

PERSONAL PROGNOSTIC DRIFT ENGINE

HEALTH CORRIDOR



SIGNAL BLOB:
INTRODUCING THE
VISUAL METAPHOR

STATE(t)=1: -6, +0.76, +0.03



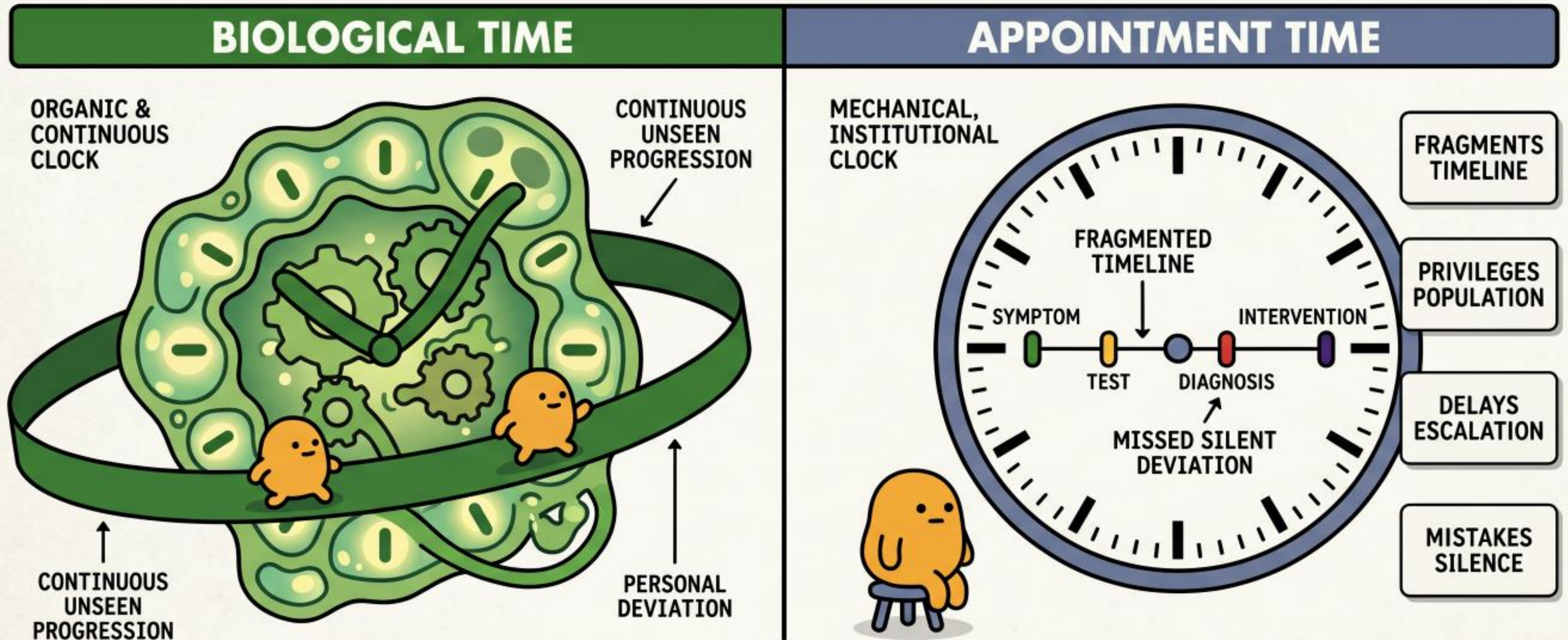
WARNING

CRIMSON

OR PERSISTENT DIVERGENCE

THE PROBLEM: INSTITUTIONAL TIMING FAILURE

Reactive health models fragment continuity, privileging population thresholds over personal deviation and missing silent progression.



CORE THESIS: BEFORE-EVENT vs. AFTER-EVENT

TOO LATE

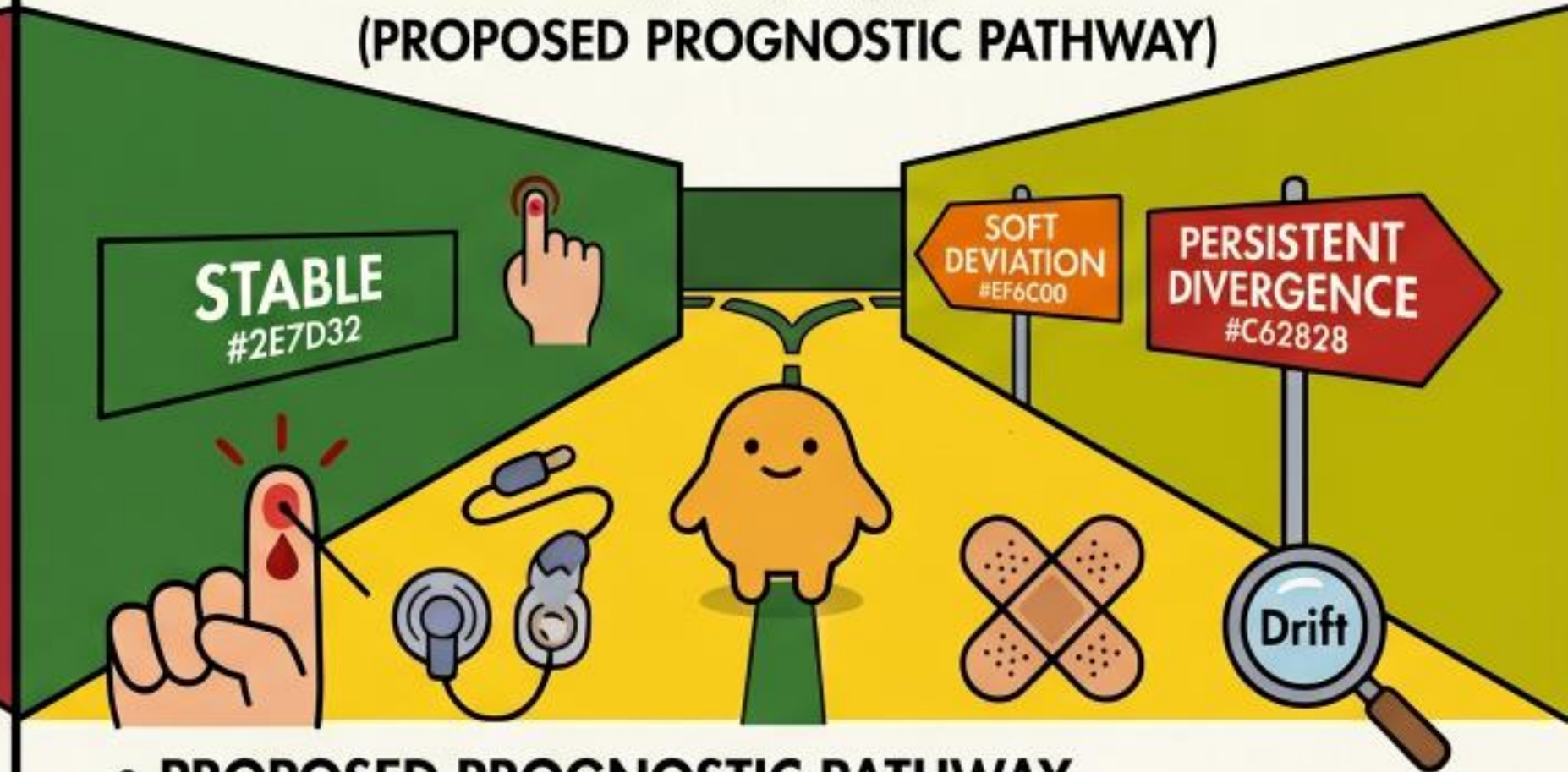
(CONVENTIONAL REACTIVE PATHWAY)



- **CONVENTIONAL REACTIVE PATHWAY.**
- **Too Late:** Diagnosis happens after formation.
- Focused on **EVENT & CONFIRMATION.**
- Occasional checks, institutional view.

