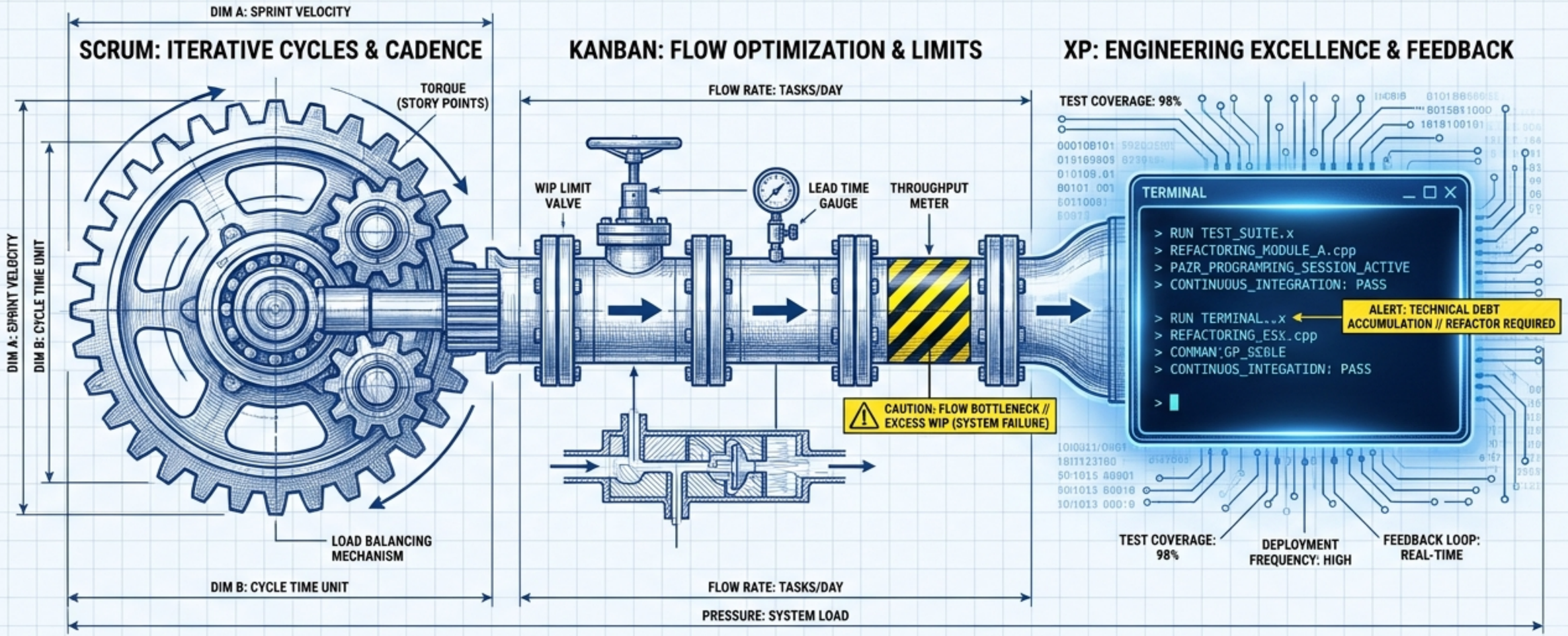
WAYS OF WORKING — S07E02: SCRUM, KANBAN, AND XP IN PRACTICE PLUS REAL-WORLD HYBRIDS (TEXTBOOK IDEALS VS. REAL-WORLD PHYSICS)

