Coding

The following are detailed instructions for coding each Impact Case, using the spreadsheet you have provided. For the most part, you should be able to code each Impact Case by starting at the top of this document and making your way down. During the process, feel free to contact Eric at any time with anything you may need (eric@methodsinnovation.org).

Please note that most categories have an "other" option. If at any time you are unsure of how to code an element of an article or believe that you have found something unaccounted for within the current coding scheme, please use the "other" code.

General Notes

- Any impacts generated through mechanisms that do not involve research data are out of scope for this analysis and should be excluded.
- There may be more than one impact represented in a case study. You will consider all of the analytic steps outlined below for each impact identified.
- Err on the side of inclusion / positive identification of a category. (That is, be on the liberal side in terms of allocating content to a category if you feel a bit uncertain).

Pre-Entered Coding Information

The first set of items details which article you are coding. These values are pre-filled and should not be altered. The first variable, **CS_ID**, contains the unique identifier for each case study, and can be ignored. The second variable, **URL**, contains the link to each case study you will code.

Note on Impact & Impact Sets

Definition of Impact

For the purposes of this study, Impact is defined as any positive effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia.

Impact Coding Sets

If the case has been identified as valid, that means there must be at least one impact, however, it is possible to have more than impact in a case study. **Each impact will be catalogued into a different impact category, and into a different "impact set."** The spreadsheet you've been provided has five pre-created impact sets, with each impact set ending with a corresponding identified (i.e., variables in impact set 1 end with "_1", variables in impact set 2 end with "_2", etc.). You may add additional sets as necessary.

Please code impacts in the order they appear in the impact case study. This will greatly improve our ability to assess inter-coder reliability.

When coding, please use the "codes" outlined in each of the sub-sections below.

1 VALID

The first step when coding any case study is to determine whether the case study meets the criterion for inclusion in the analysis. The criterion is fairly broad, and in most instances the answer will be yes (i.e., the case is valid). However, in some case studies, you may find that there is actually no 'research data' present. For example, the 'data' referenced may actually have noting to do with research. Or the impact that is described may be unrelated the to the research data. In such cases (when there is no research data-linked impact_ you will register a negative response in the "valid" column, and leave all other columns for that case study blank.

1.1 CODES

0 = No, the case is not valid. There are no impacts/benefits generated via research data in this case study.

1 = Yes, the case is valid. There is at least one impact/benefit generated via research data in this case study.

2 IC_ - IMPACT CATEGORY

Once an impact has been identified, the first step is to code for the type of impact, or **impact category**. Each impact should be assigned one, and only one, impact category. (Note: If there is more than one impact category, this implies there is more than one impact, necessitating the use of 2+ impact sets).

2.1 DEFINITION OF IMPACT CATEGORY

The type of non-academic benefit / outcome that has been generated via research data.

2.2 IMPACT CATEGORY CODES

1 = Government Spending / Efficiency Impact

2 = Other Government / Policy Impact

3 = Practice Impact

4 = General Public Awareness Impact

5 = Justice / Crime Reduction / Public Safety Impact

6 = Public Health Impact

7 = Economic Impact

8 = Environment Impact

9 = Other Kind of General Public Impact

10 = Other Non-Academic Impact

-98 = Unclear / Uncertain

2.3 IMPACT CATEGORY CODE DEFINITIONS

2.3.1 Government Spending / Efficiency Impact

Reducing cost of delivering government services; increasing impact/quality of government service without raising cost.

Example

Research data reveals way of reducing the cost of having criminals in prison by moving them to house arrest + work at an earlier point in their sentences.

2.3.2 Other Government / Policy Impact

Changing public policy or government regulations, or how either of these are implemented.

Example

Research data reveals need for more ambitious carbon emission targets within specific sectors such as transport if the Government's larger 2050 goal of being carbon-neutral is going to be reached.

