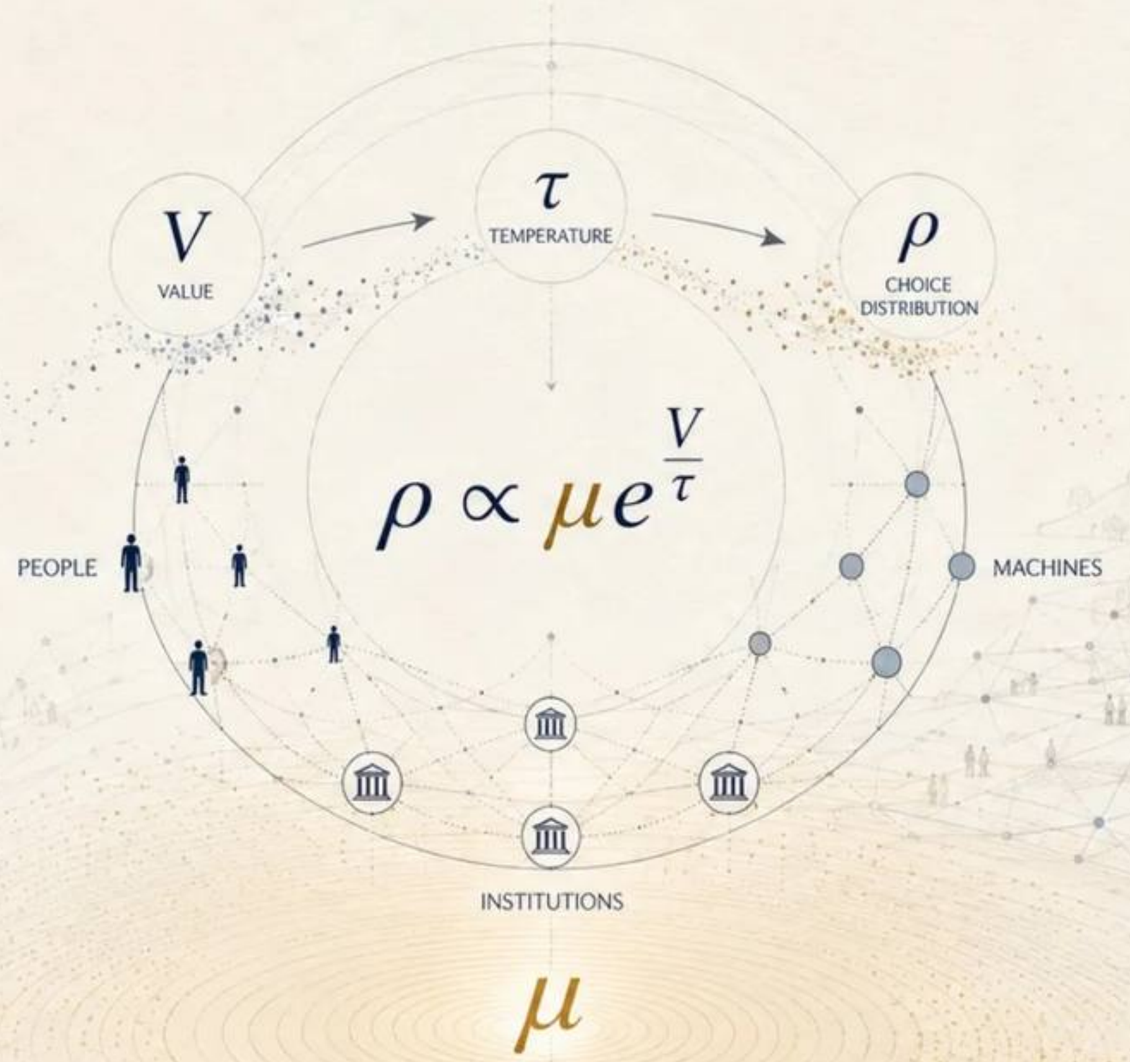
Intelligent Economics

A foundation for the discipline in the age of generative intelligence

Emad Mostaque · May 2026

When intelligence becomes abundant,
the shared world becomes the scarce factor.



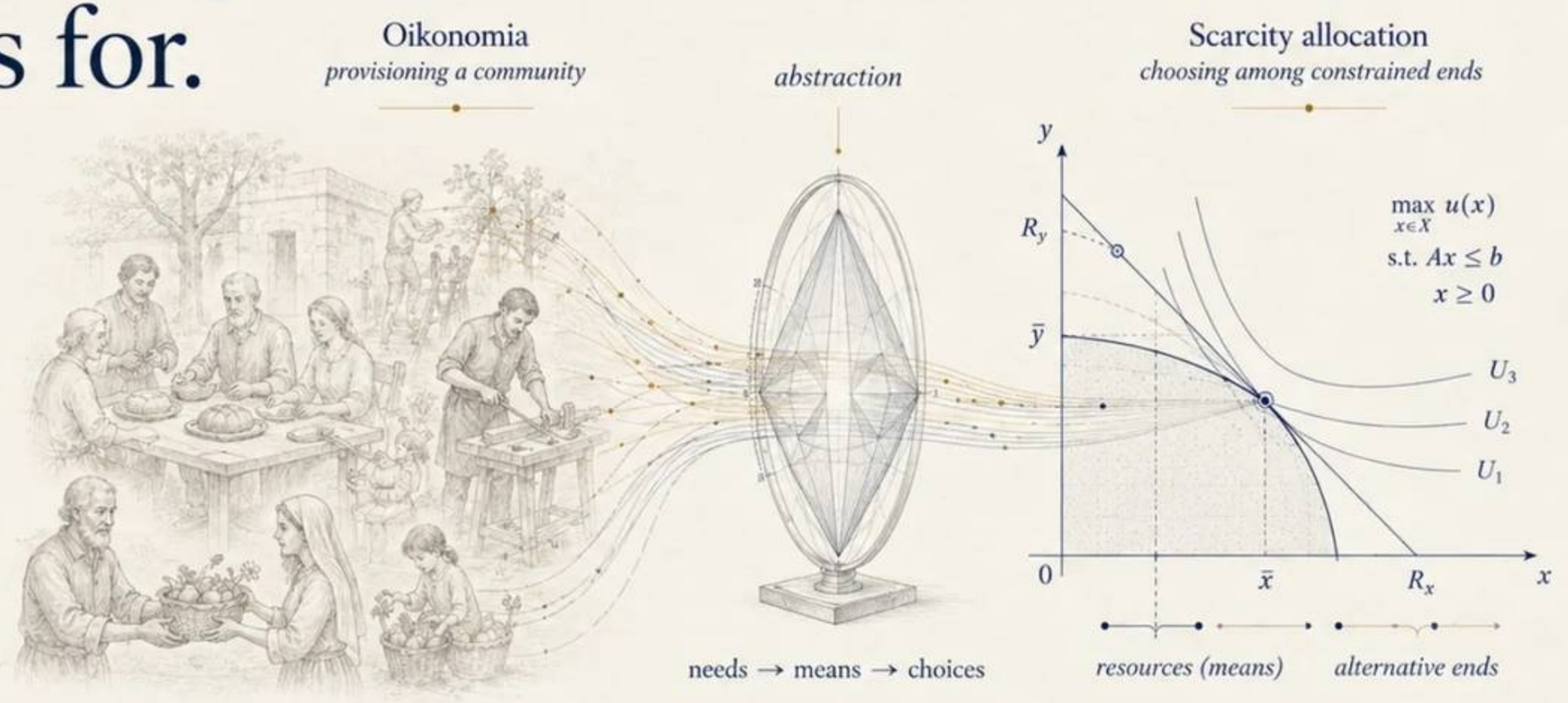
The economy is not only what produces. It is what a community maintains.

Economics forgot what it was for.

It began as oikonomia:
the art of provisioning a community.

It became the science of allocating
scarce means among alternative ends.

The means were formalized.
The community disappeared.



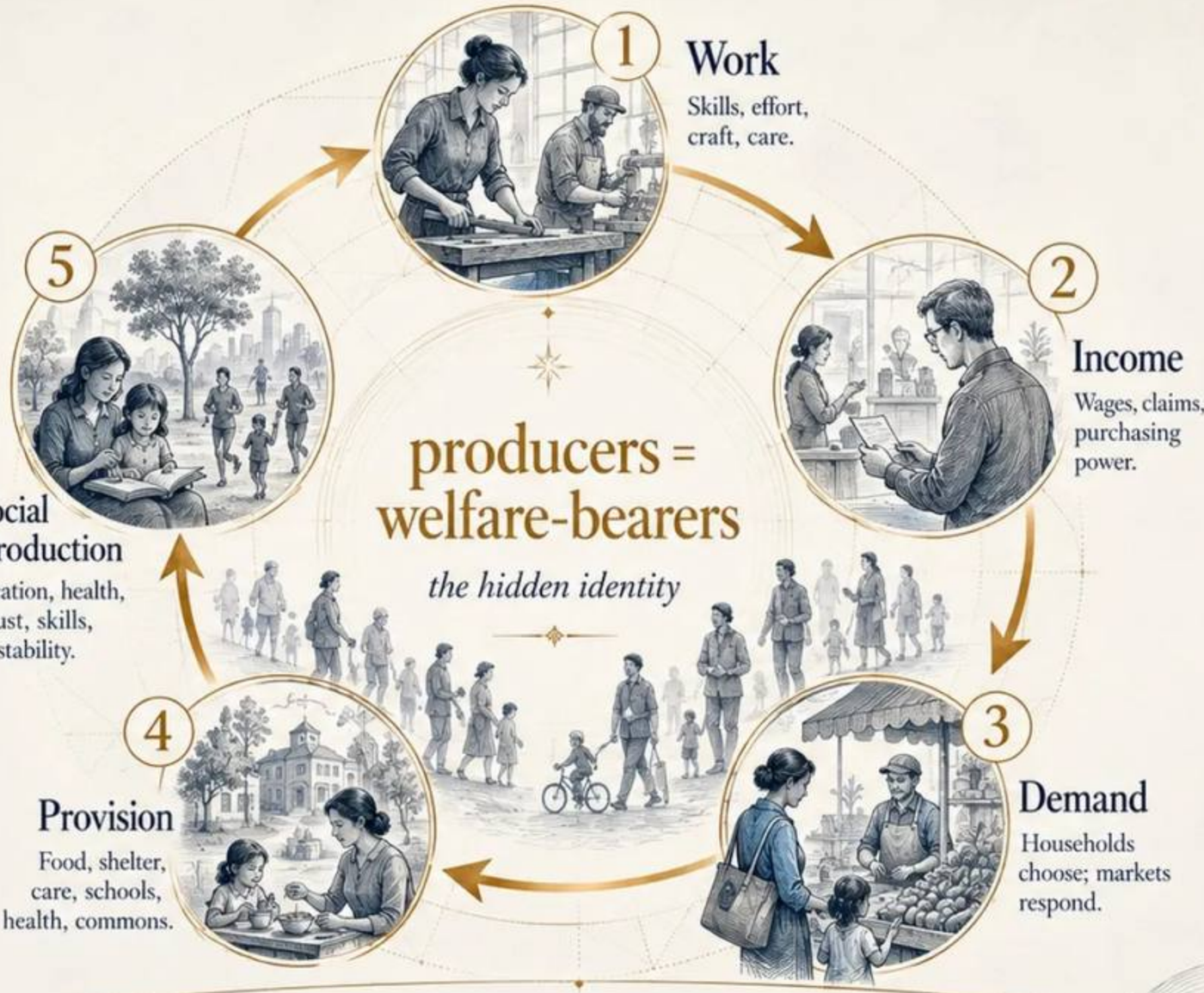
Before economics can optimize,
it must remember whom it provisions.

