

A very short introduction to AI.

Day 2 or session 2, one or the other.

Responsibility ! ?



Neuroscience & Artificial Intelligence

A Journey Through Discovery

Ancient Proto-Neuroscience

Portrait of
Hippocrates

Hippocrates

c. 460–370 BCE

Key Contribution: Argued that the brain, not the heart, is the seat of sensation, intelligence, and emotion.

Why It Matters: First explicit brain–mind link in Western thought.

Context: Alongside trepanation (skull drilling), practitioners observed beneficial outcomes without understanding why.

Localization Through Accident



Phineas Gage

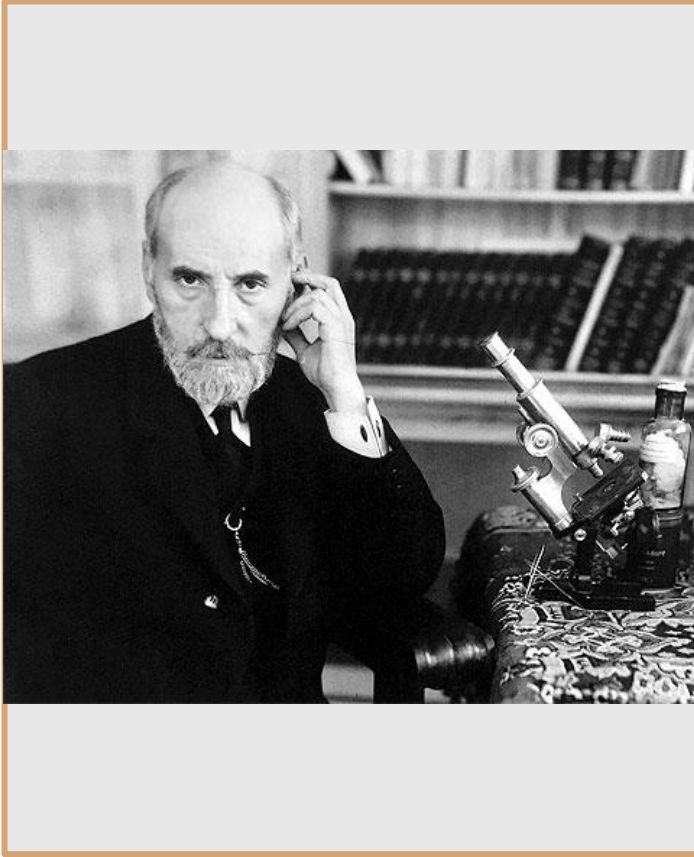
Accident in 1848

What Happened: A tamping iron destroyed much of his left frontal lobe during a railroad accident.

Key Insight: Personality and decision-making changed while basic perception remained intact.

Why It Matters: Strong evidence for localized brain functions and a biological basis of the mind.

The Neuron Doctrine



Santiago Ramón y Cajal

Late 1800s

Key Contribution: Demonstrated that neurons are distinct cells, not a continuous mesh.

Method: Used Golgi staining but interpreted it correctly—against Golgi's own view.

Why It Matters: Structural foundation of neuroscience—networks of discrete units.

Learning Rules: "Cells That Fire Together..."



Donald Hebb

1949

Key Contribution: Proposed that when one neuron repeatedly helps fire another, their connection strengthens.

Famous Phrase: "Fire together, wire together" (a later shorthand).

Why It Matters: First plausible biological learning rule, bridging physiology and cognition.

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Sensory Coding & Cortical Organization

Portrait of
Hubel & Wiesel

David Hubel & Torsten Wiesel

1950s–60s

Key Contribution: Recorded neurons in cat visual cortex, discovering edge detectors and hierarchical processing.

Method: Yes, cats. Definitely cats.

Why It Matters: Showed perception emerges from layered neural feature extraction—a direct ancestor of CNNs.

Artificial Neurons & Learning Machines

Portrait of
Frank Rosenblatt

Frank Rosenblatt

1957–1958

Key Contribution: Built the Perceptron, the first widely publicized artificial neural network.

Inspiration: Hebbian learning principles combined with biological neuron models.

Why It Matters: Marks the transition from neuroscience to computational models of cognition.

Taking a look at notebook LM.

Explainer: Google NotebookLM



NotebookLM: Your Personal AI Research Assistant

WHAT MAKES NOTEBOOKLM DIFFERENT?



