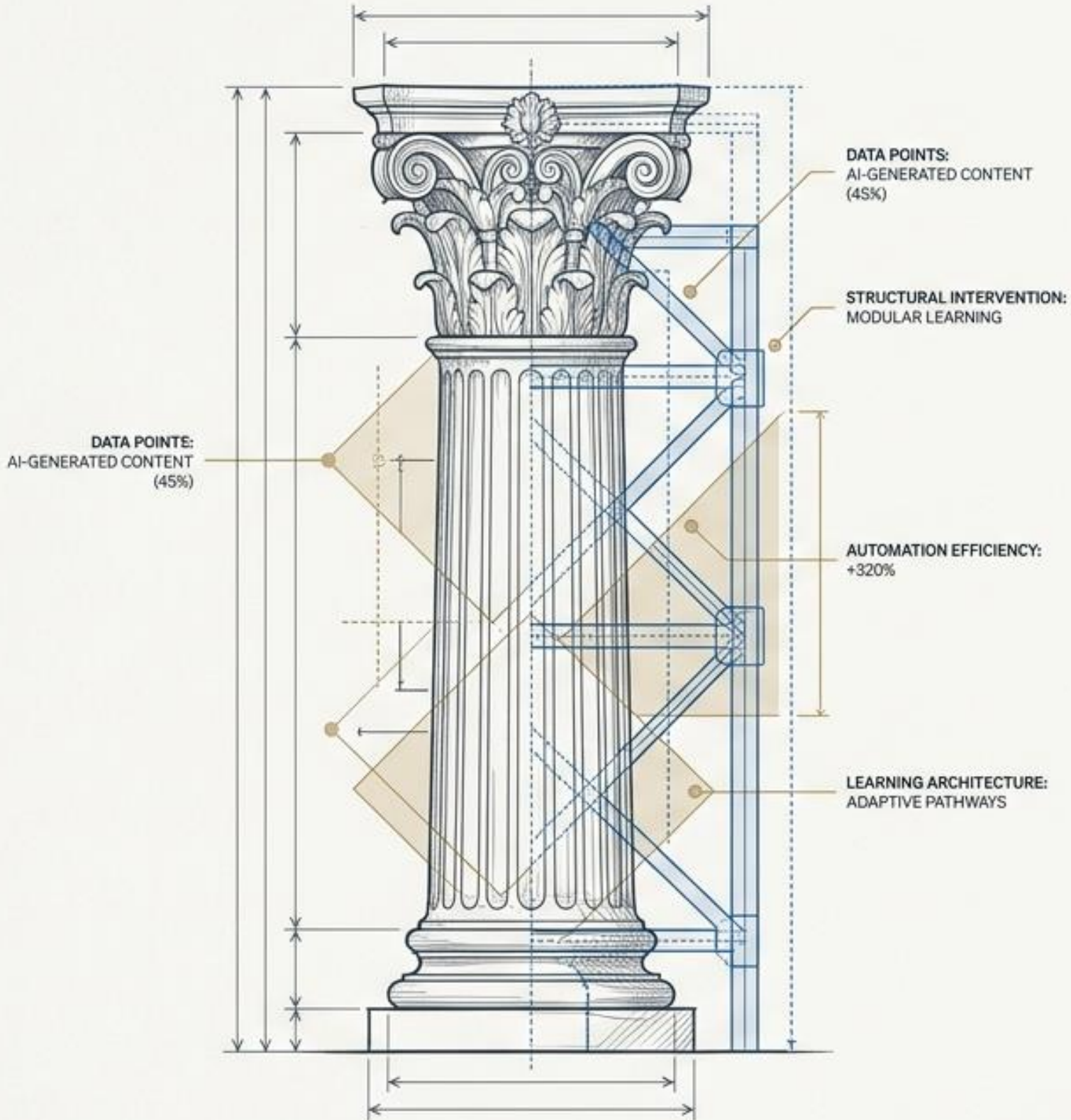




AN EXPERIMENTAL PLAYBOOK & ARCHITECTURAL REVIEW

M20452 by AI: The End-to-End Experiment

Rebuilding Intermediate
Macroeconomics with Generative AI

The Catalyst & Baseline Conditions

Constraints

>2 Years

Unrefreshed module content

Zero Access

No original source files available

Severe Time Pressure

Unexpected teaching handover

The Vision



Target Cohort:
16 BSc Economics
students (Level 5)



