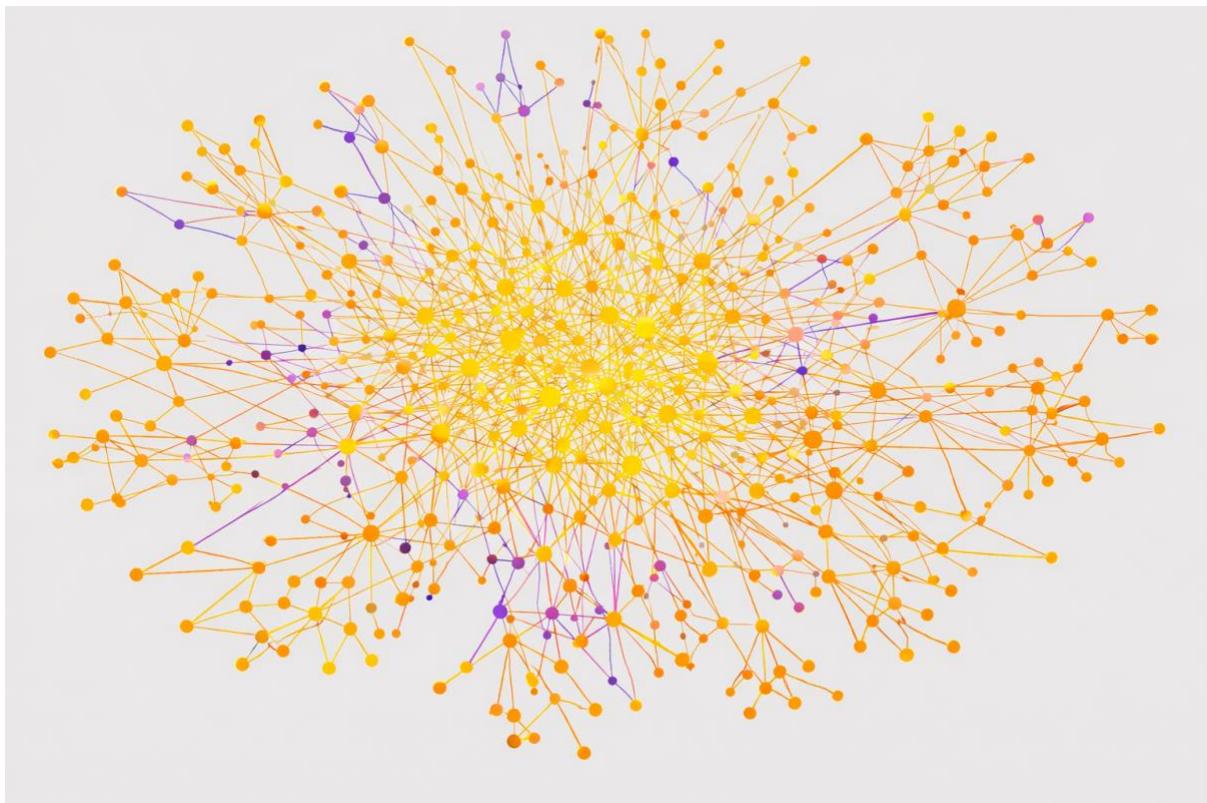


Data analysis and Visualisation Research Definition Toolkit



PROBLEM DEFINITION

Purpose

The Challenge Definition activity helps you clearly articulate a research problem and situate it within its wider academic, social, and methodological context. The aim is not to propose solutions, but to define a **researchable problem** with conceptual clarity.

What you should do

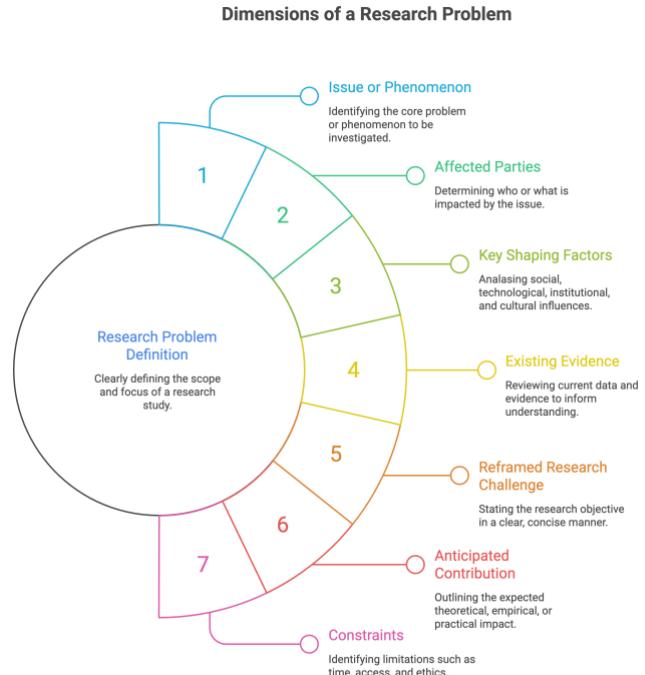
Work through the questions below independently. Where the original toolkit assumes group discussion, replace this with critical self-reflection supported by relevant academic literature.