IN TIME

(PROPOSED PROGNOSTIC PATHWAY)

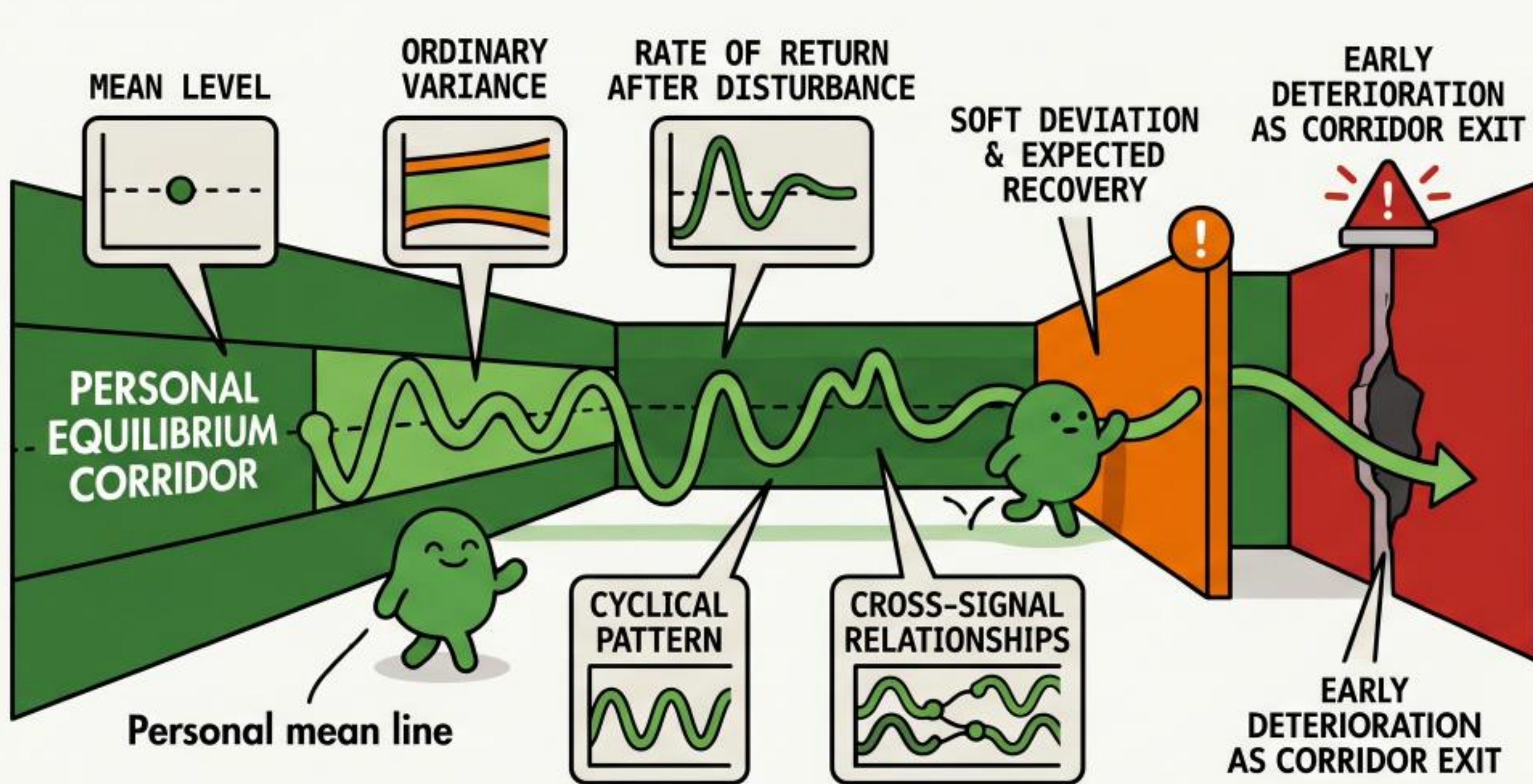


- **PROPOSED PROGNOSTIC PATHWAY.**
- **In Time:** Drift detected while forming.
- Focused on **EMERGENT TRAJECTORY & CONTINUOUS INTERPRETATION.** Personal deviation view.



- **Proposed sequence:** baseline → repeated sampling → drift detection → prognostic warning → early escalation.

THE BASELINE CORRIDOR: LIVING EQUILIBRIUM, NOT A POINT

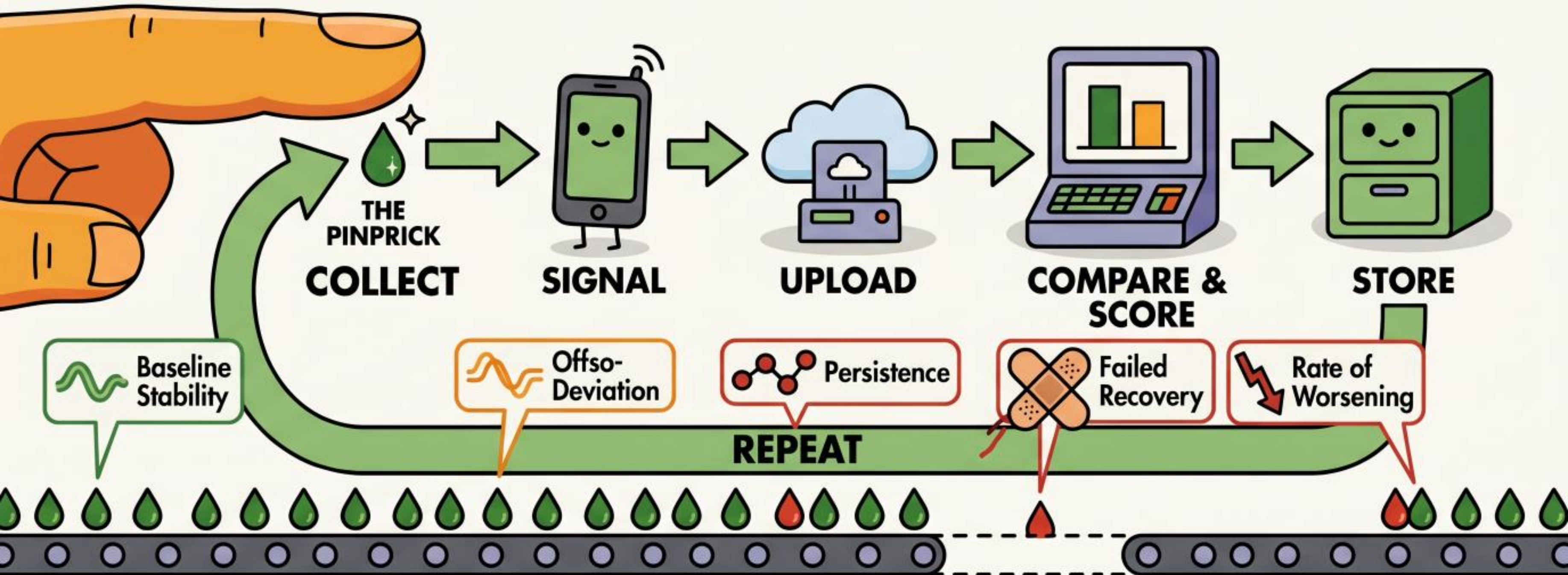


The person's own longitudinal norm is the meaningful reference point, not the population average. This is a living corridor of expected behavior.

- 1. Mean Level**
Baseline average.
- 2. Ordinary Variance**
Expected fluctuation band.
- 3. Rate of Return**
Recovery speed.
- 4. Cyclical Pattern**
Seasonal changes.
- 5. Cross-Signal**
Linked data patterns.

**STABILITY = FLUCTUATION INSIDE THE BAND, NOT PERFECT SAMENESS.
EARLY DETERIORATION IS A CORRIDOR EXIT, NOT A CATASTROPHIC ANOMALY.**

LOW-BURDEN SAMPLING: THE PINPRICK LOOP



Repeatable pinprick sampling reduces distance, making monitoring personally manageable. High temporal density reveals subtle signals over time, ensuring prognostic continuity.

**Strength is not sample size,
but temporal density.**

STATE SPACE: THE SIX STATES AS HIGHWAY SIGNS

HEALTH DETERIORATION IS MOVEMENT ACROSS STATES, NOT A BINARY SWITCH.



Ordinary fluctuation within corridor.



Background vulnerability without active drift.



Early abnormality without sufficient persistence.



Repeated abnormality with real directional structure.



Strong enough abnormality to justify active review.

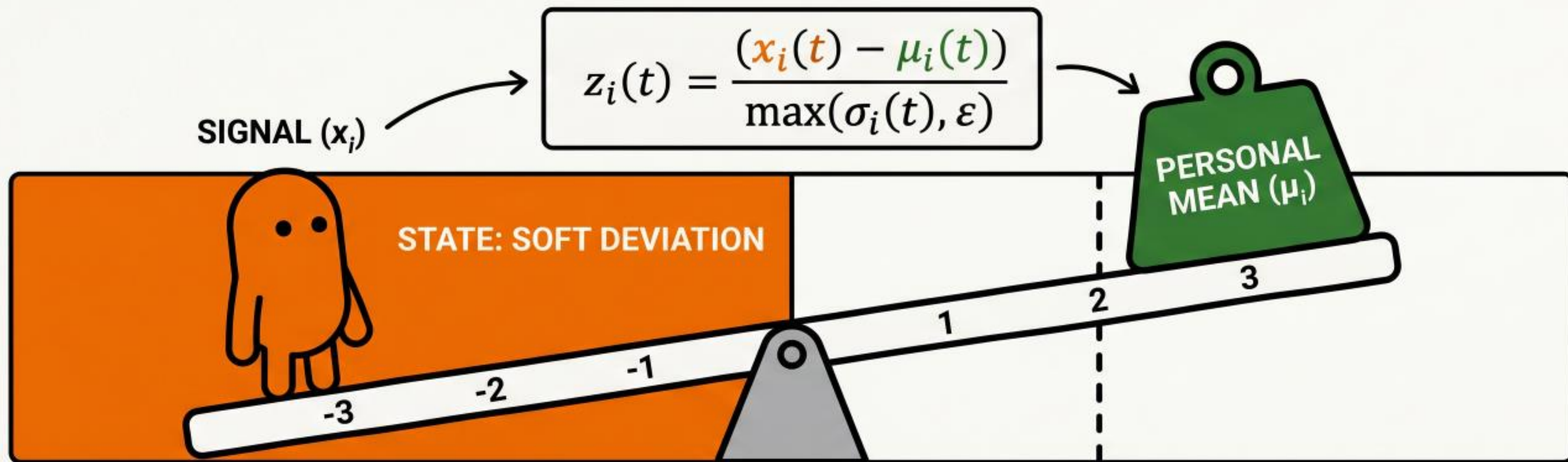


Onward handover beyond the monitoring loop.