FOR DEVELOPERS, TECH LEADS, AND PRODUCT MANAGERS

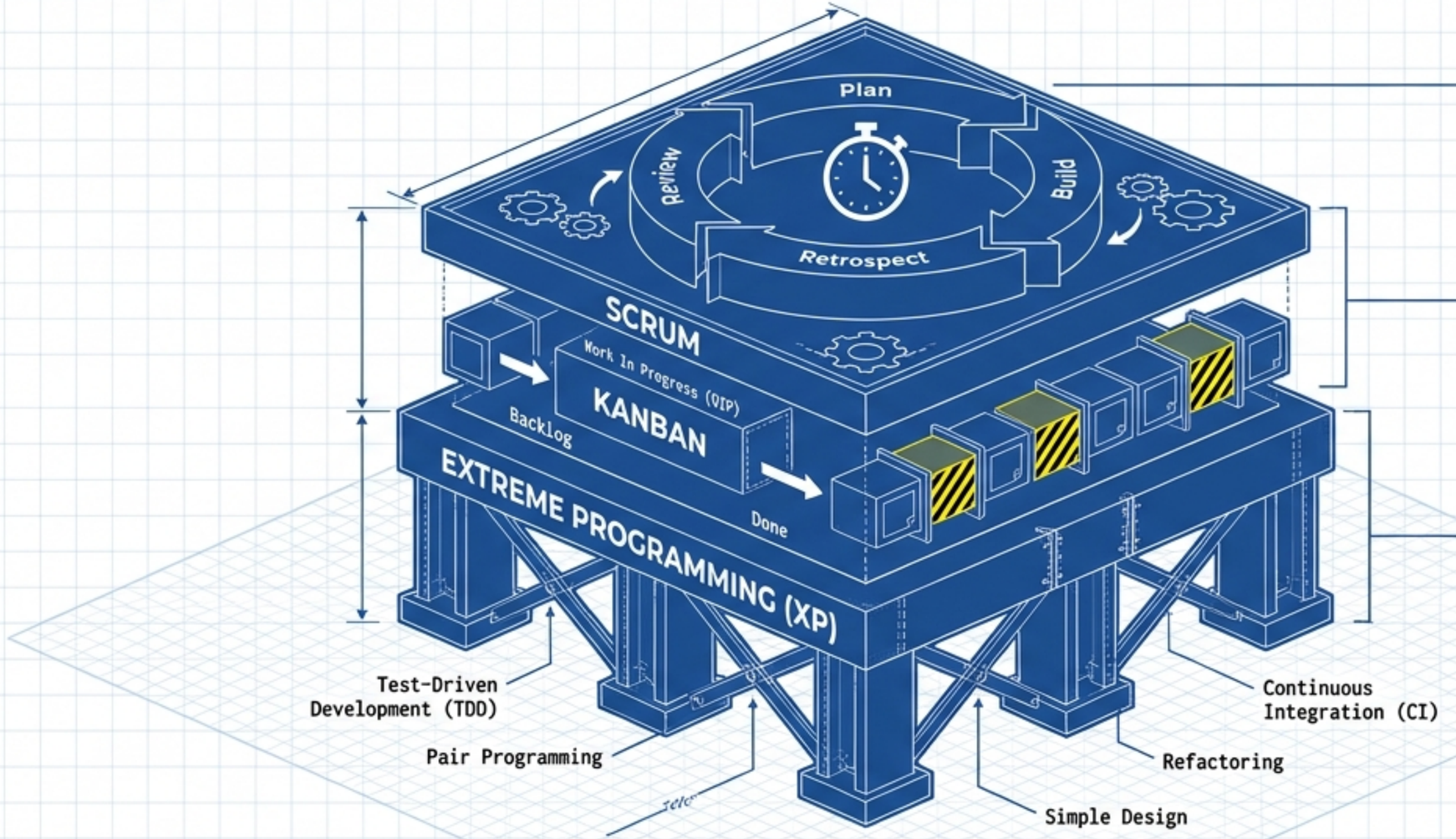


DRAWING NO:	DATE:	ENGINEER:	REVISION:
S07E02-HYBRID-SCHEMATIC	2024-10-27	UNIFIED WORKFLOWS GROUP	1.0 (OPERATIONAL MECHANICS)

Gemini Notebook

THE AGILE OPERATING SYSTEM (LAYERS OF DELIVERY)

Agile split into project-management wrappers (Scrum) and technical engineering practices (XP).
Implementing the PM wrapper without the technical craft is a recipe for collapse.



Cadence & Alignment
The PM Wrapper.
Syncs the team with business goals.

Flow & Queuing
The Throughput Controller.
Manages capacity and exposes bottlenecks.

Technical Craft
The Execution Thread.
Internal code quality and delivery physics.

⚠ CRITICAL SYSTEM FAILURE WARNING: Implementing the PM wrapper without the technical craft is a recipe for COLLAPSE. ⚠

Gemini Notebook

SCRUM MECHANICS: THE 2020 TEXTBOOK IDEAL

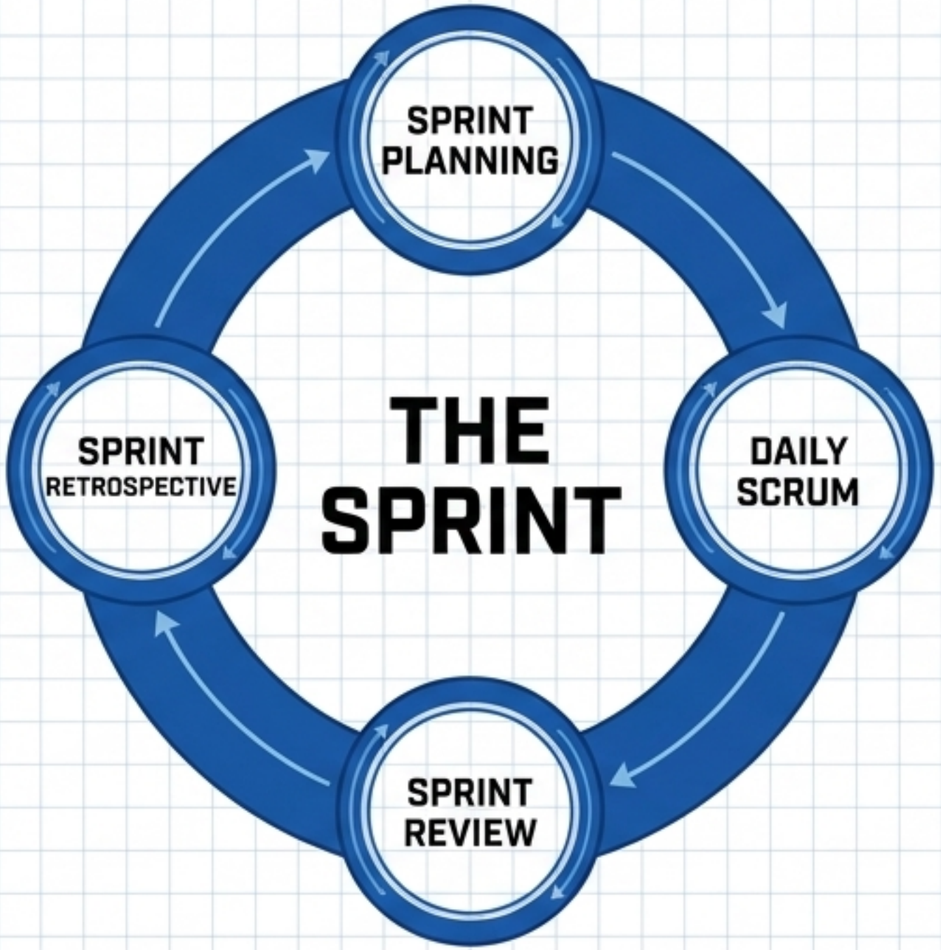
3 ACCOUNTABILITIES

PRODUCT OWNER
Maximizes value, manages backlog.

SCRUM MASTER
Fosters the environment, removes impediments.

DEVELOPERS
The cross-functional builders (typically ≤10 people).

5 EVENTS



3 ARTIFACTS & COMMITMENTS



PRODUCT BACKLOG

└ **PRODUCT GOAL**



SPRINT BACKLOG

└ **SPRINT GOAL**

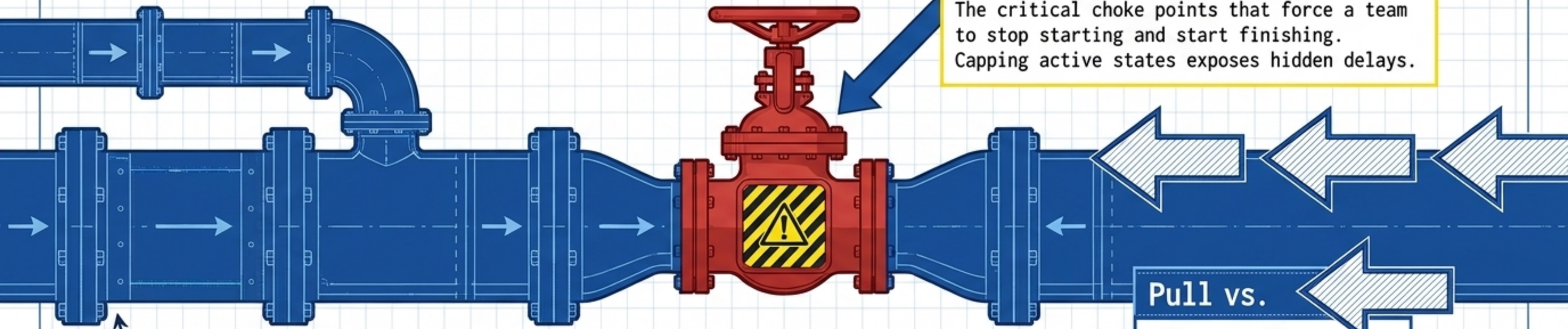


INCREMENT

└ **DEFINITION OF DONE**

Gemini Notebook

KANBAN MECHANICS: QUEUING PHYSICS & PULL FLOW



WIP Limits:

The critical choke points that force a team to stop starting and start finishing. Capping active states exposes hidden delays.