Objective: Shift from
abstract theory to
applied, real-world
macroeconomic
events

Mission Outcomes: Executive Snapshot



100%

AI-Generated Resources

Module handbook,
presentations, briefs,
and marking.



16

Workshops Built

2-hour PC lab formats:
30m concept, 60m
practical, 15m wrap-up.



NBLM

Core Tech Tech Hub

NotebookLM deployed
as the central
knowledge manager.

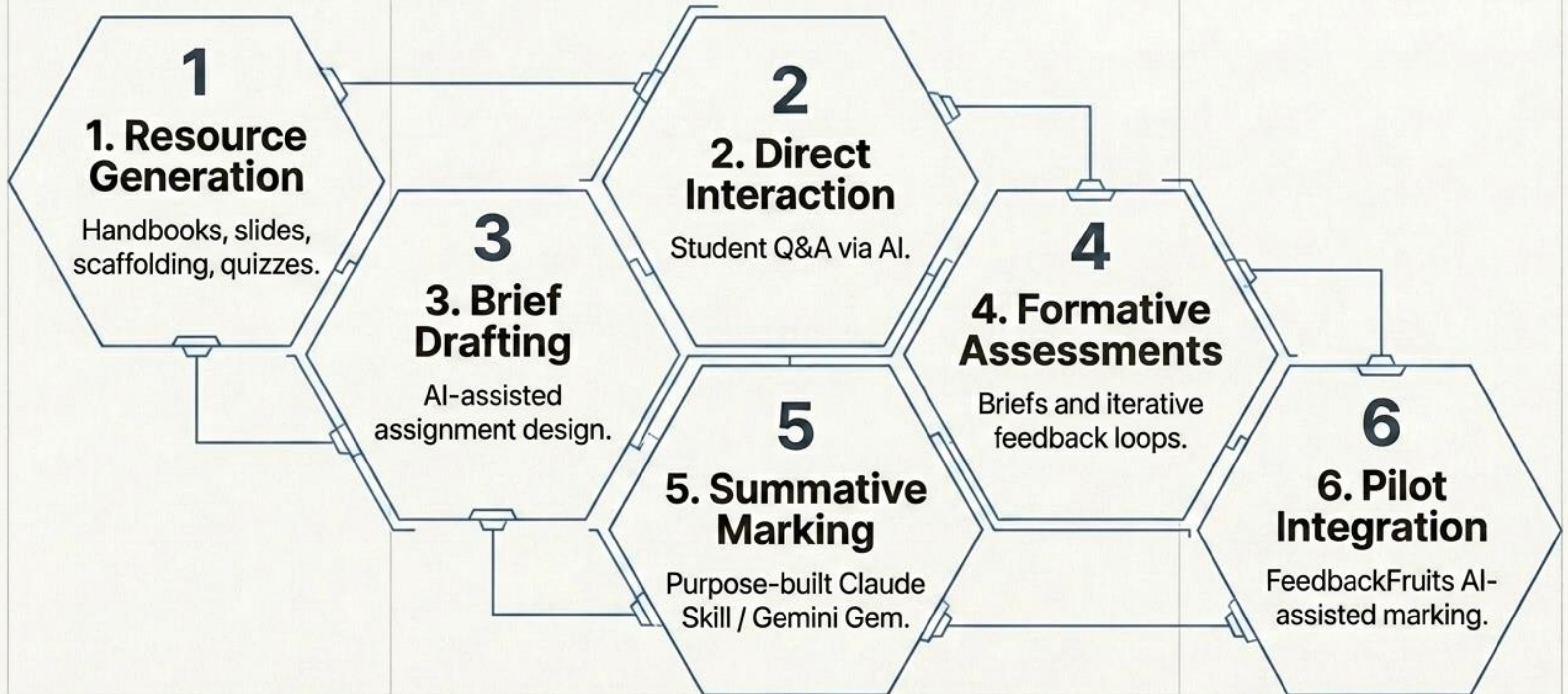


0 Hours

Time Saved

Labour-intensive learning
curve, but massive
upgrade in quality.

