Use Cases and Pilots: Definition of Methodology

Big Data approaches for improved monitoring of research and innovation performance and assessment of the societal impact in the Health, Demographic Change and Wellbeing Societal Challenge

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Abbreviations

Fraunhofer ISI – Fraunhofer Institute for Systems and Innovation Research

EU – European Union

PPMI – Public Policy and Management Institute

UK – United Kingdom

UoB – University of Borås

WP – Work Package

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Summary

This document defines the overall approach and framework of Data4Impact's Use Cases and Pilots under Work Package (WP6). The goal of WP6 is to implement, test, and verify the outputs and frameworks defined in the Work Packages dedicated to Landscaping & Development of Analysis Framework (WP2), Knowledge Base (WP3), Topic Modelling (WP4), and Pilot Assessment (WP5).

The purpose of the pilot studies under WP6 is to test and/or evaluate the applicability and practicability of an online analysis prototype in the varying European settings and among different stakeholders. The overall scope of the pilot studies as well as pilot specific methodologies are defined in this document. Along with that, we outline the main goals of the pilot studies, key data collection and analysis methods, pilot study structure and timeline. Finally, the document defines the pilot study coordination and risk mitigation strategies in context of the pilot studies, as well as responsibilities of the Task Lead and the Pilot Leads.

1. Introduction: Data4Impact Use Cases and Pilots

The goal of WP6 is to implement, test, and verify the outputs and frameworks defined in the Work Packages dedicated to Landscaping & Development of Analysis Framework (WP2), Knowledge Base (WP3), Topic Modelling (WP4), and Pilot Assessment (WP5). To that end, we have foreseen to carry out three pilot studies in three EU Member States (see Table 1) and in close collaboration with the key stakeholders. Relying on the existing theoretical and conceptual framework and extending it with new indicators that come from data driven research and facts derived from a multitude of sources, Data4Impact is developing a solid foundation and accompanying mechanisms (online analysis platform) for producing novel indicators and solutions that better suit the needs of research funders, policymakers, researchers and the society at large.

Table 1. Data4Impact Use Cases and Pilots

Pilots	Country	Leading Partner
Pilot 1:	United Kingdom	PPMI
Pilot 2:	Germany	Fraunhofer ISI
Pilot 3:	Sweden	University of Borås

The question of how the proposed methods are (and should be) taken up by the stakeholders is a key goal and of direct relevance to Data4Impact. However, the relevance, effectiveness and utility of these methods may well vary among research funders, experts/health practitioners and policymakers. It is therefore important to map and analyse how our proposed methods fit in the specific settings and national contexts within which these stakeholders operate. To deliver first insights into the applicability and practicability of the proposed methods, each pilot study will assess the relevance, effectiveness and utility of the new mechanisms and indicators in the specific settings of the key stakeholders. The pilot studies will aim to consult with the major research funders (including those that are covered in Data4Impact), experts/ health practitioners, policymakers and other stakeholders across the three above-mentioned countries (refer to section 2.2 for the target stakeholders specific for each pilot study).

To explore as many areas and application contexts as possible, the pilot studies have been designed to follow a similar structure and common criteria while operating rather independently from each other. We chose the current pilot design, scope and methodologies to ensure well-balanced and highly relevant outcomes in terms of quality and quantity within the scope of this project. In the pilot studies, Data4Impact will employ desk research, bibliometrics, interviews and other methods to ensure that the mechanisms and indicators developed in the project reflect the needs of the identified stakeholders. In addition, we will aim to determine whether the results discovered with the use of our proposed methods correspond with what the selected stakeholders aimed to achieve. We will also seek to discuss the preliminary findings and data derived for the set of indicators developed in Data4Impact with the stakeholders and establish how they correspond to data and findings from other sources. Finally, we will examine the key challenges and opportunities which may suggest areas for further investigation (e.g. through potential availability of data).

The insights gained from the evaluation of the individual pilots will provide useful input into the design of the online analysis platform for producing robust data and indicators solutions that better suit the needs of the identified stakeholders and the society at large. The online analysis platform, the final output of WP6, will provide a set of working tools/software for visualising the data and producing new/updated results with new incoming data which to be used and upscaled to other stakeholders and societal challenges. In addition, the cases will feed back into WP2-WP5 and inform the ongoing work on the conceptual framework and indicators. First interim results of our pilots will be provided in D6.2 Interim Use Cases Evaluation, which will be released in project month 18 (April

2019). The final evaluation reports will be included in the final deliverable (D6.3 Final Use Cases Evaluation), which will be submitted in month 22 (July 2019).