2.3.3 Practice Impact
Changing the ways that professionals operate; changing organizational culture; improving workplace productivity or outcomes; improving the quality of products or services through better methods, technology, understanding of the problems, etc.

Example

Research data used as part of training for schoolteachers, helping them to deliver more effective math teaching for children at Key Stage 2.

2.3.4 General Public Awareness Impact
Improving public knowledge about a topic or increasing public visibility or attention for an issue.

Example

Research data reveal the public health risk of vaping.

Research data provided through a website for members of the public to self-assess on a given variable

2.3.5 Justice / Crime Reduction / Public Safety Impact
Reducing crime; Increasing efficiency in reducing crime; Improving justice outcomes (i.e. fairer; less cost; better social outcomes).

Example

Research data highlight a problem with the way that scientific data are communicated during criminal proceedings, which results in the scientific findings being misunderstood by both judges and juries. The research leads to reforms in the communication process.

2.3.6 Public Health Impact
Improvements to the health of the population or a part of the population.

Example

Research data show a pattern of communicable disease transmission that reveals inadequate sanitation in a particular part of a city. Once identified, this problem is addressed, thereby improving population health.

2.3.7 Economic Impact
Improvements to the health of the population or a part of the population.

Example

A particular company uses research data to more effectively target its sales efforts, leading to increased revenue.

2.3.8 Environmental Impact

Improvements in the natural environment, or reductions in threats or harm.

Example

Research data reveal new, more effective way to remove pollution from rivers.

2.3.9 Other Kind of General Public Impact

Benefits for the general public (not professionals/government) that are not explicitly state above.

2.3.10 Other Non-Academic Impact

REF eligible non-academic impacts not following into any of the categories above. That is, cannot include academic publications or improvements to the teaching within a researcher's own institution

2.3.11 Unclear / Uncertain

Not enough detail or clarity to clearly identify.

3 II_ – IMPACT INSTRUMENTS

After having identified nature of the impact, the next question to address is the particular mechanism by which the data created an impact. Multiple impact instruments can be identified for each impact, that is, "impact instruments" is multi-categorical. Each type of impact instrument is split into a separate variable, e.g., II_A, II_B, etc. Please code for the presence or absence of each instrument in generating the impact.

3.1 DEFINITION OF IMPACT INSTRUMENTS

How research data were used to generate impact, that is, the nature of the intervention, the means, or the impact generating activity.

3.2 IMPACT INSTRUMENTS SUB-CATEGORY CODES

0 = Yes, the impact was generated with this type of instrument.

1 = No, the impact was NOT generated with this type of instrument.

3.3 IMPACT INSTRUMENT SUB-CATEGORIES

3.3.1 II_A | Searchable Database

A database that can be accessed to view the research data in a dynamic way (that is, offers ability to select variables/filters, allowing for customised information to be accessed by users to use for their own purposes).

Example

Research data placed on a website to allow users to search for information relevant to their location.

EXCLUDE: Pre-prepared analyses that show the conclusions or implications in a format that is ready for the end user to employ without further effort.

3.3.2 II_B |Report or Static Information

Report containing pre-analysed/curated information, a static database, results tables or other methods of presenting the research data as processed information to be used without customisation or filtering of the data.

Examples

Report presenting analyses of the research data.

Research data converted into infographics.

Data tables published in a report.

Media coverage or media interview.

EXCLUDE: Mechanisms allowing users to filter the data or results or to search through it looking for their own insights or to conduct their own data analysis.

3.3.3   II_C |Mobile App
An application designed for smartphone or tablet to access the research data or an analysis/results of the data.

Example

Smartphone app displaying the distribution of certain crimes on a dynamic map of a local area based on research data.

3.3.4   II_D |Analytic Software or Methods
Research data used to generate or refine software or research/analytic methods.

Example

Software capable of detecting anomalous tissue samples more effectively as part of cancer screenings.

Cloud software to do automatic analysis of social media content to identify potential terrorist threats.