FACT, NOT FICTION

Its "source-grounded" AI bases all responses strictly on your uploaded documents, virtually eliminating fabricated answers or "hallucinations".



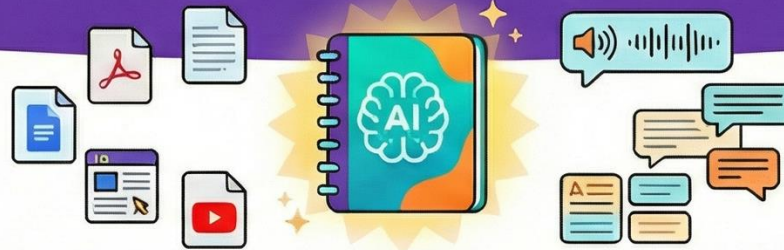
ALL YOUR INFO, ONE PLACE

It supports diverse formats, including PDFs, Google Docs/Slides, .txt files, websites, and YouTube video transcripts.

25 MILLION

HANDLES MASSIVE WORKLOADS

A single notebook can process up to 25 million words, far exceeding the capacity of many other AI chatbots.



THE NOTEBOOKLM WORKSPACE AT A GLANCE



SOURCES PANEL

Your Information Hub. Add, manage, and select your documents, links, and files. Each notebook can hold a maximum of 50 sources.



CHAT PANEL

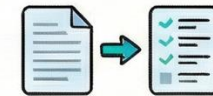
Your Research Assistant. Interact with your sources using natural language. Ask complex questions and get answers with citations pointing back to the original material.



STUDIO PANEL

Your Creation Space. Generate helpful formats like Audio Overviews, Study Guides, and FAQs, and save key chat responses as organized notes.

POWER-UP YOUR RESEARCH WITH KEY FEATURES



AUTOMATIC SUMMARIES

Instantly get a summary and a list of key topics for every source you upload, providing a quick overview of complex material.



AUDIO OVERVIEWS

Generate a personalized, podcast-like audio conversation that summarizes the key topics across your selected sources.



NOTEBOOK GUIDE

Kickstart your analysis with suggested questions and pre-made templates for creating FAQs, briefing docs, and timelines.



SAVE & SYNTHESIZE NOTES

Save valuable AI-generated responses as notes, which can then be combined and converted into a brand new source document.

POPULAR USE CASES



FIND CONCLUSIONS IN DENSE MATERIALS

Quickly find specific answers within user manuals, financial reports, or candidate resumes by asking direct questions.



CREATE AN AI KNOWLEDGE BASE

Consolidate project plans, meeting notes, and past documents to generate briefing docs, timelines, and FAQs for team members.



SYNTHESIZE EXPERT INSIGHTS

Analyze expert articles, research papers, or earnings reports to synthesize viewpoints and identify emerging trends.

PRO TIPS FOR BEST RESULTS



QUALITY IN, QUALITY OUT

The usefulness of NotebookLM's output is directly dependent on the quality and reliability of the sources.



SAVE YOUR WORK

Responses in the chat interface are not saved automatically. You must explicitly save.



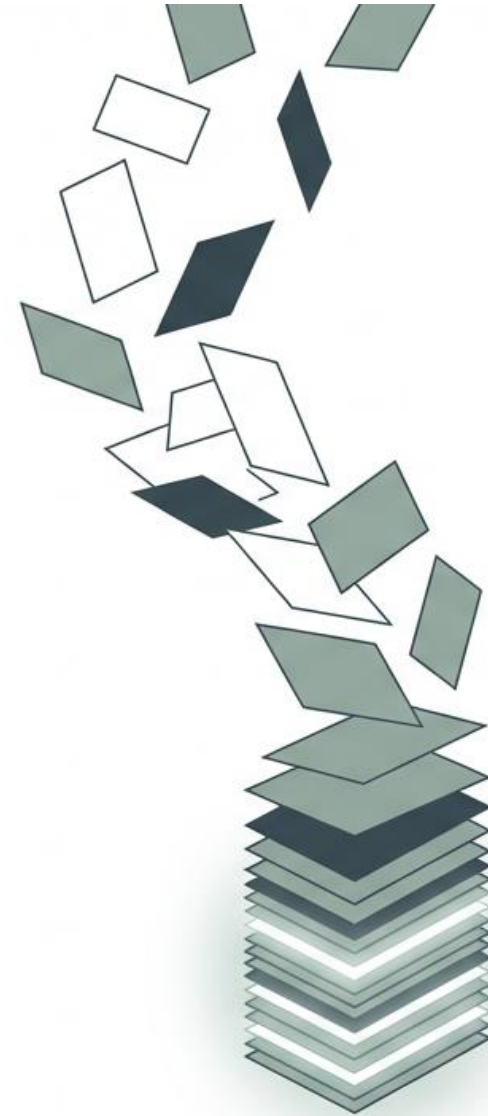
KEEP SOURCES FRESH

If using Google Docs or Slides, you can resync the file to ensure NotebookLM is always working.

