborations with users of their open FP R&I outputs (use of open data).
10. L.4.3: Number of projects showing evidence that project data contributes to or has become part of larger data networks.
11. L.5.1: Internationalisation of research (incl. Beyond EU-EEA boundaries.)
12. L.5.2: Number and share of projects that have continued research through different FPs and/or national or international programmes.

#### **Existing evidence:**

These long term indicators are the most difficult to evidence because the data available is mostly related to the period in which the project is active or has just ended. No evidence has been identified so as to calculate indicators.

#### **Evidence gaps and collection:**

As no available evidence is identified the collection strategy will be based in two primary data sources:

- Survey.
- Interviews with project coordinators.

### *3.1.8 SC8 Evaluation Fiche (Impact)*

#### **Evaluation question:**

SC8: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive long terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

**Evaluation sub-questions:**

SC8.1: What are the main factors hindering the transformation of the project's (project portfolio's) outcomes into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SC8.1.1: In terms of creating high quality new knowledge.
- SC8.1.2 In terms of strengthening human capital.
- SC8.1.3: In terms of developing and adopting innovative technological solutions.
- SC8.1.4: In terms of fostering diffusion of knowledge and open data.
- SC8.1.5: In terms of generating partnerships and boosting international openness.

SC8.2: What are the main factors driving the transformation of the project's (project portfolio's) outcomes into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SC8.2.1: In terms of creating high quality new knowledge.
- SC8.2.2 In terms of strengthening human capital.
- SC8.2.3: In terms of developing and adopting innovative technological solutions.
- SC8.2.4: In terms of fostering diffusion of knowledge and open data.
- SC8.2.5: In terms of generating partnerships and boosting international openness.

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

*3.1.9 SC9 Evaluation Fiche (Impact)*

**Evaluation question:**

SC9: To what extent the observed impacts are credited to the project (project portfolio)?

**Evaluation sub-questions:**

- SC9.1: To what extent the observed impacts related to the reduction of gaps in the knowledge base and generate skills to identify the policies, methods and tools to more effectively tackle environmental and resources related challenges are credited to the project (project portfolio)?
- SC9.2: To what extent the observed impacts related to the improvement of the coordination of research and innovation actions within Europe and beyond applying open data approaches are credited to the project (project portfolio)?
- SC9.3: To what extent the observed impacts related to the enhancement of the sectoral and cross sectoral cooperation are credited to the project (project portfolio)?

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

## 3.2 Societal and environmental dimension

### 3.2.1 SE1 Evaluation Fiche (Output)

**Evaluation question:**

SE1: To what extent has the project (project portfolio) achieved the expected outputs?

**Evaluation sub-questions:**

SE1.1: To what extent has the project (project portfolio) achieved the expected outputs?

- SE1.1.1: In terms of providing evidence, advice and recommendations for policy making related to environmental integrity, resilience and sustainability.
- SE1.1.2: In terms of the generation of social, institutional and governance outputs for a more rapid uptake of solutions.
- SE1.1.3: In terms of the participation of public authorities' representatives in project execution
- SE1.1.4: In terms of awareness raising activities and dissemination materials, including user communities and citizenship: conferences, workshops, including resulting papers and proceedings
- SE1.1.5: In terms of the generation of developers, providers and users of green solutions networks
- SE1.1.6: In terms of providing information material for user communities and dissemination to authorities and citizens..

**Relevant indicators:**

There are 6 indicators associated to this evaluation question and its subquestions:

1. S.6.1.a: Number and share of SC5 projects with articles published in peer review journals in relation to the EU policy priorities, cluster challenges (waste, raw materials, water..) or SDGs (Sustainable Development Goals).
2. S.6.1.b: Number and share of SC5 projects with innovations produced (such as prototypes, products, goods or services, processes, distribution methods, organisational or marketing methods, databases or infrastructures).
3. S.7.1: Number and share of SC5 projects producing policy relevant findings such as policy briefs, recommendations and evidence gap maps.
4. S.7.1.a: Number of science fairs and exhibitions organised.