Visualization: Mapping the actual stages work passes through, not generic To Do / Doing / Done.

Pull vs.

Pull vs. Push:
Work is only pulled when downstream capacity opens up.

Lead Time	Cycle Time	Throughput
00:013:00:14:38	00:11 17:1 5:00	Items 100 unit
Request to release.	Work started to work finished.	Items completed per time unit.

Gemini Notebook

EXTREME PROGRAMMING (XP): THE MISSING TECHNICAL ENGINE

SIMPLICITY

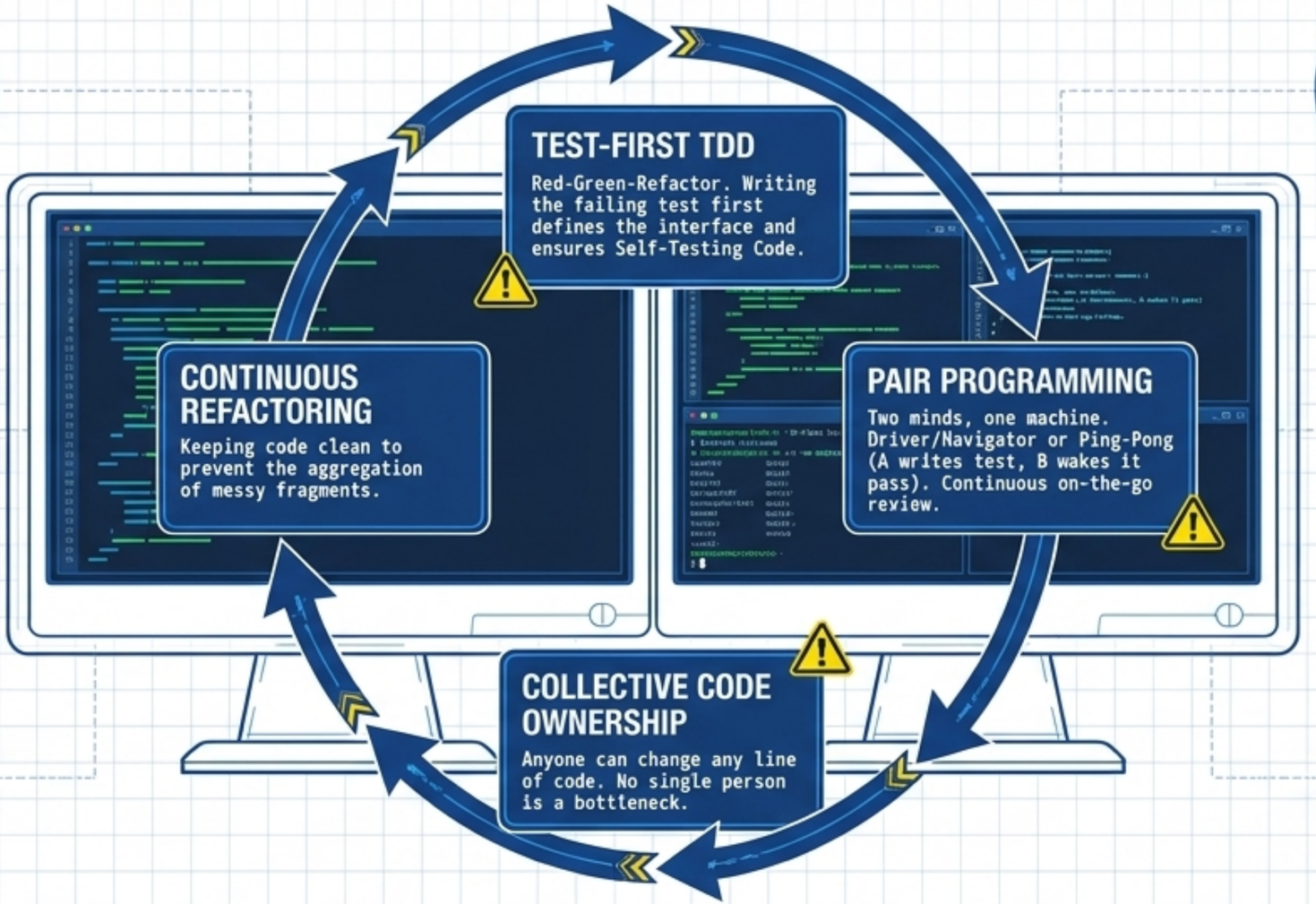
COMMUNICATION

FEEDBACK

COURAGE

RESPECT

COURAGE



TEST-FIRST TDD

Red-Green-Refactor. Writing the failing test first defines the interface and ensures Self-Testing Code.

PAIR PROGRAMMING

Two minds, one machine. Driver/Navigator or Ping-Pong (A writes test, B wakes it pass). Continuous on-the-go review.

COLLECTIVE CODE OWNERSHIP

Anyone can change any line of code. No single person is a bottleneck.

CONTINUOUS REFACTORING

Keeping code clean to prevent the aggregation of messy fragments.