3.3.5   II_E |Improved Institutional Processes / Methods
Research data used to make an institution's way of operating better/more efficient or more effective at delivering outcomes.

Example

Research data identified faults in recruitment and selection processes resulting in under-recruitment of women to certain kinds of jobs. The research data shows the way to a better process with lower potential for gender bias.

3.3.6   II_F |Sharing of Raw Data
Research data has an impact via being shared with others (in raw or minimally anonymised form) outside of the research team that generated the data so that they can do something with it (e.g. further analysis, etc.).

Example

A research data set was prepared for publishing as open data, and shared on a national repository. Another researcher accessed this data and conducted an analysis, leading to new insights that delivered positive impact.

3.3.7   II_G |Sharing of Tech / Software
The research data have an impact via sharing technology or software that was created using the research data or that uses the research data somehow.

Example

Research data used to refine a text analysis software tool, which is developed within an open source framework and published on Github. Another developer adapts this tool to deliver an automated text analysis service that makes city government customer service more responsive to public comments.

3.3.8 II_H |Other Impact Instrument

A clearly identifiable impact instrument that does not fit into any of the categories listed above.

3.3.9 II_I | Unclear / Uncertain

Impact instrument that is not detailed enough to clearly place into any pre-specified category.

3.4 CODING NOTE

We are coding for the presence or absence of a coding category. It's possible that an impact instrument sub-category was used more than once for a given impact. This will be coded no differently than if the impact instrument was only used once.

4 IP_ – IMPACT PATHWAY

This code is focused on whether direct experience or visibility of the research data was needed for the impact to be generated, that is, whether the research data was used to create something beneficial, or if creation / dissemination of the research data was the benefit.

4.1 DEFINITION OF IMPACT PATHWAY

The role of data in generating the impact, i.e., whether the impact was generated 'directly' though engagement with the research data or 'indirectly' through creation of some other procut/service.

4.2 IMPACT PATHWAY CODES

1 = Indirect Impact Pathway

2 = Direct Impact Pathway

-98 = Unclear / Uncertain

4.3 IMPACT PATHWAY CODE DEFINITIONS

4.3.1 Indirect Impact Pathway

Research data used to create something that has impact (data as input to impact generating activity). In this category, the beneficiary's contact with the research data is mediated through some other mechanism, service or product.

Example

Research data used to inform an investigative journalism story, which reveals important changes needed in the way that eligibility for disability benefit is evaluated by the government. (End users only encounter the journalistic story, not the data directly)

4.3.2 Direct Impact Pathway

Research data per se used as the impact generating intervention (e.g. researchers use data as output). In this category, the beneficiary has direct contact with the research data.

Example

Genetic research data published online in a searchable format, which people can access and use to identify their risks for certain diseases. (End users are able to access the data more or less directly, without filtering through e.g. a health news website that simplifies the results)

4.3.3 Unclear / Uncertain

Not enough detail or clarity to clearly identify pathway type.

5 BEN_ – BENEFICIARY

This code refers to the nature of the people or organizations that benefited from the research data. As with impact instruments, more than one beneficiary can be identified for each impact, that is, "beneficiary" is multi-categorical. Each type of beneficiary is split into a separate variable, e.g., BEN_A, BEN_B, etc. Please code for the presence or absence of each type of beneficiary.

5.1 DEFINITION OF BENEFICIARY

The type and nature of the people, organizations, etc. that benefited from the research data, directly or indirectly.

5.2 BENEFICIARY SUB-CATEGORY CODES

0 = Yes, the impact had this type of beneficiary.

1 = No, the impact did NOT have this type of beneficiary.

5.3 BENEFICIARY SUB-CATEGORIES

5.3.1 BEN_A | General Public

Unspecified public as beneficiary; or society-wide, community-wide or a national or regional audience.

Includes: benefits for the well-being of a city, town, or neighbourhood.