5. S.7.1.b: Number of articles and interviews in popular media.

**Existing evidence:**

Evidence to calculate the indicators can be found in the following sources:

- CORDIS H2020 Project publications dataset for publications.
- Innovation dataset potentially provided by the EU services for innovations.
- CORDIS H2020 Project deliverables and H2020 Report summaries for possible information on policy relevant findings.
- Dissemination and communication activities for information on fairs, exhibitions, contents in popular media.

**Evidence gaps and collection:**

Evidence gaps identified:

- None.

Collection strategy:

- None.

### *3.2.2 SE2 Evaluation Fiche (Output)*

**Evaluation question:**

SE2: What factors have hindered or influenced positively the achievement of the expected outputs of the project?

**Evaluation sub-questions:**

SE2.1: What are the main factors hindering the achievement of the expected outputs of the projects?

- SE2.1.1: In terms of addressing EU policy priorities
- SE2.1.2: In terms of strengthening the social uptake of innovation in society

SE2.2: What are the main factors driving the achievement of the expected outputs of the projects?

- SE2.2.1: In terms of addressing EU policy priorities
- SE2.2.2: In terms of strengthening the social uptake of innovation in society

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.2.3 SE3 Evaluation Fiche (Output)

#### **Evaluation question:**

SE3: What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to the specific objectives of the SC5 WP 2014-2015?

#### **Evaluation sub-questions:**

- SE3.1: What actions have been undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to assure environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate and other environmental changes?
- SE3.2: What actions have been to ensure a wider contribution of the project's (project portfolio's) outputs to improve the protection and sustainable management of the natural resources (specially water, waste and raw materials)?
- SE3.3: What actions have been to ensure a wider contribution of the project's (project portfolio's) outputs to ensure the generation of innovation in the social and public sectors aimed at enhancing the rapid up-take of innovative solutions by society?

#### **Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

#### **Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

#### **Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.2.4 SE4 Evaluation Fiche (Outcome)

#### **Evaluation question:**

SE4: To what extent has the project (project portfolio) contributed to the societal specific objectives of the SC5 WP 2014-2015 in the medium term?

#### **Evaluation sub-questions:**

SE4.1: To what extent has the project (project portfolio) contributed to assure environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate and other environmental changes in the medium term?

- SE4.1.1: In terms of evidence-based policy decision making by authorities making related to environmental integrity, resilience and sustainability.
- SE4.1.2: In terms of innovative social, institutional or governance models implemented to enhance market uptake of green solutions.
- SE4.1.3: In terms of synergies achieved at regional/national/EU/International policies for the climate and environmental change adaptation.

- SE4.1.4: In terms of enhancing public procurement processes of green innovations.
- SE4.1.5: In terms of improved societal awareness, engagement and empowerment with citizens participating in green solutions co-creation processes.

SE4.2: To what extent has the project (project portfolio) contributed to improve the protection and sustainable management of the natural resources (specially water, waste and raw materials) in the medium term?

- SE4.2.1: In terms of evidence-based policy decision making by authorities making related to environmental integrity, resilience and sustainability.
- SE4.2.2: In terms of innovative social, institutional or governance models implemented to enhance market uptake of green solutions.
- SE4.2.3: In terms of synergies achieved at regional/national/EU/International policies for the climate and environmental change adaptation.
- SE4.2.4: In terms of enhancing public procurement processes of green innovations.
- SE4.2.5: In terms of improved societal awareness, engagement and empowerment with citizens participating in green solutions co-creation processes.

SE4.3: To what extent has the project (project portfolio) contributed to generate social and public sectors' policies and innovations in the medium term?

- SE4.3.1: In terms of evidence-based policy decision making by authorities making related to environmental integrity, resilience and sustainability.
- SE4.3.2: In terms of innovative social, institutional or governance models implemented to enhance market uptake of green solutions.
- SE4.3.3: In terms of synergies achieved at regional/national/EU/International policies for the climate and environmental change adaptation.
- SE4.3.4: In terms of enhancing public procurement processes of green innovations.
- SE4.3.5: In terms of improved societal awareness, engagement and empowerment with citizens participating in green solutions co-creation processes.