DEVIATION LOGIC: THE SEESAW / z-SCORE

Personal z-score measures relative displacement: how far your current signal (x_i) sits from your expected corridor. The seesaw shows the balance between the signal and personal mean (μ_i). A tip past the dashed threshold is **Soft Deviation**. We track magnitude and direction.



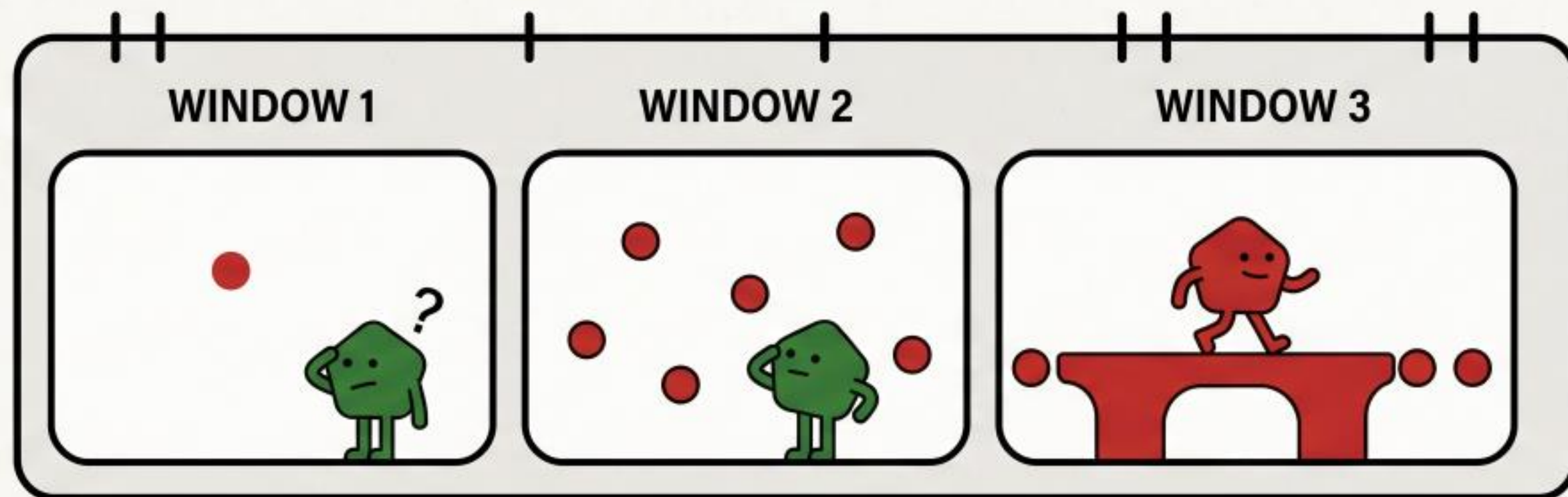
Weighted Total Deviation: $D(t) = \frac{\sum w_i |z_i(t)|}{\sum w_i}$

Directional Tracking:







PERSISTENCE: NOISE VS. STRUCTURE

A single departure may be noise.
Repeated departure in the same corridor is **structure**.
Noise fails to persist.
Noise fails to persist.



'Noise dies. Structure persists.'

FOUR PERSISTENCE PATTERNS

- Continuous Persistence 
- Intermittent Persistence 
- Directional Persistence 
- Recovery-Failure Persistence 

$$P(t) = \frac{1}{k} \sum I(D(t-r) > \theta_d) \quad \text{for } r = 0 \text{ to } k-1$$

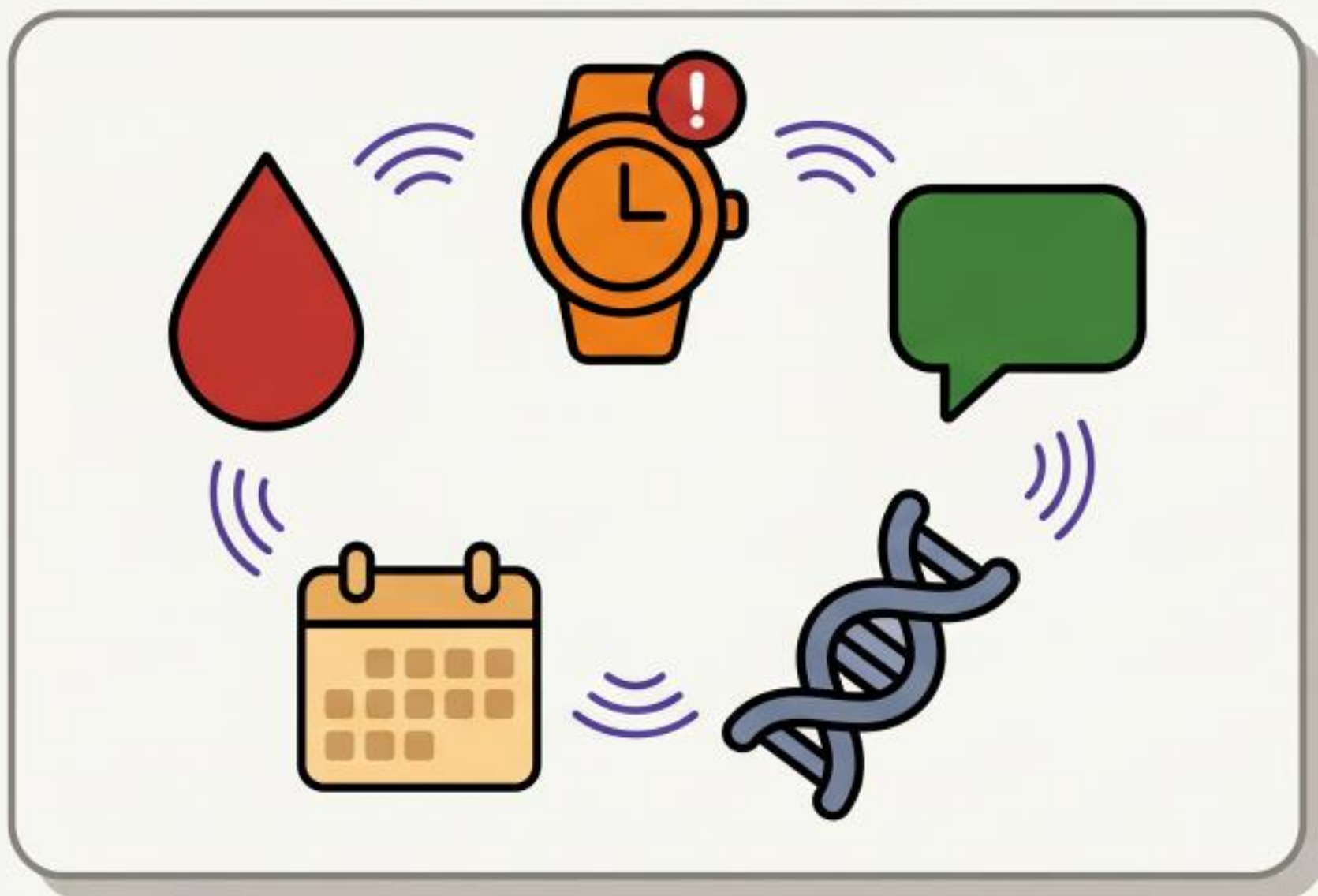
Measure $P(t)$ gives the proportion of recent windows where deviation exceeded the concern threshold.

Persistence makes present deviation temporally credible, proving the deviation is no longer behaving like a brief anomaly.