2. Definition of Methodology

During the proposal phase, the project consortium selected the UK, Germany and Sweden as the three countries for piloting. The team agreed that all pilots will follow a similar structure adhering to a common framework to enable integration of the expected results during the second Data4Impact project meeting in Pisa (March 2018). When the first round of preliminary results started to emerge in the WP2-WP5 between project months 12 and 15, we started to reassess the pilot design, scope and methodologies designed during the earlier phases. All pilot studies were reviewed to reflect the hitherto defined key questions, roles, and processes involved, as well as related key challenges and opportunities in the specific context of each pilot. This review has not yielded any changes with respect to the projected scope of the pilot studies.

In the following chapters, we define the overall methodological approach of the pilots as well as the individual methodologies of each pilot study.

2.1. Overall Scope of the Pilot Studies

In accordance with the agreement reached within the consortium, the three pilots will comprise a common framework to ensure a certain comparability of the pilot findings, and alignment to the overall goals of the work package. The pilot studies will aim to:
- Validate the assumptions that have been made within the model.
- Present the innovative mechanisms and indicators to the major research funders (including those that are covered in Data4Impact), policymakers, experts/health practitioners and other stakeholders across the three countries.
- Evaluate the relevance of the overall approach and indicators to the specific contexts of diverse stakeholders in the health sector (focusing in particular on the extent to which the proposed methods correspond to the needs of the research funders covered in Data4Impact, adequacy as well as novelty and overall fit of the indicator developed).
- Evaluate the potential effectiveness and overall utility of mechanisms and indicators in the specific settings of the identified stakeholders and countries (addressing in particular the degree to which the proposed methods allow to measure the outcomes/impacts produced in the programmes covered, including their outputs, results and impacts.
- Provide a meaningful interpretation of indicators developed based on knowledge and experience of stakeholders involved in use cases and pilots.

Each Pilot Lead will conduct **desk research** on the requirements and needs as well as expected impacts of the identified stakeholders. Secondly, the Pilot Lead will design an individual **interview programme** for their specific pilot studies**.** All three pilot studies will rely on an interview questionnaire addressing the questions relating to the relevance, effectiveness and utility of the proposed methods. However, each Pilot Lead will tailor their questionnaire to the specific settings of stakeholders and the national context following the completion of desk research. For an example of an interview questionnaire, refer to Annex I. In total, the interview programme will involve 20-25 interviews, or around 5-12 interviews per pilot. The actual number will depend on the desk research performed beforehand and may vary across pilots.

Each pilot study will also delve into a specific set of topics to **validate and triangulate key data and the emerging findings** of the project in the following fashion:
- In the UK pilot, in addition to probing the relevance, effectiveness and utility of the data generated in the project, we will select up to 15-20 participating SMEs in FP7 Health and SC1 and search for evidence of previous EU FPs projects directly contributing to the newly

launched products and innovations. The results of this exercise will help establish the overall extent to which the links found between projects, organisations tracked in the project and their products/innovations actually exist. For more details on the specific methodology of Pilot 1, refer to section 2.2.1.

- In the German pilot, researchers from Fraunhofer ISI will focus on the relevance, effectiveness and utility of indicators and preliminary results derived from WP4 during the topic modelling task. A key research question to be answered in this pilot is whether the metrics and indicators developed through topic modelling are reliable measurements that address stakeholders' needs. Moreover, this pilot will also investigate whether the perspective on topics is generally suitable for representing R&I impact within the academic environment and how scientific achievements in that regard are translated into societal benefits. For more details on the specific methodology of Pilot 2, refer to section 2.2.2.