Consider:

1. The issue or phenomenon you wish to study.
2. Who or what is affected, and in what ways.
3. Key factors shaping the issue (social, technological, institutional, cultural).
4. Existing evidence or data that informs current understanding.
5. A reframed research challenge, written as:

"This research seeks to help [who/what] to understand / explore / explain [what]."

6. The anticipated contribution of the research (theoretical, empirical, or practical).
7. Constraints such as time, access, ethics, or data availability.



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PROBLEM DEFINITION – PRACTICE WORKSHEET

Use the space below as a working canvas.

Issue / phenomenon	
Who or what is affected, and how	
Key shaping factors (Social, technical, institutional, cultural)	
Existing evidence or data	
Reframed research challenge statement	
Anticipated research contribution	
Constraints and limitations	

PROBLEM MAPPING

Purpose

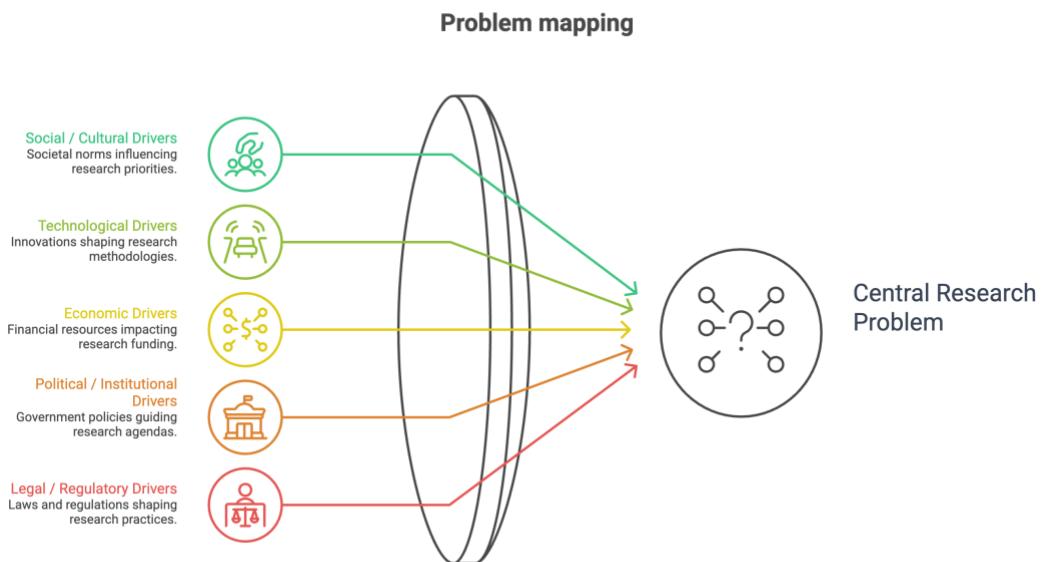
Issue Mapping supports systems thinking by helping you explore how different factors interact to shape your research problem. This encourages you to move beyond linear explanations.

What you should do

Individually identify and reflect on the main drivers of your issue. Organise them under broad categories, such as:

- Social and cultural
- Technological
- Economic
- Political or institutional
- Legal or regulatory

Once identified, consider which drivers appear most influential and where meaningful research intervention might occur.



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PROBLEM MAPPING – PRACTICE WORKSHEET

Use the space below as a working canvas.

Central research problem	
Social / cultural drivers	
Technological drivers	
Economic drivers	
Political / institutional drivers	
Legal / regulatory drivers	
Key drivers and leverage points	

STAKEHOLDER MAPPING

Purpose

Stakeholder Mapping helps you identify actors connected to your research issue and understand their relationships, interests, and influence.