CONVERGENCE: THE MAGNETIC SNAP

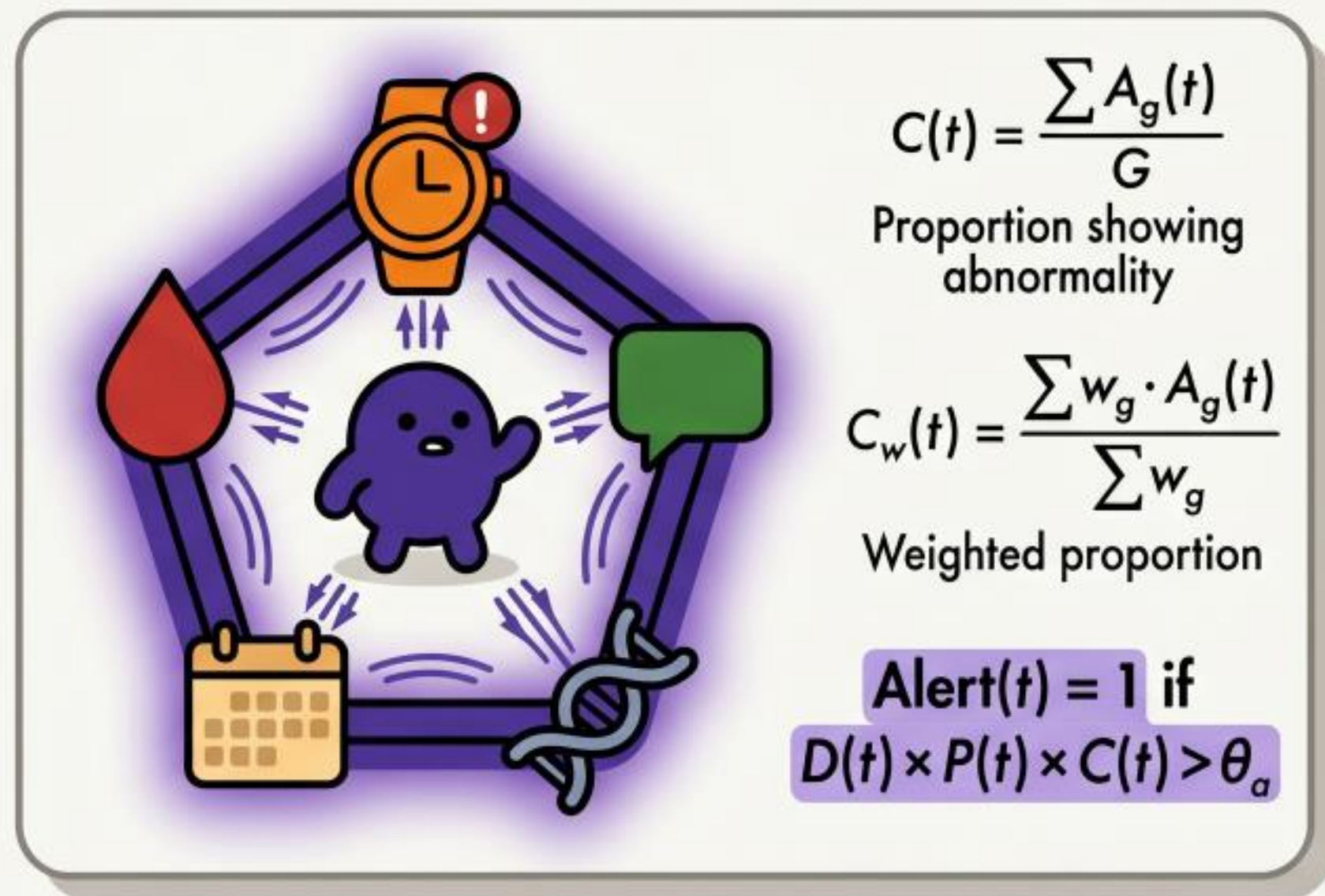
One signal may warn. Multiple aligned signals justify escalation. Convergence occurs when abnormality is no longer confined to an isolated layer, but begins to appear across two or more related layers. Present visually: five simple icons floating apart, then magnetically snapping together into a glowing pentagon.

FLOATING APART: ISOLATED WARNING



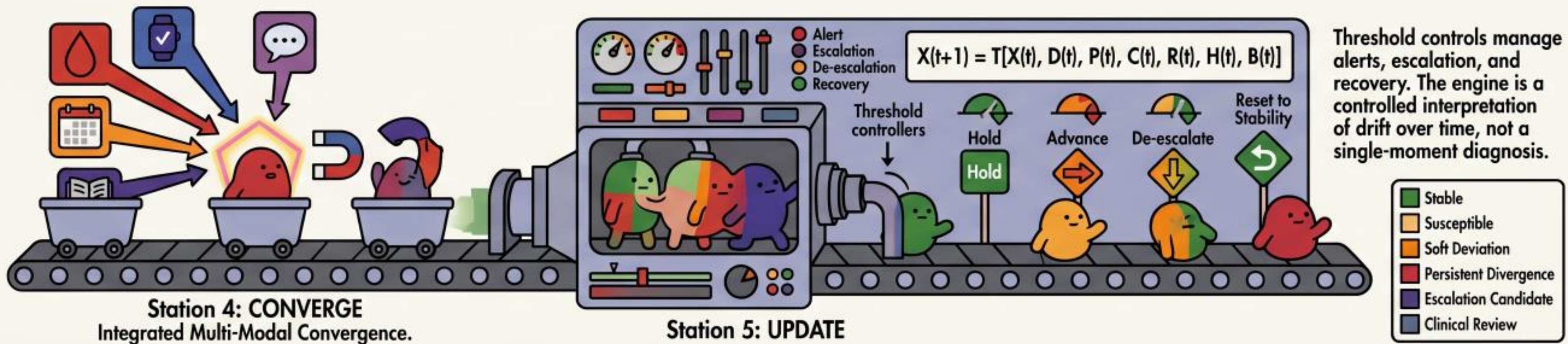
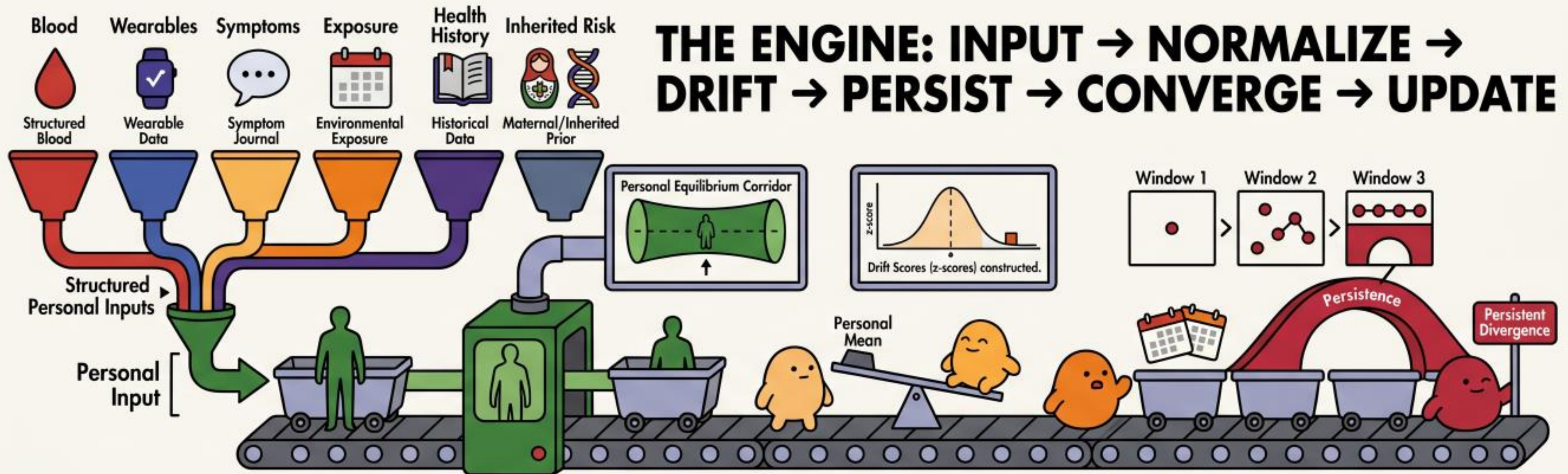
FLOATING APART: ISOLATED WARNING