Gemini Notebook

THE DIAGNOSTIC MATRIX: FRAMEWORKS COMPARED

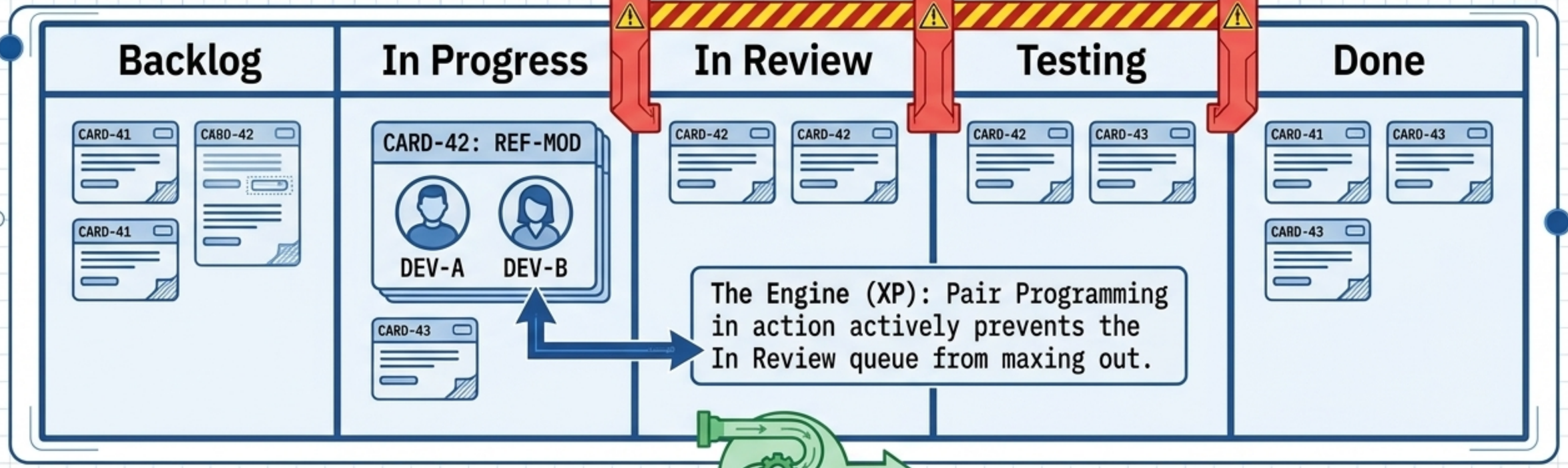
Dimension	Scrum	Kanban	XP	Scrumban	Shape Up (Basecamp)
Planning Horizon	Fixed sprint	Continuous flow	Iterative	Scrum cadence	6-week bets (no backlogs)
Role Structure	Strict 3 roles	No mandated roles	Customer on-site	Hybrid	Decentralized
Capacity / WIP Control	Sprint capacity	Strict WIP caps	Velocity	WIP limits override sprint scope	Fixed appetite, variable scope
Handling Urgent Interrupts	Resists interrupts	Immediate (pulls next)	Resists interrupts	Absorbs interrupts	Circuit Breaker (kills project if delayed)
Engineering Prescriptions	No eng rules	No eng rules	Strict (TDD, Pairs)	Fluid	Fluid
Best-Fit Team Profile	Predictable product squads	Support, Ops, shifting priorities	Highly technical, complex software	Teams failing at Scrum due to interrupts	R&D, Greenfield products

Gemini Notebook

THE HYBRID SQUAD: ANATOMY OF A HIGH-PERFORMING CYCLE

The Wrapper (Scrum): A focused Sprint Goal anchors the board. It is not a grab-bag of 20 unrelated tickets.

The Governor (Kanban): Explicit WIP Caps (e.g., Max 3).

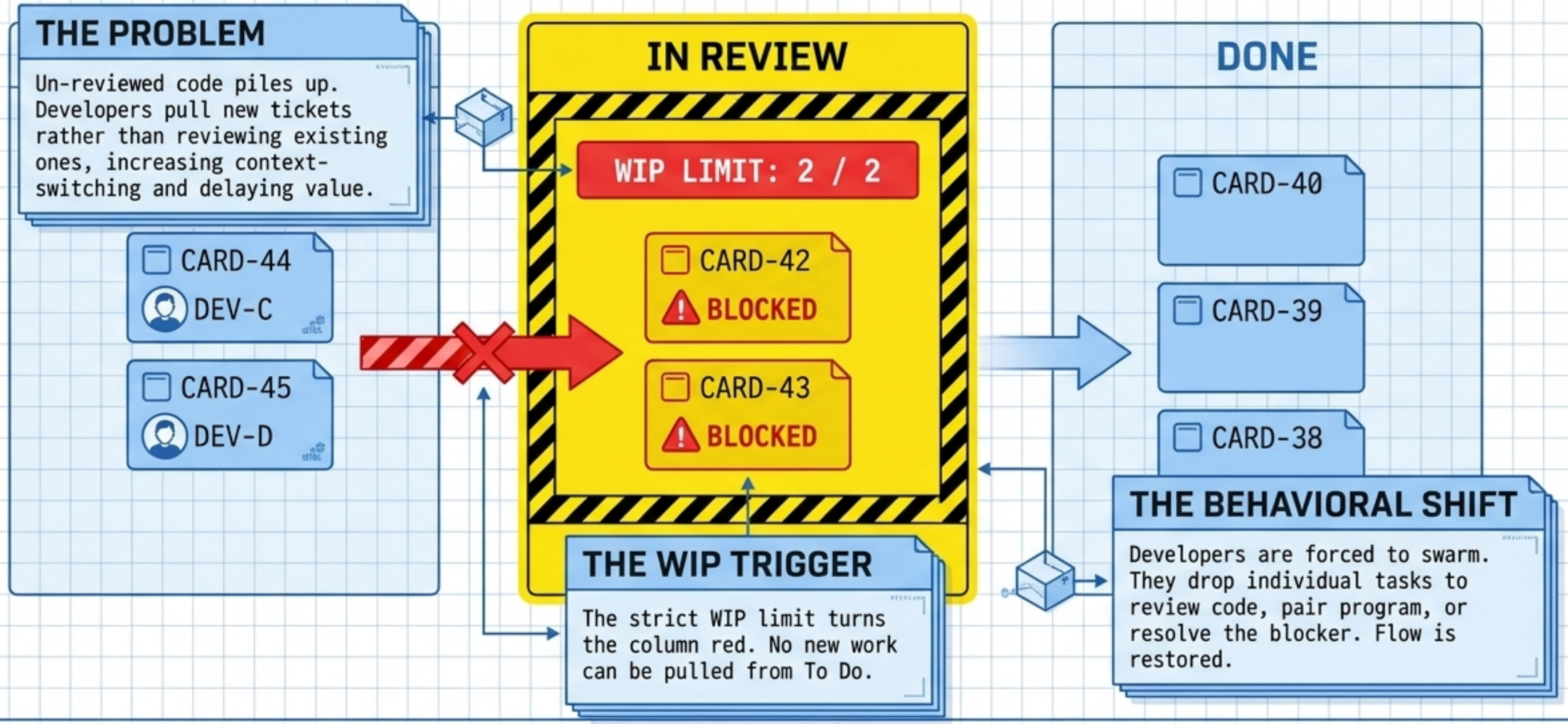




Automated TDD pipelines keeping the build green.