The 6-Part Architectural Blueprint



The Generative Tech Stack

The Engines

Gemini Pro, Claude Pro, ChatGPT

Content generation, planning, PC activities, marking.

The Sparks

Storm, Perplexity

Generating initial first-draft content stubs

The Brain: NotebookLM

Knowledge hub, source
manager, student-
facing output

The Canvas Editors

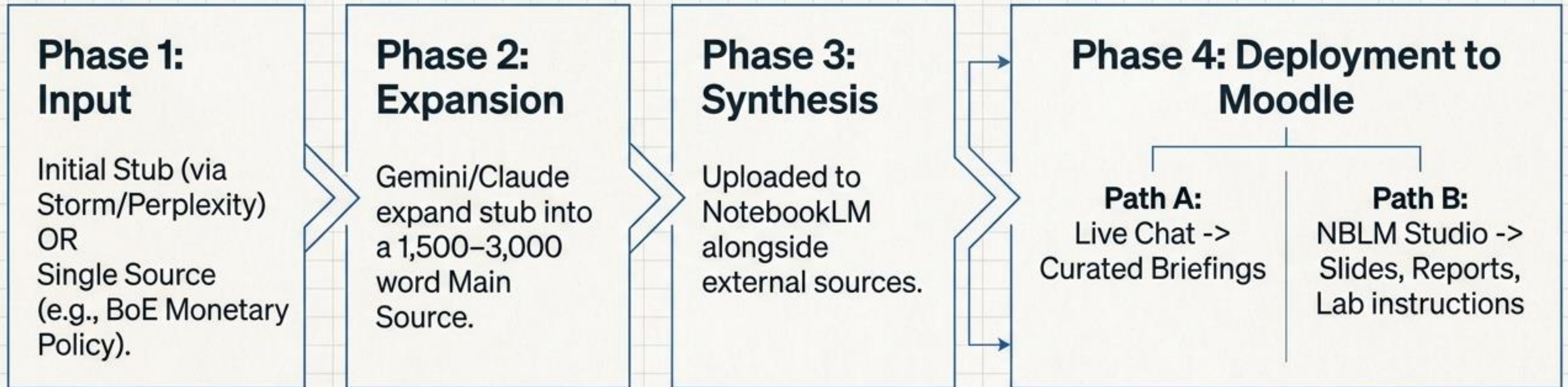
JotBird/StackEdit
(Markdown)

Overleaf
(LaTeX)

Adobe Acrobat
(PDFs)

Inkscape
(Images)

The Content Assembly Line



Redesigning Summative Assessment

The Old Paradigm



Traditional Format

1,000 & 1,500-word theoretical macroeconomics essays.

The New Paradigm



The Policy Position Paper

Role: Parliamentary Assistant briefing an MP.