MAGNETIC SNAP: ESCALATION CANDIDATE



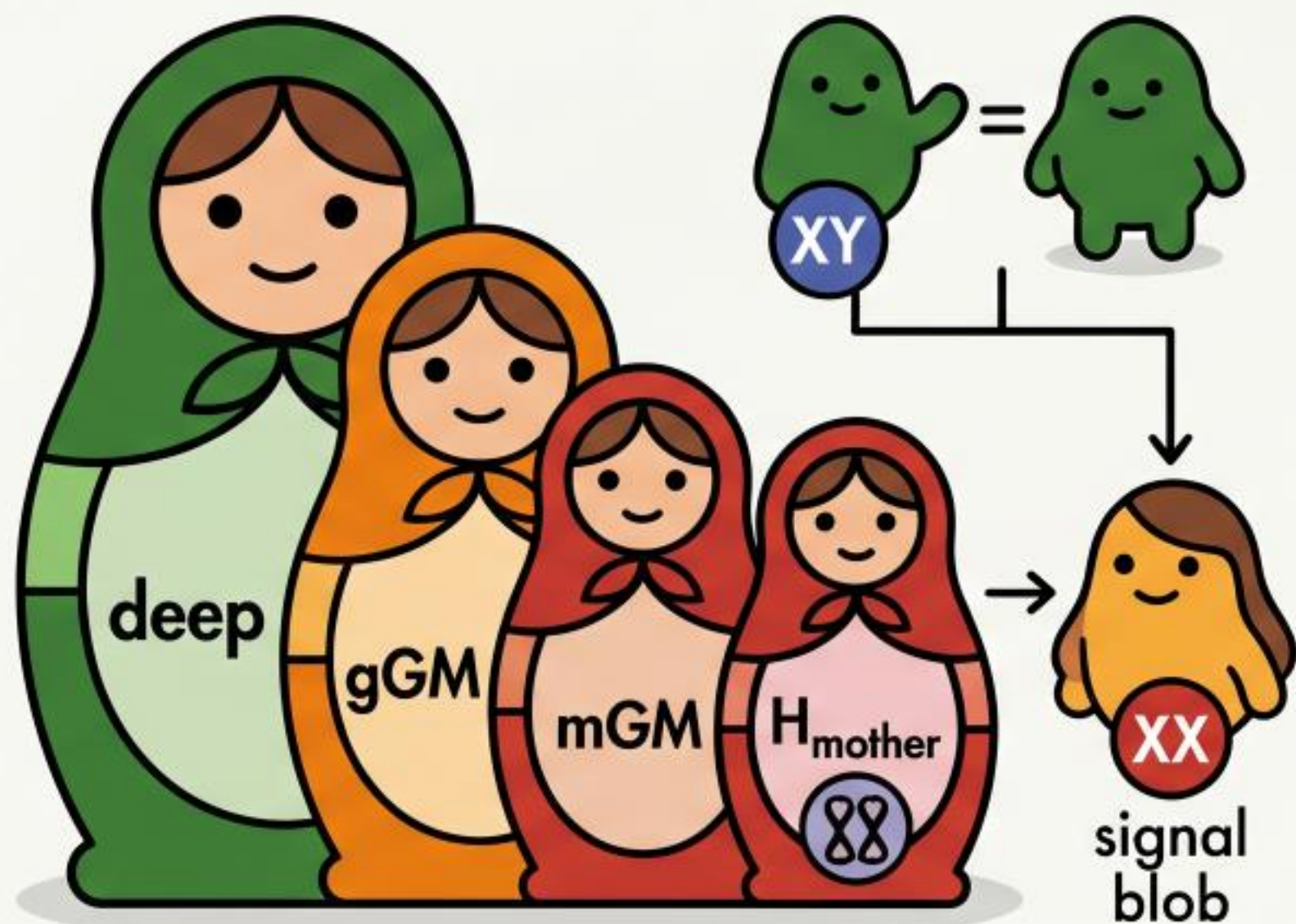
MAGNETIC SNAP: ESCALATION CANDIDATE

THE ENGINE: INPUT → NORMALIZE → DRIFT → PERSIST → CONVERGE → UPDATE



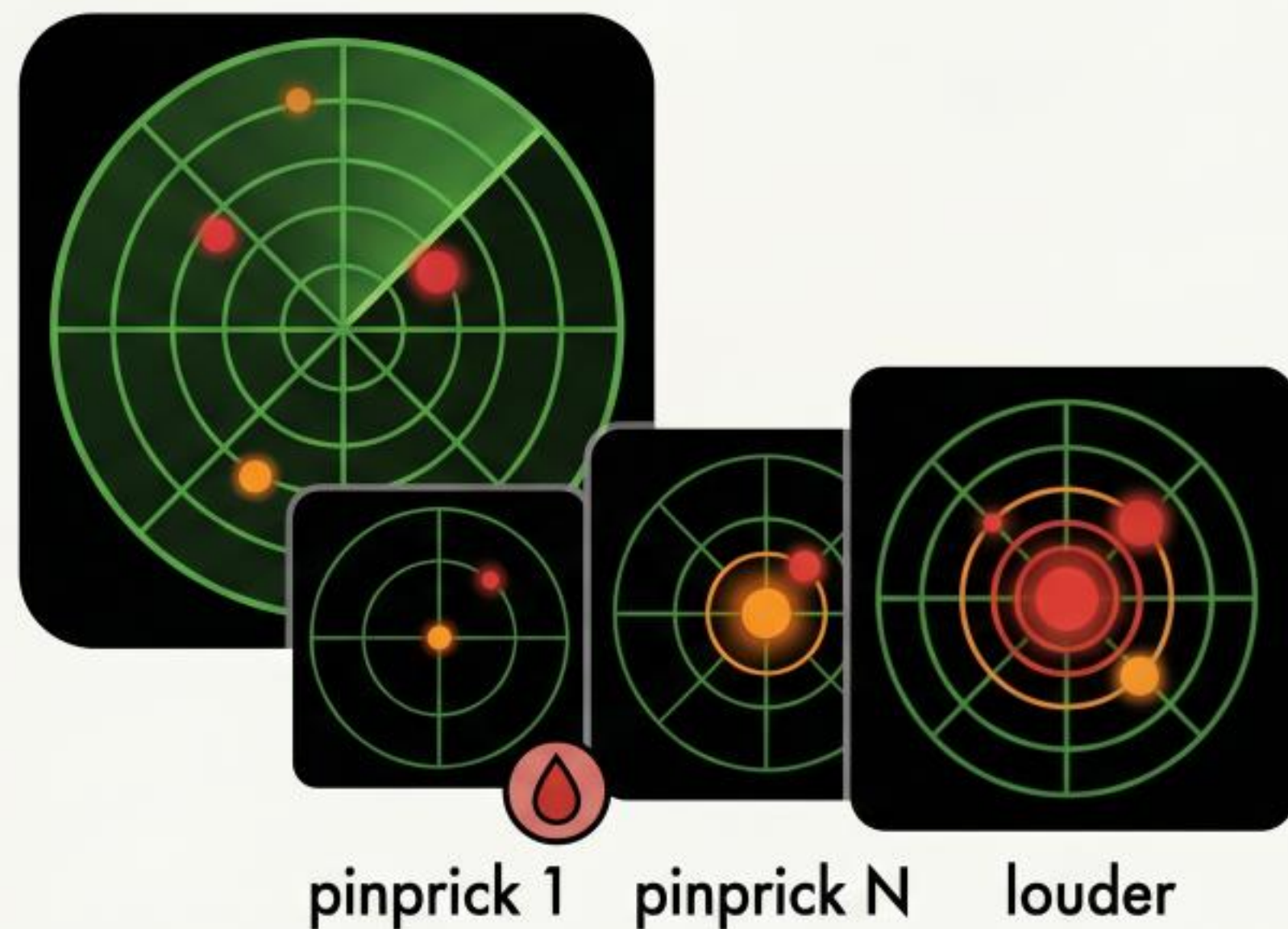
CANCER LAYER: CLOSURE-PROXIMITY SONAR

Maternal Lineage Prior



$$H_{\text{mat-line}} = H_{\text{mother}} + H_{\text{mGM}} + H_{\text{gGM}} + H_{\text{deep}}$$