Mastering Google NotebookLM

The Source-Grounded Research Assistant

Moving from information overload to synthesized insight without the hallucinations. A functional guide to the intelligent synthesis framework.



 NotebookLM

The Core Differentiator: Grounded vs. Generative AI

Open Models (Standard LLMs)



- Creative & Vast Knowledge
- Hallucinates facts
- Makes assumptions based on training data

NotebookLM (Source-Grounded)

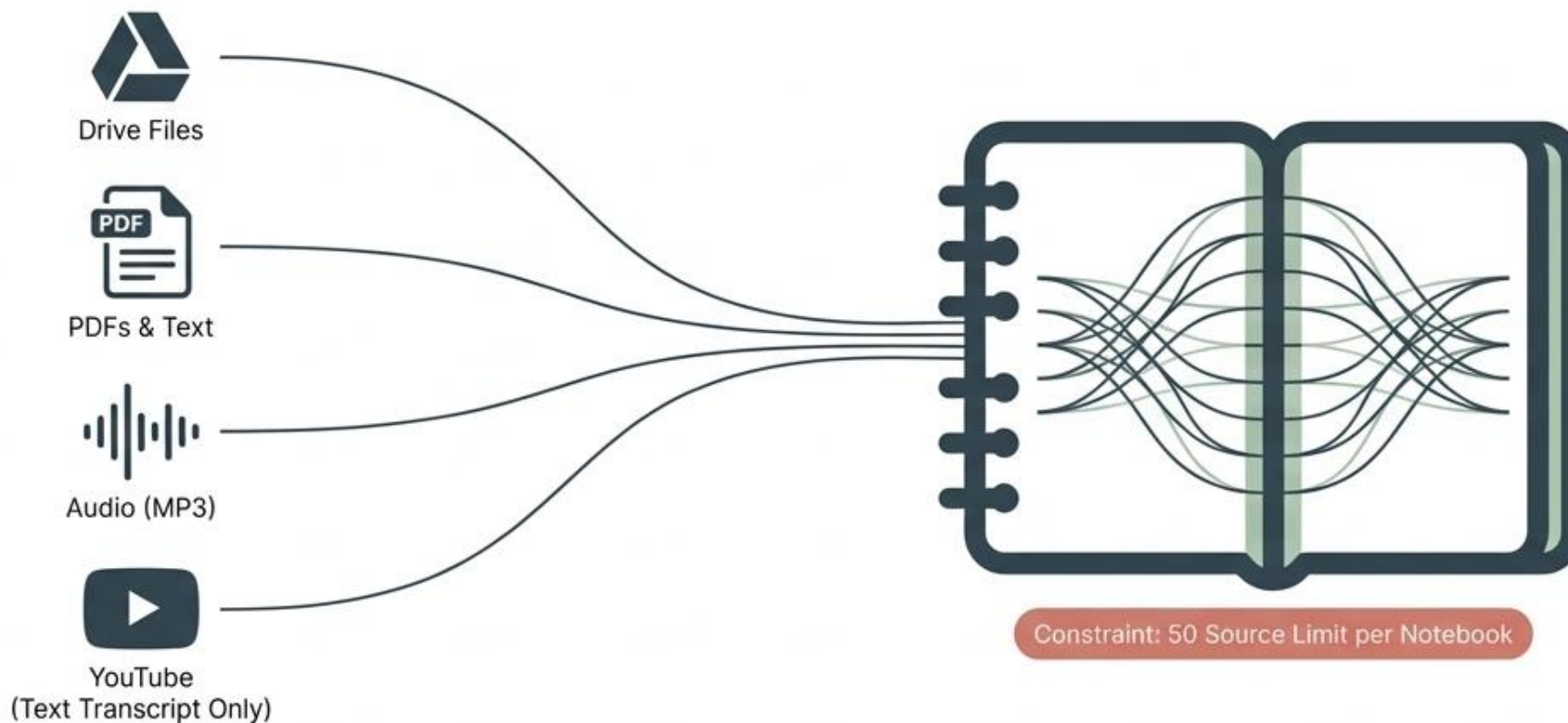


- Reliable & Specific
- Restricted to your data
- Interpolates rather than invents

NotebookLM doesn't fabricate or assume, but rather interpolates information and data from the resources you upload.

