

(b)

Picture 1. Brainstorming (a) Mapping (b) Goals

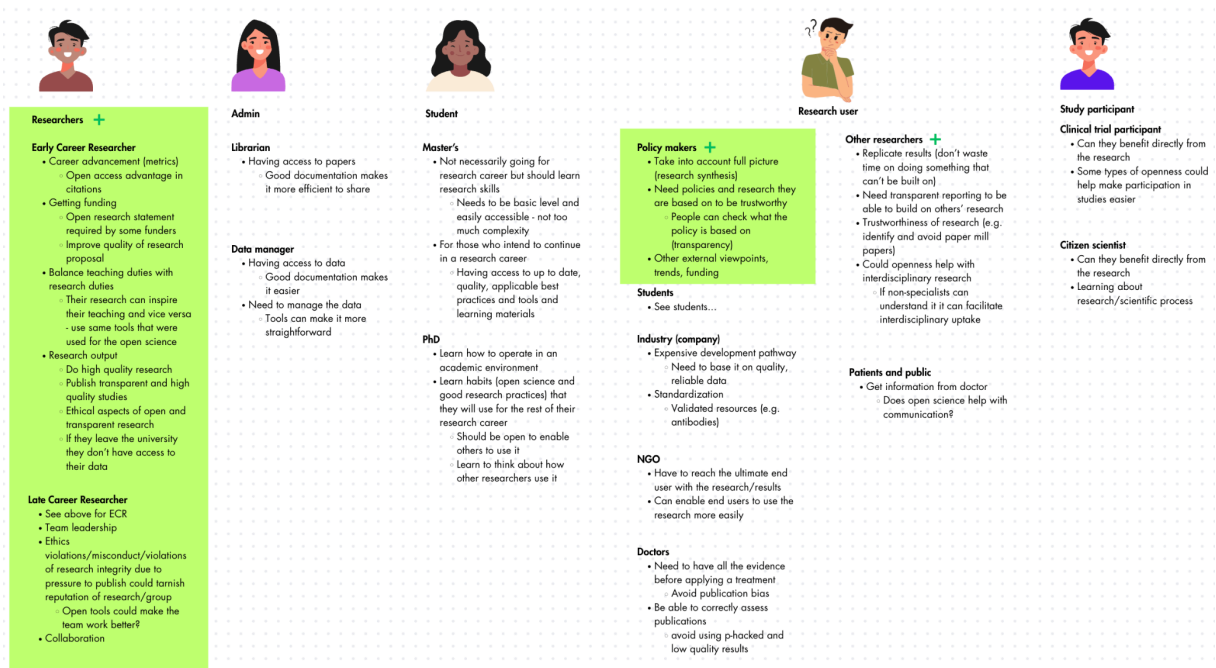
A.	Its scope and structure, including publications, grants, reporting and research lifecycle
B.	Context and workflows, including stakeholders, societal values/impact, and outcomes of use
C.	Research support tools including the list of tools for different requirements in research
D.	Overall guidance and policies
E.	Outlook including the financial implications

Table 1. Brainstorming Summary

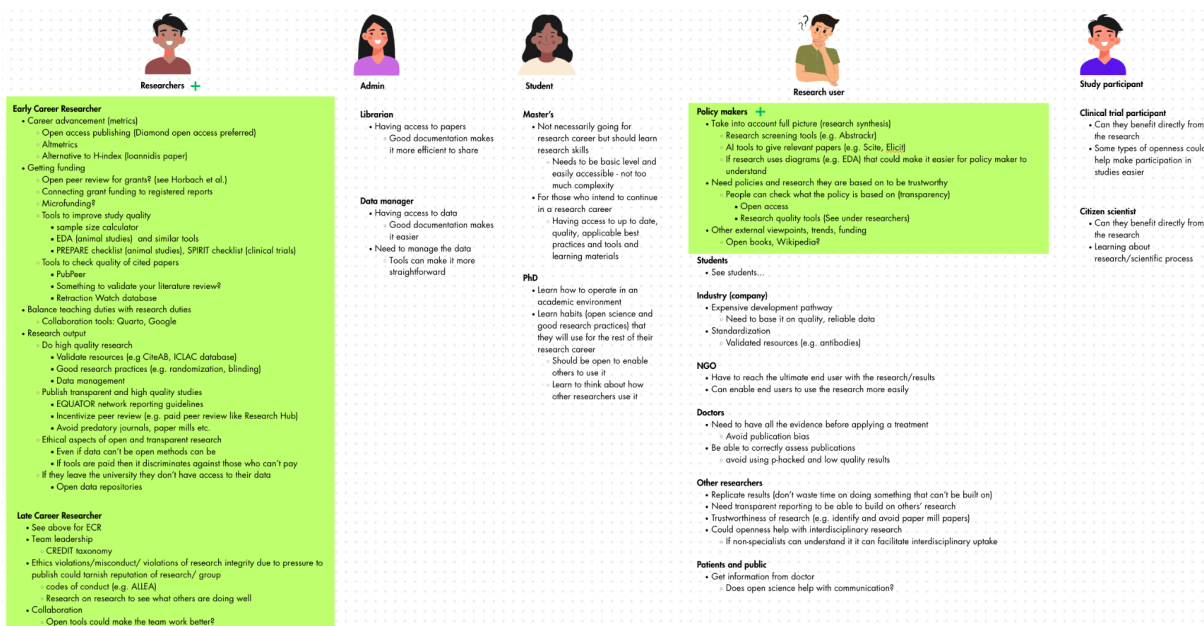
The team discussed how to fit each aspect of the research process with the available research tools that help with specific parts of the research lifecycle. Our initial framework encompassed practices, ranging from basic to advanced, free and non-free tools as well as the use of AI tools in open science, encountering potential ethical issues. In the next phase, the team listed the steps to be included in the research workflow.