#### **Relevant indicators:**

There are 4 indicators associated to this evaluation question and its subquestions:

1. M.6.1.a: Number and share of technology transfers to industry (including beneficiary SMEs and other enterprises beyond FP funding).
2. M.6.1.b: Number and share of knowledge transfers and adoptions by diverse stakeholders.
3. M.6.1.c: Number and share of changes in professional standards, protocols, practices and services on stakeholder's activity and organisations (including beneficiaries and other stakeholders).
4. M.7.1: Number and share of project beneficiary entities with citizen and end-user engagement mechanisms after the FP project (lasting engagement).

#### **Existing evidence:**

Some evidence for the calculation of these indicators could be found in the following sources:

- H2020 Report Summaries dataset, in particular for those projects already finished.
- Innovation dataset provided by the EC services.

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**Evidence gaps and collection:**

Evidence gaps identified:

- Information on knowledge transfers and adoptions by diverse stakeholders
- Information on changes in professional standards, protocols, practices and services on stakeholder's activity and organisations
- Information on end-user engagement mechanisms from the project beneficiary entities after the end of the project.

Collection strategy. There are two main ways of collecting these data:

- The survey.
- Interviews with project coordinators.

*3.2.5 SE5 Evaluation Fiche (Outcome)*

**Evaluation question:**

SE5: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

**Evaluation sub-questions:**

SE5.1: What are the main factors hindering the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SE2.1.1: In terms of addressing EU policy priorities
- SE2.1.2: In terms of strengthening the social uptake of innovation in society

SE5.2: What are the main factors driving the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SE2.2.1: In terms of addressing EU policy priorities
- SE2.2.2: In terms of strengthening the social uptake of innovation in society

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.2.6 SE6 Evaluation Fiche (Outcome)

#### **Evaluation question:**

SE6: What actions have been undertaken or should be undertaken to ensure the spread from project's (project portfolio's) outputs to impacts of the project's (project portfolio's) results related to the specific objectives of the SC5 WP 2014-2015?

#### **Evaluation sub-questions:**

- SE6.1: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project in relation to the environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate and other environmental changes?
- SE6.2: What actions have been undertaken or should be undertaken to ensure protection and sustainable management of the natural resources (specially water, waste and raw materials)?
- SE6.3: What actions have been undertaken or should be undertaken to ensure the generation of innovation in the social and public sectors aimed at enhancing the rapid up-take of innovative solutions by society?

#### **Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

#### **Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

#### **Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.2.7 SE7 Evaluation Fiche (Impact)

#### **Evaluation question:**

SE7: To what extent has the project (project portfolio) contributed to the societal specific objectives of the SC5 WP 2014-2015 in the long term?

#### **Evaluation sub-questions:**

SE7.1: To what extent has the project (project portfolio) contributed to assure environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate and other environmental changes in the long term?

- SE7.1.1: In terms of EU steering the international agenda for the transformation to sustainability, through the implementation of the Sustainable Development Goals and follow up the COP 21.
- SE7.1.2: In terms of sustainable growth provision in the sector.

- SE7.1.3: In terms of an economy and society better adapted to climate change, more efficiently managing natural resources and raw materials and implementing low carbon economy with less impact on health.
- SE7.1.4 In terms of a more sustainable life-style.

SE7.2: To what extent has the project (project portfolio) contributed to improve the protection and sustainable management of the natural resources (specially water, waste and raw materials) in the long term?

- SE7.2.1: In terms of EU steering the international agenda for the transformation to sustainability, through the implementation of the Sustainable Development Goals and follow up the COP 21.
- SE7.2.2: In terms of sustainable growth provision in the sector.
- SE7.2.3: In terms of an economy and society better adapted to climate change, more efficiently managing natural resources and raw materials and implementing low carbon economy with less impact on health.
- SE7.2.4 In terms of a more sustainable life-style.

SE7.3: To what extent has the project (project portfolio) contributed to generate social and public sectors' policies and innovations in the medium term in the long term?

- SE7.3.1: In terms of evidence-based policy decision making by authorities making related to environmental integrity, resilience and sustainability.
- SE7.3.2: In terms of innovative social, institutional or governance models implemented to enhance market uptake of green solutions.
- SE7.3.3: In terms of synergies achieved at regional/national/EU/International policies for the climate and environmental change adaptation.
- SE7.3.4: In terms of enhancing public procurement processes of green innovations.
- SE7.3.5: In terms of improved societal awareness, engagement and empowerment with citizens participating in green solutions co-creation processes.