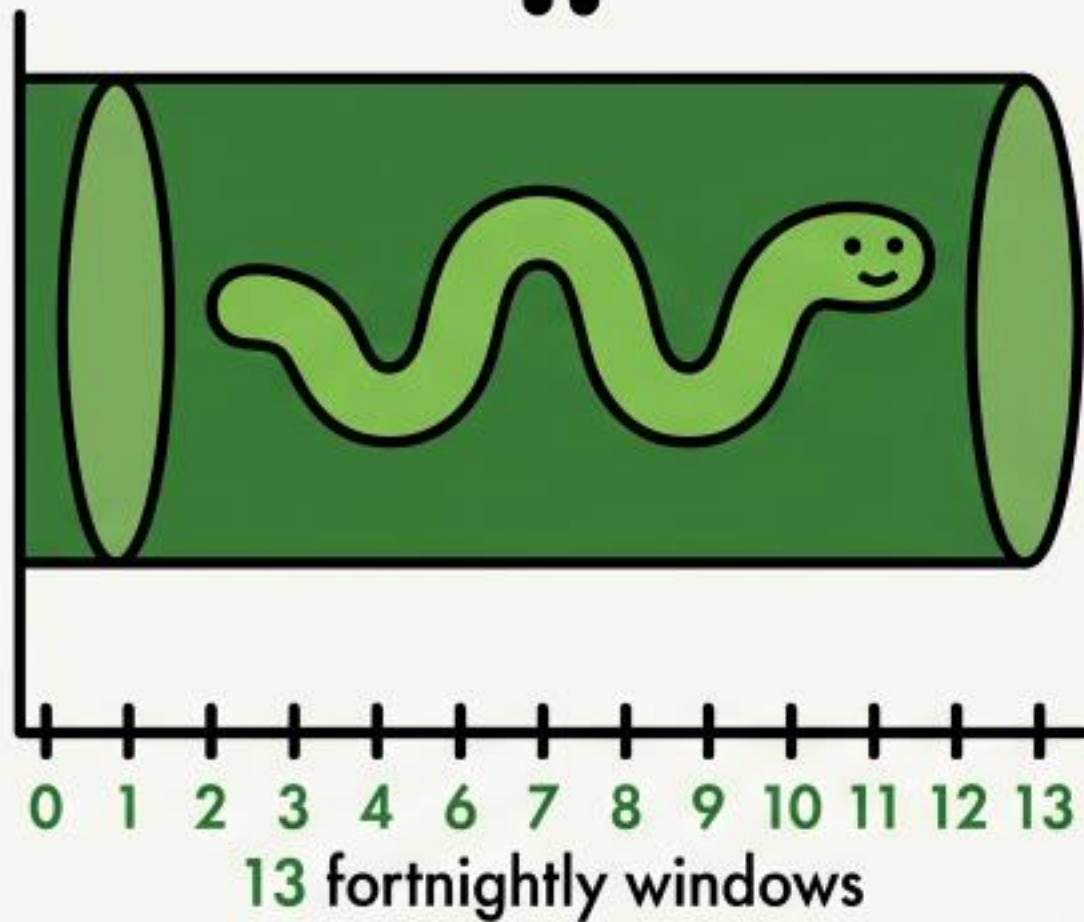
Closure-Proximity Detector



Not a terminal diagnostic. Repeated data increases proximity blip brightness and loudness.

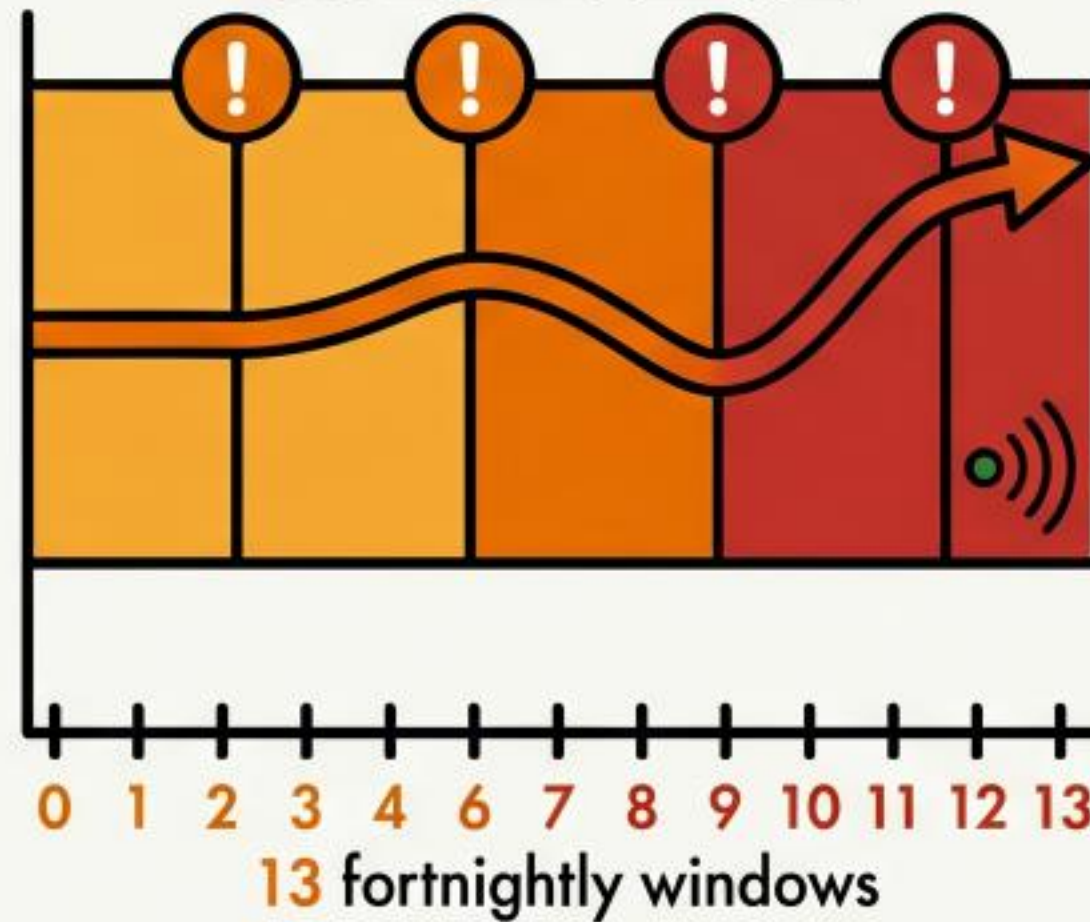
Worked Example: Three Subjects' Six-Month Trajectories

Subject A (35y male, no elevated inherited prior [0.02])



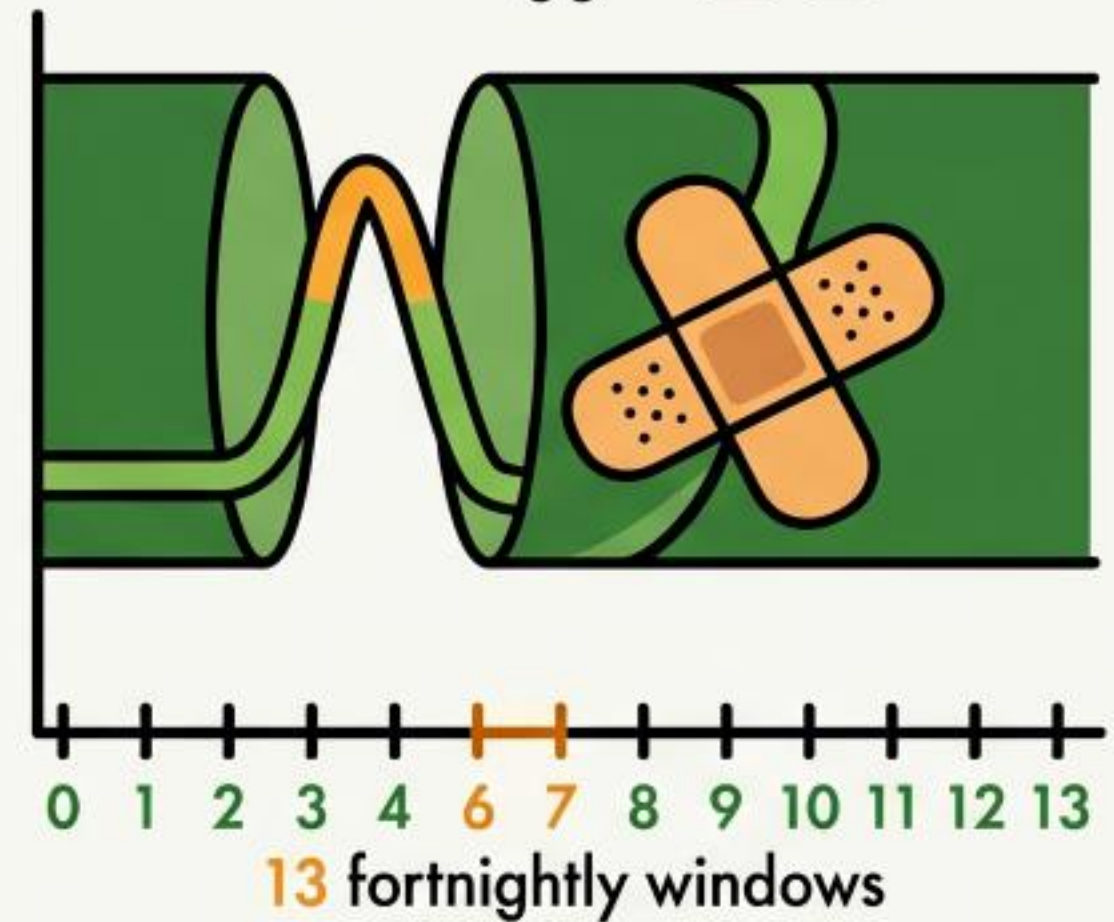
Ordinary fluctuation, no flags.
(Values 0.03–0.13, threshold 0.15)

Subject B (40y male, elevated maternal lineage prior [0.10])



Reinforced closure-lean, justified checking.
(Values 0.08–0.29, threshold crossed window 4, flags window 6 & 8)