- In the Swedish pilot, a specific research question to be answered is whether citations of health research in clinical guidelines can be regarded as a proxy indicator for societal/health impact. A key assumption in the Data4Impact project is that clinical guidelines occupy an intermediate position between research and clinical practice, and in turn affect health outcomes. As a result, a reference to a publication in a particular guideline can be regarded as an input to what eventually becomes clinical practice. To answer this question, researchers from the University of Borås team will employ additional desk research and interview techniques to investigate their role in the planning and execution of health care activities. The results of this exercise will help establish the overall extent to which the provisions of these guidelines actually trickle down to clinical practice. For more details on the specific methodology of Pilot 3, refer to section 2.2.3.

Table 2 below summarises the scope of the pilot studies.

Table 2. Scope of the pilot studies

Key steps	Data collection/analysis methods to be applied
1. Identify stakeholder requirements and needs as well as expected impacts	Desk research, interviews (February – April 2019)
2. Present the Data4Impact methods and indicators to research funders, experts/health practitioners and policymakers across Germany, Sweden and the UK	
3. Elicit the actual stakeholder needs (relevance)	
4. Validate the data/results with research funders whose data were covered in the project, present additional possibilities of working with more data (as per FP7/H2020 projects)	
5. Further measure the impact achieved by stakeholders with the use of Data4Impact methods	Further company data analysis (UK) + preliminary statistical validation of topic model indicators (Germany) + Further analysis of clinical guideline citations (Sweden) (February – July 2019)
6. Evaluate the results and tailor the functionalities of the proposed methods in line with the requirements and needs of the stakeholders	Final analysis phase (integration & finalisation of the pilot study, May – July 2019)

2.1.1. Pilot Study Structure and Timeline

The chosen approach implies that each pilot will consist of four parts. In addition to the sections dedicated to introduction and summary of conclusions, each pilot study will contain a section focusing on the relevance of Data4Impact indicators as well as a section covering the effectiveness and utility of the results. The results of each pilot study will be summarised in a document following the structure outlined in Annex II.

The pilot studies will be conducted in two main phases leading to interim and final results. This approach is reflected in Table 3. The start and end dates may vary between the pilots and mainly depend on the key activities, events, or project timelines by the involved stakeholders or other interdependencies.

Table 3. Timeline of the pilot studies

Pilot Study phase	Sub-task	Approximate start/end dates
Preparatory phase	Re-define projected pilot study to reflect the hitherto defined/identified key questions, roles, etc.	October 2018 – January 2019
	Identify methodologies and settings (D6.1)	October 2018 – January 2019
	Engage with the addressed and involved stakeholders, carry out desk research	February – April 2019
Implementation phase 1	Pilot Study ongoing & interim evaluation report (D6.2)	April 2019
Implementation phase 2	Final Pilot Study implementation phase & final evaluation report (D6.3)	May – July 2019

2.2. Pilot Specific Methodologies

As mentioned in the previous section, each pilot will be structured around the research questions aiming to assess the applicability and practicability of the proposed methods and indicators, in terms of their relevance and effectiveness as well as utility in the specific settings of the stakeholders and countries. However, each pilot study will also cover a particular theme relate to the data and results obtained in Data4impact. The subsequent sections outline the pilot specific content.

2.2.1. Pilot 1: United Kingdom

Table 4. Specific methodology of Pilot 1

Scope of the study	Relevance, Effectiveness and Utility of the Data4Impact mechanisms and indicators among research funders in the UK
Approach	Test and validate the mechanisms and indicators proposed by Data4Impact, against the requirements and needs of the research funders in the UK, as well as indicators related to company/innovation activities and economic impact
Key data collection/analysis methods	Desk research + 10-12 interviews with research funders + Company data analysis (15-20 companies in total)
Specific focus area of the UK case study	Conducted on the basis of industry/company data (websites, social media/Twitter data, innovative company lists/other data obtained through desk research) & monitoring data of finalised EU projects; analyse 15-20 companies and attempt to establish links between their project activities in FP7/H2020 projects and recently launched innovations
Target stakeholders	Major research funders (including those that are covered in Data4Impact) + experts + 15-20 companies in the UK
Relevance: the pilot study evaluates the relevance of the Data4Impact methods and	The specific steps to be undertaken to evaluate the relevance of the Data4Impact methods and indicators in this pilot include:

