Checklist
for GenAI use in research

We advocate for **a responsible use of GenAI**, therefore we have prepared a set of questions you should consider in order to remain reflective throughout the entire cycle of your research project when engaging with AI tools.

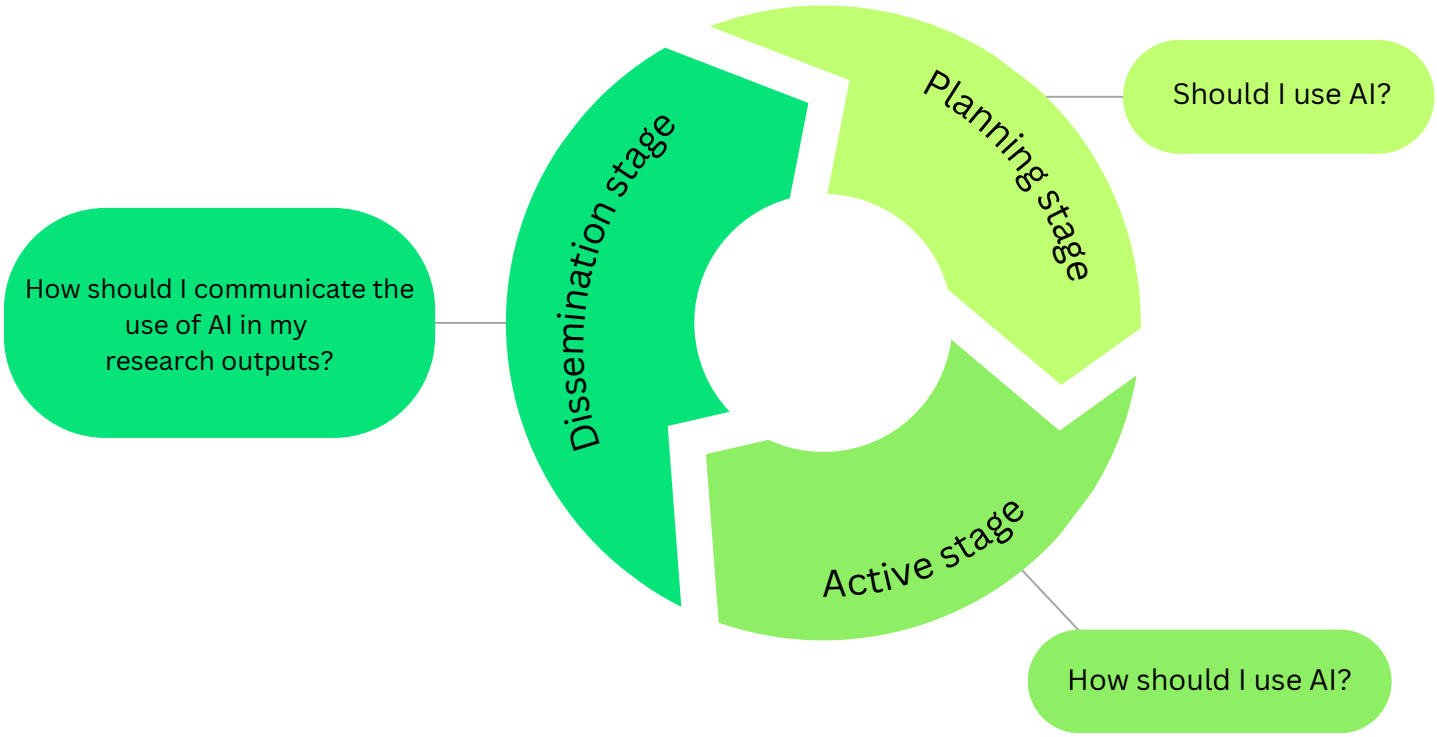
LIBRARY:
Research Support Team

RESEARCH PROJECT: .....

PROJECT DURATION: .....

PI: .....

Here are the key questions around AI in the research lifecycle. We have prepared a set of more detailed questions for each stage of your research project.



Are you permitted to use generative AI in your research?

Check **funders and 3rd party requirements** before you involve AI tools in your project.

Are you familiar with our SHU policies on AI?

Below we have linked our policies related to AI at Sheffield Hallam:

- AI & Research Integrity (1)
- the use of Artificial Intelligence (2)

What kind of data would you be sharing with a public AI tool?

Only **fully anonymised** data can be shared with public AI systems.

The ICO's Code of Conduct on Anonymisation provides guidance on anonymisation techniques.

Does your chosen GenAI tool produce reliable content for your project?

Think about:

- the level of transparency of your chosen AI tool
- the ethical principles of research integrity

Generative AI produces information that may be **inaccurate** (GenAI may fabricate quotations and citations), **biased**, or **outdated**.

Generative AI is **not** **an original source of information!**

Are you aware of any copyright issues arising from unlicensed harvesting by AI tools of research outputs?

Consider the risk around copyrights issues as the training of many Large Language Models relies on copyrighted material used **without permission.**

See GOV UK:

Artificial intelligence call for views: copyright and related rights

Have you completed a Data Protection Impact Assessment for your ethics review?