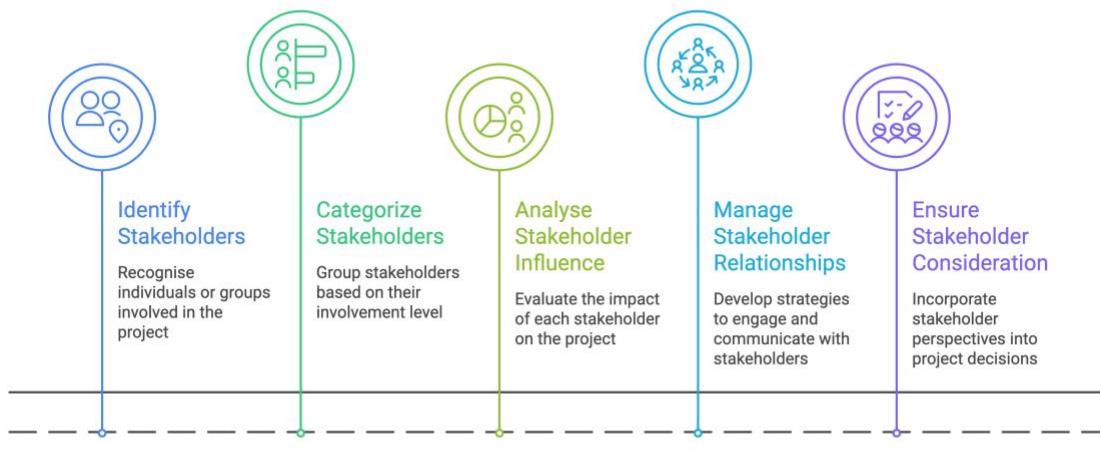
What you should do

Individually map stakeholders at three levels:

- **Directly related** (those immediately affected or influential)
- **Indirectly related** (those shaping conditions or mediating effects)
- **Remotely related** (those influencing the broader context)

For each, consider what forms of knowledge, data, or power they hold.

Stakeholder Mapping Process



STAKEHOLDER MAPPING – PRACTICE WORKSHEET

Use the space below as a working canvas.

Direct stakeholders	
Indirect stakeholders	
Remote or contextual stakeholders	
Key relationships, tensions, or dependencies	

COVER STORY (RESEARCH IMPACT)

Purpose

The Cover Story is a reflective exercise designed to help you articulate the potential significance of your research.

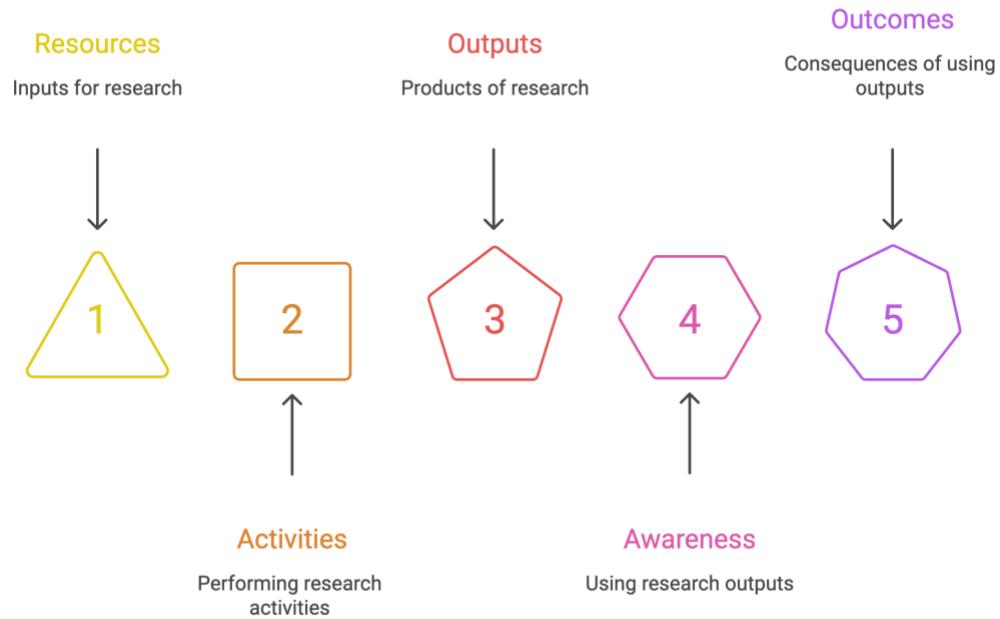
What you should do

Imagine a plausible future (5-10 years ahead) in which your research has influenced understanding, policy, or practice. This is not prediction, but structured reflection.

Include:

- A headline capturing the core impact
- A short narrative describing what has changed
- Indicators or evidence of that change

Research Impact Model



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COVER STORY (RESEARCH IMPACT) – PRACTICE

WORKSHEET

Use the space below as a working canvas.