#### **Relevant indicators:**

There are 4 indicators associated to this evaluation question and its subquestions:

1. L.6.1: Aggregated estimated effects from use of SC5 project results, on tackling specific EU policy priorities, cluster (waste, raw materials, water..) challenges or SDGs including contribution to the policy and law-making cycle. This is determined through the following data:
  - a. L.6.1.a Number and evidence of improvements in relation to the previous situation,
  - b. L.6.1.b Number and evidence of replicability of those improvements,
  - c. L.6.1.c Number and evidence of sustainability of the improvement achieved.
2. L.6.2: Number of policy documents citing SC5 project findings (either from individual projects or topics / project portfolios). Policy documents include a variety of official documents developed by governments or institutions, including for instance regulations, directives, decisions, treaties, protocols, plans of action, programmes, conventions or agreements.
3. L.7.1.a: Number of activities/programmes/products which are based on SC5 scientific results that have been implemented by citizens and civil society organisations.
4. L.7.1.b: Percentage of SC5 scientific results and innovative solutions by number of end-users reached.

**Existing evidence:**

These long term indicators are the most difficult to evidence because the data available is mostly related to the period in which the project is active or has just ended. No evidence has been identified so as to calculate indicators.

**Evidence gaps and collection:**

As no available evidence is identified the collection strategy will be based in two primary data sources:

- Survey.
- Interviews with project coordinators.

*3.2.8 SE8 Evaluation Fiche (Impact)*

**Evaluation question:**

SE8: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive long terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

**Evaluation sub-questions:**

SE8.1: What are the main factors hindering the transformation of the project's (project portfolio's) outcomes into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SE8.1.1: In terms of addressing EU policy priorities
- SE8.1.2: In terms of strengthening the social uptake of innovation in society

SE8.2: What are the main factors driving the transformation of the project's (project portfolio's) outputs into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- SE8.2.2: In terms of addressing EU policy priorities
- SE8.2.2: In terms of strengthening the social uptake of innovation in society

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

*3.2.9 SE9 Evaluation Fiche (Impact)*

**Evaluation question:**

SE9: To what extent the observed impacts are credited to the project (project portfolio)?

**Evaluation sub-questions:**

- SE9.1: To what extent the observed impacts related to the environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate and other environmental changes are credited to the project (project portfolio)?
- SE9.2: To what extent the observed impacts related to the protection and sustainable management of the natural resources (specially water, waste and raw materials) are credited to the project (project portfolio)?
- SE9.3: To what extent the observed impacts related to the generation of innovation in the social and public sectors aimed at enhancing the rapid up-take of innovative solutions by society are credited to the project (project portfolio)?

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.3 Economic dimension

#### 3.3.1 EC1 Evaluation Fiche (Output)

**Evaluation question:**

EC1: To what extent has the project (project portfolio) achieved the expected outputs?

**Evaluation sub-questions:**

EC1.1: To what extent has the project (project portfolio) achieved the expected outputs?

- EC1.1.1: In terms of the development of non-technological innovative processes, products and services, including organisational and management systems, digital systems and business models.
- EC1.1.2: In terms of large-scale demonstrators and property rights, including patents.
- EC1.1.3: in terms of the creation of standards, setting up of standard committees and harmonisation.
- EC1.1.4: In terms of jobs maintained or created in related sectors.
- EC1.1.5: In terms of SME participating in projects.
- EC1.1.6: In terms of the development of new financial or regulatory context and measures as well as business models.
- EC1.1.7: In terms of attracting additional funding to projects: private or public, EU, national or regional schemes.

### **Relevant indicators:**

There are 7 indicators associated to this evaluation question and its subquestions:

1. S.8.1.a: Total number of projects and share of EU financial contribution allocated to Innovation (IAs)
2. S.8.1.b: Share of EU financial contribution (within IAs) focused on demonstration and first-of-a-kind activities.
3. S.8.2: Number of Innovative products, processes or methods developed (prototype feasibility) & Intellectual Property Rights (IPR) applications.
4. S.8.3: Number of projects contributing to harmonisation or standard development.
5. S.9.1: Number of FTE (Full Time Employee) jobs created through SC5 support, by type of job (low, medium, high) and contract duration (short term – long term); particularly in participating SMEs.
6. S.10.1: Amount of public & private investment mobilised with the initial project investment (within the project).
7. S.10.2: Changes in TRLs (Technology Readiness Level) of SC5 projects from start to end of the project.