Building Your Knowledge Base: Curating the Inputs

Transforming scattered files into a unified brain.



Google handles all your reference materials, even when you have different file types floating around. It collates and cross-references multi-media automatically.

Orientation: Navigating the Workspace

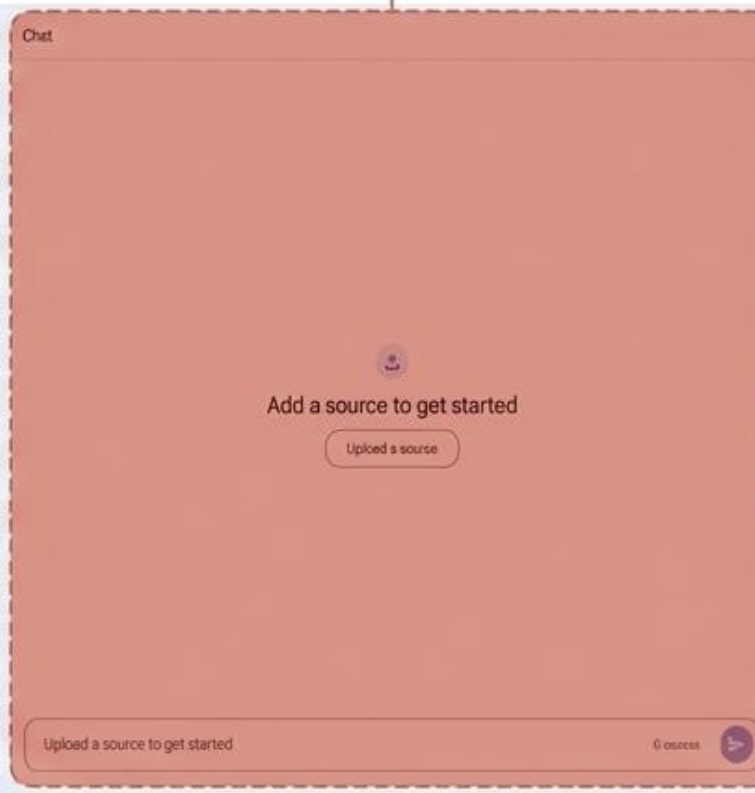
1. Sources Panel

Saved sources appear here. Add, remove, or toggle visibility.



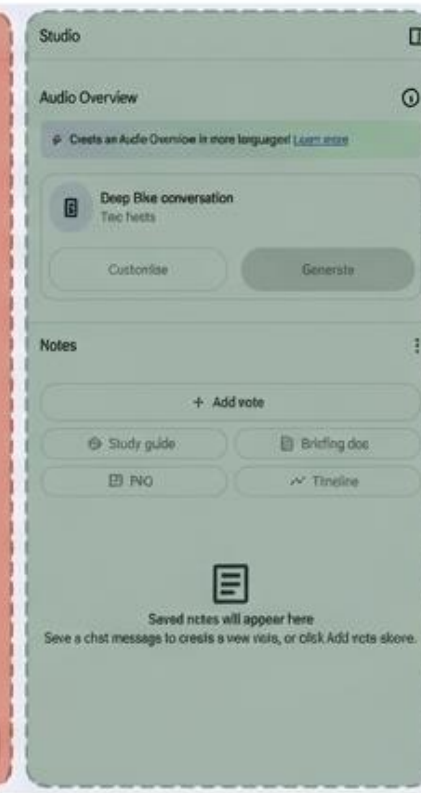
2. Chat Interface

The active workspace. Ask questions, get summaries.



3. Studio Panel

Saved Notes and Audio Overviews. Where ephemeral chat becomes permanent artifacts.



Tip: Collapse or expand panels to create room to work.

