

117-77-D Newton Had the Apple, James Watt had the Kettle

Every scientific journey seems to have its own peculiar origin story.

- Isaac Newton had the apple.
- Archimedes had the bath.
- James Watt had the kettle.
- And GUDIYA had a strange, noisy, utterly impractical "do-nothing machine."

The machine that did nothing

Years ago, while teaching my children about Rube Goldberg machines, I came across a curious video on YouTube (<https://www.youtube.com/watch?v=Bp4tGTNNiII>). The machine was enormous. Hundreds of components moved continuously:

- wheels;
- pulleys;
- gears;
- chains;
- belts;
- shafts;
- cams;
- levers;
- bearings.

Everything moved.

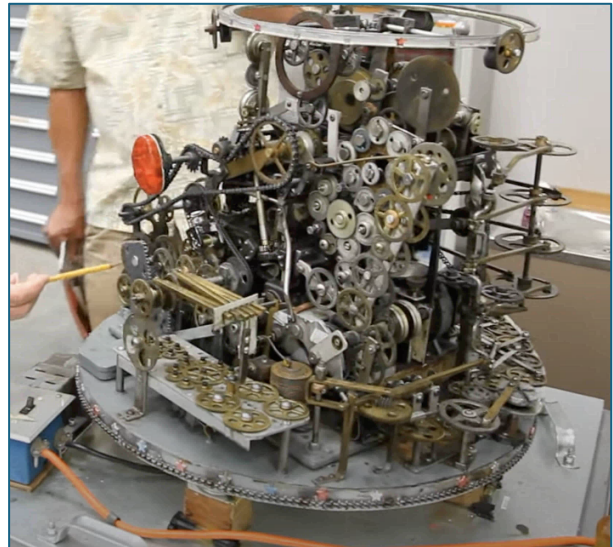
Everything interacted.

Everything influenced something else.

And yet the machine produced no useful output whatsoever.

It simply existed.

It was a machine whose only purpose was to remain a machine.



The question everyone asks

Most people seeing such a machine ask a very natural question:

What does it do?

That was not the question that interested me.

Instead, I found myself asking an entirely different question:

Why does it continue to work?

The hidden miracle

The answer was obvious once I saw it.

- The machine worked because it was synchronized.
- Not because all the gears rotated at the same speed.
- Not because every wheel turned in the same direction.
- Not because every chain possessed identical tension.
- Quite the opposite.
- Every component possessed its own:

- speed;
 - inertia;
 - friction;
 - momentum;
 - delay;
 - coupling strength.
- The machine functioned precisely because all those differences remained coordinated.

Synchronization is not sameness

That observation turned out to be extraordinarily important.

Synchronization does not mean uniformity.

- The gears below are all different.
- Small gears
- Large gears
- Fast gears
- Slow gears
- Clockwise gears
- Counterclockwise gears
- Oscillating linkages
- Rotating shafts

Yet the machine remains coherent because the relationships among the components remain stable.

The first glimpse of AI Vertigo

Eventually another thought occurred to me.

Suppose one gear suddenly accelerated one hundred times faster than the others.

What would happen?

The answer seemed obvious.

The machine would lose synchronization.

The consequences would be familiar:

- slippage;
- oscillation;
- excessive tension;
- delayed responses;
- overcorrection;
- resonance;
- structural failure.

The machine itself had not changed.

Its relationships had changed.

From gears to enterprises

Then I began thinking about enterprises.

An organization consists of numerous subsystems.

- Finance
- Human Resources
- Information Technology
- Operations
- Sales
- Marketing

- Customer Support
- Research and Development
- Executive Management

Each department possesses its own:

- information flows;
- approval cycles;
- decision loops;
- reporting mechanisms;
- objectives;
- constraints.

The organization itself resembles a giant interconnected machine.

The great stabilizer

For centuries, organizations remained relatively stable because every process ultimately converged upon the same reference frame:

- Human beings.
- Humans became the implicit synchronizers.
- Human beings determined:
 - the speed of communication;
 - the speed of learning;
 - the speed of approval;
 - the speed of adaptation;
 - the speed of decision-making.
- The entire enterprise therefore operated within a relatively narrow range of frequencies.

Then AI arrived

The problem was immediately apparent.

AI would not accelerate every function equally.