Excludes: Benefits to a business, government, non-governmental organization, etc.

5.3.2 BEN_B | Specific Public

Particular demographic category of non-professional/non-governmental/non-business beneficiary specified (e.g. children/mothers/art museum visitors/etc.)

Examples

Stakeholders who will be directly affected by a new government policy or business development.

Children.

Mothers.

Art museum visitors.

EXCLUDE: If the stakeholders are taking an interest or is affected due to their professional role / job.

5.3.3 BEN_C | Media

Research data improving media services, enabling data journalism, resulting in news coverage or news insights, documentaries or entertainment media.

Examples

Improved (e.g. more accurate, detailed) news coverage about a topic relating to the research data.

Offering media consumers new insights or access to information.

Used to inform storyline for a TV documentary.

5.3.4 BEN_D | Professionals

Improved capacities, skills, employment options, increased salaries or benefits, greater influence, etc.

Examples

Research data used in the training of factory workers done in a different way to reduce error rates.

Research data used to help people training to be computer coders to develop their skills more quickly.

NOTE: This category focuses on the level of people/individuals gaining improved capacities (not organisations or companies as a wider entity).

INCLUDE: If these improved capacities would go with the people if they switch jobs.

EXCLUDE: If the improved capacity belongs to the company/organisation and stays with the company/ organisation when the professional leaves.

5.3.5 BEN_E | Government, Policy, or Policymakers

All levels of government (e.g. affecting how government delivers services, prioritises etc) or government policy (e.g. work cited or underpinning legislation, regulation or new policy initiatives) or policymaking (e.g. expert committees or feeding into city or government department research designed to inform policy or regulations)

Examples

Research data used to organise the schedule of trash pickups more efficiently, thereby saving time/resources.

A government policy about reducing household energy use is designed based in part on the research data.

Research data are used as part of the evaluation of existing government programmes or services to highlight where they need to be improved.

5.3.6 BEN_F | Industry / Business

Improving business outcomes, profits, service/product quality, reducing environmental impact, etc.

Examples

Increased revenues for a particular company

Expansion of a sector within an industry, a business or a set of businesses

Research data used by a market research company to improve its proprietary methods of segmented communication to consumers.

Research data used to test and refine proprietary software designed to more effectively target cancer treatments.

5.3.7 BEN_G | Other Organization

Non-governmental / Non-business organization not covered by the above categories.

Examples

Private non-profit hospital.

Non-governmental advocacy organisation.

Registered charity.

5.3.8 BEN_H | Natural Environment

Improved environmental outcomes, or reduction in damage/threat.

Examples

More efficient use of water.

Lower carbon footprint.

5.3.9 BEN_I | Unclear / Uncertain

Not enough detail provided to clearly identify the nature of the beneficiary.

5.4 CODING NOTE

We are coding for the presence or absence of a coding category. It is possible that a there was more than one beneficiary within the same sub-category. This will be coded no differently than if there were only one beneficiary within that sub-category.

6 ICF_ – IMPACT COUNTER-FACTUAL

This code assesses whether, based on your judgment and the information available within the impact case study, you feel the impact could have or would have occurred without the data.

6.1 IMPACT COUNTER-FACTUAL DEFINITION

Coders answer to the question: *Based on the information in the case study, was the research data required for the identified impact to exist*?

6.2 IMPACT COUNTER-FACTUAL CODES

1 = No

2 = Partial No

3 = Yes

-98 = Unclear / Uncertain

6.3 IMPACT COUNTER-FACTUAL CODE DEFINITIONS

6.3.1 No

The research data were not essential for the identified impact to develop.

6.3.2 Partial No

The research data were essential for some of the identified impact or for some of the beneficiaries, but not all.

6.3.3 Yes

The research data were the only pathway to the identified impact.

6.3.4 Unclear / Uncertain

Not enough detail or clarity to clearly whether or not the impact could have occurred without the data.