

# CHECKLIST

## FOR AI USE IN RESEARCH

We advocate for a **responsible use of AI**, 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:**

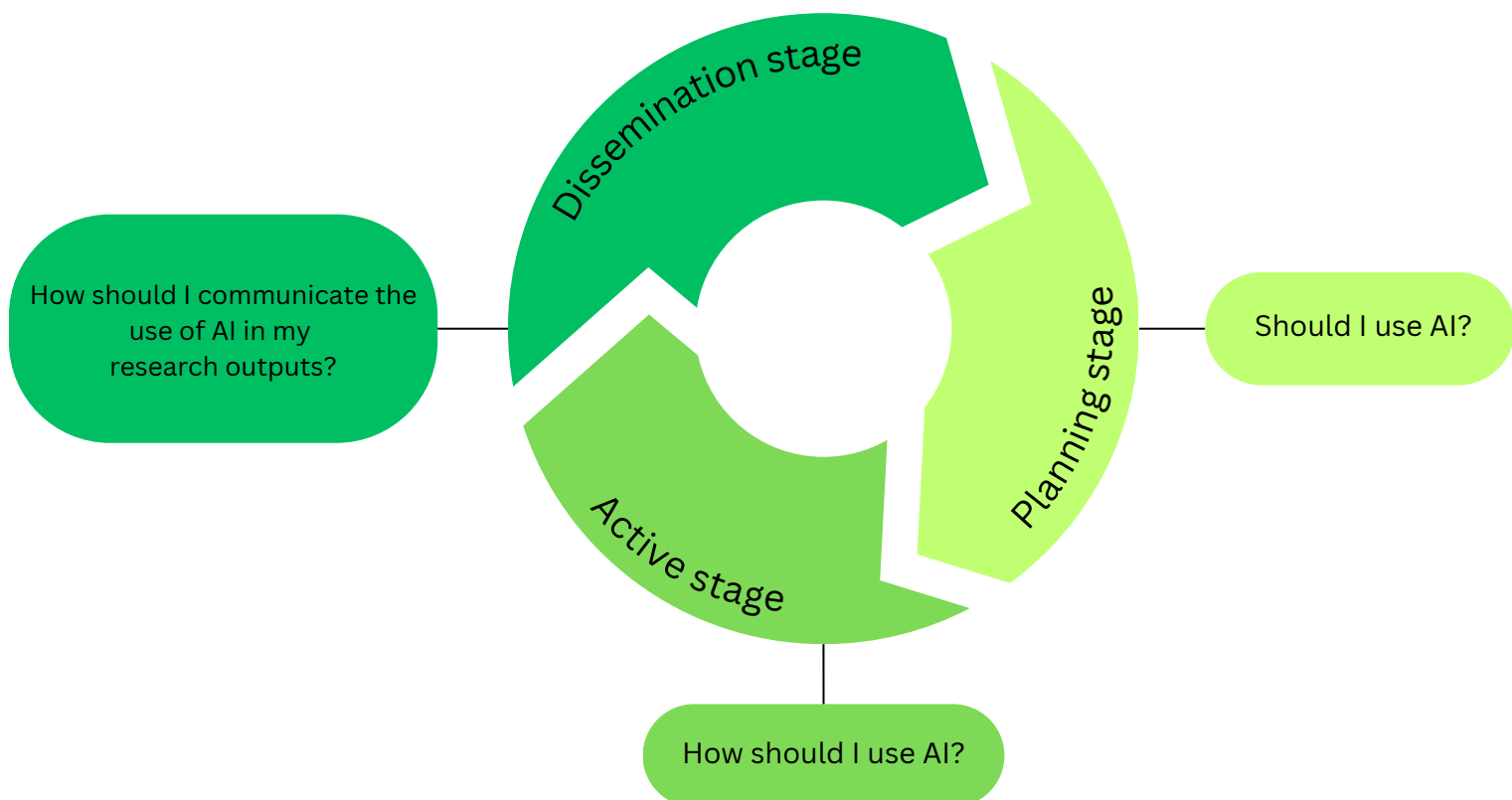
Research Support Team

RESEARCH PROJECT: .....

PROJECT DURATION: .....

PI: .....

There are 3 levels of responsible use and we have prepared a set of questions for every stage of your research project:



Planning stage:  
**Should I use AI?**

Are you permitted to use generative AI in your research?

Check **funders 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.

Are there any limitations of AI tool 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AI produces information that may be **inaccurate** (GenAI may fabricate quotations and citations), **biased**, or **outdated**.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.

## Active stage: How should I use AI?

Do you understand the relationship between your input and output?

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

Generative AI tools are of a **statistical nature** (as opposed to factual) and can introduce inaccuracies, falsities (so-called hallucinations) or bias. Evaluate all AI outputs for any possible biases and inaccuracies.

Malicious actors may also **'poison'** Large Language Models by publishing misleading content where they know it will be harvested!

You should also consider risks of Generative Engine Optimisation which may lead to biased search results for **commercial gain**.

Remember that your input data and your chosen AI tool will shape the **integrity of your research!**

**Bias** - LLM systems are trained to predict the **most likely sequence of words** in response to your prompt, and will reflect and perpetuate the biases inherent in the training data. Also some generative AI tools utilize reinforcement learning with human feedback (RLHF), with the caveat that the human testers used to provide this feedback are themselves **non-neutral**. GenAI like ChatGPT is documented to have provided output that is socio-politically biased, occasionally even containing sexist, racist, or otherwise offensive information.

**Hallucinations** - are **false information** created by the AI system.

**Deep fakes** - **intentionally** produce false images or audio-visual recordings.

**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**.

Describe the use of AI in a methods or similar section, where appropriate, to assure **research integrity** and to enable the **reproducibility or replicability** of the research.

- if relevant, list the prompts used to generate a response in the AI system
- Provide the **date** the 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)
- describe **how the output was changed** for use or incorporation into a piece of work (e.g. a tracked-changes document or a descriptive paragraph)

Have you considered the quality of your input data?

Can you clearly explain the decisions or predictions made by the AI tool?

Are you able to make use of information produced by AI transparent and 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.

When evaluating any GenAI-generated content, are you maintaining a critical and questioning mindset?

Vet the authenticity of sources to ensure GenAI uses **reliable sources**. Knowing how computers learn from data and the impact this has, you should critically evaluate any output it produces.

Fact-check all of the information produced by generative AI, including verifying the source of all citations the AI uses to support its claims.

Are you keeping records of your work in progress?

A prompt engineering history might be required for further evaluation purposes.

Share the following:

- list your prompts with <AI name>
- provide a copy of the output created
- briefly explain the changes you made to initial outputs

## 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 to **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 **URL and 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.