indicators in the specific settings of **research funders in the UK**	• Identifying/mapping existing data/frameworks collected for research funders/programmes in the UK through desk research; assessing their coverage, completeness, comparing to what Data4Impact offers/develops; • Conducting an interview programme, which involves a presentation of the Data4Impact methods and indicators developed on the basis of the results of desk research; testing the proposed set of indicators against the needs of research funders in the UK.
Effectiveness and Utility: the pilot study evaluate the effectiveness and utility of the Data4Impact methods and indicators in the specific settings of <u>selected research funders and companies in the UK</u>	By conducting company data analysis we aim to: • Present preliminary findings to research funders and experts in the UK for whom data are derived in Data4Impact, check with interviewees whether the findings match the expectations/perceptions of the interviewees; • Identify outputs which were produced by the companies funded by the involved research funders; check if and how they were linked to project activities; compare the findings to the results obtained in Data4Impact; • Explore the link between companies and FP7/H2020 projects; • Examine the match between these outputs, identified impacts and their stories.
Validation: the pilot study evaluates the applicability and practicability of the Data4Impact methods and indicators in the specific setting of research funders in the UK	The results of the pilot will be critically evaluated against the actual needs of the stakeholders and their feedback. Based on that, opportunities of the novel approaches to improve monitoring of R&I activities and prove value to the society will be determined. We will also identify gaps and risks associated with the use of indicators proposed by Data4Impact.

2.2.2. Pilot 2: Germany

Table 5. Specific methodology of Pilot 2

Scope of the study	Relevance, Effectiveness and Utility of the Data4Impact indicators for research funders, policymakers and experts in Germany, with a specific focus on academic/technological impact and the related indicators
Approach	Test and validate the indicators developed by Data4Impact, against the requirements and needs of research funders, policymakers and experts in Germany as well as indicators related to academic/technological impact
Key data collection/analysis methods	Desk research + preliminary results from the validation task in WP2 + 4-6 interviews with research funders and experts from the health sector
Specific focus area of the German case study	Topic models conducted on the basis of publications linked to the research funders covered in the project; statistical validation of preliminary results from WP4; Assumptions regarding academic/technological impact indicators derived in Data4Impact; Possible societal

	benefits (directly/indirectly) resulting from the academic environment and how they are connected to topics
Target groups	Major research funders (including those that are covered in Data4Impact) + experts from the health sector + policymakers in Germany
Relevance: the pilot study evaluates the relevance of the Data4Impact methods and indicators in the specific settings of **research funders, policymakers and experts in Germany**	The specific steps to be undertaken to evaluate the relevance of the Data4Impact methods and indicators in this pilot include: • Identifying existing data/frameworks collected for research funders /programmes in Germany through desk research; assessing their coverage, completeness, comparing to what Data4Impact offers/develops; • Conducting an interview programme, which involves a presentation of the Data4Impact methods and indicators developed; testing the proposed set of indicators against the needs of research funders in Germany; qualitatively validate assumptions regarding academic/technological impact indicators and their possible translation into societal benefits
Effectiveness and Utility: the pilot study evaluate the effectiveness and utility of the Data4Impact methods and indicators in the specific settings of <u>selected research funders/ policymakers and experts in Germany</u>	Key activities: • Present preliminary findings of the project to research funders and experts in Germany for whom data are derived in Data4Impact, check with interviewees whether the findings match the expectations/perceptions of the interviewees (interviews); • Compare the data/results obtained in Data4Imapct against results obtained in other studies (desk research); • Specific part for Germany: Preliminary results of the statistical validation task in WP2, validation of assumptions and expected contribution to the wider society
Validation: the pilot study evaluates the applicability and practicability of the Data4Impact methods and indicators in the specific setting of research funders/ policymakers and experts in Germany	The results of the pilot will be critically evaluated against the actual needs of the stakeholders/experts and their feedback. Based on that, opportunities of the novel approaches to improve monitoring of R&I activities and prove value to the society will be determined. We will also identify gaps and risks associated with the use of indicators proposed by Data4Impact.