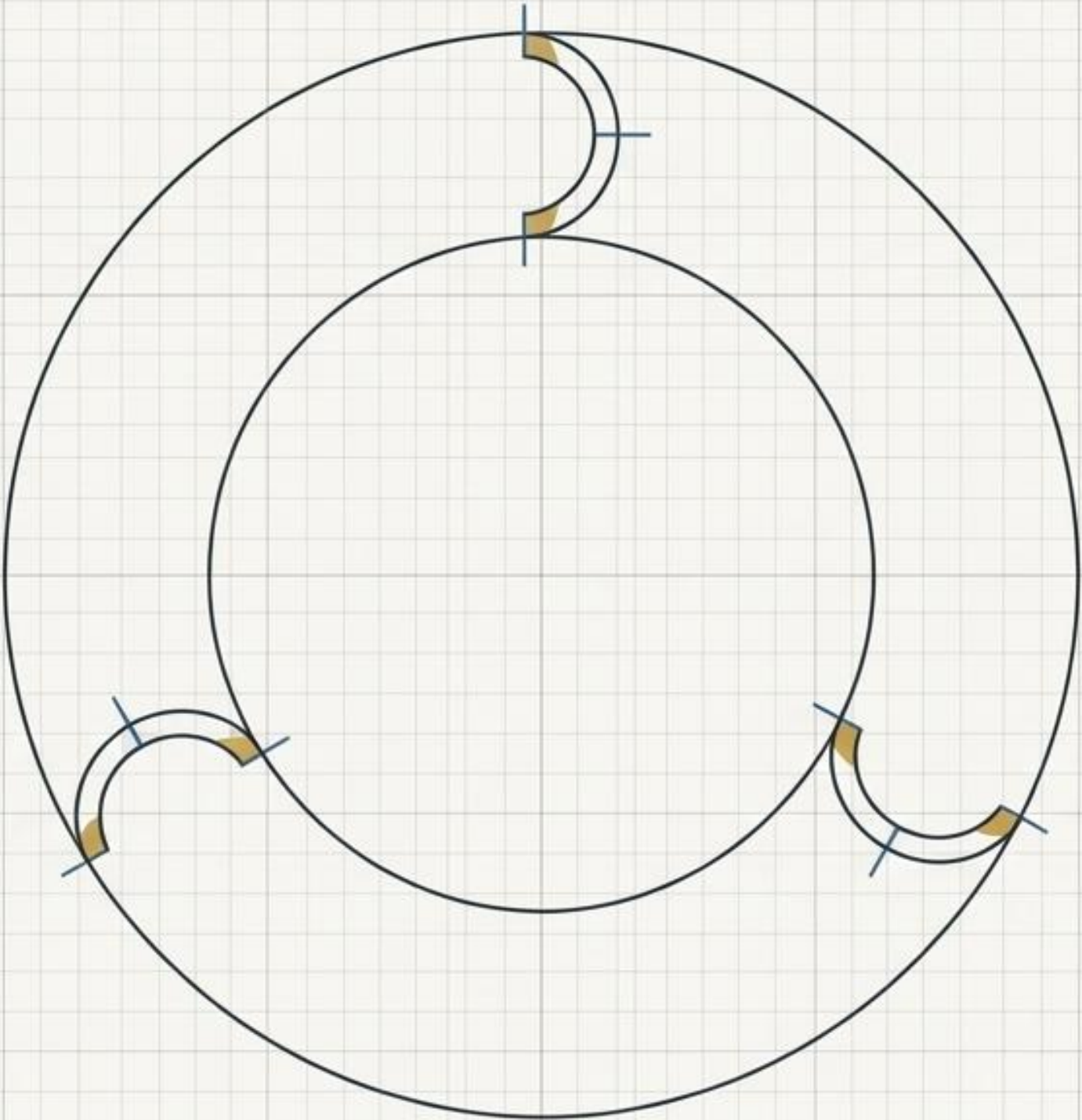
Sources: HMG Budget 2025, BoE monetary policy.

Objective: Advise MP to support or oppose real-world policies.

The Formative Feedback Flywheel

Step 3: Outcome

Individualized feedback generated. Engaged students achieved higher summative grades.



Step 1: Guidance

NotebookLM and Gemini develop formative guidance and worked examples.