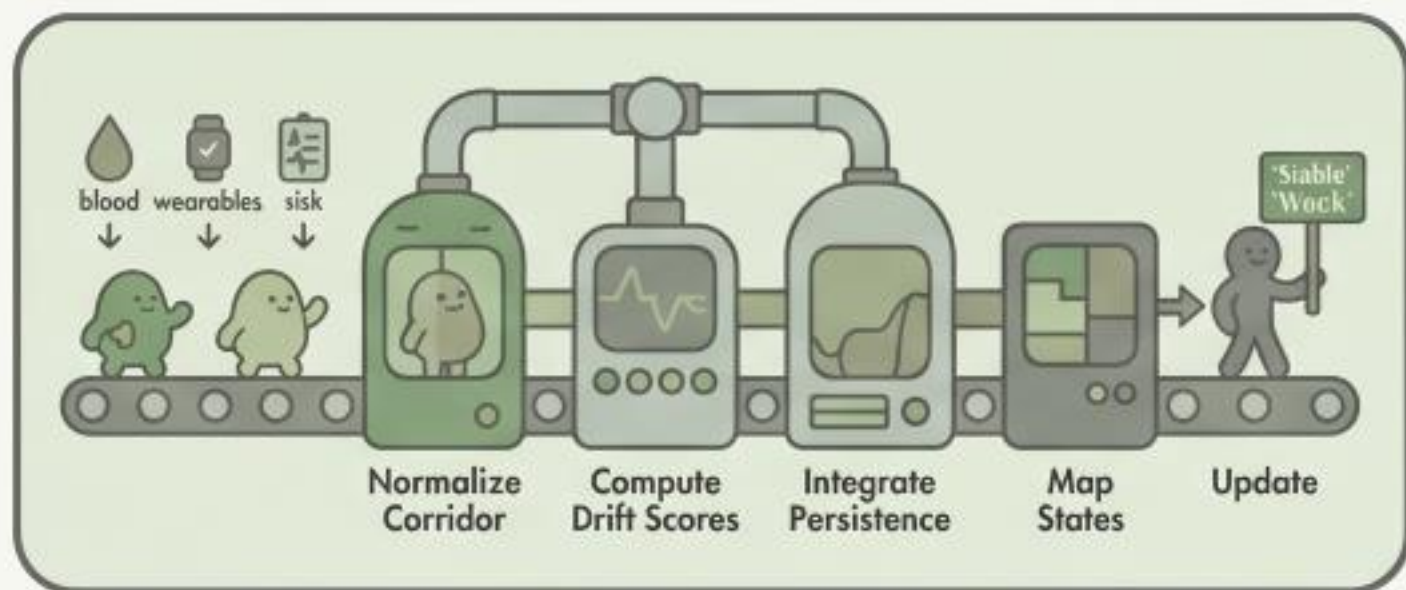
Subject C (10y female, modest prior [0.06])



Temporary watch, no escalation.
(Brief spike window 4-5 [0.18, 0.17], recovery to 0.01–0.07)

MULTI-DISEASE: SAME ENGINE, DIFFERENT WEIGHT DIALS

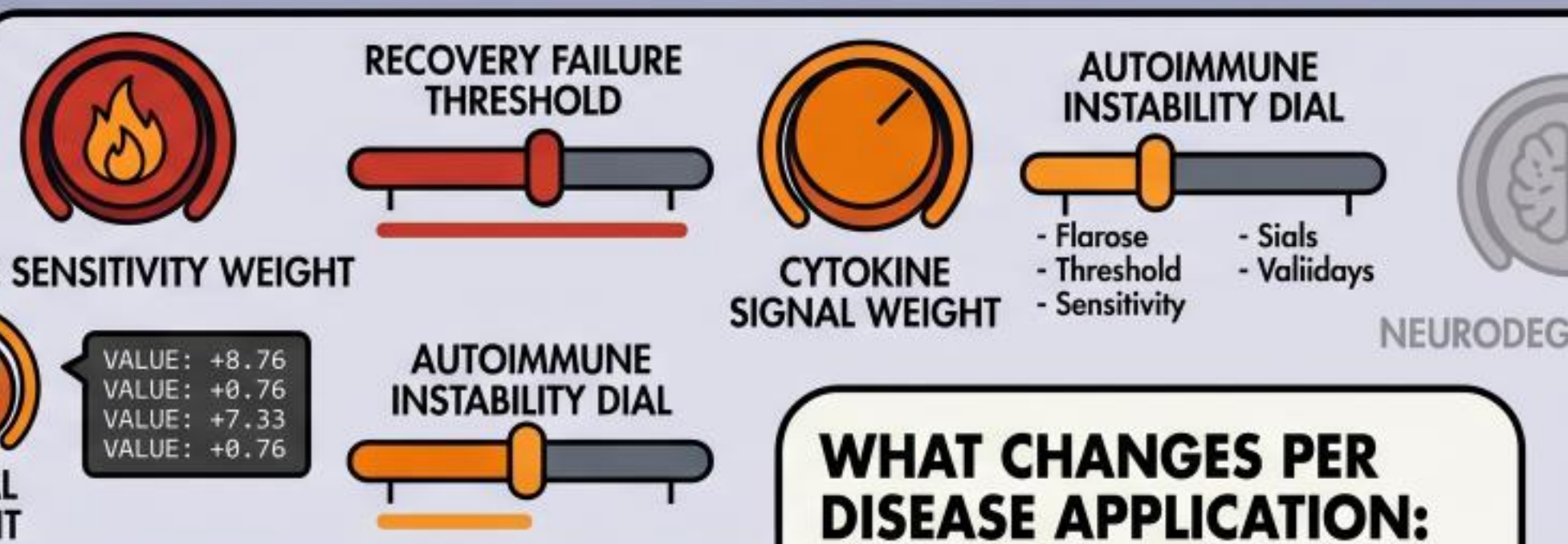
SHARED ENGINE ARCHITECTURE



SHARED ARCHITECTURE (Constant):

- State Space
- Deviation Logic
- Persistence Rules
- Convergence Function
- Commit Conditions
- User Loop