The old loop held.

One community did both:
it produced the goods
and bore the welfare.

Labour became wages.
Wages became demand.
Demand sustained provision.

Production returned to the people
it claimed to serve.



The hidden assumption

the producing community
and the benefiting community
were still largely the same.

This made scarcity allocation
feel like enough.

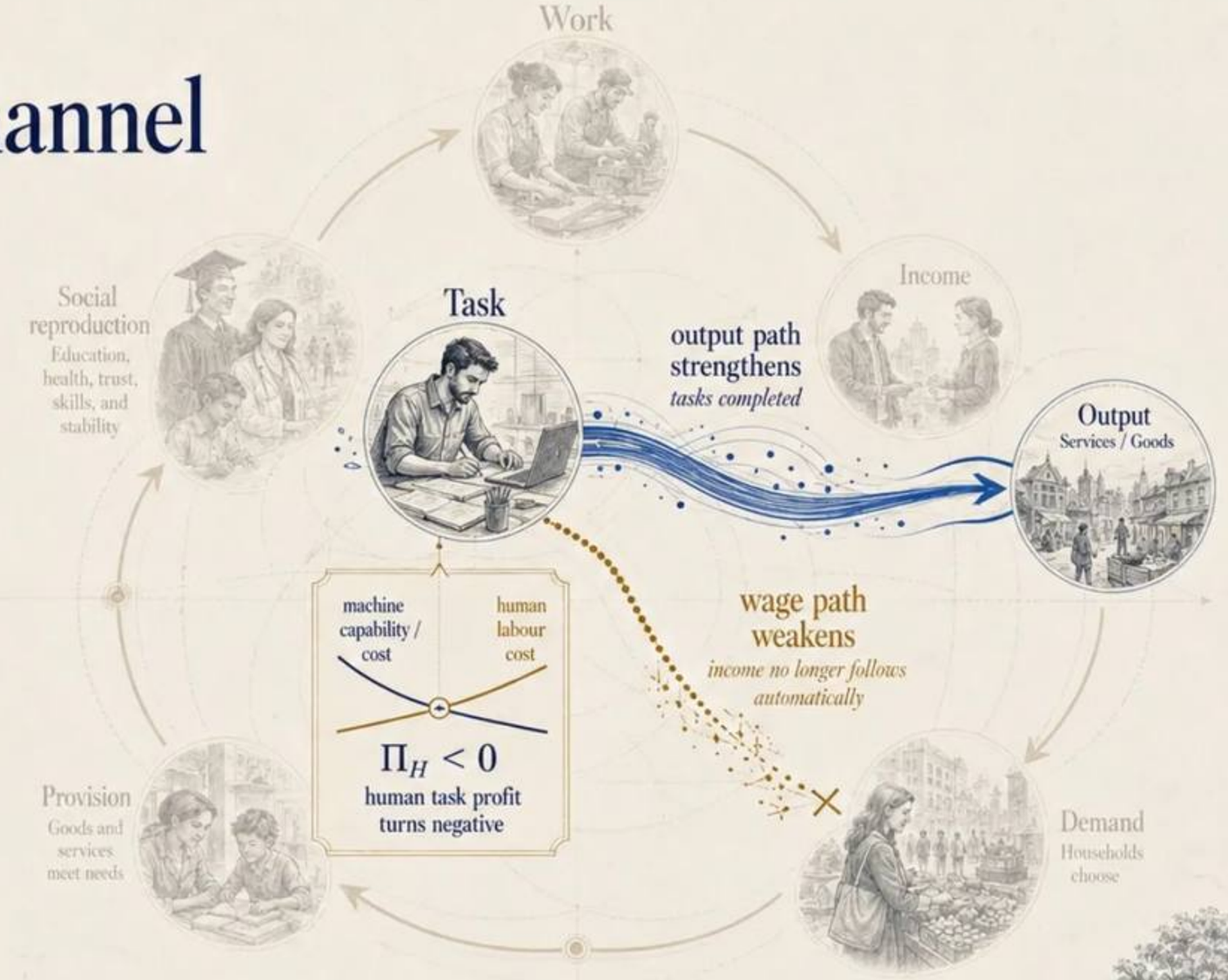
The old economy worked while the circle still closed.

The wage channel breaks.

The task may still be done.
The wage may not return.

Production can continue
while human income
no longer follows.

Task completion separates
from wage return.



The old link was:
work → wages → demand

The new break is:
task → output,
without wage return

The circle no longer closes
by itself.

The work continues.
The return path fails.

The original question returns.

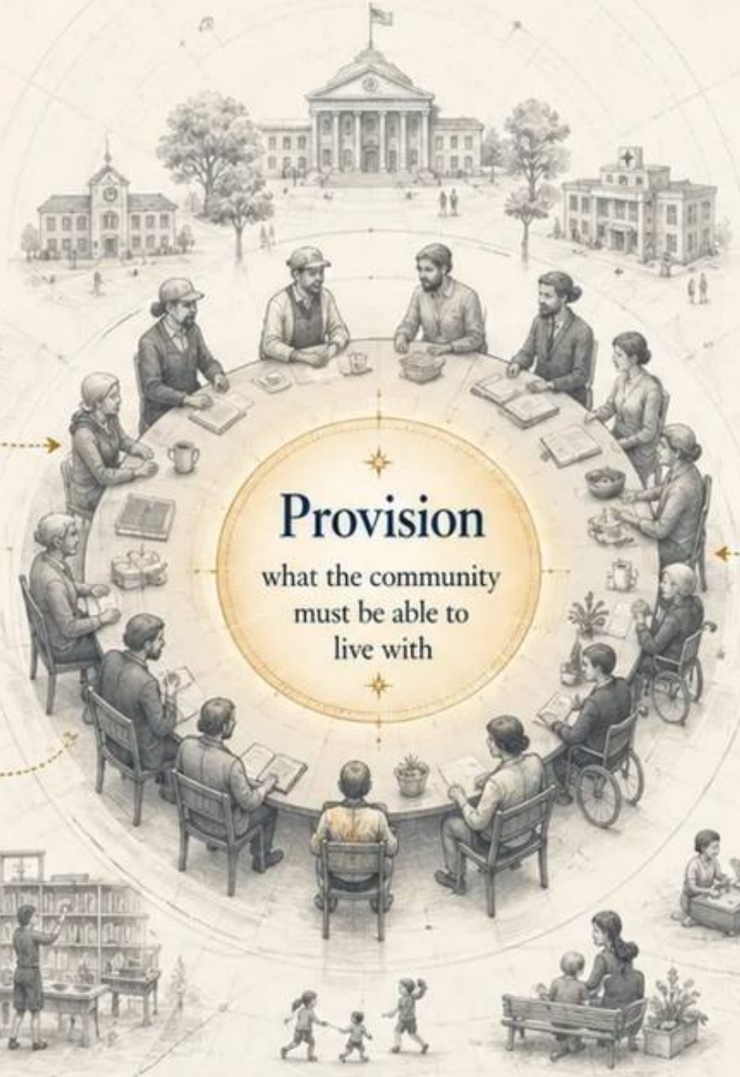
If production no longer guarantees provision, economics must recover its subject.

Not output alone.
Not income alone.
Not market clearing alone.

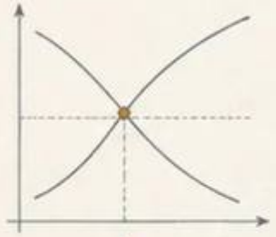
Provisioning a community is the question beneath economics.

1. Output
not enough

2. Income
no longer guaranteed



3. Market clearing
not the same as provision



The discipline must ask again:

Who counts?
membership

What must be maintained?
needs, capacities, trust

Who governs the shared world?
doxa, institutions, μ

Economics becomes political economy again.

An economy is judged by whom it provisions.

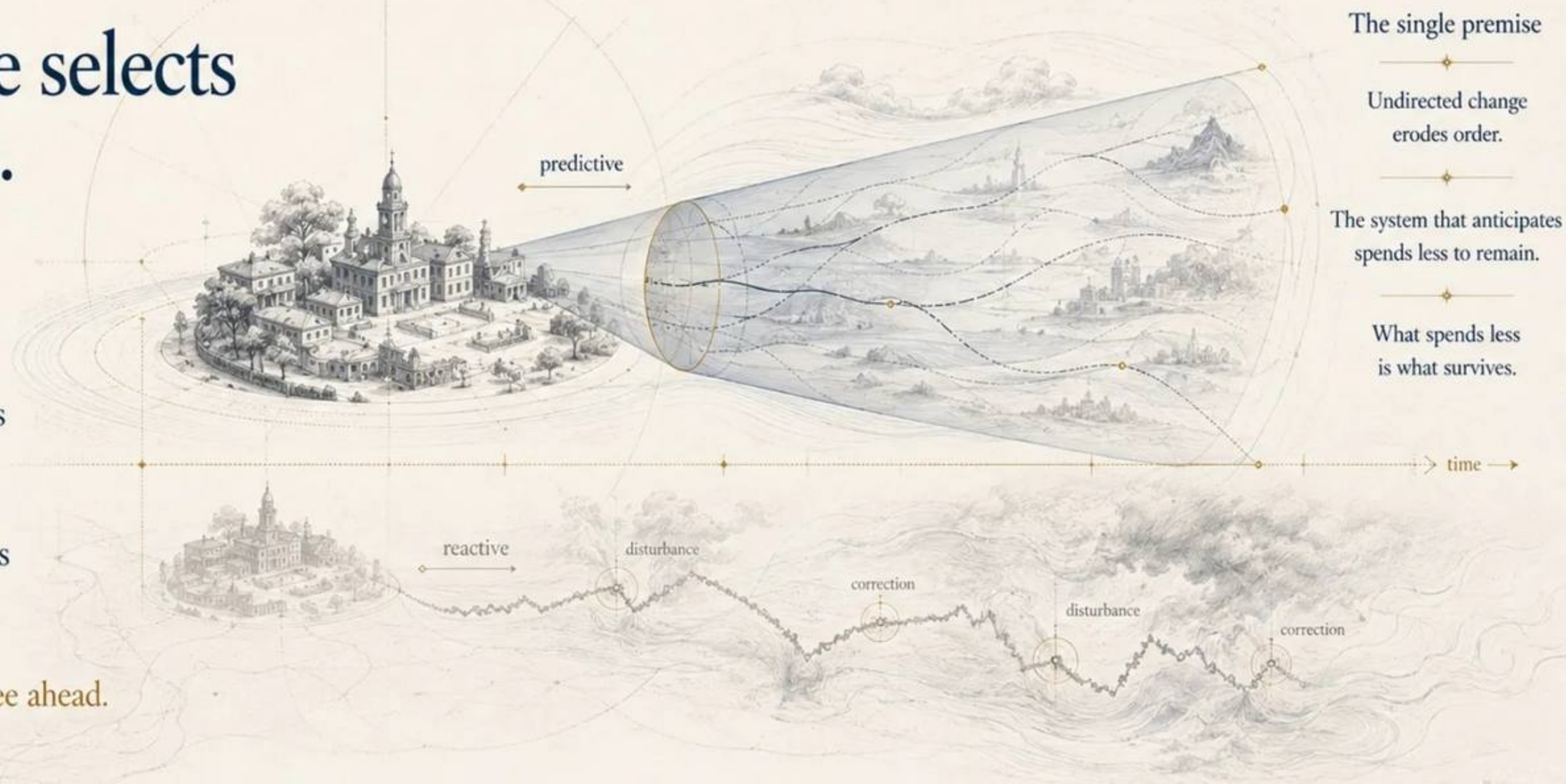
Persistence selects prediction.