The Conversation: Interacting with Your Sources

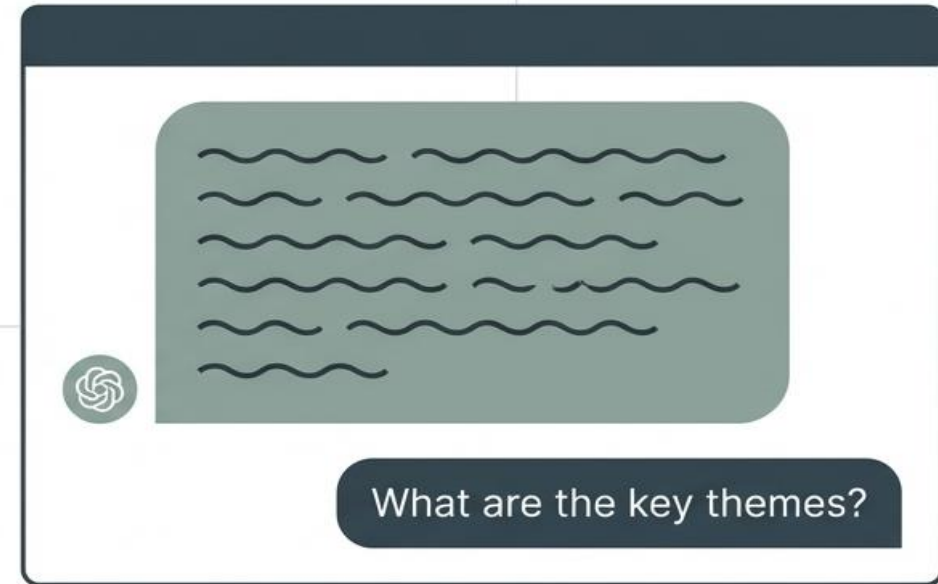
It is not just search; it is a conversation.

Request an abstract or summary overview.

Ask for Mind Maps to visualize connections.

Discover new sources by explaining the topic.

Use "I'm feeling curious" for serendipity.



CRITICAL: Outputs in the chat interface are not saved automatically. You must manually save valuable insights as a Note.

The Studio: Converting Chat into Artifacts

Study Guide



FAQ



Timeline



Briefing Doc



Notes

Notes allow you to save salient points from the bulk. They can be formatted with rich HTML, bullets, and even converted back into sources to feed the brain.

Audio Overviews: The Deep Dive Discussion

Transforms your sources into a lively, podcast-style conversation.

Transforms your sources into a lively, podcast-style conversation.

- Summarizes key topics.
- Generates in minutes (allows background processing).

Experimental Constraints

- Reflections of your sources, not objective truth.
- AI-generated; may contain audio glitches.
- Requires 'Edit Access' to the notebook.

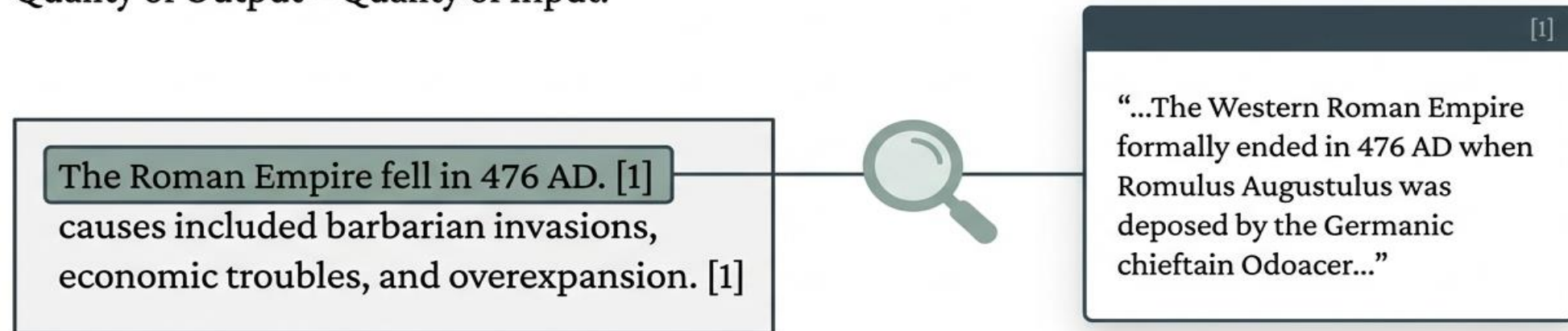
Verification: Trust but Verify

Mechanism: **Source-Grounded AI**

Feature: Check source citations.