2.2.3. Pilot 3: Sweden

Table 6. Specific methodology of Pilot 3

Scope of the study	Relevance, Effectiveness and Utility of the Data4Impact indicators for research funders, policymakers and experts/health practitioners in Sweden, with a specific focus on clinical guidelines data and their links to societal/health impact
Approach	Test and validate indicators developed by Data4Impact, against the requirements and needs of research funders, policymakers and experts/health practitioners in

	Sweden, as well as indicators related to clinical guidelines data/societal impact
Key data collection/analysis methods	Desk research + 10-12 interviews with research funders, policymakers, experts/health practitioners + additional analysis of the results obtained in task 5.3 on clinical guidelines data and societal impact
Specific focus area of the Swedish case study	In-depth analysis of 3 cases of medical practice linked to evidence based practices, using clinical guidelines citing research from research funders covered in the analysis, their actual use/uptake in clinical practice, importance of the research results as inputs to the guidelines
Target groups	Major research funders (including those that are covered in Data4Impact) + policymakers + experts/health practitioners in Sweden
Relevance: the pilot study evaluates the relevance of the Data4Impact methods and indicators in the specific settings of **research funders, policymakers and experts/health practitioners in Sweden**	The steps to be undertaken to evaluate the relevance of the Data4Impact methods and indicators in this pilot include: - Identifying existing data/frameworks collected for research funders/programmes in Sweden through desk research; assessing their coverage, completeness, comparing to what Data4Impact offers/develops; - Interview programme, which involves a presentation of the Data4Impact methods and indicators developed; testing the proposed set of indicators against the needs of research funders in Sweden
Effectiveness and Utility: the pilot study evaluate the effectiveness and utility of the Data4Impact methods and indicators in the specific settings of <u>selected research funders, policymakers and experts/health practitioners in Sweden</u>	Key activities: - Present preliminary findings of the project to research funders and experts/health practitioners in Sweden for whom data are derived in Data4Impact, check with interviewees whether the findings match the expectations/perceptions of the interviewees (interviews); - Compare the data/results obtained in Data4Imapct against results obtained in other studies (desk research); - Specific part for Sweden: conduct in-depth desk research and interview programme to determine the extent to which clinical guidelines are taken up in clinical practice; extent to which the research cited was important/key input to the guidelines
Validation: the pilot study evaluates the applicability and practicability of the Data4Impact methods and indicators in the specific setting of research funders, policymakers and experts/health practitioners in Sweden	The results of the pilot will be critically evaluated against the actual needs of the stakeholders and their feedback. Based on that, opportunities of the novel approaches to improve monitoring of R&I activities and prove value to the society will be determined. We will also identify gaps and risks associated with the use of indicators proposed by Data4Impact in the specific area of clinical guidelines data & health impact.

2.3. Pilot Study Coordination

Overall coordination of the individual pilots is important to make sure that their progress meets the targeted overall goals, and that results and required inputs to the deliverables are delivered in due

time. To coordinate the required input and deadlines for the deliverables related to Task 6.1, a detailed deliverable management plan has been defined (see Annex III).

The **Task Lead** (PPMI) is responsible for the pilot study coordination and for providing the initial draft of the Task deliverables. The **Pilot Leads** are responsible for finalising the individual pilot methodologies, implementing the pilots, as well as carrying out the activities described in section 2.2. The Pilot Leads are also responsible for delivering regular status updates and input on methodological steps and (interim) results for the Task deliverables. The progress with the pilots is being monitored in monthly coordination calls.

2.4. Risk Management

The Task Lead and Pilot Leads will monitor and report on the identified and rising risks, their probability and impact (see Table 7). The Task team have put in place risk mitigation strategies and measures to ensure that any occurring issues are discussed and addressed in a timely manner. The Task Lead as well as Pilot Leads will discuss and support each other in case of any occurring risks related to stakeholder involvement or the pilot study implementation.