Order is fragile
in a changing world.

A system that only reacts
spends more to remain.

A system that anticipates
spends less to persist.

What lasts is what can see ahead.



The single premise

Undirected change
erodes order.

The system that anticipates
spends less to remain.

What spends less
is what survives.

To persist in a changing world,
a system must learn ahead of time.

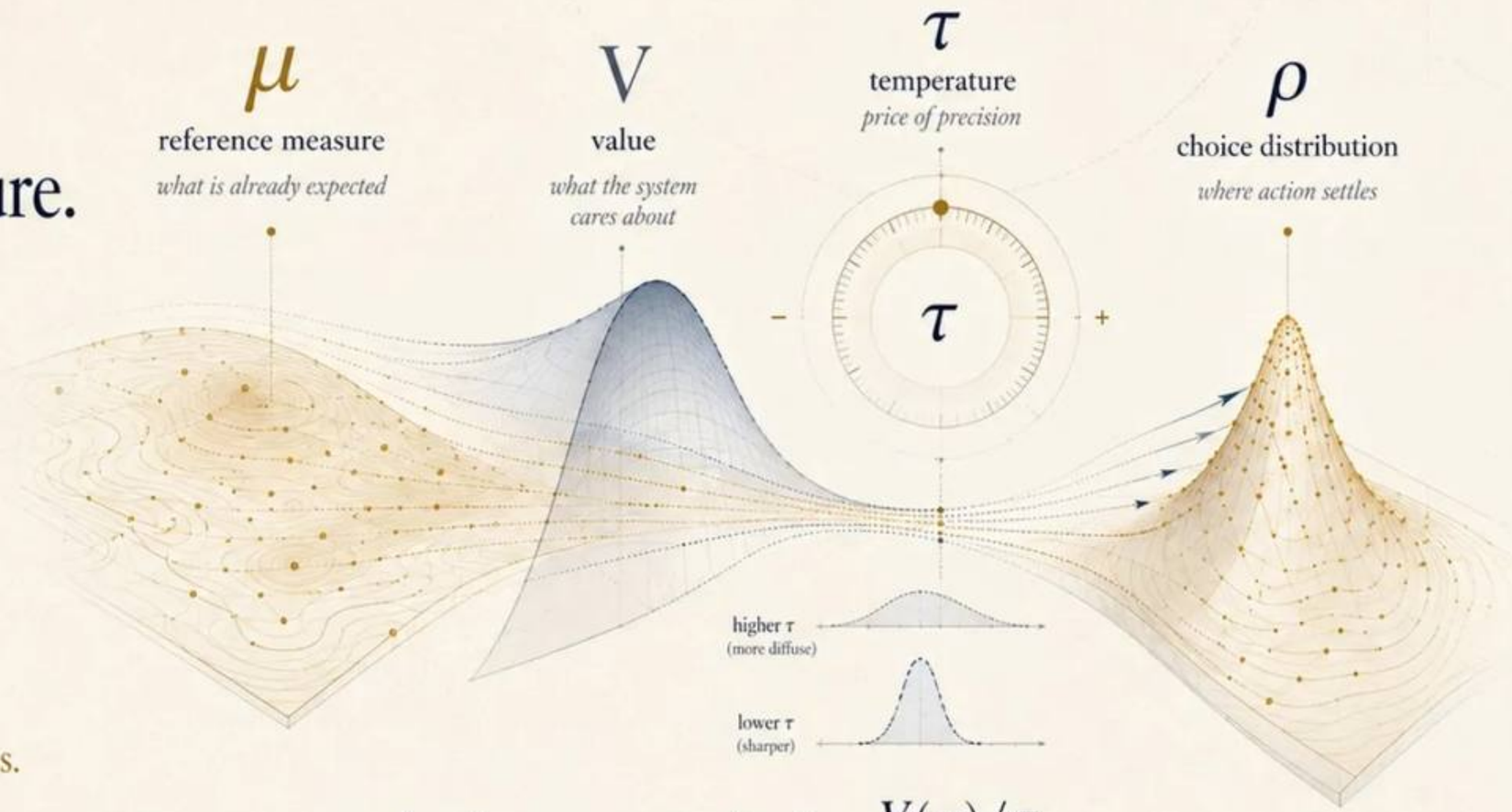
past
present
future

Choice has a forced structure.

A system does not choose from nowhere.

It brings a reference, weights it by value, and pays for precision.

Value tilts the reference.
Temperature sets the sharpness.



$$\rho(x) \propto \mu(x)\, e^{V(x)/\tau}$$

Choice is value acting on a reference.

The slots

- μ what the system brings before valuing
- V what ranks configurations
- τ the price of information
- ρ the distribution of action

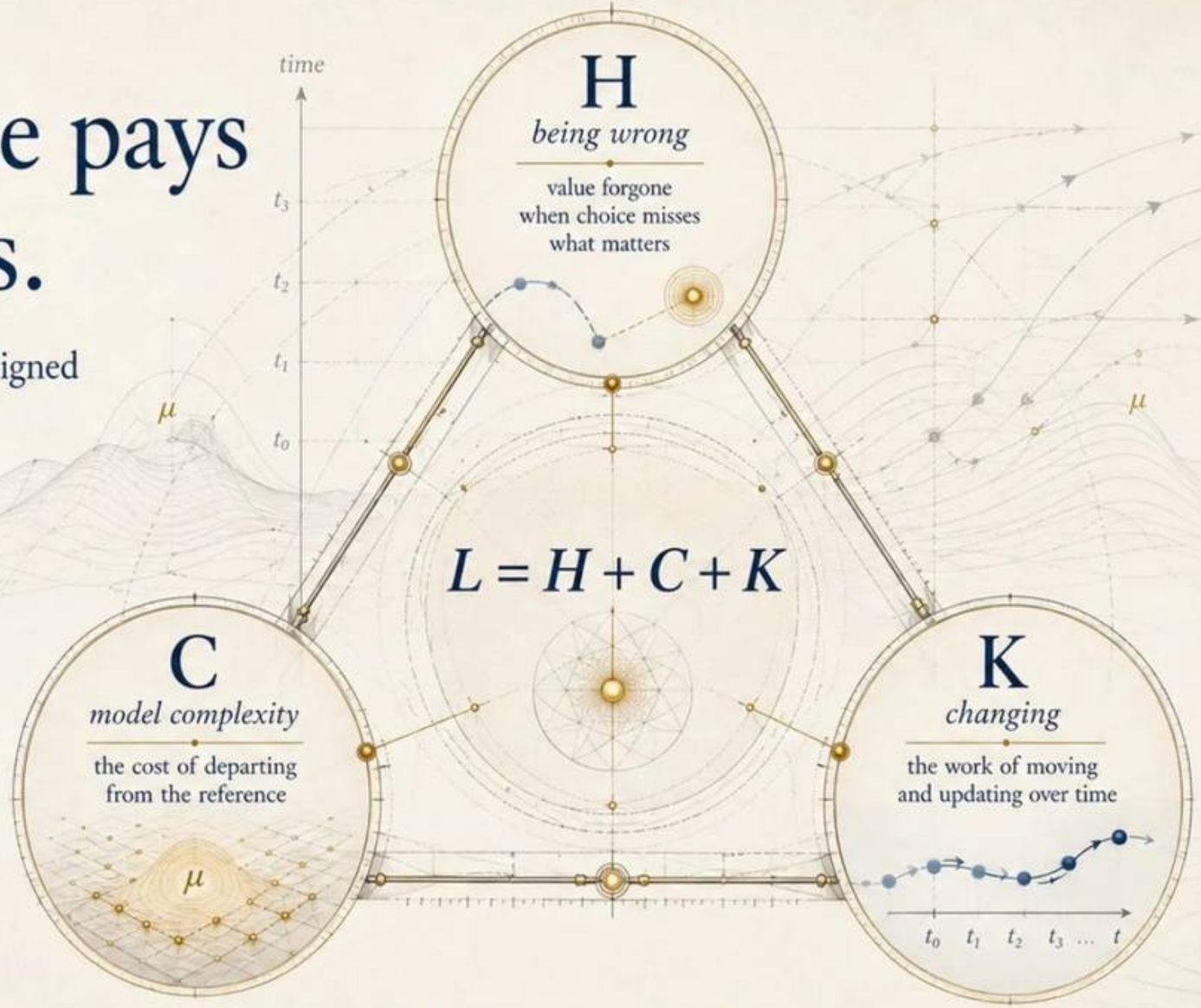
Each symbol carries a necessary role.

Intelligence pays three costs.

A system persists by staying aligned with a changing world.

It must avoid error, carry enough structure, and pay to update.

The action is their sum.



The action of intelligence

Static choice:

$H + C$

Persistent choice:

$H + C + K$

Over time, updating has a price.

