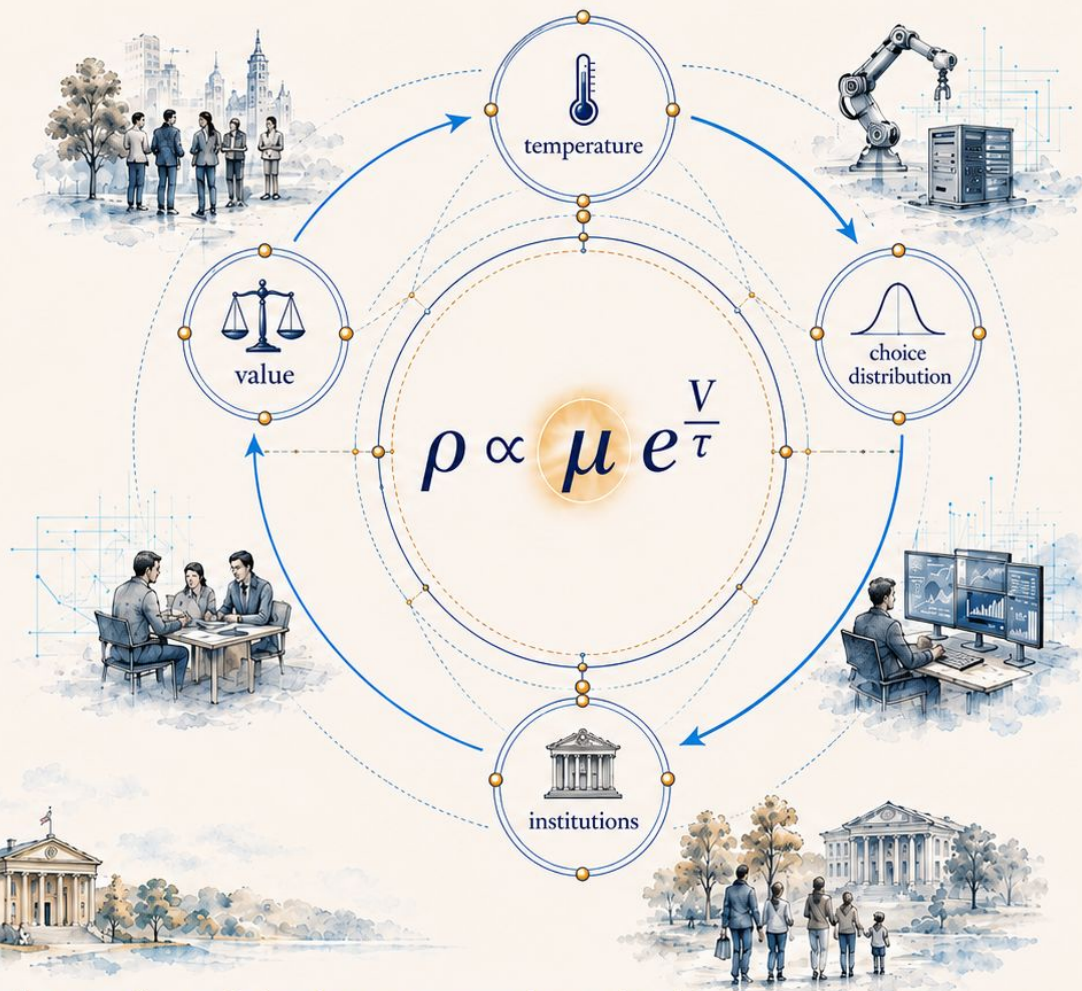


Intelligent Economics

A foundation for the discipline in the age of generative intelligence

Emad Mostaque

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



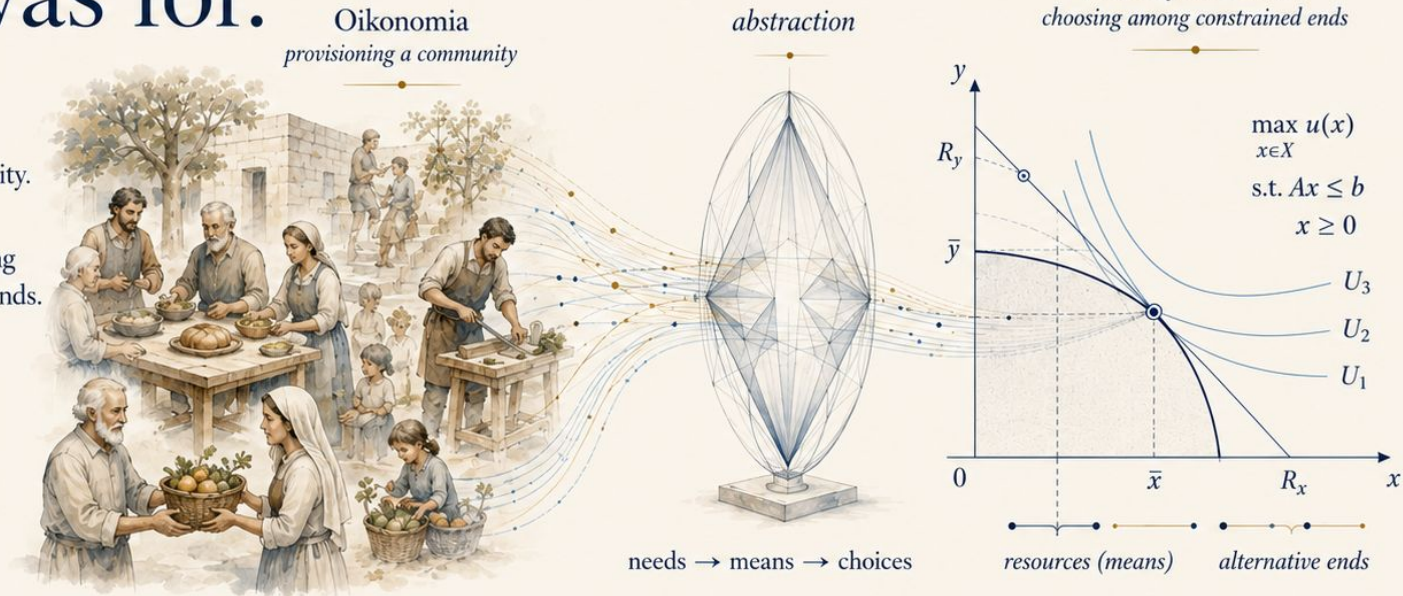
The economy is not only what produces. It is what a community maintains.

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.