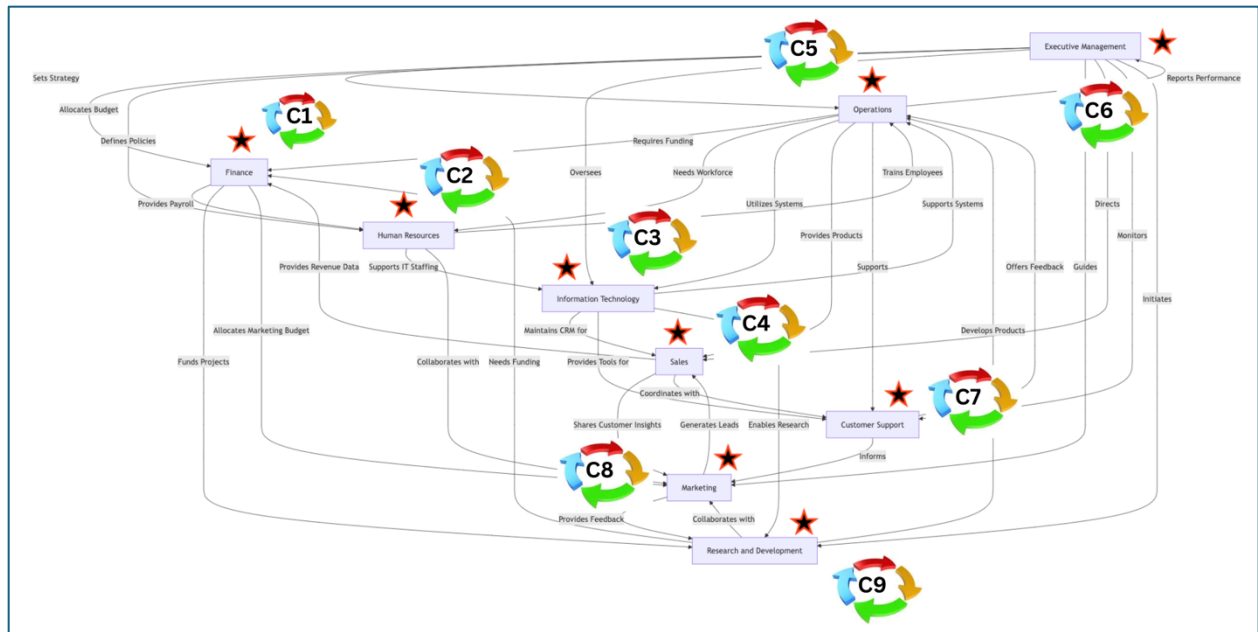
- Customer service ×20
- Pricing ×100
- Fraud detection ×500
- Marketing ×50
- Purchasing ×5
- Leadership ×1

This was not simple acceleration. This was differential acceleration. That was the crucial insight.

The birth of AI Vertigo

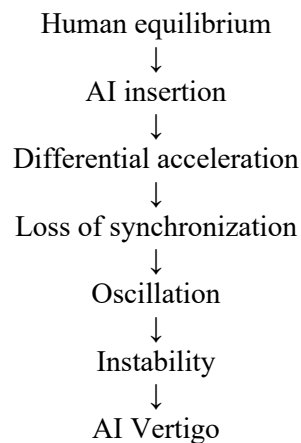
On March 27, 2025, I drew a picture of an enterprise consisting of numerous interconnected functions.

- Each function possessed its own cycle.
- Each cycle was connected to every other cycle.
- My intuition was simple.
- If AI accelerated each cycle differently, then the entire ecosystem would gradually lose synchronization.
- I called this phenomenon AI Vertigo.



The original formulation

The argument was remarkably simple.



At the time, I did not possess the vocabulary that would come later.

There was no discussion of:

- synchronization zones;
- stabilization envelopes;
- composite actants;
- characteristic frequencies;
- DVFC;
- cognitive fields;
- cognitive flywheels;
- grid stabilization.

There was only a peculiar machine made of gears and chains.

Looking backward

Today, the idea appears almost obvious.

- The do-nothing machine was not merely a mechanical curiosity.
- It was a tiny complex engineered system.
- The enterprise was a larger complex adaptive system.
- The future cognitive ecosystem will be larger still.
- The same question appears at every scale:
 - How do thousands, millions, or billions of independently operating cycles remain synchronized?
- That question eventually became GUDIYA.

The irony of scientific discovery

Newton had the apple.

Archimedes had the bath.

James Watt had the kettle.

GUDIYA had the do-nothing machine.

And, perhaps fittingly, a machine designed to accomplish absolutely nothing eventually inspired a theory about how extremely complicated systems manage to accomplish anything at all.