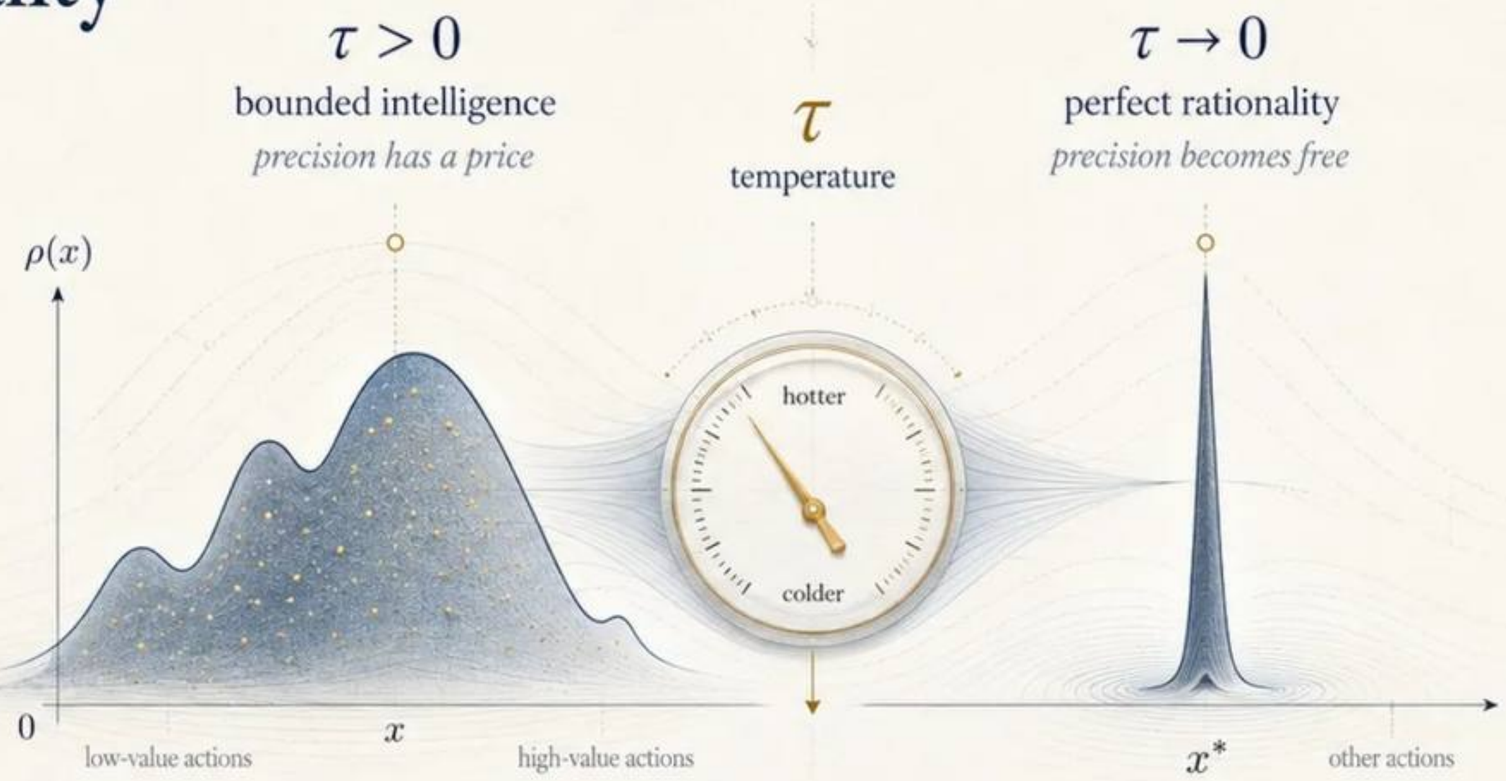
Intelligence is the cost of staying aligned with the world.

Perfect rationality is a limit.

Real systems choose with finite precision.

When information is costly, choice remains distributed.

Classical optimization appears when τ approaches zero.



$$\rho(x) \propto \mu(x) e^{V(x)/\tau}$$

Two regimes

$\tau > 0$
bounded, costly, distributed

$\tau \to 0$
ideal, costless, concentrated

The classical agent lives at the edge of the model.

The world is not zero-temperature.

Perfect choice is the boundary, not the baseline.

$$\rho(x) \propto \mu(x)\, e^{V(x)/\tau}$$

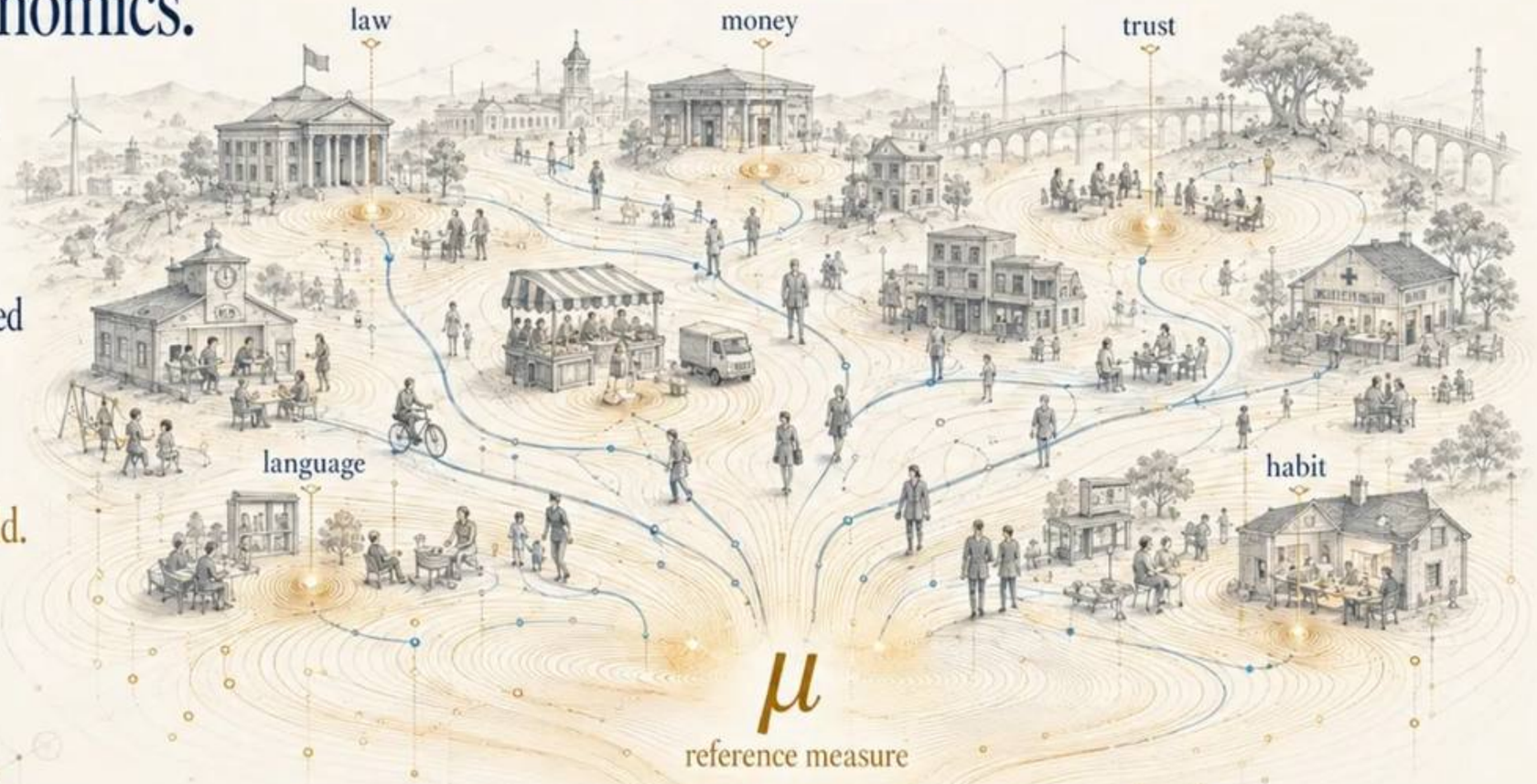
The reference becomes economics.

Agents do not choose against emptiness.

They choose inside a world already weighted by expectation.

Before value acts, there is already a world.

$\mu \rightarrow$ shared reference



What μ carries

expectations
what normally happens

norms
what feels legitimate

institutions
what is held in place

possibility
what seems available

The reference is not empty.
It is inherited.

Before value acts, a world is already there.

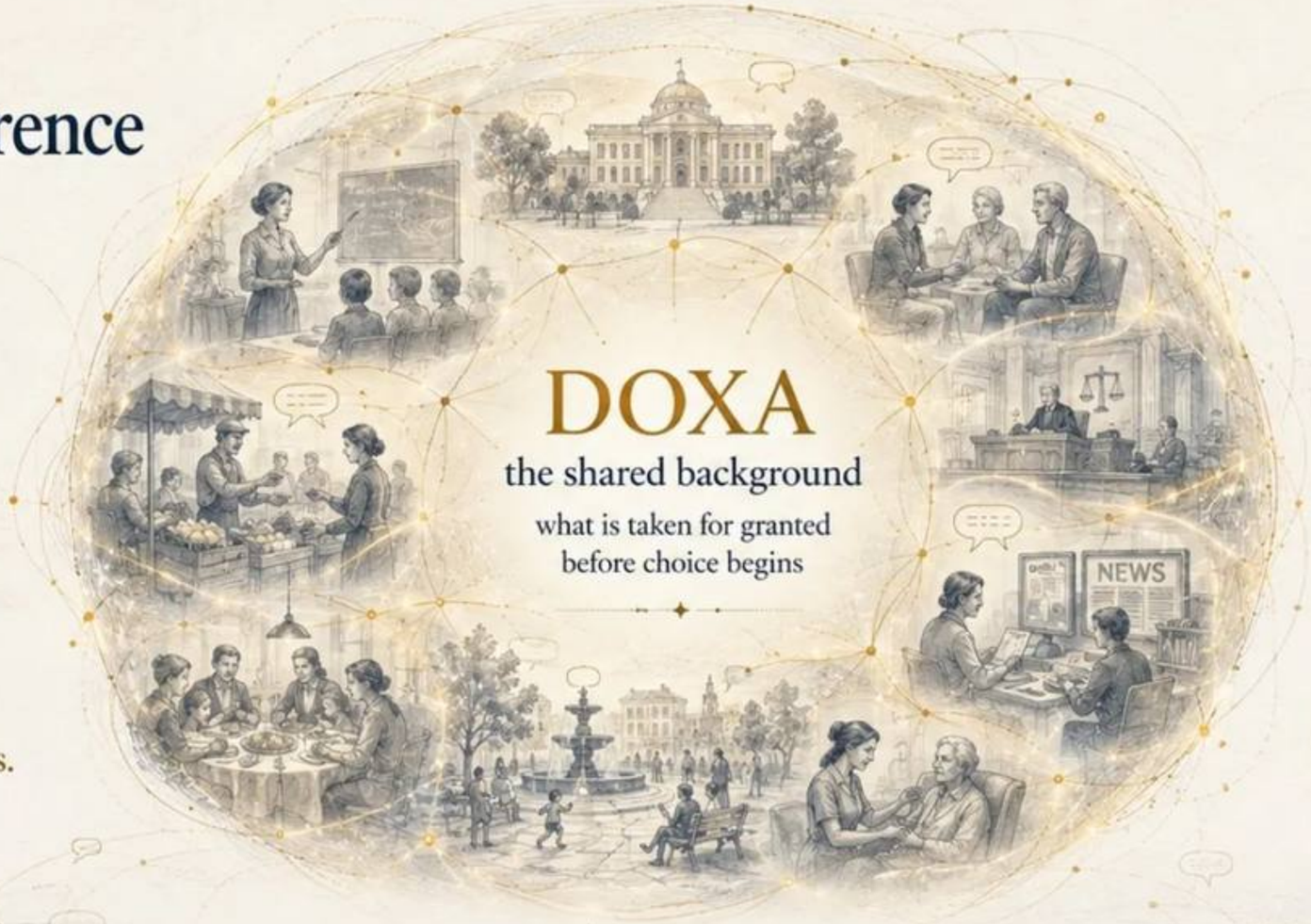
Economics begins inside a shared reference.