Gemini Notebook

RESOLVING THE CODE REVIEW BOTTLENECK

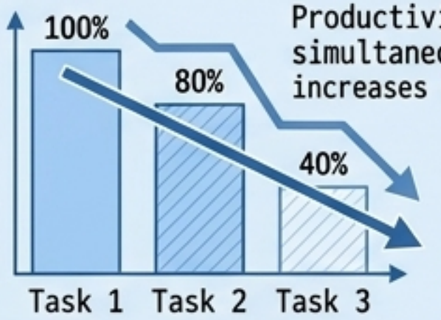


WIP limits encourage a culture of done. Multitasking is not just inefficient individually, but at the team level. (Atlassian)

Gemini Notebook

QUEUING PHYSICS & EMPIRICAL EVIDENCE

Context Switching



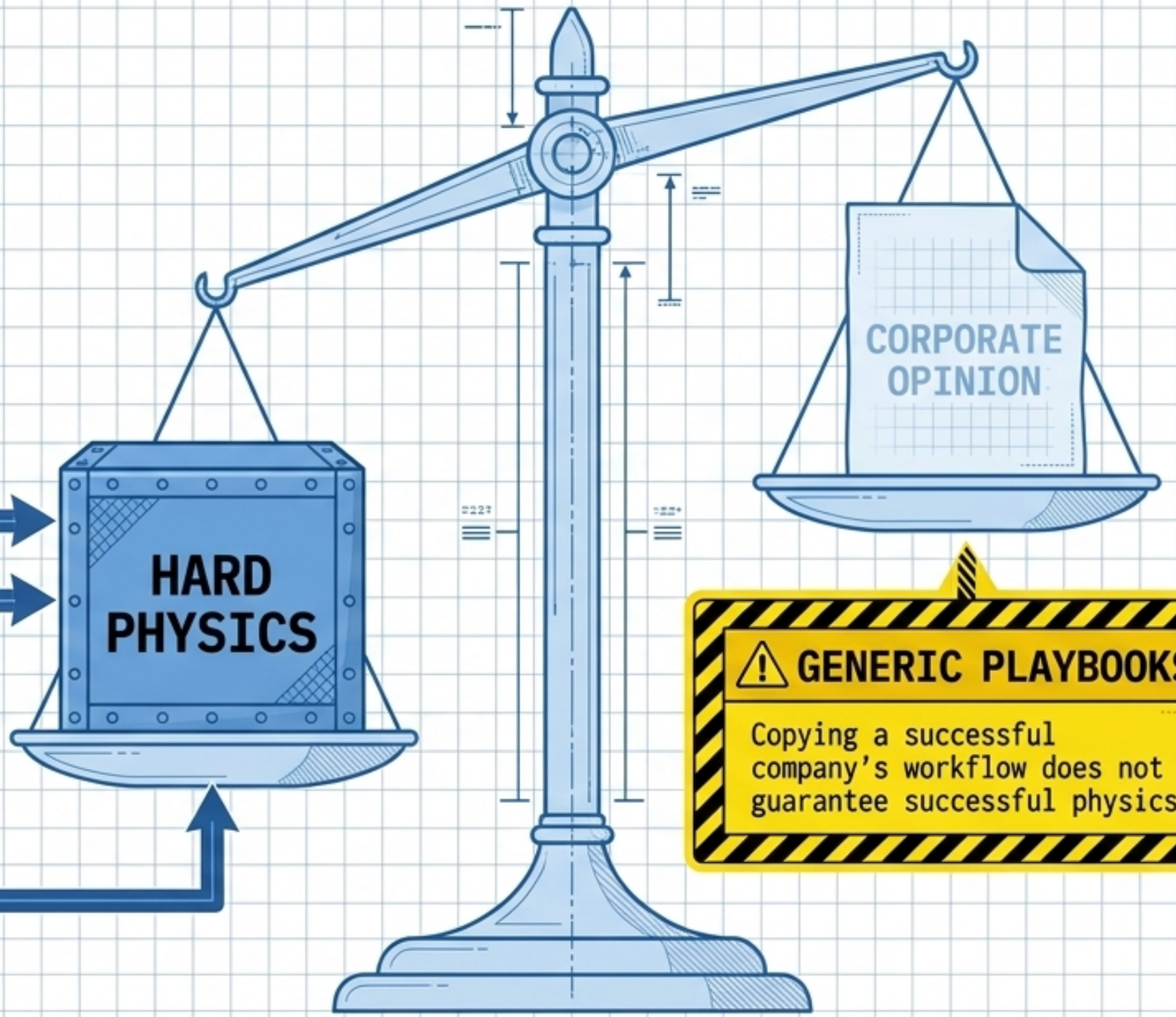
Productivity loss per simultaneous task increases dramatically.

Pairing vs. Async PRs

Pairing (XP) provides continuous code review on-the-go; async PRs inherently create delayed queues and trunk-based integration risks.

Technical Debt (Cunningham)

Cruft is a tax paid on velocity. You un-cruft code when it makes economic sense to restore velocity, not in special cleanup sprints.



⚠ GENERIC PLAYBOOKS

Copying a successful company's workflow does not guarantee successful physics.

Gemini Notebook

OPINIONATED COMPANY PLAYBOOKS

Basecamp's Shape Up

The Mechanism

6-week bets, 2-week cool-down. Appetite over estimates. Decentralized tracking (no central backlogs).

The Reality

Excellent for product-led R&D and greenfield work; collapses in high-interrupt, heavy-maintenance environments.



The Spotify Whitepaper (2012)

The Mechanism

Tribes, Squads, Chapters, Guilds.