Table 7. Risks related to the implementation of Task 6.1 after mitigation

Description of risk	Risk mitigation measures	Probability	Impact
Low mobilisation of stakeholders to proactively participate in and contribute to the Task 6.1 activities	Thanks to previous work of Data4Impact partners in the field of big data and other research areas, strong links and networks are already established. The established and active networks reduce this risk considerably.	Low	Low
Committed stakeholders involved in the pilot(s) resign from participation	To motivate and bind the stakeholders to the Data4Impact activities, the Data4Impact team will establish a good communication basis between Data4Impact and the stakeholders. The team will strive to respond to the stakeholders' needs, pressing issues, and interests by coordinating and flexibly adapting the pilots in close collaboration with the stakeholders.	Low	Medium
Evaluation of use case fails to meet the requirements due to poor implementation	To mitigate this risk the consortium will evaluate the relevance, effectiveness and utility of the Data4Impact indicators in the specific pilot contexts. The methodological approach of the pilot studies as well as their individual implementation strategies will be carefully monitored, assessed, and if necessary revised. By establishing a good communication and collaboration basis with the stakeholders, the Data4Impact team will make sure to align and achieve a common understanding of the pilot goals and methodologies. Beyond that, the Data4Impact team has defined roles and tasks for the involved stakeholders as well as the Data4Impact partners in the methodology definition in section 2 of this deliverable (D6.1).	Low	Low
Evaluation of use case fails to meet the requirements due to missing engagement by selected stakeholder group	To ensure broad participation of stakeholders in the use cases we will select them based on their availability, engagement with the project and their openness to adopt new indicators. By closely communicating and coordinating with the stakeholders, the Data4Impact team will strive to motivate and bind the stakeholders to the Data4Impact activities.	Low	Medium

3. Next steps & deliverables

The next round of results will be provided in D6.2 when it will be submitted in project month 18 (April 2019). Table 8 provides an overview of the results which will be included in D6.2 report.

Table 8. The overview of the expected results from the pilot studies

Pilot study	Interim Results
Pilot 1: UK	Results of desk research + initial results of company data analysis + initial feedback from interviews with research funders
Pilot 2: Germany	Results of desk research + initial results of statistical validation (WP2) + initial feedback from interviews with research funders/policymakers/experts
Pilot 3: Sweden	Results of desk research + initial results of of clinical guidelines analysis + initial feedback from interviews with policymakers, research funders and experts/health practitioners

The final evaluation reports from the individual pilots will be gathered in the deliverable D6.3 Final Use Cases Evaluation Report. The final step will be to consolidate all of the results to produce a synthesis of the key results and lessons learned from the pilots. The report will summarise implications and lessons learned through the pilot studies in terms of the relevance, effectiveness and utility of Data4Impact indicators.

The insights gained from the evaluation of the individual pilots will provide further input into our working practices, developing standards, and remaining gaps in the WP2-WP5 framework studies. As such, the pilots play an important role in Data4Impact. In addition, the pilot studies are also expected to provide useful lessons learned and good/best practices to be added to some of the policy recommendations. Overall, our ultimate goal is to equip various stakeholders with novel indicators and solutions to better suit their needs beyond the duration of the project.

Annexes

I.   Example of an interview questionnaire

Pilot 1: United Kingdom

1. Questions related to relevance, presentation on the Data4Impact methods and indicators
Scoping of stakeholder's needs and their specific contexts:
- What data do you use/which aspects of research programmes do you monitor to the largest extent?   - To what extent are results and impacts monitored, including developments, which occur after the end of research funding?   - How much emphasis is put on research results/impacts in general? If a positive answer is received, which types of impacts are most important (i.e. academic/technological, economic, health/societal, all combined)?   - What is the state-of-the-art you know/use in terms of monitoring and analysing research results and impacts?   - What is done with regards to big data in your field/programme/area? Is there a sufficient level of awareness about the latest trends/possibilities in this area?   - Would you consider big data approaches or prefer narrative case studies (similar to those used in REF)?   - What are your key needs in the area, i.e. what are you missing the most?   - Do you use (social) media proactively to anticipate societal needs?
Once the scoping is done, continue to present the activities and indicators developed in Data4Impact (not necessarily covering each and every stream of data and group of indicators, but focusing on the ones which the interviewee finds most relevant to him/her):
- Overview of types of data collected/used in Data4Impact (i.e. focus on the full picture/selection of indicators that are available for FP7/H2020 projects rather than just what is available for a national funder);   - Overview of key indicators developed;   - Selection of several most interesting/relevant indicators and their relevance to the interviewee; could the proposed methods and indicators help to address the shortcomings of the standard indicators? Why yes/not?   - Discussion on the indicators that the interviewee would find most useful/would like to use in the future;   - Discussion on data availability issues – are sufficient monitoring data available for the particular indicators to be produced?   - Discussion on the key gaps/needs that are neither satisfied by existing frameworks nor in Data4Impact; what other indicators would be most useful?
2. Questions related to effectiveness and utility
Subject to the key areas of interest/key indicators discussed during the initial scoping/relevance questions, select several most important areas an indicators and discuss:
- Do similar data/indicators exist in other sources; how do they compare to the project's results?   - Identify matches/mismatches in the data or key messages that it sends, key/most surprising results;   - Validation of results (applies only to select/few interviewees who otherwise do similar work to ours at national level.
Discussions should be framed along the key groups of indicators, as per the AMOSIA framework:

- Academic/technological results and impacts: timeliness/exclusivity of research topics, ranking of research funders according to the share of their output that goes to strongly growing/highly exclusive topics; is this a viable way to compare research funders /programmes?
- Economic results and impacts: notably, the extraction of company data on their innovation activities & commercialisation events (including licensing agreements; capital/investment attracted; public funding received); are these viable ways to measure the economic side of research?
- Health/societal impacts: citations in clinical guidelines; list of new medicines and health technologies that research activities contributed to; ranking of most popular research topics discussed by the society and their matching to actually funded research activities; inventories of health impacts derived from project reports (expected, self-reported); are these viable ways to measure health/societal impact? What else is missing (& feasible to implement)?

3. Follow up ad any further comments that an interviewee makes

- **Follow up with a suggestion to participate in one of Data4Impact's workshops; if a research funder or policymaker is interviewed make sure that they get invited to the validation workshop in Brussels, to be held in late June/early July 2019;**
- **Ask about any further issues they would like to discuss.**

II.   Pilot template

Section	Key issues to be covered
Introduction (1-2 pages)	**Brief description of objectives & goals of the pilot**
- Methodology (desk research, number of interviews, other methods carried out) - Guidance to the reader on subsequent sections of the report	
Relevance of Data4Impact indicators (up to 3-4 pages)	**Summary of results from desk research and interview programme**
- Results from the mapping of existing indicator frameworks/data platforms used by research funders, policymakers and experts/practitioners across the UK, Germany and Sweden - Results from the interview programme on key needs and relevance of Data4Impact's indicators to them - Identification of most promising/relevant Data4Impact indicators - Other key/important results and reflections	
Effectiveness and utility of the results (up to 4-6 pages)	**Summary of results from desk research, interview programme, and the specific tasks of each pilot**
- Summary of key results/data which produce similar data to that derived in Data4Impact (matches and mismatches, results obtained mostly from desk research) - Summary of reflections/opinions received during the interview programme on the usefulness of the data derived; reflections on the overall validity of the results; perceived strengths and weaknesses of data - Findings from the specific tasks of each pilot: o **UK: results from in-depth analysis of company/innovation data in selected cases**	

	o **Germany: results from** statistical validation of preliminary results from WP4 o **Sweden: results from in-depth analysis of clinical guidelines data in selected cases**
Summary of conclusions (up to 1-2 pages)	**Summary of overall findings and conclusions**

III. Deliverable Management Plan

Deliverable/Milestone	Final submission	Reviewers	Sub-activities		Leading partner	Internal deadline
D6.1 Use Cases and Pilots: Definition of Methodology	31 January 2019	Fraunhofer ISI, UoB	1.	Share a draft of the deliverable	PPMI	24 January 2019
			2.	Review the draft and provide comments	Fraunhofer ISI, UoB	5 February 2019
			3.	Address comments	PPMI	11 February 2019
			4.	Finalise overall & individual pilot methodology and submit to the Participant Portal	PPMI	11 February 2019
D6.2 Interim use case evaluation report	30 April 2019	Fraunhofer ISI, UoB	1.	Deliver draft interim report	All Pilot Leads	22 March 2019
			2.	Review the draft and provide comments	All Pilot Leads	29 March 2019
			3.	Address comments	All Pilot Leads	5 April 2019
			4.	Finalise the deliverable and submit to the Participant Portal	All Pilot Leads, PPMI leading	30 April 2019
D6.3 Final use case evaluation report	31 July 2019	Fraunhofer ISI, UoB	1.	Deliver draft final report	PPMI	14 June 2019
			2.	Review the draft and provide comments	All Pilot Leads	28 June 2019
			3.	Address comments	All Pilot Leads	5 July 2019
			4.	Finalise the deliverable and submit to the Participant Portal	All Pilot Leads, PPMI leading	31 July 2019