Completing a DPIA template is an important first step when you are still in the pre-project stage when submitting your **ethics approval** documents and before you deploy an AI system in your research.

This document **requires you to acknowledge the use of AI tools** in section 6 of the screening questions.

Have you acknowledged AI use in you participant information sheet and consent form?

Please follow our principle of Transparency and the Right to be Informed. If your research involves human participants you should disclose the use of AI tools in your information sheets and consents forms to ensure that **an informed consent** is gained that allows for the sharing of the anonymised data with AI system.

Are you familiar with the latest NHS guidance on data compliance in digital health technologies?

If you plan a project in healthcare and wish to engage with AI, you should get familiar with the following document published by NHS: Understanding regulations of AI and digital technology in health and social care

Have you considered the quality of your question prompts?

Remember that **biased input** data produces **biased output**!

The wording of your question becomes **input data** for the GenAI process and will shape the integrity of the AI output.

Even if you are only using AI to generate ideas, a question which uses outdated terms or biased wording will lead to outdated or biased output.

When evaluating AI output, are you maintaining a critical mindset?

Generative AI tools are of a **statistical nature** (as opposed to factual) and can introduce inaccuracies, falsities or bias.

Therefore you should evaluate all AI outputs and consider the following:

Limited reasoning - GenAI tools use predictive statistics to create content (rather than using facts to drive logical reasoning and creative synthesis, or to constrain creativity). This can limit its capacity to generate new insights, but also means it may introduce inaccuracies and false information.

False information – AI tools may unintentionally fabricate **hallucinations** (false information, including false quotations and citations or media), or intentionally be used by people to create **deep fakes** (convincing but misleading images or audio-visual recordings). Check for the reliability of output.

Inaccurate inputs – Some AI systems search the entire internet, whereas others are limited to reliable academic sources. If the AI search is unconstrained, its input data may include false information. Check the scope of the AI tool you are using.

Lack of currency - There is an increasing move to Retrieval-Augmented Generation (RAG) so responses are based on current web content rather than old training data, however the language model itself has been trained on **old data** so biases may still exist. Check for recency of the sources and perspectives.

Training biases – Most AI systems have incorporated socio-political biases from older training data or the humans involved in the training process. Some GenAI tools are documented to have provided output containing sexist, racist, or other information considered offensive today. Therefore please check all output for **biased content**.

Commercial or malicious distortions – Optimisation of AI results for commercial gain may lead to biased search results, whilst **malicious actors** may 'poison' AI results by publishing misleading content where they know it will be harvested by the AI tool! Be alert to the possibilities of these distortions.

Because AI can generate inaccurate, biased, or outdated information or media, it is essential to question every aspect of its output, including the overall direction of its response, as well as the individual details:

- Consider whether the AI has interpreted the question or prompt in the most appropriate way.
- Fact-check all the information produced by AI, including verifying the source of all citations used to support its claims.
- If using generated media, also be alert to inaccuracies or unacceptable stereotypes in generated images or videos.

Can you ensure the information produced by AI is verifiable?

It is important that you show **rigour** within your research. This means demonstrating that you have given careful consideration to how you can enhance the quality of your research project. Within quantitative research this is achieved through examining reliability and validity. What is an **acceptable error rate** of the AI tool you are using? **Avoid using tools that rely on lower quality information**.

Are you keeping records of your work in progress?

Describe the use of AI in your methodology section to assure **research integrity** and to enable the **reproducibility or replicability** of the research.

- **list the prompts** used to generate a response in the AI system for further evaluation purposes (create so called prompt engineering history)
- provide the **date** each output was generated
- share the output obtained (e.g. a 'link to chat' if ChatGPT, or a compilation of all output generated as an appendix)
- briefly **explain the changes** you made to initial outputs for use or incorporation into a piece of work (e.g. a tracked-changes document or a descriptive paragraph)

Dissemination stage:

How should I communicate the use of AI in my research outputs?

Upon publication have you documented the use of AI and the data that was input?

Follow the principles of openness and transparency!

Do not just document the choice of AI tool, but also **how have you used it** so the research undertaken **can be verified through reproduction or replication**.

Can you properly reference AI in your research work?

To provide a comprehensive reference for the tool you have used include the following:

- **<AI name>**
- **URL**
- **date** accessed

Have you acknowledged AI as the co-author of the research paper?

Researchers should never acknowledge AI as a co-author as it cannot be morally or legally responsible or accountable for the research findings.

Only you can take **ownership over the development, use and outcomes** of AI systems used in your research.

Due to the ongoing developments in AI environment this document is being revised on a regular basis. Please make sure to always download the latest version of this checklist.

Contact details: Domi Smithson, Research Support Librarian, Sheffield Hallam University

This document has been reviewed by the Head Of University Ethics, Research Development Manager for Policy and Performance, the Head of Digital Architecture from Digital Technology Services and Skills Centre team, Sheffield Hallam University on 10th December, 2024

Further reference:
Bentley J., (2024),*Managing the risks of AI in libraries*, available via: https://www.researchinformation.info