The Reality

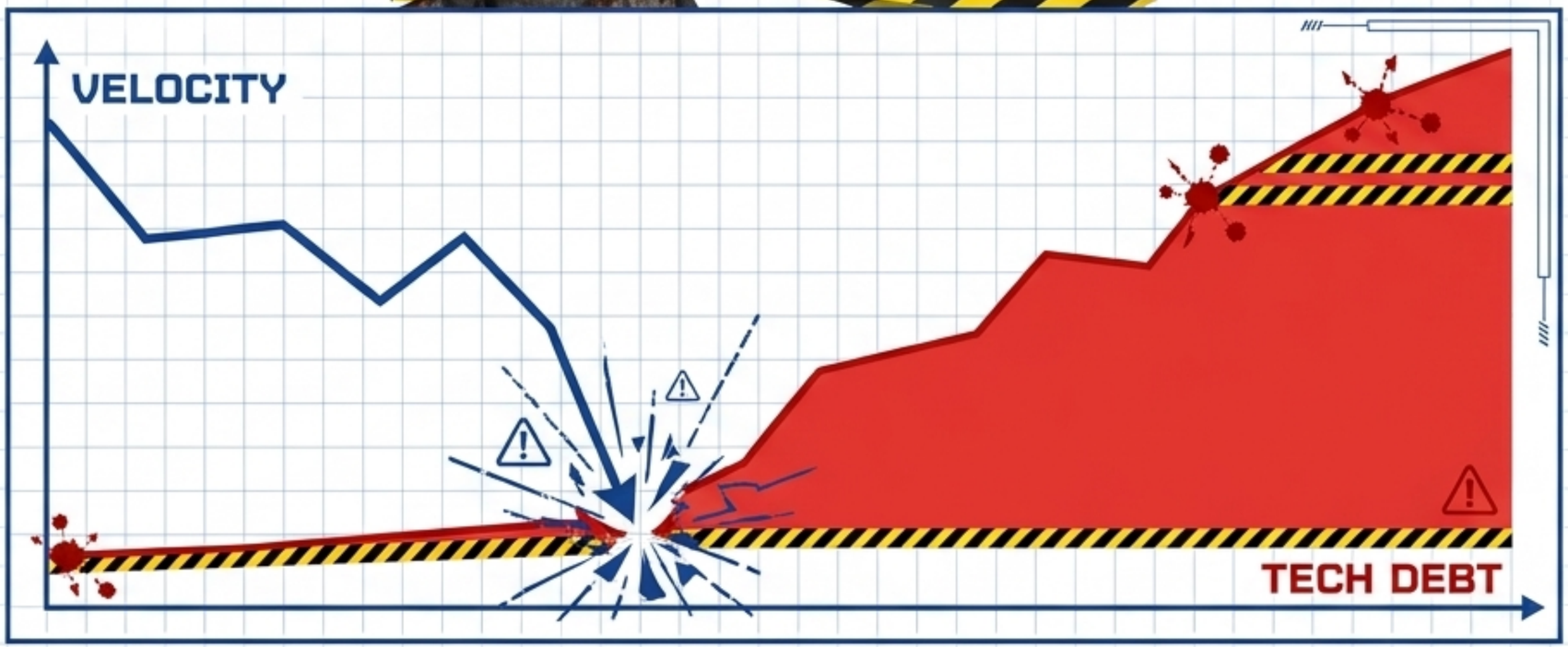
It was a snapshot of an aspiration, not an enduring operational reality. Adopting their nomenclature without their underlying engineering maturity is a cargo-cult trap.



Gemini Notebook

FLACCID SCRUM & THE NEGLECT OF CRAFT





THE ANTI-PATTERN

Adopting Scrum's project management ceremonies while actively ignoring internal software quality and XP practices (Martin Fowler).

THE RESULT

The team takes on crippling Technical Debt. Progress slows to a crawl because the code base is a mess.

THE VERDICT

Scrum without the technical practices that make it work. The agile operating system degrades into a rigid bureaucracy where adding features becomes impossible.

Gemini Notebook

KANBAN & SCRUM CARGO-CULTS

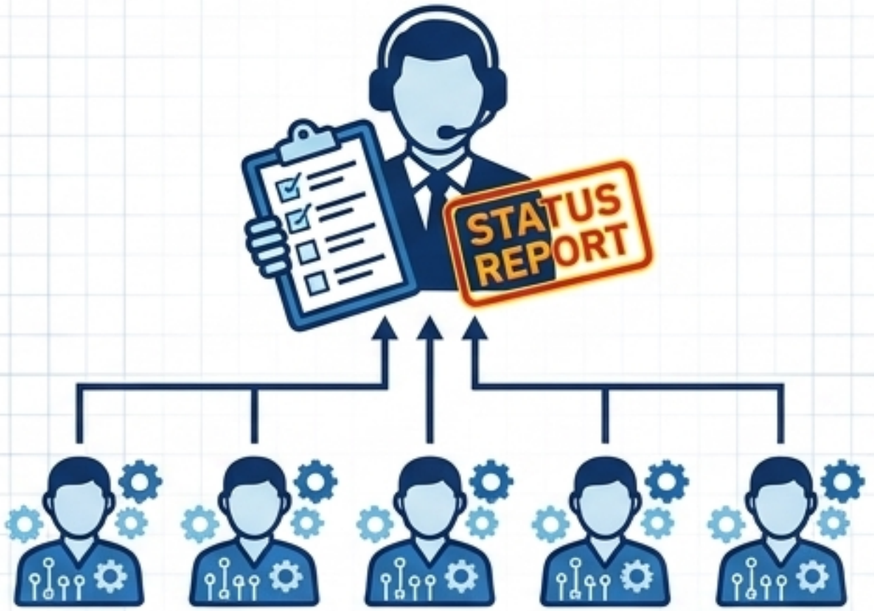
KANBAN CARGO-CULT



ANTI-PATTERN

⚠ WIP limits raised as needed. The moment ⚠ a developer is blocked, they pull a new ticket rather than resolving the blocker, ⚠ masking idleness and destroying flow. ⚠

SCRUM CARGO-CULT

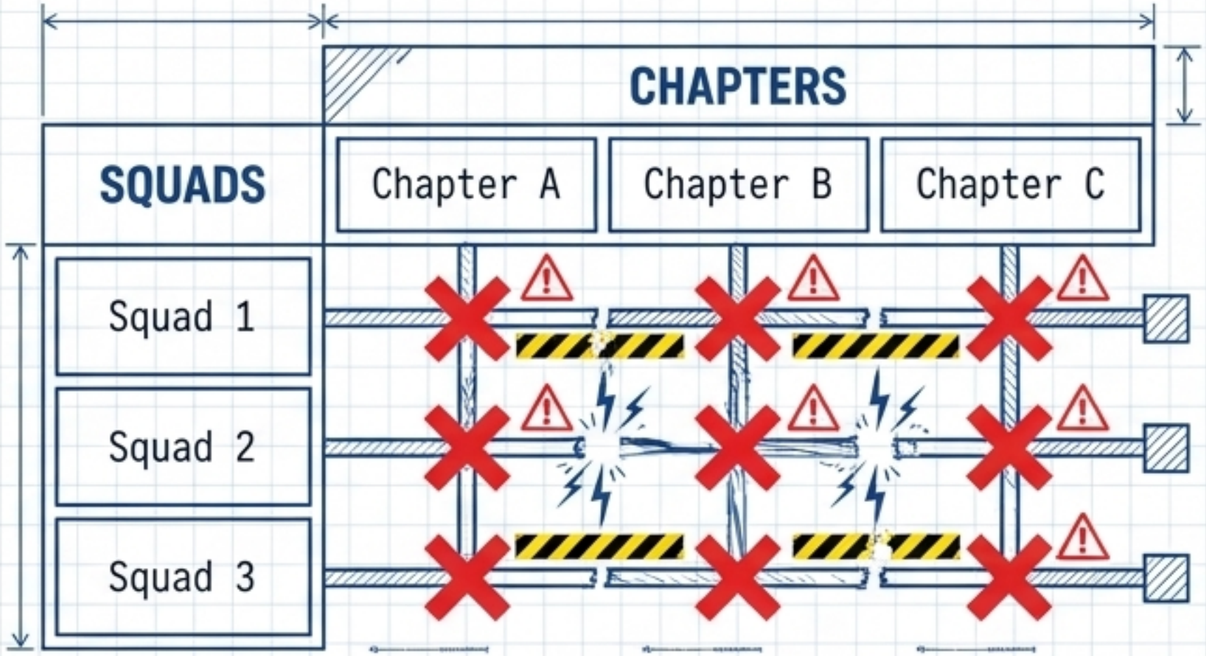


ANTI-PATTERN

⚠ The Daily Scrum turning into a status report to management, rather than a 15-minute sync for Developers to adapt the ⚠ Sprint Backlog toward the Sprint Goal. ⚠