Step 2: Targeted Analysis

Claude analyzes submissions across three vectors:

1. Argument structure,
2. Evidence application,
3. Writing clarity.

The Marking Engine Architecture

Inputs

Streamlined assignment brief

Categorical marking scheme

Moodle submissions (e.g., UP1234567.pdf)

Live access to Tutor's Google Sheet

Claude AI Processor

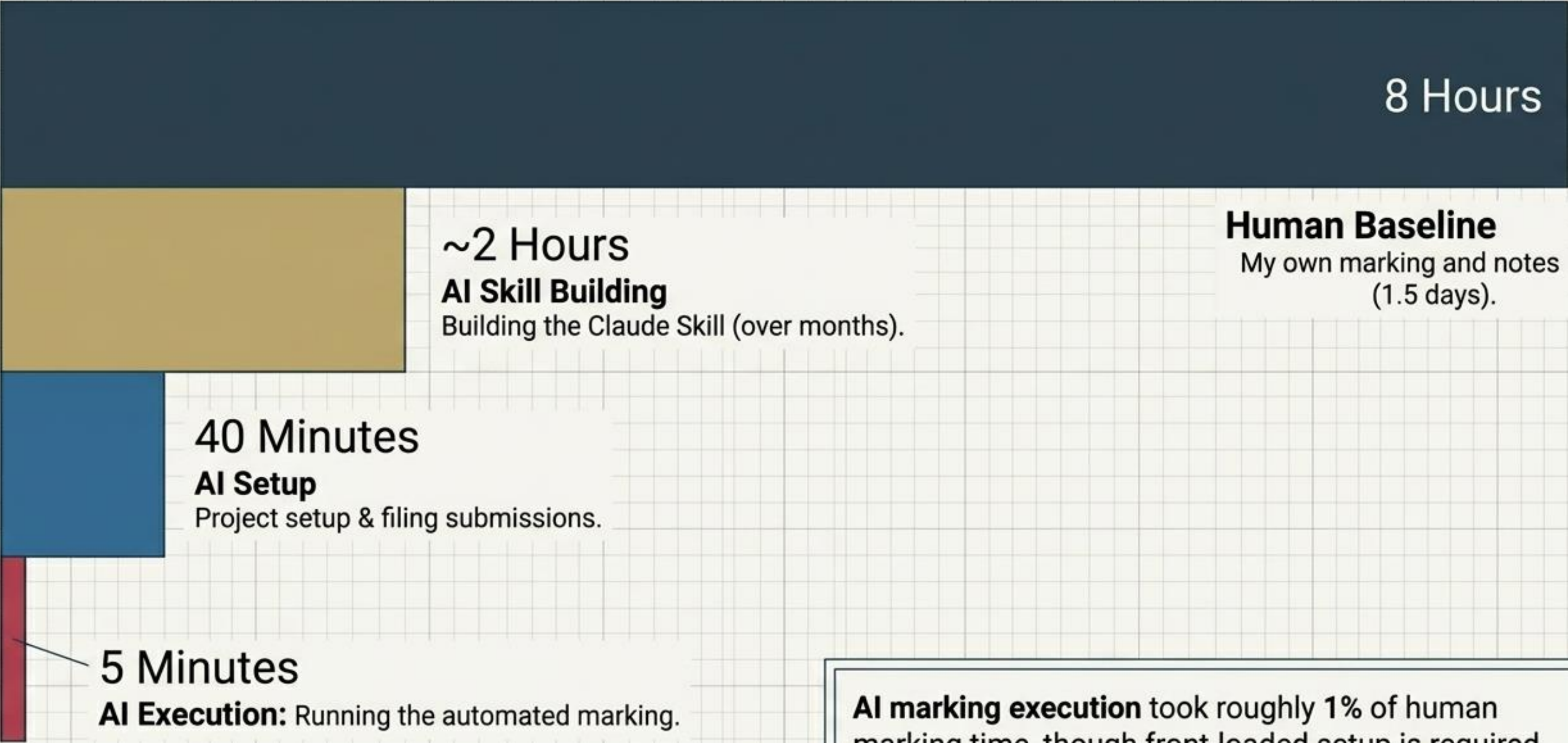
Claude AI Processor

Purpose-Built Skill:
Reads scripts, grades against grid, produces max 300 words feedback.