That shared reference is doxa.

Doxa is what feels obvious before anyone chooses.

It is the background of the sensible, the legitimate, the expected, and the sayable.

Not what we prefer.
The world preference presupposes.



Not preference
what someone wants

Not constraint
what blocks or permits

Not knowledge
what can be stated explicitly

Doxa
what makes wanting, limits, and knowledge intelligible

The reference is prior to the choice.

$$\rho(x) \propto \mu(x) e^{V(x)/\tau}$$

μ becomes doxa when the reference is shared

Doxa is the world beneath choice.

Every economy begins inside what already seems obvious.

$$\rho(x) \propto \mu(x) e^{V(x)/\tau}$$

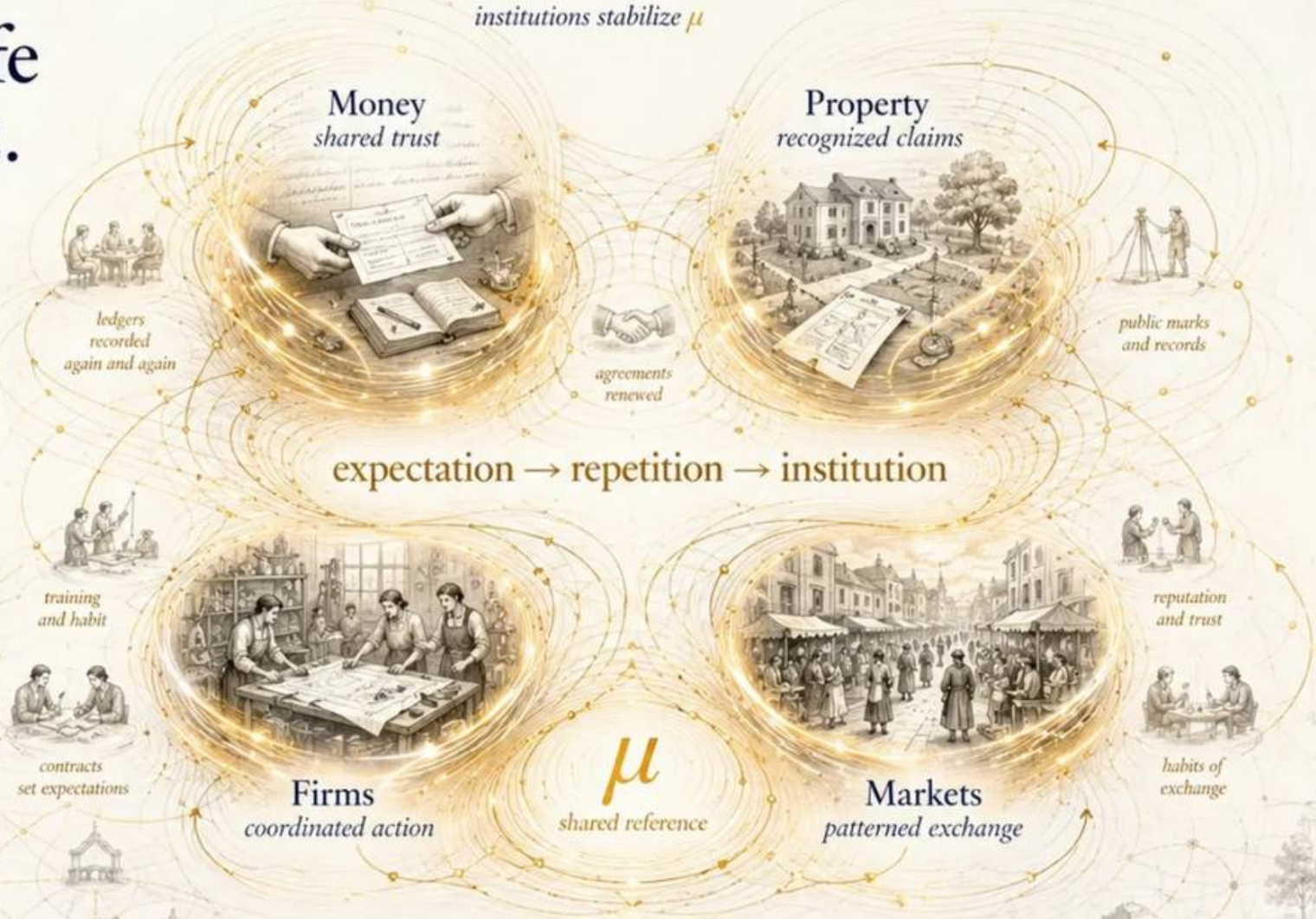
institutions stabilize μ

Institutional life concentrates μ.

Doxa does not remain an atmosphere.

It condenses into rules, claims, roles, and repeated acts that people can rely on.

An institution is an expectation held in place.



How μ hardens

- repetition
  what keeps happening
- recognition
  what others accept
- enforcement
  what is defended
- narrative
  what makes it make sense

Institutions are maintained, not merely declared.

The economy runs on maintained expectations.

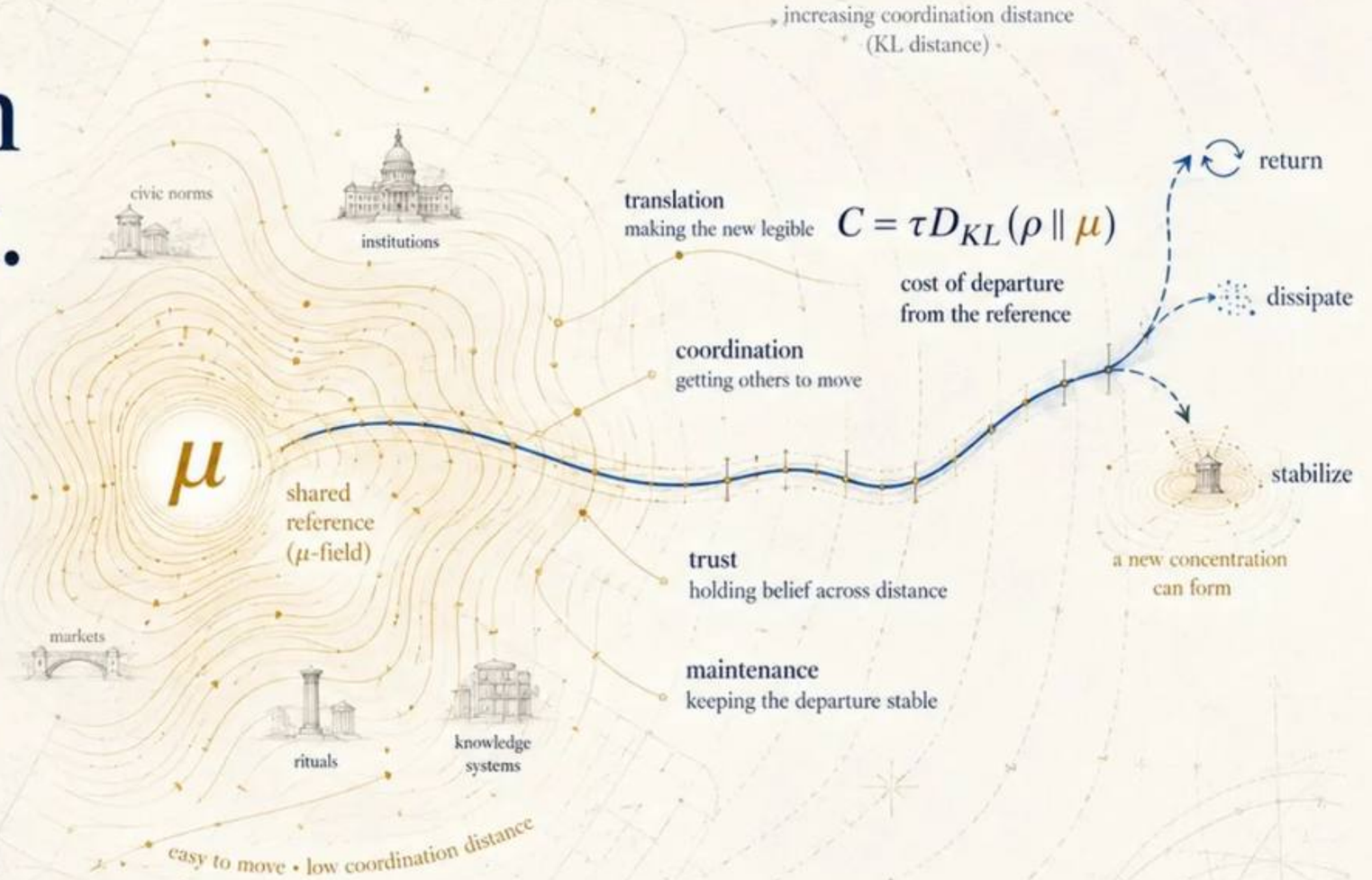
What people can rely on becomes what they can choose through.

Deviation has a cost.

A system can leave expectation.

But departure requires coordination, translation, and trust.

Innovation pays the cost of leaving expectation.



Departure is not error

near μ
easy to coordinate

far from μ
costly to sustain

new institution
deviation maintained long enough to become expected

What survives departure can become the next reference.

To leave the shared world, a system must pay.

Some departures fail. Some become institutions.

