Canonical Equation Glossary (6th Grade Edition)
The Intent Economy

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Abstract

This glossary explains the main equations of The Intent Economy in simple language. Each formula stays the same, but the explanations are written clearly and directly. The goal is to understand how systems change and how they remember.

1. The System Snapshot

$$S(t) \in \mathbb{R}^n$$

This means:

At time t, the system has many measurable parts.
Think of it like a dashboard with many gauges: *trust, rules, behavior, money, stability.*

$S(t)$ is the full picture of the system at that moment.

2. The Starting Point

$$S_{baseline} = S(t_0^-)$$

This is the "before" picture. It shows what the system looked like right before something happened.

We use it to compare later.

3. Systems Change Over Time

$$\frac{dS}{dt} = F(S, I, C)$$

This means:

The system changes depending on:

- S — how it already looks
- I — the push (intent)
- C — resistance (constraints)

Systems do not change randomly. They change because of forces and structure.

4. Intent Is the Push

$$I(t_0) = \Delta S_0$$

Intent is someone trying to move the system.
ΔS_0 means "change in the system."
So this equation says: Intent is the push that tries to change things.

5. Resistance Pushes Back

$$\frac{dS}{dt} = I(t) - \Gamma S$$

Γ (Gamma) represents friction or resistance.
So this equation says:
Change = push forward − resistance.
If resistance is strong, change is slow. If resistance is weak, change happens quickly.

6. Systems React

$$\frac{dS}{dt} = I(t) - \Gamma(S,t)S + \Phi(S,t)$$

This adds something important:
People and systems react.
$\Phi(S,t)$ represents reactions like:

- Cooperation
- Resistance
- Adaptation
- Unexpected side effects

So now:
Change = push − resistance + reaction.

7. Friction Operator

$$\mathcal{F}(S) = \Gamma S$$

This simply says:

Resistance depends on how the system is built.
Some systems block change. Some systems amplify change.

8. When Change Stops

$$\lim_{t \to \infty} \frac{dS}{dt} = 0$$

This means:

Eventually, the system stops changing. It settles into a new steady state.
Also:

$$\lim_{t \to \infty} I(t) = 0$$

This means:

The push ends. The outside pressure is gone.

9. Institutional Memory

$$M = S(\infty) - S_{baseline}$$

This is the most important equation.

Memory equals:

Where the system ended up minus where it started.
If $M = 0$, nothing changed permanently.
If $M \neq 0$, the system remembers.

10. How Big Is the Memory?

$$\|M\|$$

This measures how big the change is.
Small number = small lasting change.
Big number = deep structural change.

11. Compression (How History Gets Stored)

$$\mathcal{C} : S(0:t) \to B(t)$$

This means:

All the changes over time get compressed into structure.
Like many experiences turning into one habit.

$$B(t) = \mathcal{C}[S(0:t)]$$

This says:
The boundary (rules, habits, norms) stores the history of what happened.

12. The Past Affects the Future

$$\frac{dS}{dt} = F(S, B)$$

Now the system changes based on its stored history.
The past becomes part of the rulebook.

13. Small Pushes

$$I_{soft}(t) = \epsilon_i \quad \text{where } \epsilon_i \ll 1$$

Sometimes pushes are tiny. Almost invisible.

14. Small Pushes Add Up

$$\int_{t_0}^{t_1} I_{soft}(t)\,dt = \Sigma\epsilon_i$$

Even small pushes add up over time. Like drops filling a bucket.

15. The Tipping Point

$$\Sigma\epsilon_i > \lambda_{critical}$$

When enough small pushes add up, the system crosses a tipping point and permanently changes.

16. Reversal Costs Energy

$$E_{reversal} \propto \|M\| + \kappa$$

If you want to undo the change, it costs effort.
The bigger the memory, the harder it is to go back.
κ represents extra difficulty: politics, coordination problems, trust issues.

Final Summary

Systems remember.

Push them. They change.
Even when the push stops, the system may not return to normal.
That leftover difference is memory.
Every intent leaves a trace.