**Social
reproduction**
Education, health,
trust, skills,
stability.

Provision
Food, shelter,
care, schools,
health, commons.

producers =
welfare-bearers

the hidden identity

1 Work
Skills, effort,
craft, care.

2 Income
Wages, claims,
purchasing
power.

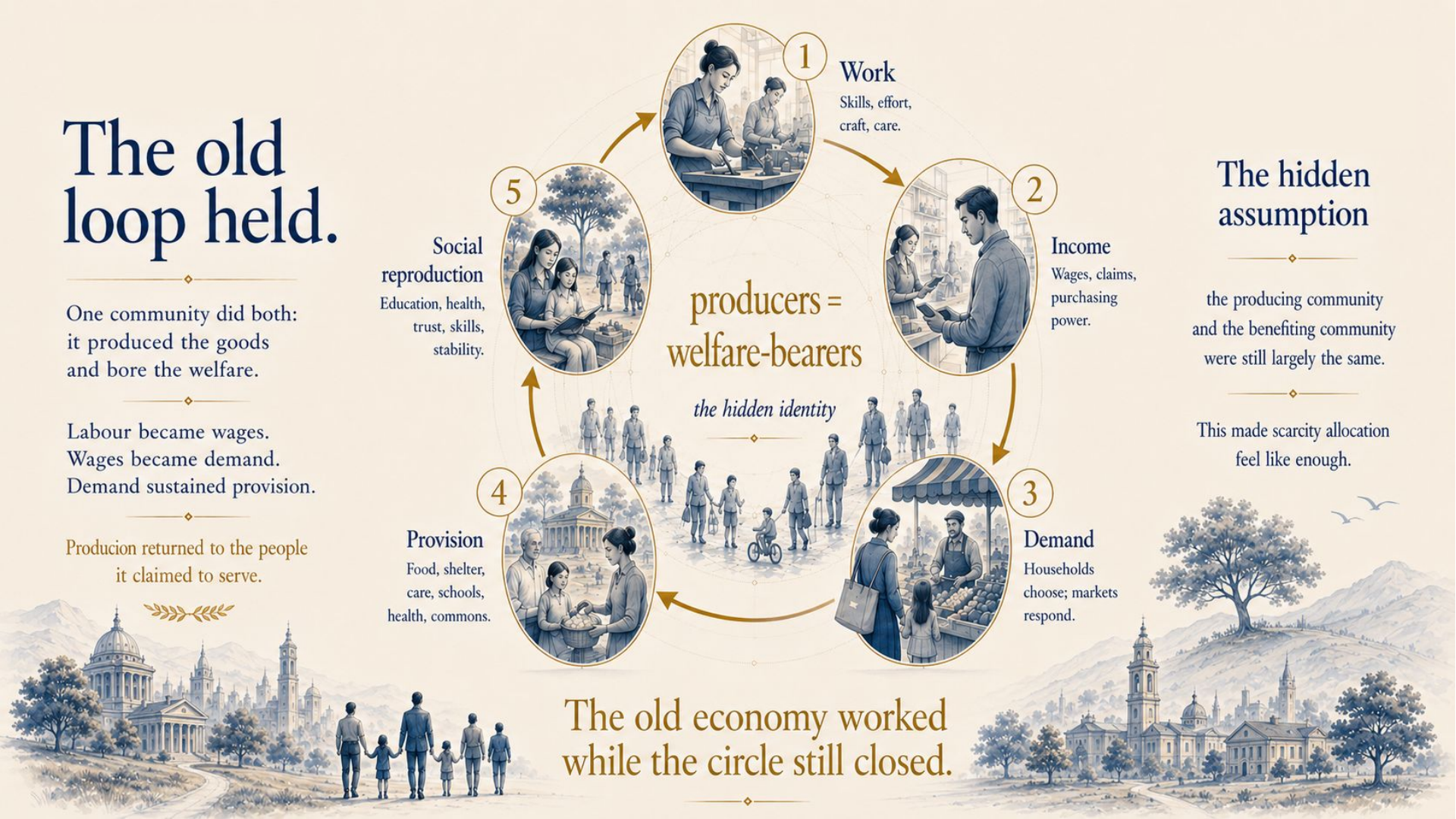
3 Demand
Households
choose; markets
respond.