HEADLINE
FRONT-PAGE REPORT
WHY THIS MATTERS

DATA MAPPING

Purpose

Data Mapping helps you identify, evaluate, and prioritise data sources relevant to your research question.

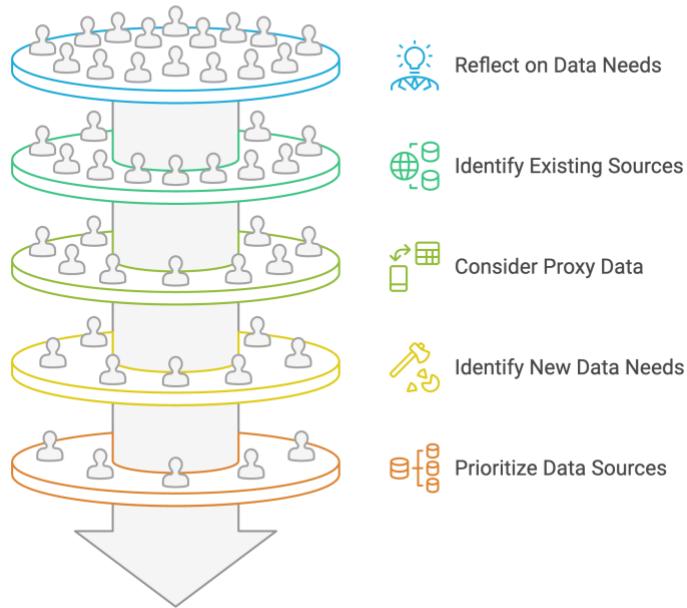
What you should do

Reflect independently on:

- What you need to know to address your research challenge
- Existing data sources you are aware of
- Other data that could act as proxies
- New data you may need to generate

Prioritise 1-3 data sources that are feasible, ethical, and methodologically appropriate.

Data Mapping Process Funnel



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DATA MAPPING – PRACTICE WORKSHEET

Use the space below as a working canvas.

1. Research Purpose

- Project title: _____
- Research question(s): _____

2. Data Types Used (tick all that apply)

- Literature (articles, reports, policy documents)
- Survey data (questionnaires, interviews, focus groups)
- Open data (government data, public datasets, APIs)
- Other (specify): _____

3. Ethics & Sensitivity

- Does this project involve personal data? Yes No
- Is any data sensitive? Yes No
- Ethical approval required? Yes No
- Anonymisation or consent measures needed: _____

4. Data Collection

- Collection tools or methods: _____

5. Storage & Access

- Storage location(s): _____
- Access level (private / team / public): _____
- Backup strategy: _____

6. Data Use & Analysis

- Analysis methods: _____
- Software or tools used: _____
- Data integration or linking planned? _____

One-Sentence Data Map

This project uses _____ data from _____, stored in _____, analysed using _____, and shared as _____, with appropriate ethical safeguards in place.

DATA ETHICS

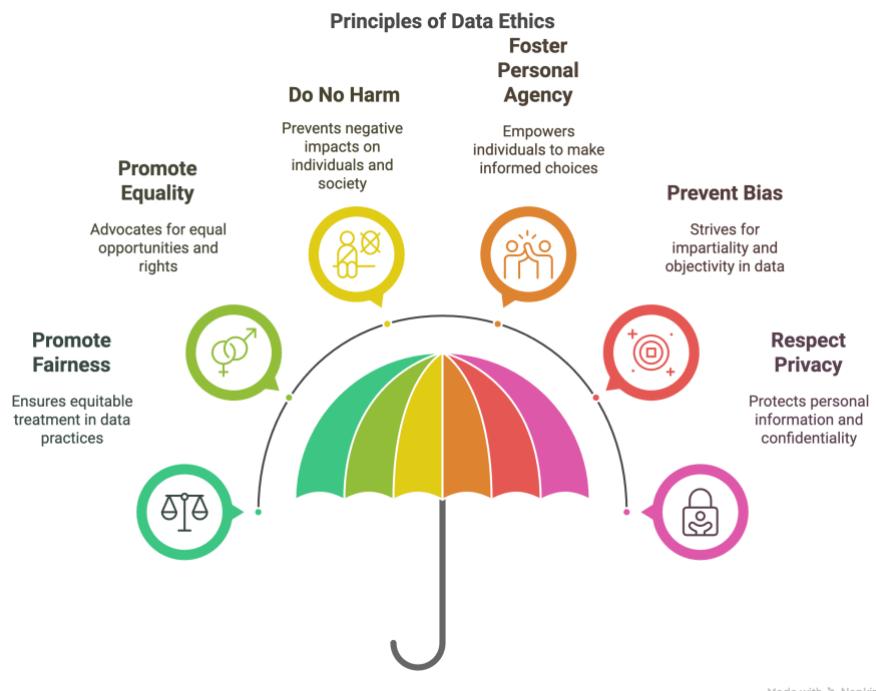
Purpose

This activity supports ethical reflexivity in research design, particularly when working with personal, sensitive, or citizen-generated data.