Gemini Notebook

ORGANIZATIONAL BREAKDOWNS (THE SPOTIFY MYTH)



FAILED #SQUADGOALS

Jeremiah Lee's Postmortem: The reality of matrix management created deep accountability breakdowns.

THE TENSION

Product alignment (Squads) directly conflicted with technical alignment (Chapters).

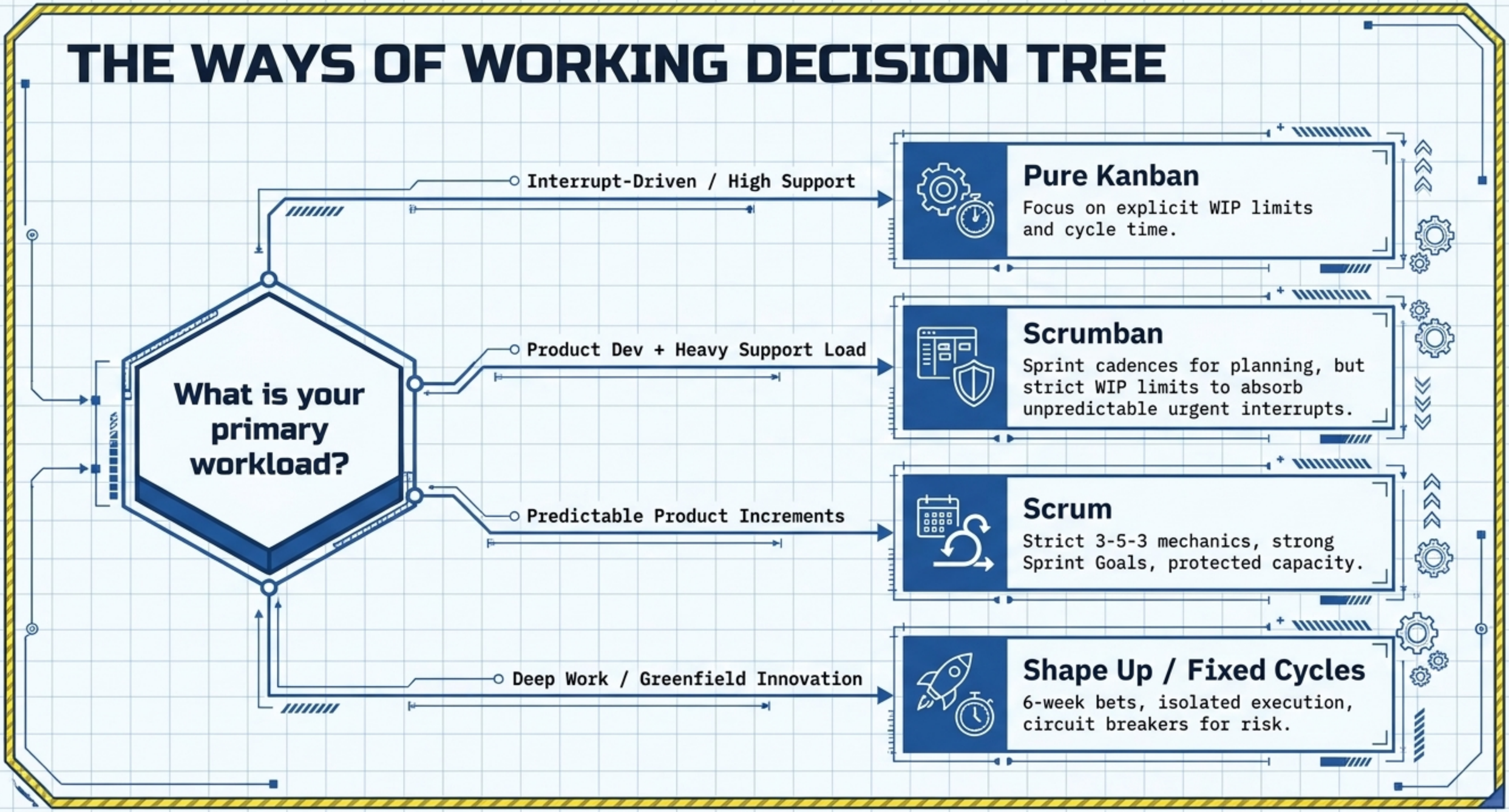
THE TAKEAWAY

Do not copy a company's marketing whitepaper.

Workflows must be
Workflows must be designed around a team's actual communication physics and Conway's Law, not a trendy naming convention.

Gemini Notebook

THE WAYS OF WORKING DECISION TREE



Gemini Notebook

THE TECHNICAL NON-NEGOTIABLES

RULE

Board layout and cycle length are variable; technical craft is not.

TDD & REFACTORING

Code must be self-testing and continuously un-crufted to maintain sustainable pace.