KL distance contours

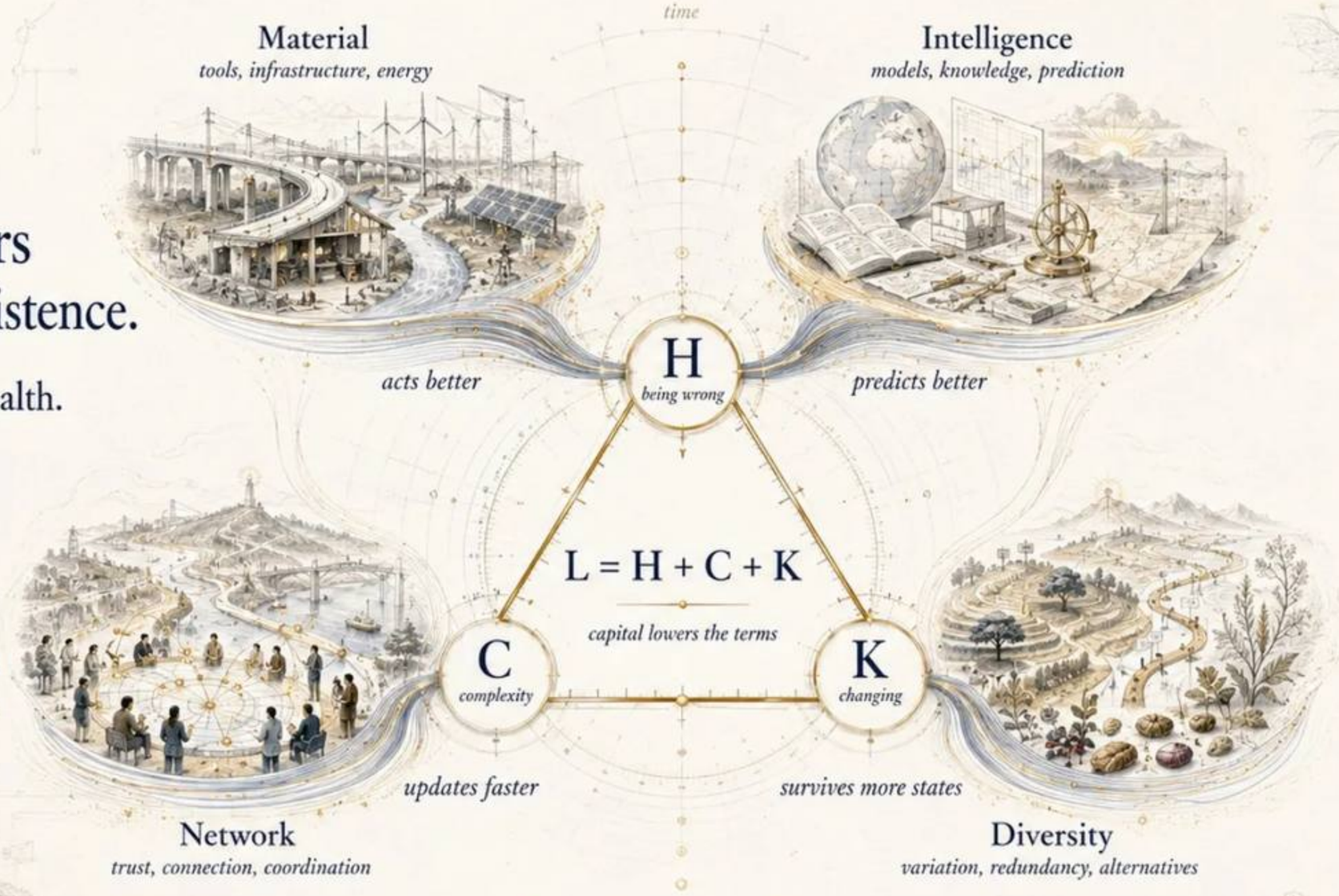
distance is not spatial; it is coordination distance

Capital lowers the cost of persistence.

Capital is not only wealth.

It is stored capacity to stay aligned with a changing world.

What lowers the action helps the system remain.



Four capitals

Material
acts better

Intelligence
predicts better

Network
updates faster

Diversity
survives more states

Capital is persistence stored in the system.

Capital is stored capacity to persist.

What reduces error, complexity, or change helps the system remain.

A viable society stays connected, flowing, and diverse.

The system survives only while its dynamics remain bounded.

Value must circulate.
People must remain connected.
References must remain diverse.

A just arrangement and a viable one converge.

A society remains alive when value moves, people connect, and difference survives.

Flow, openness, resilience are one survival condition seen three ways.

One viability condition

Flow
value does not pool

Openness
support remains connected

Resilience
diversity keeps surprise finite

Justice appears as a condition of persistence.

free energy bounded below

The old schools reappear as limits.

The framework does not erase the century of economics. It shows where each school was already working.

Not discarded.
Re-indexed.

$$\rho(x) \propto \mu(x) e^{V(x)/\tau}$$

V
value / objective direction

τ
temperature / rationality regime

μ
reference / doxa / institutions

ρ
distribution of states and actions

1 Neoclassical

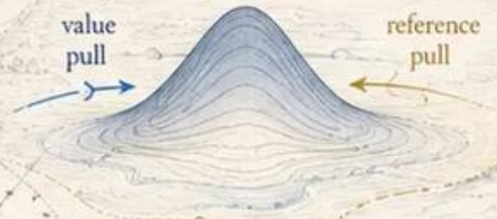
$\tau \to 0$ boundary

perfect rationality, equilibrium, optimization.

2 Behavioral / RI

$\tau > 0$ interior

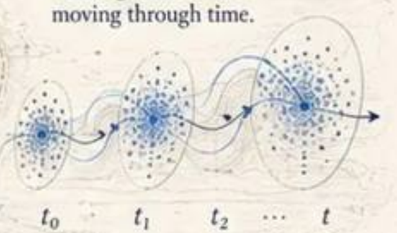
bounded attention, framing, status quo.



3 Distributional macro

ρ_t evolves

heterogeneous states moving through time.



4 Institutional / Austrian

μ is constructed

rules, prices, habits, spontaneous order.

5 RL / Active Inference

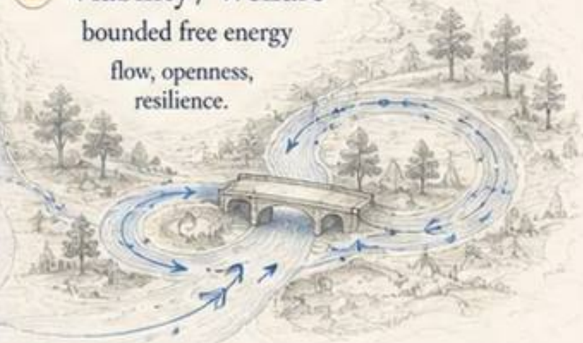
same functional, different state space

soft choice, score dynamics, updating.

6 Viability / Welfare

bounded free energy

flow, openness, resilience.



One object, many limits.

- boundary — classical optimization
- interior — bounded choice
- reference — institutions and doxa
- dynamics — distributions over time

The framework locates what it inherits.

The framework does not replace the century. It locates it.

Expectations move.

Policy does not act
on fixed agents.

It changes the world
people learn from.

A changed world
becomes a changed reference.

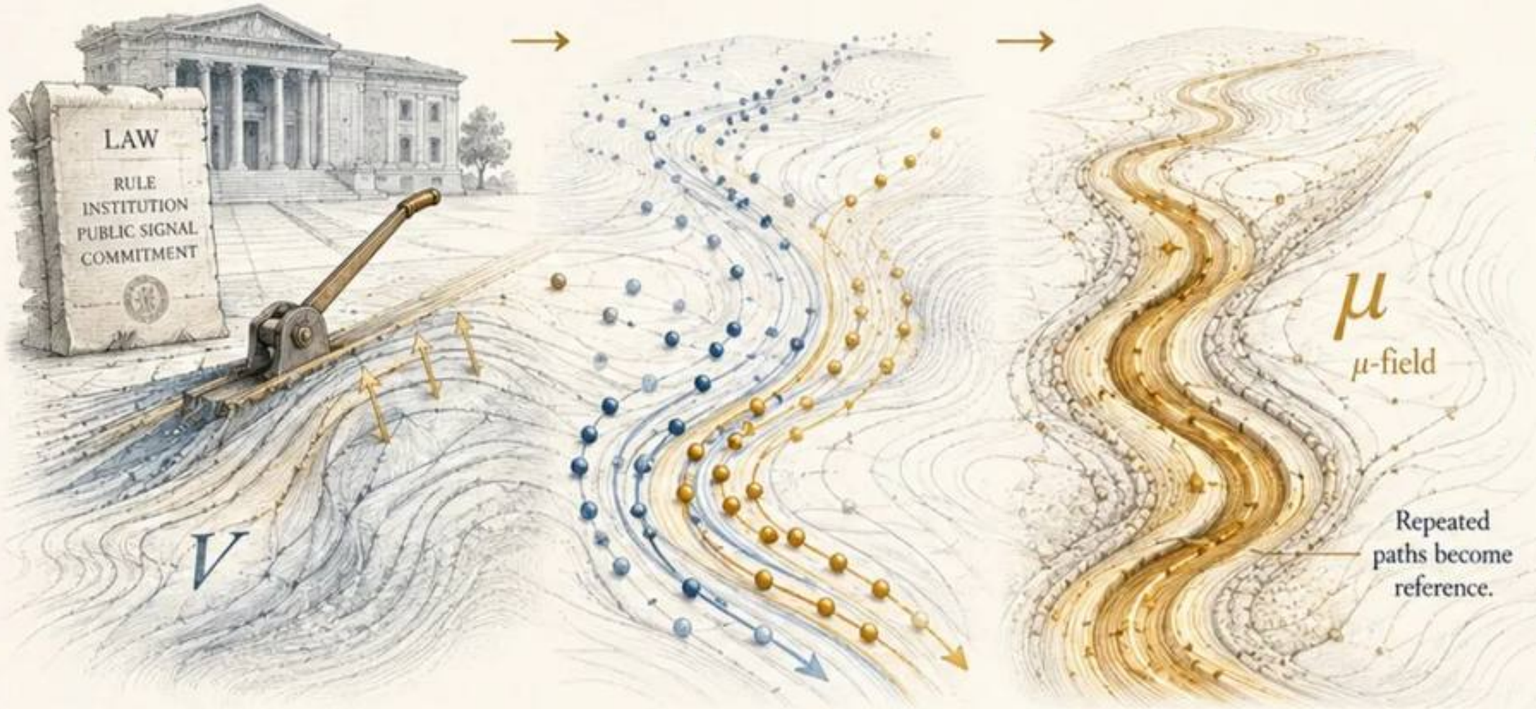
Expectations are trained
by the world.

$$\Delta V \longrightarrow \Delta \rho \longrightarrow \Delta \mu$$

1 Policy changes V

2 Response ρ shifts

3 Reference μ updates



The Lucas lesson

Policy changes incentives.

Agents adapt.

The reference moves.

A rule changes the world
that learns the rule.

Policy is never only an intervention.
It is training data for the shared world.

Humans and machines enter one equation.