What you should do

Reflect on:

- Consent, privacy, and power relations
- Potential positive and negative impacts
- Relevant legal or institutional frameworks (e.g. GDPR)
- Actions required to minimise harm



DATA ETHICS – PRACTICE WORKSHEET

Use the space below as a working canvas.

Ethical risks or concerns
Relevant regulations or guidelines
Potential harms and benefits
Mitigation actions

DATA FLOW

Purpose

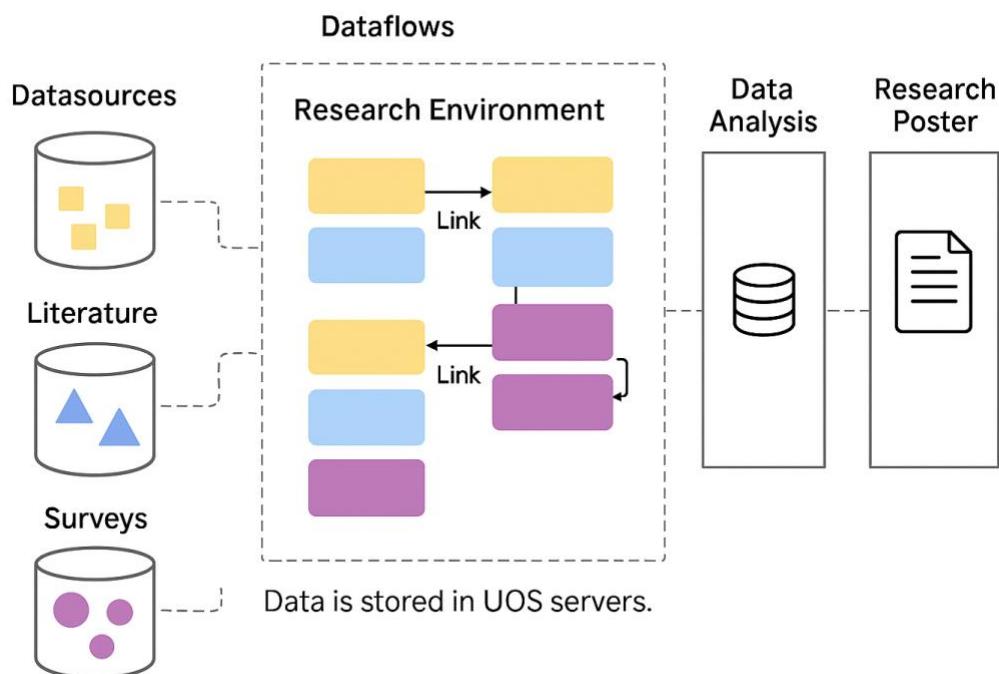
Data Flow mapping helps you understand how data move through your research process and where bias or risk may be introduced.

What you should do

Map each stage of your data pipeline:

- Collection
- Validation
- Storage and access
- Cleaning and preprocessing
- Analysis
- Retention, sharing, or disposal

At each stage, reflect on potential bias and mitigation strategies.



DATA FLOW – PRACTICE WORKSHEET

Use the space below as a working canvas.

Data collection
Validation and quality checks
Storage and access
Processing and analysis
Bias risks and mitigation

VISUALISING DATA

Purpose

This activity supports critical thinking about how citizen-generated or participatory data are represented and interpreted.

What you should do

Reflect on:

- The types of data relevant to your research
- How visualisation choices shape interpretation
- Risks of exclusion, oversimplification, or misrepresentation
- Ethical and accessibility considerations



VISUALISING DATA – PRACTICE WORKSHEET

Use the space below as a working canvas.

Relevant data
Appropriate visual formats
Interpretive risks or limitations
Ethical and accessibility considerations

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Adapted from [NESTA: Collective Intelligence Design Playbook](#) (beta)

AI DISCLAIMER: All images and diagrams have been created using Napkin AI, Microsoft copilot and ChatGPT.