PAIRING / SWARMING

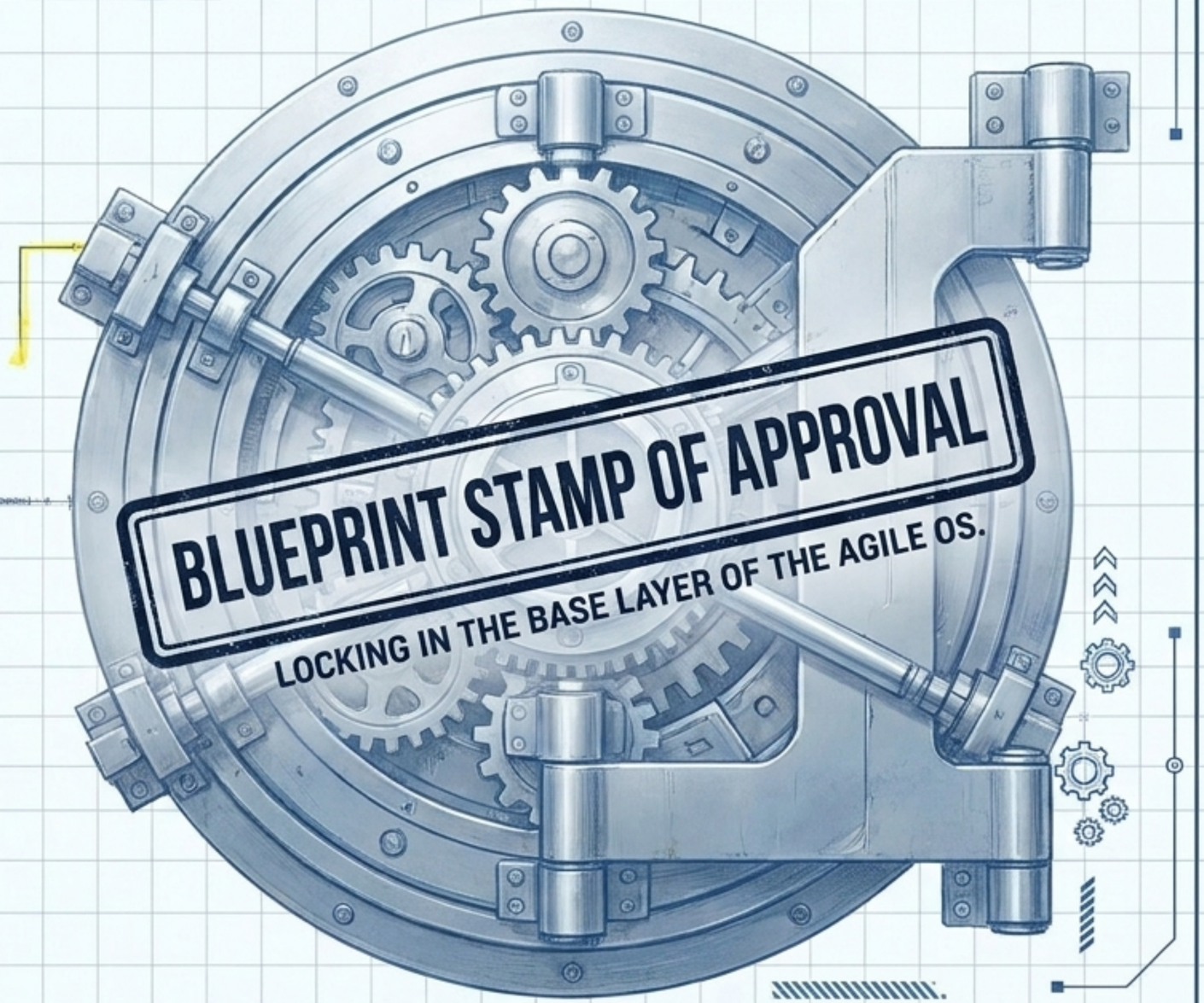
Complex problem-solving and code review bottlenecks require collective human effort, not just async ticket hand-offs.

COLLECTIVE OWNERSHIP

No single developer is a silo or a bottleneck.

CI/CD

Done means deployed.

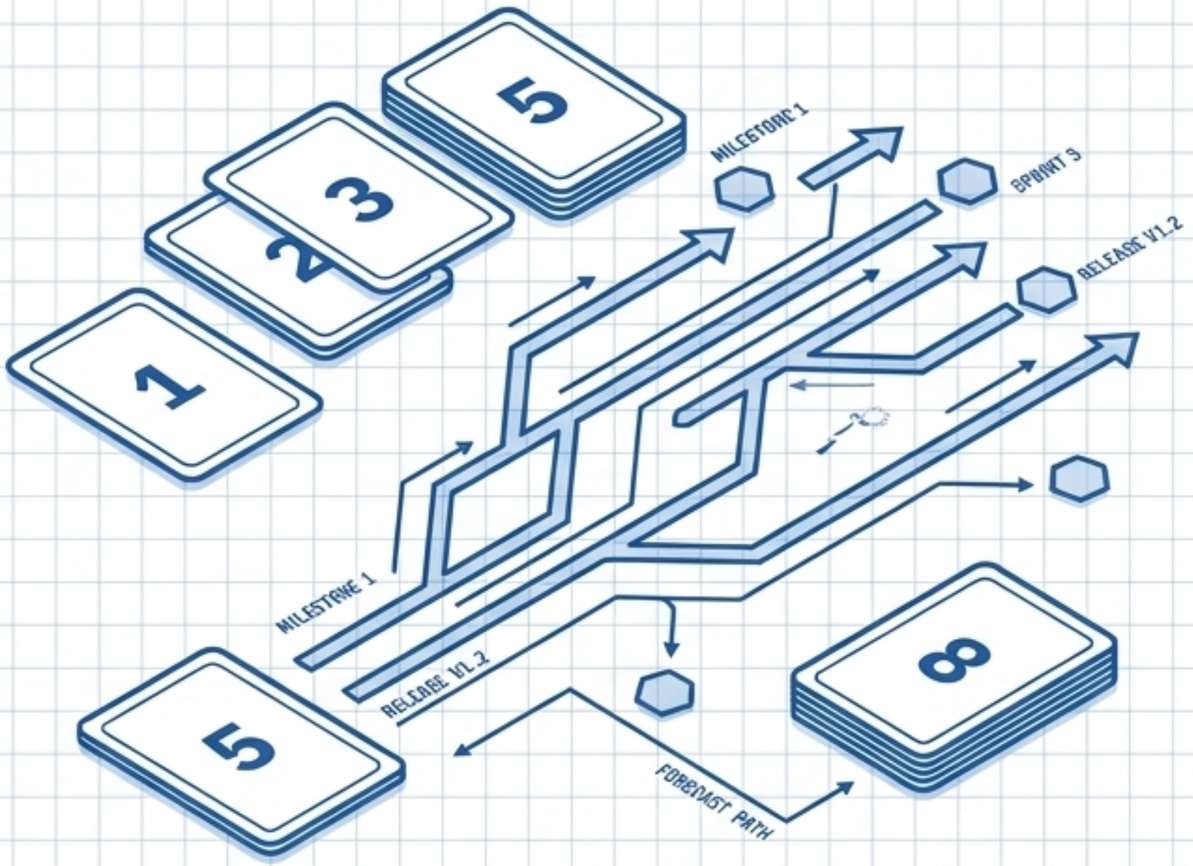


Gemini Notebook

NEXT UP — S07E03: PLANNING AND ESTIMATION

COMING SOON

- Why Story Points inevitably get weaponized by management.
- Moving beyond the estimation game.
- Using Monte Carlo simulations and historical throughput (physics) instead of guessing.



Gemini Notebook