Output: 5-Column Google Sheet

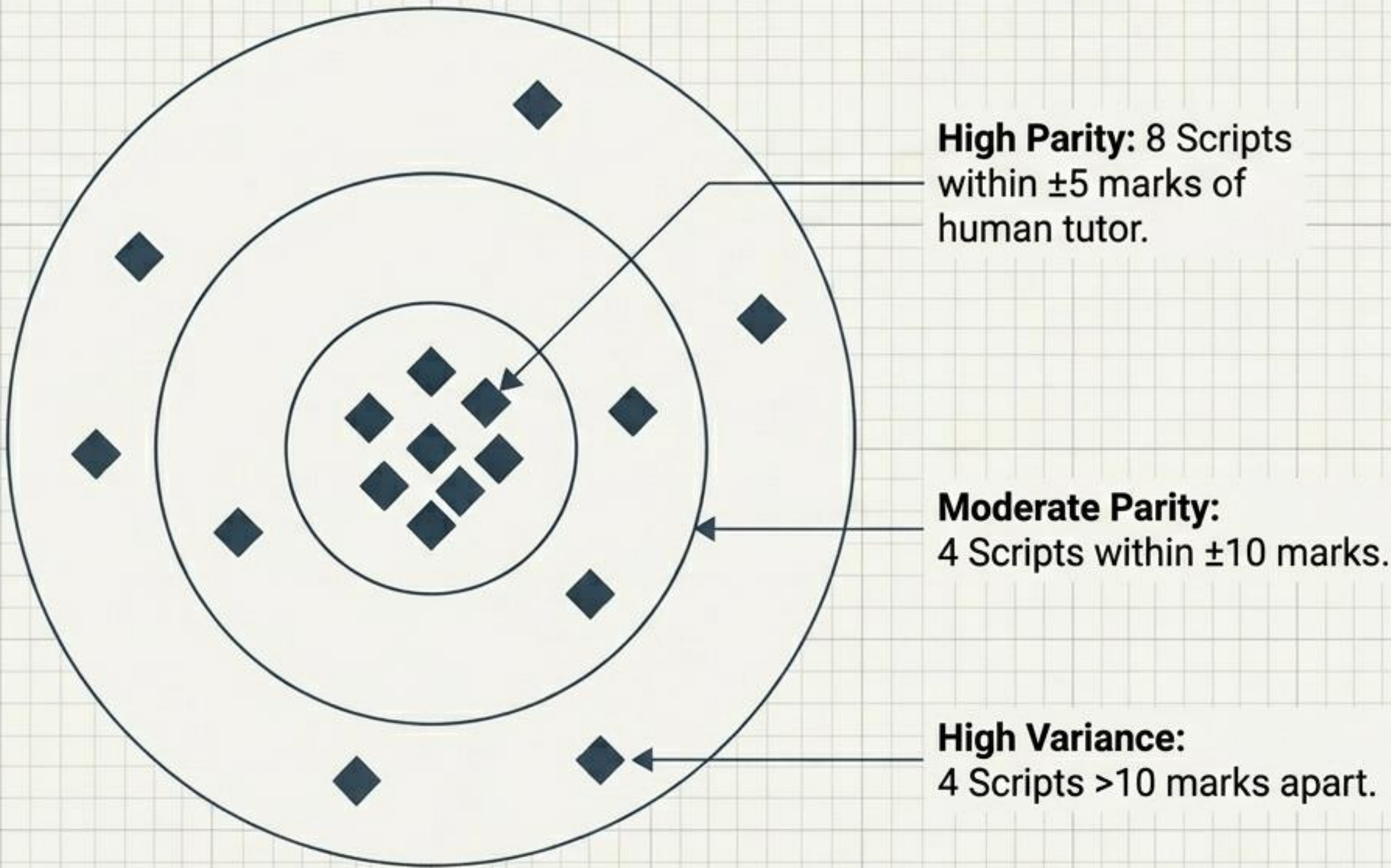
UP Number	Tutor Feedback	Tutor Grade	Claude Feedback	Claude Grade

Time Allocation: Human Baseline vs. AI Execution



AI marking execution took roughly 1% of human marking time, though front-loaded setup is required.