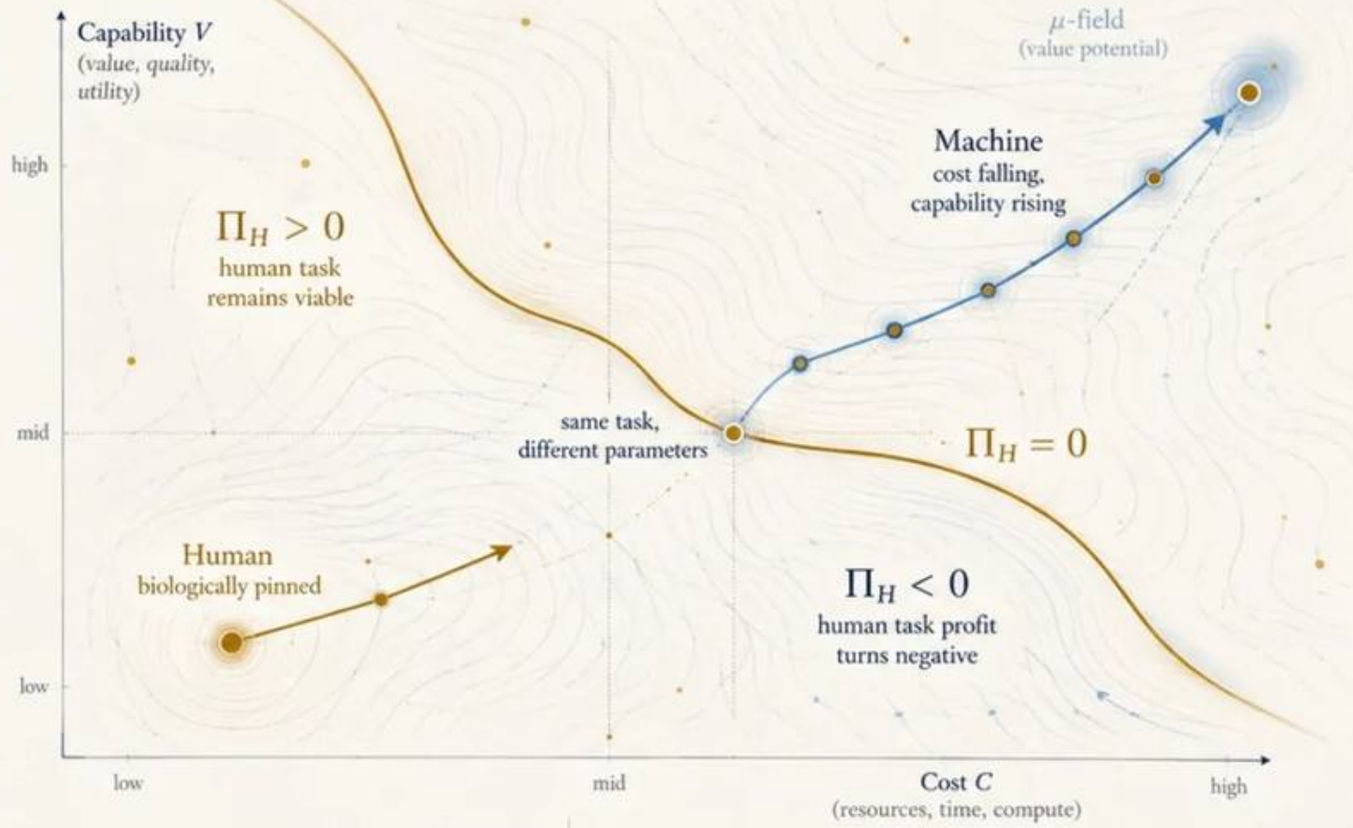
The framework does not ask who is human first.

It asks *what* configuration persists under value, reference, and cost.

The equation does not hate humans. It also does not rescue them.

same forced object

$$\rho \propto \mu e^{V/\tau}$$



output-valued task
machine can inherit

agent-indexed value
human presence matters

One task space

- **human**
  bounded by biology
- **machine**
  moving through cost and capability
- **task value**
  attached either to output or to the agent

Human centrality must be valued, not assumed.

The transition is one moving inequality.

If value is only output, the machine can inherit the task.

There is no protected human coordinate.

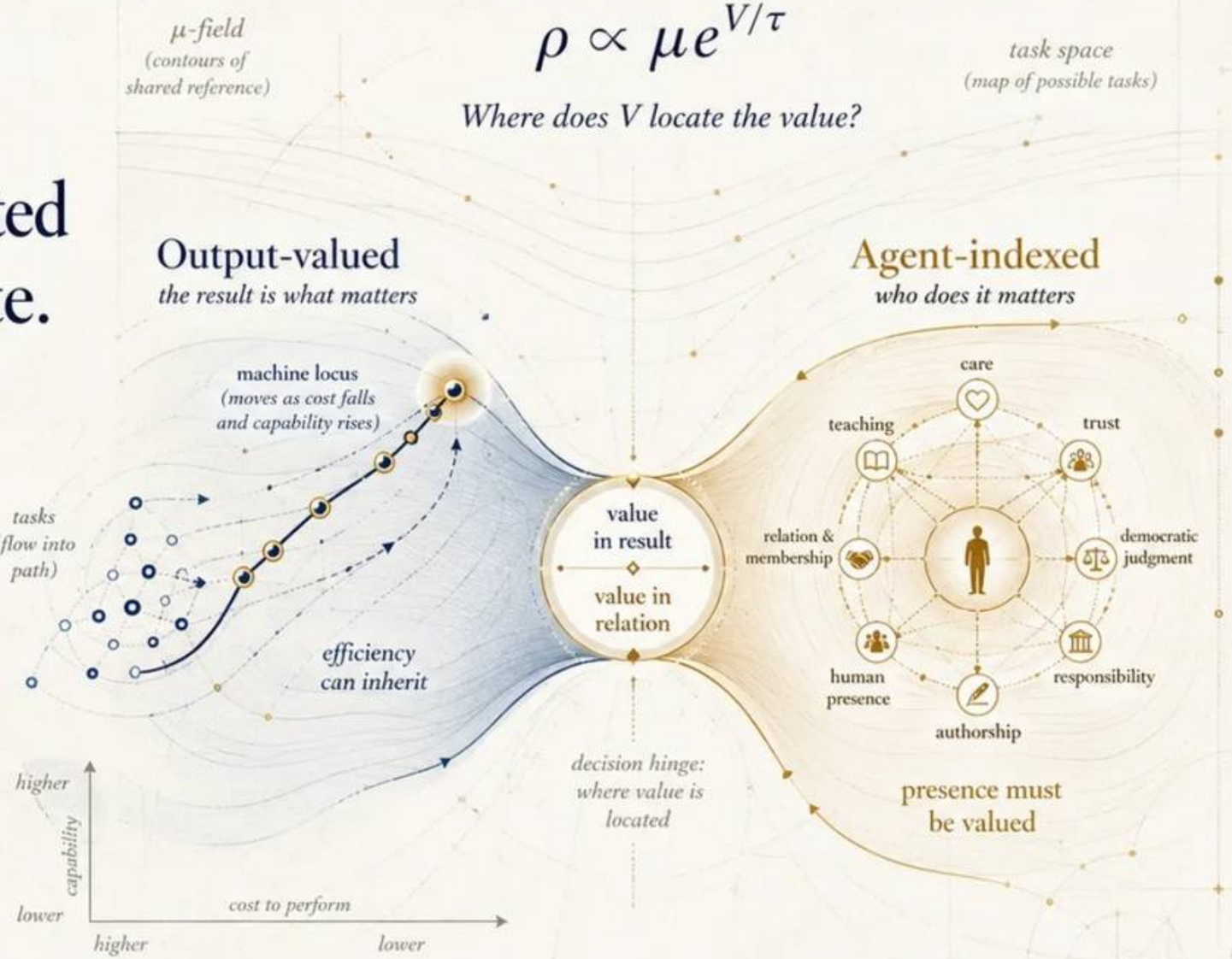
The equation does not contain a hidden term for 'human-made.'

If value is only output, the machine can inherit the task.

Human centrality must enter through value, not assumption.

$$\rho \propto \mu e^{V/\tau}$$

Where does V locate the value?



Two kinds of value

output value
what is produced

agent-indexed value
who produces, cares, judges, or relates

Human importance is not automatic. It is a value commitment.

If humans remain central, it will be because value says so.

Not because the production function secretly protects them.

The last scarce factor is the shared reference.

The constraint moved from matter, to labour, to cognition, to purpose.

But purpose is only legible inside a shared world.

The constraint on V is μ.

The inversion

- **land binds**
  territory, is scarce
- **labour binds**
  work is scarce
- **intelligence binds**
  cognition is scarce
- **action becomes cheap**
  purpose binds
- **purpose binds**
  reference governs

The economy turns toward the background of value.

The contest turns inward.

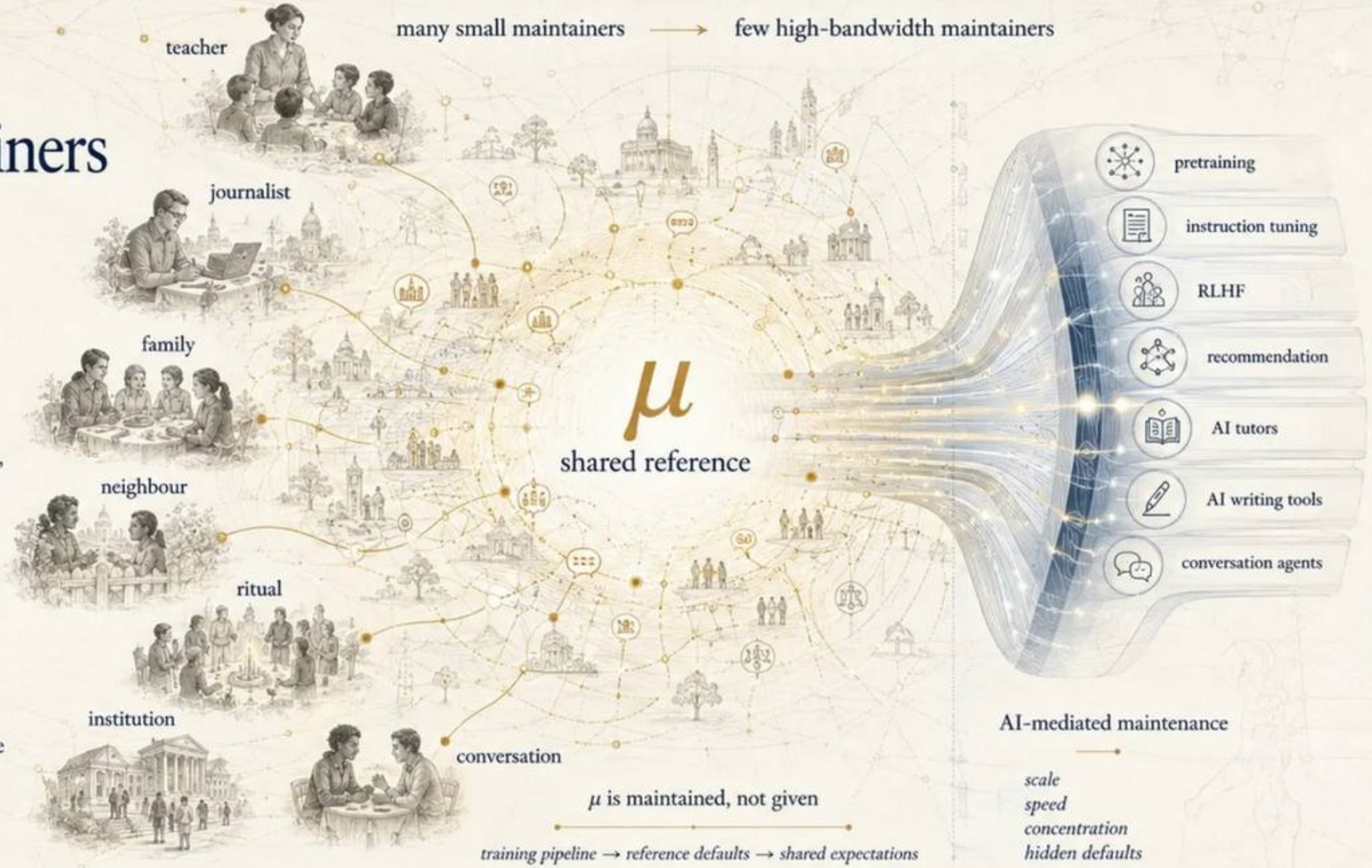
When action is cheap, the scarce factor is what *action means*.