Every claim includes citations linking directly back to the specific passage in the uploaded source. This reduces hallucinations, but vigilance is required.

Quality of Output = Quality of Input.



Application I: The Researcher & The Student

Finding Conclusions in Dense Materials



Goal: Extract specific data from massive documentation.

1. Querying complex user manuals for electronic equipment.
2. Asking questions about personal tax documents.
3. Preparing for job interviews by analyzing a candidate's resume against HR guidelines.

“Digs through everything and delivers succinct ideas.”

Application II: The Project Manager

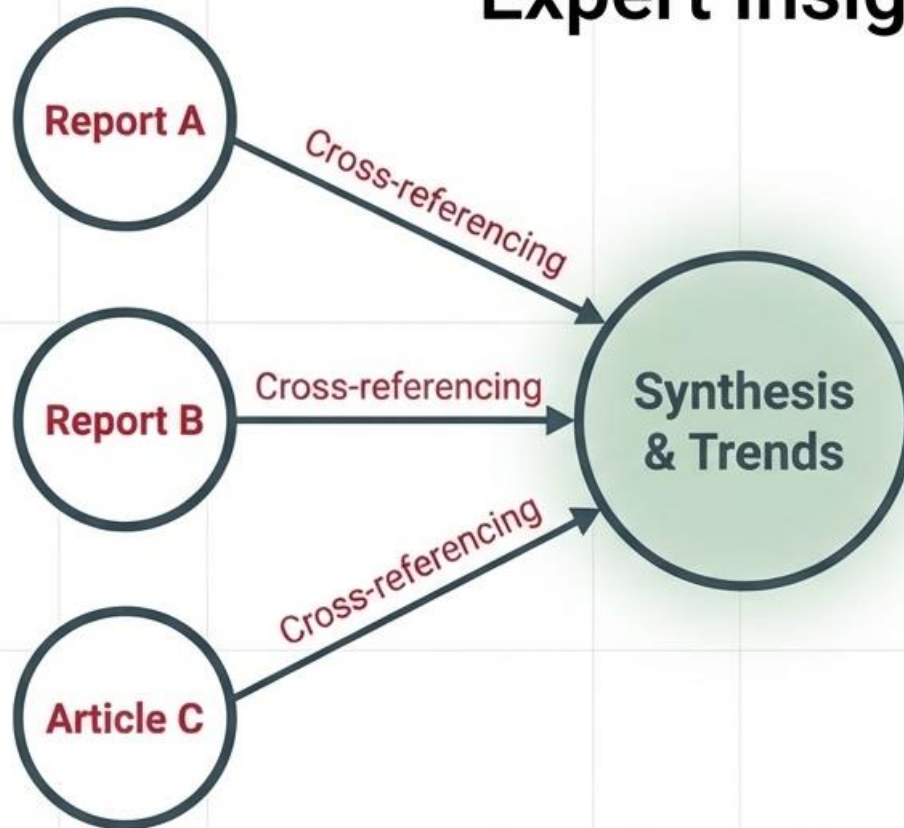
The AI Knowledge Base



Consolidate scattered project artifacts into a single source of truth.

Application III: The Analyst

Expert Insights Committee



Scenario: Synthesizing information from various expert sources to identify trends.

Example: Analyzing tech company earnings reports and analyst articles to compare AI monetization strategies.

Benefit: Identify common threads or contradictions across diverse files.

Mastery: Pro Tips & Constraints

25 Million

**Word Capacity
per Notebook.**

Massive scale for
deep research.

50

Source Limit.

Pro Tip: Combine
multiple docs into
one file to
maximize space.

Sync

Live Connection

Resync Google
Docs/Slides to **keep**
Docs/Slides to keep
the AI current.

The Creative Polish: Use NotebookLM for facts, then export to Gemini for creative prose.

Quick Start Checklist

- ✓ 1. **Login & Title:** Name your notebook immediately to avoid clutter.
- ✓ 2. **Upload:** Drag in PDFs, Drive files, or URLs (Max 50).
- ✓ 3. **Guide:** Use the Notebook Guide for instant summaries.
- ✓ 4. **Chat:** Query your data ('What are the risks?').
- ✓ 5. **Save:** Click 'Add Note' to save chat outputs (Crucial Step).
- ✓ 6. **Transform:** Convert notes into a Study Guide or Audio Overview.

NotebookLM is the right tool for the job when accuracy matters more than creativity.