

## DATAQUORUM CHECKLIST

# Does your research project need AI?

10 questions to decide whether AI is worth investing in for your scientific workflow.

## How to use this checklist

Mark Yes or No for each question. This is not about selling AI by default: it is about separating problems where AI adds value from problems better solved with order, documentation or basic statistics.

<b>0-3 Yes</b>	You probably do not need AI yet. Your main bottleneck may be elsewhere.
<b>4-6 Yes</b>	There are clear candidates. It is worth exploring a diagnostic call and prioritizing one first use case.
<b>7-10 Yes</b>	You are probably losing time to repetitive work. A 4-8 week pilot may generate fast return.

## The 10 questions

### 1. Do you spend more than 4 hours/week reading papers you later cannot retrieve clearly?

An AI system can help you index literature by content, retrieve summaries and detect connections when you need them.

Yes  No

### 2. Does your group have PDFs, lab notebooks or datasets without a consistent structure?

AI does not magically fix messy data, but an extraction, classification and indexing pipeline is often a high-return automation.

Yes  No

### 3. Do you repeat the same type of analysis for every new batch, experiment or sample?

If you manually redo preprocessing, peak detection, alignment or checks, there is probably a reproducible pipeline waiting to be built.

Yes  No

### 4. Is your bottleneck writing reports, proposals or papers, not thinking?

RAG over your literature, templates and human-in-the-loop review can reduce repetitive work without losing scientific judgment.

Yes  No

## The 10 questions

### 5. Do you struggle to find papers or collaborations outside your disciplinary bubble?

Semantic search and concept maps help detect bridge papers, thematic communities and opportunities that keyword search misses.

Yes  No

### 6. Do new students take months to learn the group pipeline?

A documented, versioned and searchable pipeline reduces onboarding time and preserves knowledge when the team changes.

Yes  No

### 7. Are you preparing a European proposal, ERC application or large grant?

AI used well helps structure, check coherence and identify gaps before submission, while keeping expert control.

Yes  No

### 8. Is your system still Excel plus shared folders?

Turning samples, notes, documents and results into a searchable system is often one of the most profitable pilots for small groups.

Yes  No

## The 10 questions

### 9. Do you want to defend results better for a paper, thesis or presentation?

Versioned code, data and figures increase traceability and make your conclusions easier to audit.

Yes  No

### 10. Do you want to use AI, but do not know where to start without breaking your current workflow?

That is a good candidate for technical mentoring or a short pilot: diagnosis, small scope and transfer to the team.

Yes  No

## What to do with the result

0-3 Yes: reassess in 6 months or start by organizing data and documentation. 4-6 Yes: schedule a diagnostic call to choose a small use case. 7-10 Yes: consider a technical pilot with a clear deliverable and team transfer.

## About this checklist

It is based on real work combining analytical chemistry, scientific data, RAG systems, MCP servers and AI agents in research contexts. It is not exhaustive. It is meant to be useful in 3 minutes.

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