

# Lab Framework

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## Definition of Terms

We are using terminology defined by the National Institute of Standards and Technology (NIST), a department of the US Department of Commerce, in its “AI Use Taxonomy” (Reference 1).

The taxonomy describes how humans interact with AI. It sets out sixteen "AI Use Activities", and defines "Tasks" as combinations of one or more of these activities.

In this Lab Framework we use the following terms, taken from the NIST taxonomy.

**Sector:** A general area of activity, such as finance, marketing, healthcare, manufacturing, entertainment, or education.

**Context of Use:** A combination of users, goals, tasks, resources, and environment. The environment can include technical, physical, social, cultural, and organisational aspects.

**User:** A person who interacts with a system, product, or service. This includes people who operate the system, use its outputs, or support its functioning (e.g., through training or maintenance).

**Task:** A set of activities undertaken in order to achieve a specific goal. These activities may be physical, perceptual, and/or cognitive. While goals describe desired outcomes, tasks describe the means of reaching them.

**AI Use Activity:** A specific type of contribution that an AI system makes toward achieving a human goal - such as retrieving information, generating content, or making recommendations.

## What is a Lab?

An Anapoly lab is a simulated working environment set up to explore how AI tools perform in real-world tasks. Labs don't aim to teach AI theory; they reveal AI's behaviour through practical use. The goal is not only to find out what AI can do, but also to help participants build the confidence and judgment needed to use it well.

Labs typically follow a progressive structure:

- **Acclimatisation** – first exposure, orientation, and familiarisation with AI tools and language.
- **Experimentation** – practical tests to understand capabilities and limits.
- **Proof of concept** – focused trials to determine whether AI tools can support specific tasks, processes, or workflows.
- **Validation** – realistic testing of promising approaches to judge whether they are usable, trustworthy, and ready for broader application, using made-up but realistic data rather than live or proprietary material.

## Who participates in a lab?

Our Labs are designed for professionals who want to understand how general-purpose AI tools behave in practical settings. Participants are not expected to be AI experts. In fact, many will be testing AI in a sector they know well, but using systems they don't yet fully trust.

Participants bring their own context: their professional goals, experience, and questions. The lab structure is deliberately lightweight, so that people with varied backgrounds can contribute, learn, and compare approaches. All labs are exploratory, not evaluative; there's no right answer, only useful discoveries.

Most labs are small, often 2–5 people. This keeps the environment conversational and flexible. Roles are assigned, but informal. Collaboration is encouraged, but solo exploration is just as valid. What matters is what participants see, *try*, and *take away*.

## What are the Types of Lab?

Labs are grouped into four types, each reflecting a stage in the participant journey from first contact with AI to practical confidence in its use:

Lab Type	Description
<b>Acclimatisation</b>	A gentle introduction. Participants observe and try out AI tools in guided settings. Emphasis is on exposure, not outcomes. Labs may include walkthroughs, annotated examples, or simplified scenarios.
<b>Experimentation</b>	Hands-on testing. Participants try prompt variations, see where things break down or behave unexpectedly, and assess how tools respond to different inputs. Labs are structured but open-ended, focused on discovery rather than results. (See Appendix A for examples of typical breakdowns encountered during experimentation.)
<b>Proof of Concept</b>	Demonstrates feasibility. Participants use synthetic but context-specific data to test whether an AI tool or workflow could support a defined task. This is analogous to an engineering demonstrator or software alpha testing.
<b>Validation</b>	Assesses utility. Participants simulate real-world conditions using realistic but synthetic data and plausible workflows. The goal is to judge whether the AI-assisted approach is usable, trustworthy, and ready for broader application. This is a close analogue to software beta testing, but does not use live data or proprietary material.

An individual lab is set up for a defined **context of use** which may or may not fall within a specific **sector**, but always involve **users** undertaking **tasks** to achieve specific goals. Tasks involve **AI use activities**.

## User Roles in a Lab

Each lab involves a small team of users with clearly defined but informal roles, shaped around the tasks they pursue. User roles help structure the work, share responsibilities, and ensure that insights are captured and carried forward:

<b>Role</b>	<b>Description</b>
<b>Facilitator</b>	Sets up and supports the lab. Prepares the working environment, configures AI tools, assigns roles, and keeps the process moving. Captures outputs and lessons learned to help close the lab cleanly.
<b>Explorer</b>	Drives the hands-on work. Experiments with prompts, refines inputs, observes behaviours, and captures what happens. Focuses on learning through doing.
<b>Quality &amp; Trust Steward</b>	Looks at the lab with a critical eye. Reviews methods, checks for bias or blind spots, and reflects on whether the results are credible and useful. Provides final review to help ensure outputs can be trusted beyond the lab.