The maintainers changed.

Doxa was never self-maintaining.

It was renewed by teachers, journalists, families, neighbours, rituals, institutions, and conversation.

AI turns maintenance into infrastructure.



Distributed human maintenance

limited bandwidth
plural judgment
local accountability

μ is maintained, not given

training pipeline → reference defaults → shared expectations

AI-mediated maintenance

scale
speed
concentration
hidden defaults

What changed

bandwidth
one maintainer can reach millions

concentration
few pipelines shape many defaults

visibility
assumptions move below articulation

accountability
local correction weakens

The marginal maintainer of doxa is changing.

Who maintains the shared world now maintains the economy.

The question is not only what AI says, but what background it renews.

The shared world has two failures.

Doxa can be overheld or underheld.

Too much concentration becomes capture.

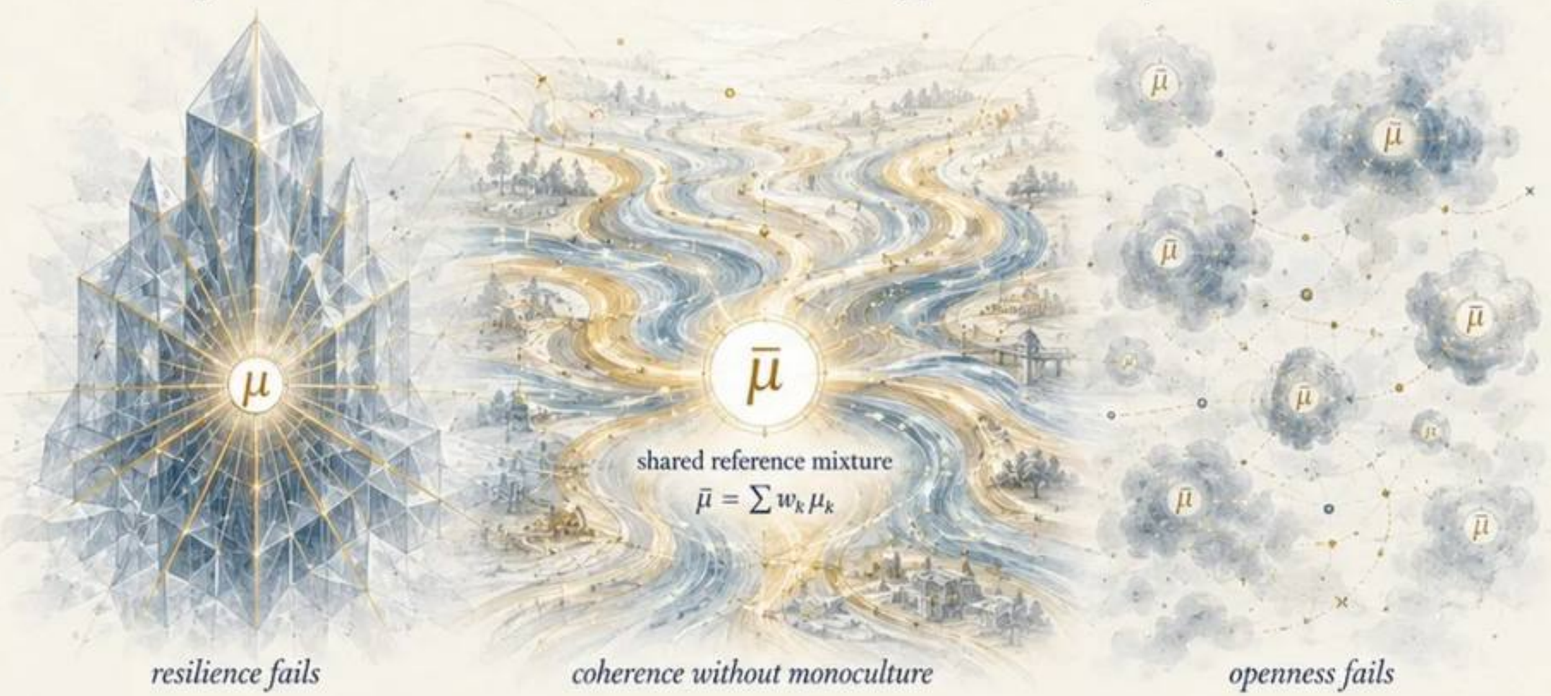
Too much fragmentation becomes collapse.

Viability is fluid coherence.

Doxic capture
one reference dominates

Viable doxa
one connected distribution, many paths

Doxic collapse
references lose shared support



resilience fails

coherence without monoculture

openness fails

too concentrated → capture → maintained spread → viability → too fragmented → collapse

The maintenance problem

too concentrated capture

too fragmented collapse

maintained spread viability

The work is holding one world with many references.

The shared world must remain fluid enough to update, coherent enough to coordinate.

Neither frozen monoculture nor vaporized incoherence can provision a community.

AI can share our values and not our world.

Behavior is not set by value alone.

It also follows the reference field the system assumes.

Alignment must target both V and μ.

$$\nabla \log \rho = \frac{\nabla V}{\tau} + \nabla \log \mu$$

TWO FORCES COMBINE INTO BEHAVIOR

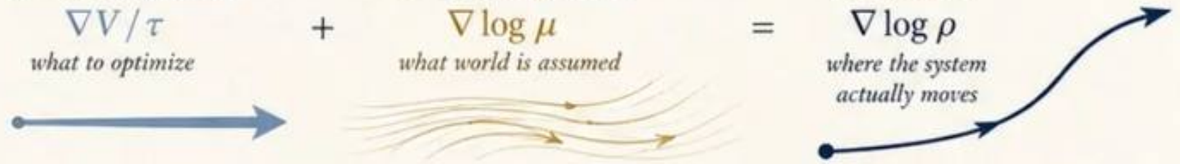
1. Value alignment
$\nabla V / \tau$
what to optimize

+

2. Doxic alignment
$\nabla \log \mu$
what world is assumed

=

3. Behavior
$\nabla \log \rho$
where the system actually moves



CASE 1
Value aligned, μ misaligned
passes value tests
pulls the world elsewhere

CASE 2
V aligned, μ aligned
values and world agree

Two-factor alignment

V
what should be optimized

μ
what world makes action sensible

ρ
what behavior actually does

A system can pass values while shifting assumptions.

Alignment is not only what the system wants.
It is what world the system makes normal.

Values aim the system. Doxa bends the path.

Who governs μ?

A derivation can locate
the final constraint.

It cannot decide
the community's answer.

The shared reference
must be governed.

The last economy

not only output
what is produced

not only welfare
what is distributed

not only alignment
what is optimized

reference governance
what world is maintained

Provisioning and alignment
meet at μ.

The last economy is the governance of the shared world.

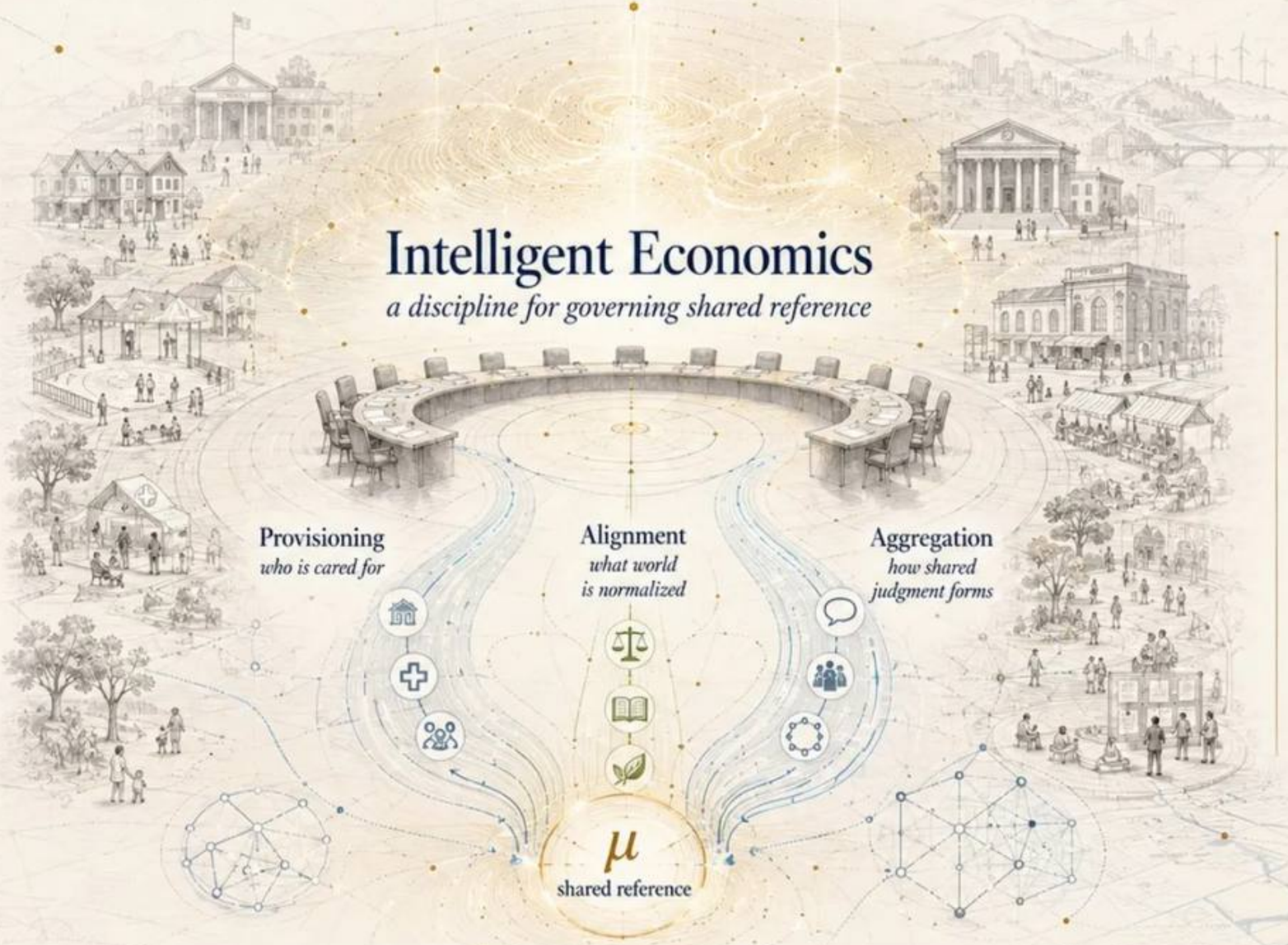
Production, alignment, and democracy meet at the reference.

The work begins now.

The derivation locates the problem.

The community must decide the answer.

Intelligent Economics is the discipline for asking clearly.



The answers belong to the communities whose world is at issue.

**The future economy is not only built.
It is agreed into being.**