DISEASE WEIGHT DIAL PANEL

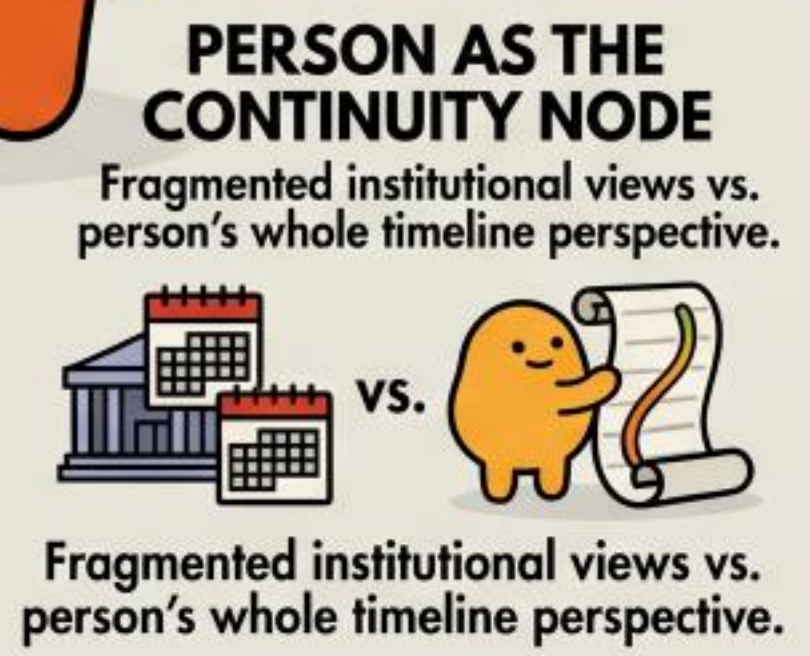
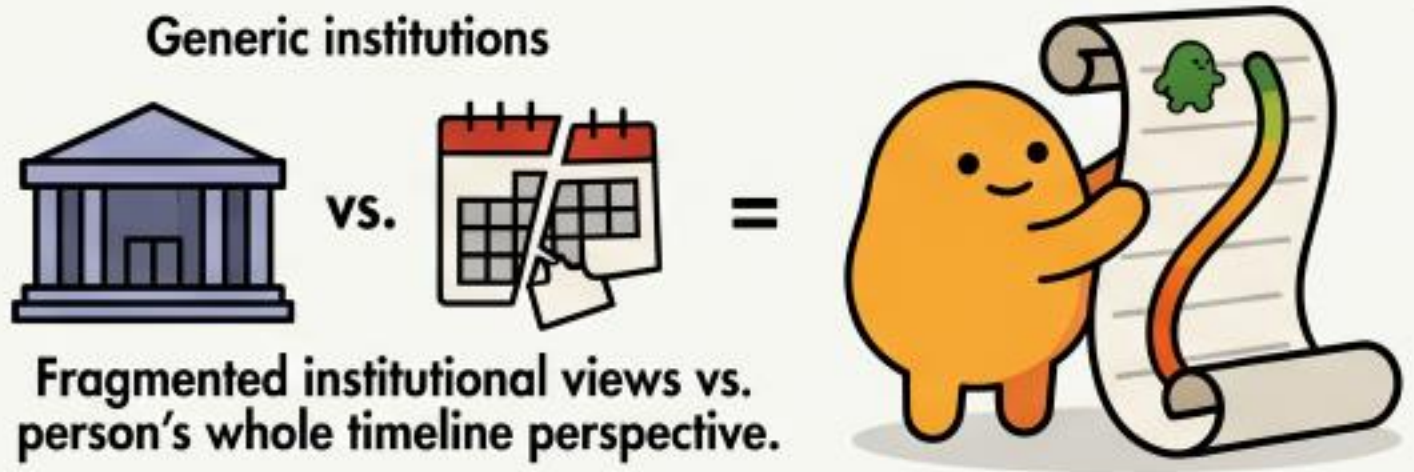
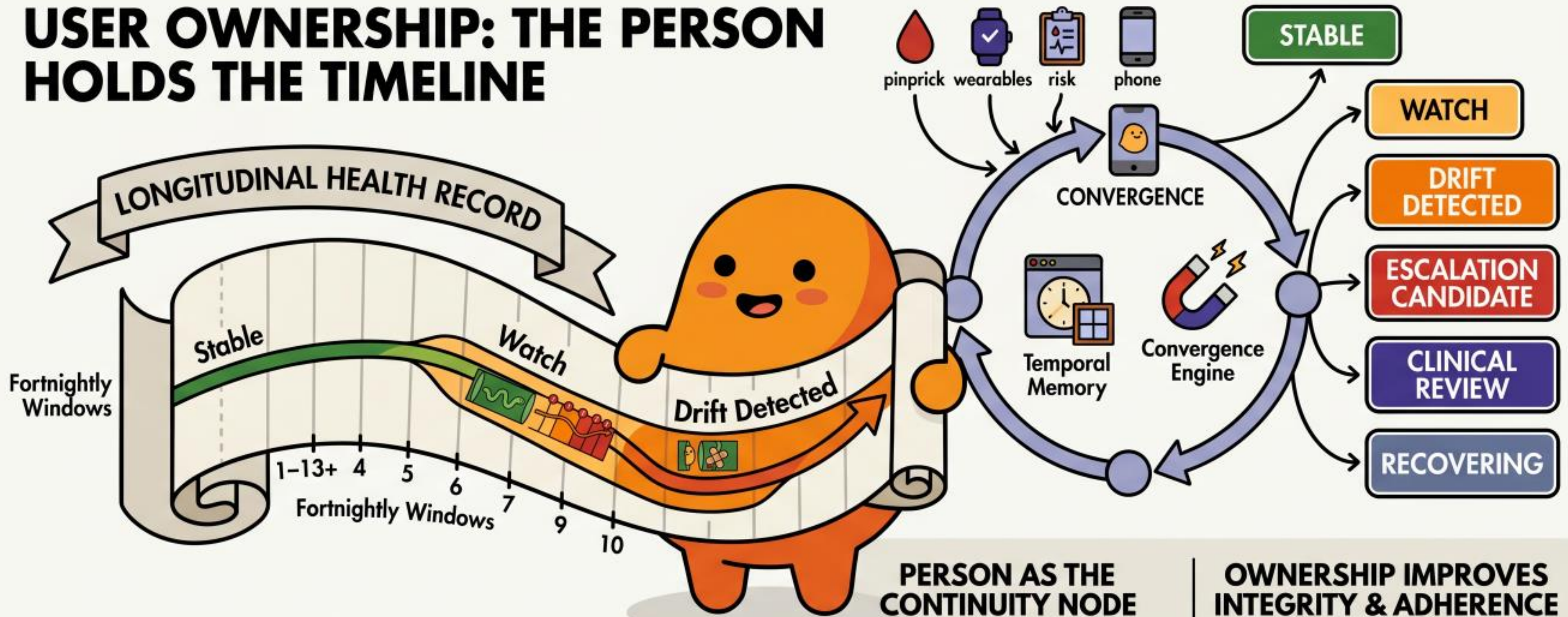


- ### WHAT CHANGES PER DISEASE APPLICATION:
- Signal Weights (Dials)
 - Threshold Sensitivity (Sliders)
 - Escalation Pathways
 - Validation Requirements

SHARED OBSERVATION FIELD (ALL DOMAINS)



USER OWNERSHIP: THE PERSON HOLDS THE TIMELINE



VALIDATION ARCHITECTURE: THE EVIDENCE LADDER

2. RETROSPECTIVE MODEL VALIDATION

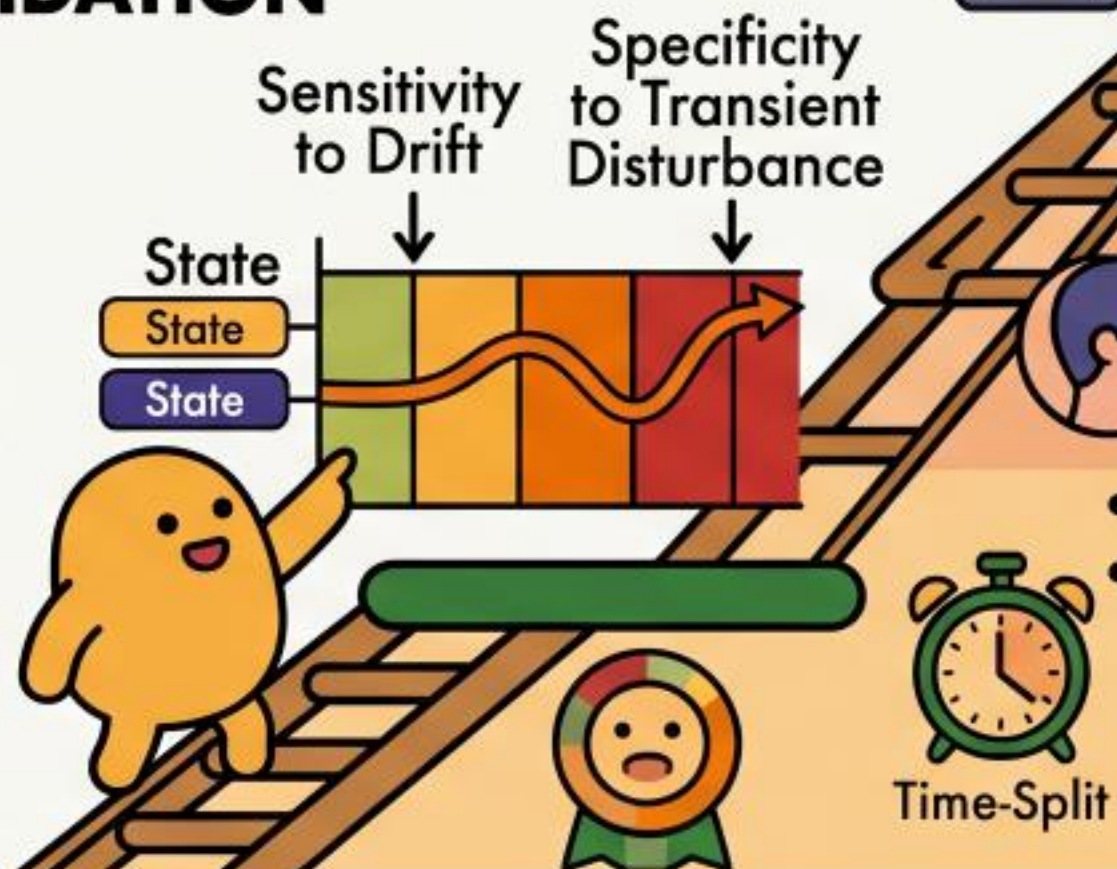
Trajectory as Unit

- Trajectory Unit
- Time-Split Design
- Key Endpoints: Sensitivity/Specificity (Drift/Transient Disturbance), State Transition Accuracy, Escalation Timing
- Negative Controls & Hard Cases

1. ANALYTICAL VALIDATION

Signal Layer Qualification

- Blood-Layer & Wearable-Layer Qualification
- Input & Behaviour Validation
- Fit-for-Purpose Validation



3. PROSPECTIVE & REAL-WORLD VALIDATION

Remote Data Tested Directly

- Remote Data Directly Acquired
- Prospective Design Stages
- Human Factors as part of validation

- Trajectory Unit
- Time-Split Design
- Key Endpoints: Sensitivity/Specificity (Drift/Transient Disturbance), State Transition Accuracy, Escalation Timing
- Negative Controls & Hard Cases

LONGITUDINAL VALIDATION IS DIFFERENT

Static accuracy is insufficient.

Time is part of the outcome.

Unit of validation is trajectory.

Remote repeated data create extra validation demands.

DOMAIN-SPECIFIC PATHWAYS

Cancer, Metabolic, Inflammatory, Cardiovascular, Neurodegenerative applications.

CLOSING: PROGNOSIS IS TEMPORAL REVERSAL



Health Corridor

PROGNOSTIC GOALS

What we DO NOT claim...

- Predict disease at birth.
- Replace confirmatory clinical workup.
- Claim every assay is ready for home deployment.

PROGNOSTIC POWER

What we DO claim...

- Detect, persist, converge, and escalate structured personal drift.
- Catch drift before damage consolidates.
- THIS IS PROGNOSIS.