These roles are flexible. In smaller labs, one person may cover more than one role. The aim isn't rigid division, but shared clarity about who's doing what—and why it matters.

## How do we use AI in Labs?

Drawing on the NIST taxonomy (Reference 1), these are the AI use activities most relevant for Anapoly Labs:

<b>Activity</b>	<b>Description</b>
<b>Content creation</b>	Generating new material—text, code, images, or examples—such as writing prompts or reports.
<b>Content synthesis</b>	Combining and summarising information into a coherent whole, such as condensing documents.
<b>Information retrieval</b>	Finding facts or references in structured or unstructured sources.
<b>Recommendation</b>	Proposing options or strategies to support human judgment and planning.
<b>Digital assistance</b>	Responding to instructions, answering questions, or helping with small tasks conversationally.
<b>Discovery</b>	Surfacing new ideas or patterns that were not already known.
<b>Detection</b>	Spotting issues such as bias, gaps, inconsistencies, or unusual signals.
<b>Performance improvement</b>	Enhancing speed, reliability, or efficiency of a task or process.
<b>Process automation</b>	Taking over repetitive or mechanical steps in a workflow.

## Launch

The launch phase has three stages: setup, initialisation, and orientation.

Setup involves configuring the working environment. This includes the physical space (if co-located), digital file structures, and shared access to AI tools such as ChatGPT, Perplexity, and NotebookLM. Crucially, it also includes preparing context-specific ChatGPT project spaces. These are tailored to the lab's context and used to generate the mock materials needed for the tasks.

Initialisation focuses on populating the replica file store with these mock documents. Using the configured project spaces, the Facilitator and participants create plausible emails, draft reports, notes, templates, or data sets - whatever is relevant to the lab's context and task plan. These documents are then loaded into the file store.

Orientation takes the form of a short kick-off session to align participants and confirm readiness to begin.

In acclimatisation labs, setup and initialisation are deliberately lightweight. Rather than building a full replica file store, the Facilitator may preload a small number of illustrative documents or prompts. The emphasis is on exposure and ease of access, not full contextual realism.

This phase ensures the lab opens with credible materials, a working setup, and shared clarity of purpose.

## Technology Toolkit

Labs use a small set of general-purpose AI tools and platforms, selected for their accessibility and flexibility. Each tool supports one or more of the AI Use Activities listed in above. Tools are always used within a synthetic, well-defined environment, allowing participants to explore and experiment without risk to live systems or data.

Activity	Tool or Platform	How it's used in the Lab
Content creation	ChatGPT, Canvas	Drafting documents, writing prompts, generating example outputs and mock materials.
Content synthesis	ChatGPT, NotebookLM	Summarising transcripts, merging notes, producing clean summaries or overviews.
Information retrieval	Perplexity, NotebookLM	Looking up facts, checking sources, and exploring lab-specific document sets.
Recommendation	ChatGPT	Generating options, suggesting strategies, offering trade-offs.
Digital assistance	ChatGPT	Conversational support for planning, clarification, and lightweight queries.
Discovery	ChatGPT, Perplexity, NotebookLM	Surfacing unfamiliar ideas, unexpected patterns, or reframing questions.
Detection	ChatGPT	Spotting flaws, mismatches, or gaps in AI outputs during review or reflection.
Performance improvement	Office Scripts, Python snippets	Automating repetitive steps, improving formatting or speed in lab workflows.

<b>Process automation</b>	Office Scripts, Python snippets	Running batch prompts, converting data formats, or tidying logs.
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## The Lifecycle of a Lab

While the pace and duration may vary, most labs follow a recognisable arc made up of five phases:

<b>Phase</b>	<b>Description</b>
<b>Planning</b>	The facilitator defines goals in the Lab Brief, prepares materials, selects tools, and drafts the lab Initiation Document.
<b>Launch</b>	Includes setup, initialisation, and orientation. Participants are introduced to the lab structure, tools, and context. Expectations are aligned.
<b>Exploration</b>	The main working phase. Participants engage in AI use activities: probing, testing, creating, assessing value.
<b>Review</b>	Review what was supposed to occur. Establish what happened. Determine what was right or wrong with what happened. Determine how the task should be done differently next time.
<b>Wrap-up</b>	The facilitator collects outputs, captures lessons learned, and formally closes the lab.