### **Existing evidence:**

Evidence can be found in the following data sources:

- CORDIS H2020 Project dataset for data on project types and EU financial contribution.
- CORDIS H2020 Project Deliverables dataset for information on projects focused on demonstrators and prototypes.
- Innovations dataset potentially provided by the EC services for data on innovations (products, processes, methods).
- Intellectual property rights potentially provided by the EC services for data on IPR applications.
- Impact on SMEs dataset potentially provided by the EC services for some data (may be not all the data we need to calculate the indicator) on employment created.

### **Evidence gaps and collection:**

Evidence gaps identified:

- Data on details of the created jobs (type, contract duration)
- Information on projects contributing to harmonisation or standard development.
- Data on public&private investments mobilised
- Changes in TRLs (may be this information is mentioned in the H2020 Report summaries)

Collection strategy:

- Interviews with project coordinators
- Survey

### ***3.3.2 EC2 Evaluation Fiche (Output)***

#### **Evaluation question:**

EC2: What factors have hindered or influenced positively the achievement of the expected outputs of the project?

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**Evaluation sub-questions:**

EC2.1: What are the main factors hindering the achievement of the expected outputs of the projects?

- EC2.1.1: In terms of generating innovation-based growth
- EC2.1.2 In terms of creating more and better jobs
- EC2.1.3: In terms of leveraging investments in R&I

EC2.2: What are the main factors driving the achievement of the expected outputs of the projects?

- EC2.2.1: In terms of generating innovation-based growth
- EC2.2.2 In terms of creating more and better jobs
- EC2.2.3: In terms of leveraging investments in R&I

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### *3.3.3 EC3 Evaluation Fiche (Output)*

**Evaluation question:**

EC3: What actions have been undertaken or should be undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to the specific objectives of the SC5 WP 2014-2015?

**Evaluation sub-questions:**

- EC3.1: What actions have been undertaken or should be undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to achieve a resource efficient and climate change resilient economy bringing up green innovative solutions to the market?
- EC3.2: What actions have been undertaken or should be undertaken to ensure a wider contribution of the project's (project portfolio's) outputs to generate business opportunities and jobs related to environmental and resource efficiency challenges, especially in SME?

**Relevant indicators:**

Qualitative information, no indicators associated.

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

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**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

*3.3.4 EC4 Evaluation Fiche (Outcome)*

**Evaluation question:**

EC4: To what extent has the project (project portfolio) contributed to the societal specific objectives of the SC5 WP 2014-2015 in the medium term?

**Evaluation sub-questions:**

EC4.1: To what extent has the project (project portfolio) contributed to achieve a resource efficient and climate change resilient economy bringing up green innovative solutions to the market in the medium term?

- EC4.1.1: In terms of the generation of solutions portfolio of demonstrated innovative solutions which can be replicated, scaled and contextualised.
- EC4.1.2: In terms of improved market uptake and replication of environmental products and/or processes particularly by SME.
- EC4.1.3: In terms of the enhanced use of innovative applications and systems driving to a resource efficient, climate smart economy.
- EC4.1.4: In terms of an enhanced and consolidated evidence base about the cost effectiveness, up-scalability and market uptake potential of the tested solutions: development of business plan, market study.
- EC4.1.5: In terms of the development and application of regulatory frameworks more conducive to the implementation of green innovations.
- EC4.1.6: In terms of the public and private investment mobilised to exploit or scale up project results.
- EC4.1.7: In terms of the development of innovative financing, business and governance models for green solutions adopting trans-disciplinary and participative approaches.

EC4.2: To what extent has the project (project portfolio) contributed to generate business opportunities and jobs related to environmental and resource efficiency challenges, especially in SME, in the medium term?