We then went on to build a collection of personas/stakeholders and their needs and use cases (for example, how the practice might save time and money), as well as

examples of tools addressing these needs (Graphic 1 & 2). We decided to focus on Researcher and Policy maker personas as the first step.



Graphic 1. Personas - Needs

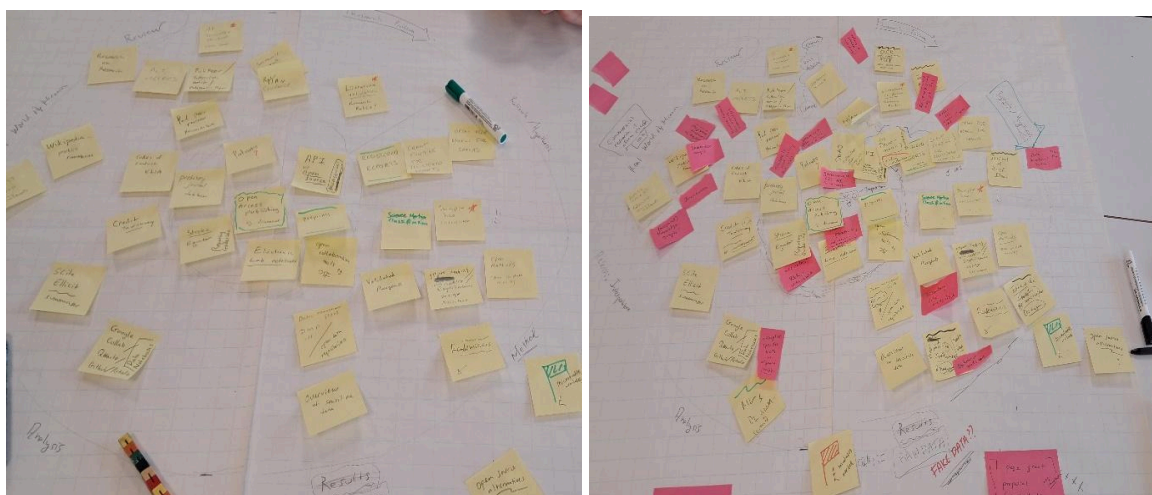


Graphic 2. Personas - Existing Tools

Inspired by the famous hallmarks of cancer paper ([Hanahan 2011/2022](#)), in the next phase, the team mapped the tools to the Octopus publication types, depicted as a research cycle (Research Problem, Rationale/Hypothesis, Method, Results, Analysis, Interpretation, Real World Application, Review). We then discussed the gaps in

available tooling, aiming to validate them against a relatively expansive [model of the research lifecycle from RMIT](#).

In the next phase, we took the [Octopus steps](#) and used them to first document what we had done, and then start to devise followup work for after the retreat, using the circle as a spiral (Picture 2).



Picture 2. Octopus Mapping

Outcomes of the work to date

1. We have already developed a [database](#) listing different tools for different stages of research with different filtering options, at the moment hosted and freely available on AdvanSci's website.
2. We have the option in the database to submit sources/tools directly by the end users.
3. We also circulated a [survey](#) where people could indicate their favourite tools and suggest any that we had missed.
4. We outlined a grant proposal for the next round of work.
5. We drafted a paper about the identified gaps.

Future work

We plan to base our paper on looking at what is needed to fill the identified gaps. We plan to develop a further cycle of research more thoroughly documenting connections between tools and stakeholders' needs. We plan to apply for a grant to further work on these topics.