Some labs may span a single session; others may unfold over days or weeks. The format is flexible, but every lab should include time for structured review; this is often where the deepest insights emerge.

### Planning

Every lab starts with a clear intention. The first step is to prepare a short Lab Brief that outlines the proposed purpose, scope, and working context. This acts as a direction-setting document. It doesn't lock down detail, but it does ensure shared understanding before effort is spent on setup.

Once the brief is agreed, the Facilitator—working in collaboration with the other participants—prepares a Lab Initiation Document. This summarises what the lab will do, who is involved, what resources will be used, and what outputs are expected. It serves as the formal handoff from planning to launch.

(For a detailed breakdown of what the Initiation Document should include, see Appendix B.)

Note that we treat the lab as a small project. We apply the minimum necessary degree of project management discipline to make it purposeful and traceable, without overburdening it. Clarity at this stage avoids wasted effort later on and supports a clean handoff into the launch phase.

### Exploration

With the setup complete and initial materials in place, the lab moves into its active phase. Participants work through the task plan using the configured tools and replica workspace. The

focus is on exploration: running tests, iterating prompts, logging results, and observing how the AI behaves in realistic scenarios.

The Facilitator supports this process by maintaining momentum, handling any technical issues, and prompting reflection when appropriate. Participants may work individually or collaboratively, depending on the lab’s structure and goals.

Documentation is part of the work. Prompt iterations, model responses, intermediate conclusions, and dead-ends should all be captured - whether in Canvas documents, chat transcripts, or shared notes. These working records are valuable not only for review but for later reuse and transparency.

Acclimatisation labs follow a lighter approach. Their aim is orientation, not inquiry. Setup may be minimal, with pre-prepared examples rather than context-specific mock documents. Participants are encouraged to try things out, observe behaviours, and ask questions rather than complete defined tasks.

Labs may evolve mid-course. If new ideas arise, or if initial assumptions prove off-target, the lab can adapt - provided changes are logged and the lab’s purpose remains intact. The emphasis is on learning, not on sticking rigidly to plan.

## Review

The review phase creates a deliberate pause to reflect on what happened during the lab. It allows the team to assess both the value of the activity and the quality of the outputs. The aim is to extract insight, identify points of reuse, and note anything that would shape a future iteration.

The Facilitator leads this phase, usually with the full participation of those involved in the lab. Together, they revisit the original objectives and consider how well they were met. Discussion might cover the effectiveness of prompts, the relevance of the mock materials, the behaviour of AI tools, and the clarity of task design.

A Typical Review	
	Review what was supposed to occur.
	Establish what happened.
	Determine what was right or wrong with what happened.
	Determine how the task should be done differently next time.

In Reference 1, NIST describes some concepts that could help us think about the value of the outcomes from our work.

Usability	The extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.
Human-centred quality	The extent to which requirements for usability, accessibility, user experience, and avoidance of harm from use are met

Documentation is essential. This is where raw notes, annotated transcripts, or summary documents are compiled. Any lab outputs - templates, prompt-response pairs, or reflective observations - should be reviewed for possible publication or adaptation.

The tone is constructive and exploratory. Even if results were inconclusive or AI performance was poor, the review identifies what was learned and where it might lead next.



## Wrap-up

The wrap-up phase closes the lab cleanly and ensures that its outcomes are accessible, archived, and available for reuse. It's where loose ends are tied up and the lab's contribution - however modest - is made part of Anapoly's growing body of work, whether internal or shared through Anapoly Online.

Tasks include finalising documentation, cleaning up the file store, and archiving key assets. If the lab produced reusable components such as prompts, templates, or model responses, these should be curated and tagged. Lab notes and diary posts may be drafted or scheduled for publication.

The Facilitator leads this close-down, confirming that what needs to be kept is saved and what can be discarded is cleared. If participants wish to revisit or extend the lab in future, this is the point at which to log those intentions.

Wrap-up doesn't have to be elaborate. But it does ensure that the effort invested in the lab is captured, visible, and capable of informing what comes next.