- EC4.2.1: In terms of improved competitiveness of EU companies in the global market.
- EC4.2.2: In terms of the generation of solutions portfolio of demonstrated innovative solutions which can be replicated, scaled and contextualised.
- EC4.2.3: In terms of improved market uptake and replication of environmental products and/or processes particularly by SME.
- EC4.2.4: In terms of the enhanced use of innovative applications and systems driving to a resource efficient, climate smart economy.
- EC4.2.5: In terms of an enhanced and consolidated evidence base about the cost effectiveness, up-scalability and market uptake potential of the tested solutions: development of business plan, market study.
- EC4.2.6: In terms of the development and application of regulatory frameworks more conducive to the implementation of green innovations.

- EC4.2.7: in terms of the jobs created, especially in SME.
- EC4.2.8: In terms of the public and private investment mobilised to exploit or scale up project results.
- EC4.2.9: In terms of the development of innovative financing, business and governance models for green solutions adopting trans-disciplinary and participative approaches.

**Relevant indicators:**

There are 6 indicators associated to this evaluation question and its subquestions:

1. M.8.1: Number of innovations from the projects (by type of innovation) including from awarded IPRs (including trademarks).
2. M.8.2: Number of innovative products, processes or methods successfully demonstrated (prototypes successfully tested and demonstrated).
3. M.8.3: Number of projects having established new standards committees or enhancing / strengthening work of existing committees.
4. M.9.1: Number of FTE jobs maintained or increased in SC5 beneficiary entities following the project, by type of job (low, medium, high); particularly in participating SMEs.
5. M.10.1: Amount of public & private investment mobilised to exploit or scale-up the project's results.
6. M.10.2: Investor readiness: investment for market testing / industrial demo (e.g. EIB/EIF, EIPP, business angels).

**Existing evidence:**

Evidence can be found in the following data sources:

- Innovations dataset potentially provided by the EC services for data on innovations (products, processes, methods).
- Intellectual property rights dataset potentially provided by the EC services for data on IPR applications.
- CORDIS H2020 Project Deliverables dataset for information on demonstrators and prototypes.
- Impact on SMEs dataset potentially provided by the EC services for some data (may be not all the data we need to calculate the indicator) on created jobs.

**Evidence gaps and collection:**

Evidence gaps identified:

- Data related to standards committees established/enhanced by the SC5 projects.
- Details on type of jobs created
- Data on public & private investment mobilised to exploit or scale-up the projects' results
- Details on investor readiness

Collection strategy:

- Interviews with project coordinators
- Survey

### 3.3.5 EC5 Evaluation Fiche (Outcome)

#### **Evaluation question:**

EC5: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

#### **Evaluation sub-questions:**

EC5.1: What are the main factors hindering the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- EC5.1.1: In terms of generating innovation-based growth
- EC5.1.2 In terms of creating more and better jobs
- EC5.1.3: In terms of leveraging investments in R&I

EC5.2: What are the main factors driving the transformation of the project's (project portfolio's) outputs into positive medium terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

- EC5.2.1: In terms of generating innovation-based growth
- EC5.2.2 In terms of creating more and better jobs
- EC5.2.3: In terms of leveraging investments in R&I

#### **Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

#### **Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

#### **Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.3.6 EC6 Evaluation Fiche (Outcome)

#### **Evaluation question:**

EC6: What actions have been undertaken or should be undertaken to ensure the spread from project's (project portfolio's) outputs to impacts of the project's (project portfolio's) results related to the specific objectives of the SC5 WP 2014-2015?

#### **Evaluation sub-questions:**

- EC6.1: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project in relation to the achievement of a resource efficient and climate change resilient economy bringing up green innovative solutions to the market?
- EC6.2: What actions have been undertaken or should be undertaken to ensure the long-term impact of the project (project portfolio) in relation to the generation of business opportunities and jobs related to environmental and resource efficiency challenges, especially in SME?

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

*3.3.7 EC7 Evaluation Fiche (Impact)*

**Evaluation question:**

EC7: To what extent has the project (project portfolio) contributed to the societal specific objectives of the SC5 WP 2014-2015 in the long term?

**Evaluation sub-questions:**

EC7.1: To what extent has the project (project portfolio) contributed to achieve a resource efficient and climate change resilient economy bringing up green innovative solutions to the market in the long term?

- EC7.1.1: In terms of the strengthened EU capacity to promote, finance, develop, manage and replicate innovative technologies for the benefit of industry, policy makers and citizens.
- EC7.1.2: in terms of the public and private investment mobilised to extend the impact of the project's (project portfolio's) results.