Grading Parity & Variance Analysis



Qualitative note: Feedback from Claude and Tutor was very similar and subsequently merged.

The Storm Anomaly: Accidental Metaphor



The Trigger

A source file was temporarily named "Storm" to denote it was generated by Storm AI.

The AI Translation

NotebookLM parsed the filename conceptually, building an entire presentation on short-run economics using the thematic anchor of a storm at sea.

The Result

Economic shocks became storms, the economy became a ship. The analogy worked perfectly, showcasing AI's unpredictable capacity for thematic visual translation.

Friction Points & Institutional Bottlenecks



IT Infrastructure

NotebookLM blocked in university PC labs.

Claude Desktop banned natively (preventing Cowork access).



Output Instability

Generating slides was the hardest task.

Fragmented formats: Gemini (Slides), ChatGPT/Claude (Beamer), NBLM (locked PDFs).

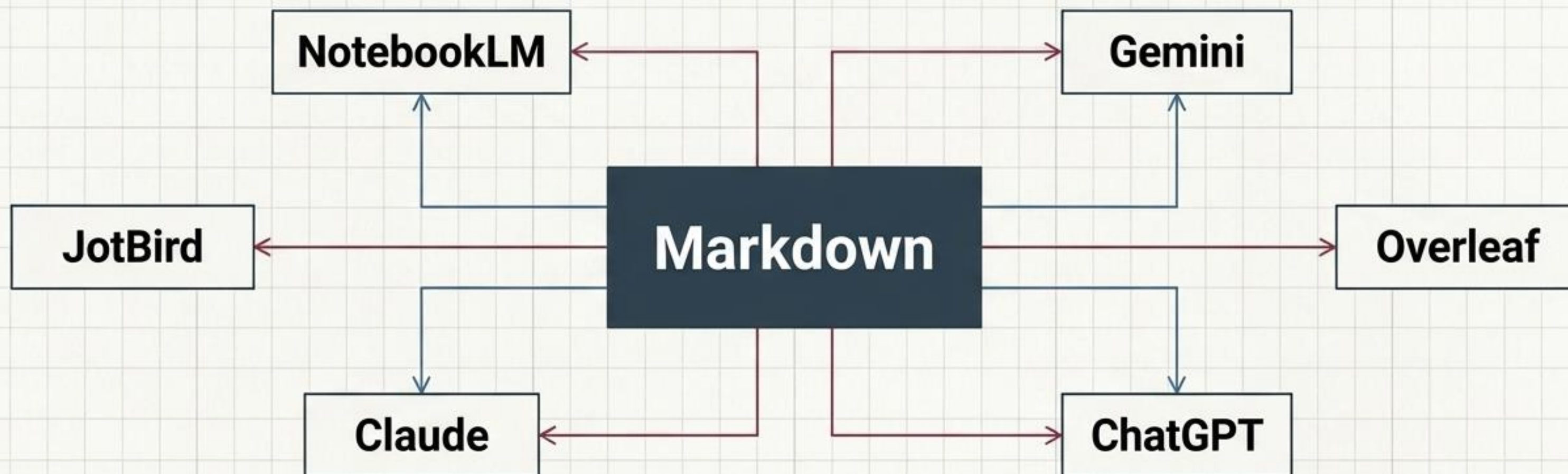


Visual Quirks

AI fixating on repeating visual anchors across unrelated decks.

Stray content artifacts (e.g., printing 'Roboto' or '16:9' as text).

Synthesis: The Universal Translator



Core Insight: Markdown reduces cognitive noise.

Explanation: Across a highly fragmented AI ecosystem with constantly shifting capabilities and incompatible proprietary formats, raw Markdown served as the essential, stable common language for structuring specifications, module outlines, and cross-model prompting.

The Final Verdict

Did I save time?

No. The learning curve and experimentation made it more labor-intensive.

Will I do it again?

Absolutely.

The **true ROI** was not efficiency, but **transformation**. AI enabled a total redesign of M20452 into a highly applied, real-world module—a qualitative leap impossible under conventional time constraints.