## Assets by Lab Phase

Phase	Asset Type	Notes
<b>Planning</b>	Lab Brief, Lab Initiation Document	Sets direction and configuration. Stored in Drive and Canvas.
<b>Launch</b>	ChatGPT project spaces (seed, experiment, review) Replica file store, Persona files Access/config logs, facilitation playbook	Project spaces tailored to context of use. Seed data and personas may be AI-generated.
<b>Operation</b>	Chat transcripts, Canvas documents, Working documents( Docs/Sheets/Slides), Prompt logs, Source data, Automation scripts	Captured in real time. Logged for reuse, review, and transparency.
<b>Review</b>	Annotated summaries, Findings documents, Marked-up transcripts	Reviewed for insight and reuse. May feed into public outputs.
<b>Wrap-up</b>	Final deliverables, NotebookLM snapshot, Archival folders, Lab notes, and diary drafts	Archived and/or published. Stored with naming conventions and metadata

## References

1. Theofanos, M., Choong, Y.-Y., & Jensen, T. (2024). *AI Use Taxonomy: A Human-Centered Approach* (NIST AI 200-1). National Institute of Standards and Technology.  
<https://doi.org/10.6028/NIST.AI.200-1>
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## Transparency Label

**AI-Assisted.** While the structure, conceptual framing, and all final content decisions were directed by a human author, the document was shaped through extensive collaboration with AI tools, especially ChatGPT-4o. The AI contributed by:

- Drafting and refining prose under direction;
- Rewriting sections to improve tone and flow;
- Adapting terminology and definitions drawn from Reference 1;
- Suggesting formats for tables and matrices (e.g. mapping tools to activities);
- Providing initial language for the lab lifecycle phases and role definitions.

At every stage, the human author retained editorial control: deciding on inclusion, structure, tone, and level of detail. The result is a well-structured operational framework shaped through dialogue, not delegation.

This qualifies as **AI-assisted** because:

- AI played a material but subordinate role in drafting;
  - The human author directed and reviewed all AI contributions;
  - The final text reflects deliberate human judgment.
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# Appendix A: Common Breakdowns Observed during Experimentation Labs

Participants in Experimentation Labs often encounter breakdowns that reveal the limits or quirks of AI tools. Examples include:

## Prompting & Interaction Failures

- **Ambiguity Misfires:** The AI interprets vague prompts in ways that are unhelpful or irrelevant.
- **Overconfidence:** Fluent but factually incorrect answers (“hallucinations”).
- **Undergeneration:** Responses are vague, incomplete, or too cautious.

## Cognitive Misalignment

- **Misunderstood Intent:** The AI fails to infer what the participant meant, even when it's obvious to a human.
- **Tone Drift:** The style or tone is inappropriate for the task (e.g., too formal, casual, or promotional).
- **Loss of Thread:** In multi-step interactions, the AI forgets or misremembers earlier context.

## Structural or Formatting Issues

- **Poor Structure:** Outputs lack clear organisation or logical flow.
- **Template Drift:** The AI doesn't maintain consistency across repeated document formats.

## Bias and Blind Spots

- **Unintended Bias:** Language may reflect stereotypical assumptions or cultural skew.
- **Uncritical Agreement:** The AI reinforces flawed premises instead of challenging them.

## Tool Use Limits

- **Misapplied Language Models:** Tasks better suited to databases, retrieval tools, or maths engines may break down when handled purely in language.
- **Poor Generalisation:** Prompt changes that should be minor produce wildly different outcomes.

These breakdowns are not failures of the lab—they are learning opportunities that help build a grounded understanding of what AI tools can and can't do.

# Appendix B: Lab Initiation Document Template

The Lab Initiation Document should be brief but structured. It sets a clear foundation without unnecessary overhead.

## 1. Lab Summary

- **Lab Title**
- **Facilitator**
- **Participants**
- **Date(s)**
- **Lab Type**
- **Objectives**
- **AI Use Activities**
- **Context of Use**
- **Key Tools**

## 2. Task Plan

A short narrative or bullet list describing the main tasks or activities participants will undertake, with reference to AI Use Activities and tools.

## 3. Tools & Setup

- ChatGPT Project Space name(s)
- Replica file store reference
- Personas and mock materials to be generated or reused

## 4. Roles and Responsibilities

<b>Name</b>	<b>Role</b>	<b>Notes</b>
Jane Doe	Explorer	Will prompt and record AI behaviours
Alex Smith	Steward	Will review for trust and utility

## 5. Intended Outputs

A list of the artefacts to be created, captured, or reused (e.g., prompt logs, summaries, templates).

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