EC7.2: To what extent has the project (project portfolio) contributed to generate business opportunities and jobs related to environmental and resource efficiency challenges, especially in SME, in the long term?

- EC7.2.1: In terms of EU industrial leadership and competitiveness in environmental technologies, making the business case for sustainability and creating the markets of the future.
- EC7.2.2: In terms of the strengthened EU capacity to promote, finance, develop, manage and replicate innovative technologies for the benefit of industry, policy makers and citizens.
- EC7.2.3: In terms of jobs, direct and indirect, created or maintained, especially in SME.
- EC7.2.4: In terms of public and private investment mobilised to extend the impact of the project's (project portfolio's) results

**Relevant indicators:**

There are 6 indicators associated to this evaluation question and its subquestions:

1. L.8.1: Creation, growth and market shares of companies having brought new products or services from the SC5 projects to the market.
2. L.8.2: Number of innovative products, processes or methods with market replication.
3. L.8.3: Number of industrial standards that can set the tone and be adopted at global level as a result of the project outcomes.
4. L.9.1: Number of direct and indirect jobs created or maintained due to diffusion of the projects' results, by type of job (low, medium, high); particularly in SMEs.

5. L.10.1: Amount of public & private investment mobilised to extend the impact of the results of SC5 projects.
6. L.10.2: From funding/investment to turnover: first customer(s) secured (from companies involved in the project or spin-offs).

**Existing evidence:**

These long term indicators are the most difficult to evidence because the data available is mostly related to the period in which the project is active or has just ended. No evidence has been identified so as to calculate indicators.

**Evidence gaps and collection:**

As no available evidence is identified the collection strategy will be based in two primary data sources:

- Survey.
- Interviews with project coordinators.

*3.3.8 EC8 Evaluation Fiche (Impact)*

**Evaluation question:**

EC8: What factors have hindered or propitiated that the results of the project (project portfolio) turn into positive long terms effects leading to the achievement of SC5 WP 2014-2015 specific objectives?

**Evaluation sub-questions:**

EC8.1: What are the main factors hindering the transformation of the project's (project portfolio's) outcomes into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- EC8.1.1: In terms of generating innovation-based growth
- EC8.1.2 In terms of creating more and better jobs
- EC8.1.3: In terms of leveraging investments in R&I

EC8.2: What are the main factors driving the transformation of the project's (project portfolio's) outputs into long term impacts leading to the achievement of SC5 WP 2014-2015 specific objectives?

- EC8.2.1: In terms of generating innovation-based growth
- EC8.2.2 In terms of creating more and better jobs
- EC8.2.3: In terms of leveraging investments in R&

**Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

**Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

**Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

### 3.3.9 EC9 Evaluation Fiche (Impact)

#### **Evaluation question:**

EC9: To what extent the observed impacts are credited to the project (project portfolio)?

#### **Evaluation sub-questions:**

- EC9.1: To what extent the observed impacts related to the achievement of a resource efficient and climate change resilient economy bringing up green innovative solutions to the market are credited to the project (project portfolio)?
- EC9.2: To what extent the observed impacts related to the generation of business opportunities and jobs related to environmental and resource efficiency challenges, especially in SME are credited to the project (project portfolio)?

#### **Relevant indicators:**

There are no indicators associated to this evaluation question. The answer to the question (and subquestions) is a qualitative one.

#### **Existing evidence:**

Existing evidence to answer this question (and subquestions) could be possibly included in the final project report and in the webpage.

#### **Evidence gaps and collection:**

The response to this question could be obtained either through the survey or through interviews with project coordinators.

## 4 Summary evaluation matrix

The matrix below provides a summary of the information sources necessary to answer the evaluation questions and to calculate the indicators associated to some of them.

Not all evaluation questions have a numeric indicator associated with them. In some cases the responses to the evaluation questions will be qualitative and will be obtained through the analysis of the existing project-related literature, the survey and the interviews.

Table 1: Summary evaluation matrix - Scientific dimension

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
<b>SCIENTIFIC DIMENSION</b>	<b>SC1</b>	S.1.1.a	X	X			
		S.1.1.b	X				
		S.2.1		X		X	
		S.2.2		X			
		S.2.3		X		X	
		S.2.4		X			
		S.3.1	X				
		S.4.1		X			
		S.4.2		X			
		S.4.3		X			
		S.5.1	X				
		S.5.2	X				
	<b>SC2</b>	<No indicador associated>			X	X	Webpage, Project final report, press releases
	<b>SC3</b>	<No indicador associated>			X	X	Webpage, Project final report, press releases
	<b>SC4</b>	M.1.1					Web of Science, SCOPUS
M.1.2				X	X		
M.2.1				X	X		

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)	
		M.2.2.a			X	X		
		M.2.2.b			X	X		
		M.2.3			X		Data publicly available on the web	
		M.3.1	X				X	
		M.3.2	X				X	
		M.4.1			X		X	Web of Science, SCOPUS
		M.4.2			X		X	Webpage, Project final report
		M.4.3					X	Webpage, Project final report
		M.5.1					X	Webpage, Project final report
		M.5.2					X	Webpage, Project final report
	<b>SC5</b>	<No indicador associated>				X	X	Webpage, Project final report, press releases
	<b>SC6</b>	<No indicador associated>				X	X	Webpage, Project final report, press releases
	<b>SC7</b>	L.1.1				X	X	
		L.1.2				X	X	
		L.1.3				X	X	
		L.2.1				X	X	
		L.2.2				X	X	

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
		L.2.3			X	X	
		L.3.1			X	X	
		L.4.1			X	X	
		L.4.2			X	X	
		L.4.3			X	X	
		L.5.1			X	X	
		L.5.2			X	X	
	<b>SC8</b>	<No indicador associated>			X	X	
	<b>SC9</b>	<No indicador associated>			X	X	

Table 2: Summary evaluation matrix - Societal and environmental dimension

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
<b>SOCIETAL AND ENVIRONMENTAL DIMENSION</b>	<b>SE1</b>	S.6.1.a	X				
		S.6.1.b		X			
		S.7.1	X				
		S.7.1.a		X			Webpages
		S.7.1.b		X			Webpages
	<b>SE2</b>	<No indicador associated>			X	X	Webpages, Press releases, Project final reports
	<b>SE3</b>	<No indicador associated>			X	X	Webpages, Press releases, Project final reports
	<b>SE4</b>	M.6.1.a			X		
		M.6.1.b			X	X	
		M.6.1.c				X	
		M.7.1				X	Webpages, Project final reports
	<b>SE5</b>	<No indicador associated>			X	X	
	<b>SE6</b>	<No indicador associated>			X	X	
	<b>SE7</b>	L.6.1			X	X	
		L.6.1.a			X	X	
L.6.1.b				X	X		

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
		L.6.1.c			X	X	
		L.7.1.a			X	X	
		L.7.1.b			X	X	
	<b>SE8</b>	<No indicador associated>			X	X	
	<b>SE9</b>	<No indicador associated>			X	X	

Table 3: Summary evaluation matrix - Economic dimension

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
<b>ECONOMIC DIMENSION</b>	<b>EC1</b>	S.8.1	X				
		S.8.1.a	X				
		S.8.2	X	X			
		S.8.3				X	Webpages, Project final reports.
		S.9.1		X		X	
		S.10.1				X	
		S.10.2				X	Webpages, Project final reports.
	<b>EC2</b>	<No indicador associated>			X	X	Webpages, Project final reports.
	<b>EC3</b>	<No indicador associated>			X	X	Webpages, Project final reports.
	<b>EC4</b>	M.8.1	X	X			
		M.8.2	X	X			
		M.8.3				X	Webpages, Project final reports.
		M.9.1		X		X	
		M.10.1				X	
		M.10.2				X	
	<b>EC5</b>	<No indicador associated>			X	X	Webpages, Project final reports.
	<b>EC6</b>	<No indicador associated>			X	X	Webpages, Project final reports.

	Eval. Questions	Indicators	CORDIS	Datasets from the EC Services	Survey	Interviews	Other (specify)
	EC7	L.8.1			X	X	
		L.8.1.a			X	X	
		L.8.2			X	X	
		L.9.1			X	X	
		L.10.1			X	X	
		L.10.2			X	X	
	EC8	<No indicador associated>			X	X	
	EC9	<No indicador associated>			X	X	