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.

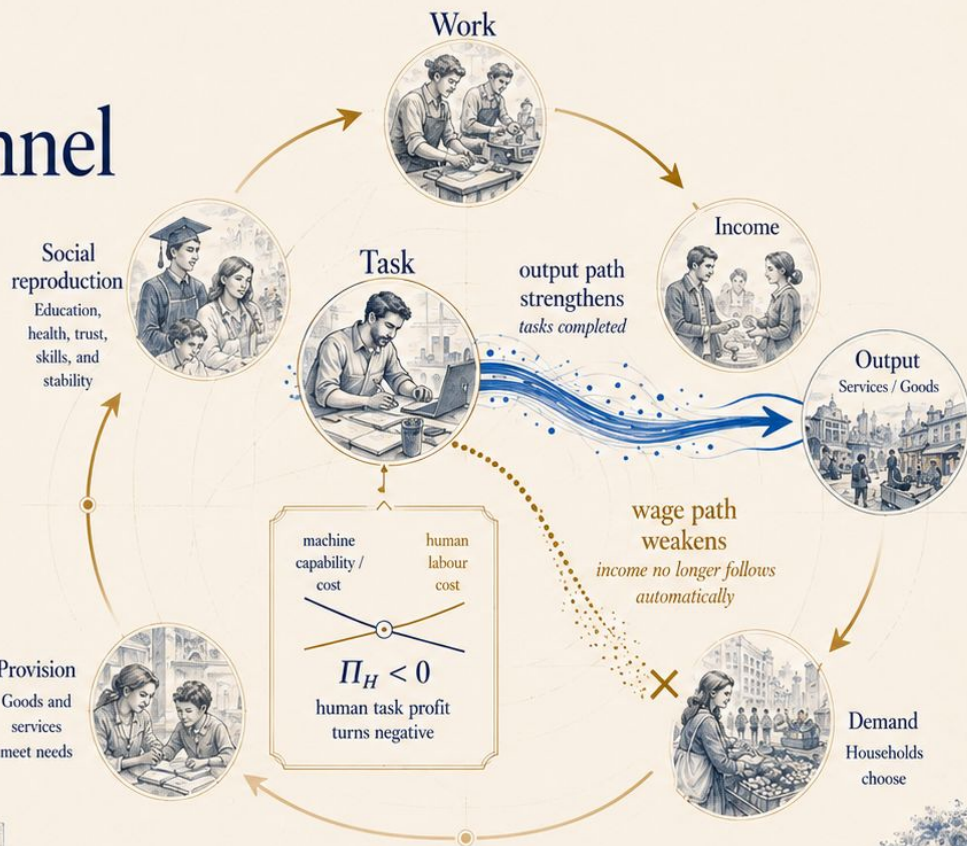


The wage channel breaks.

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.

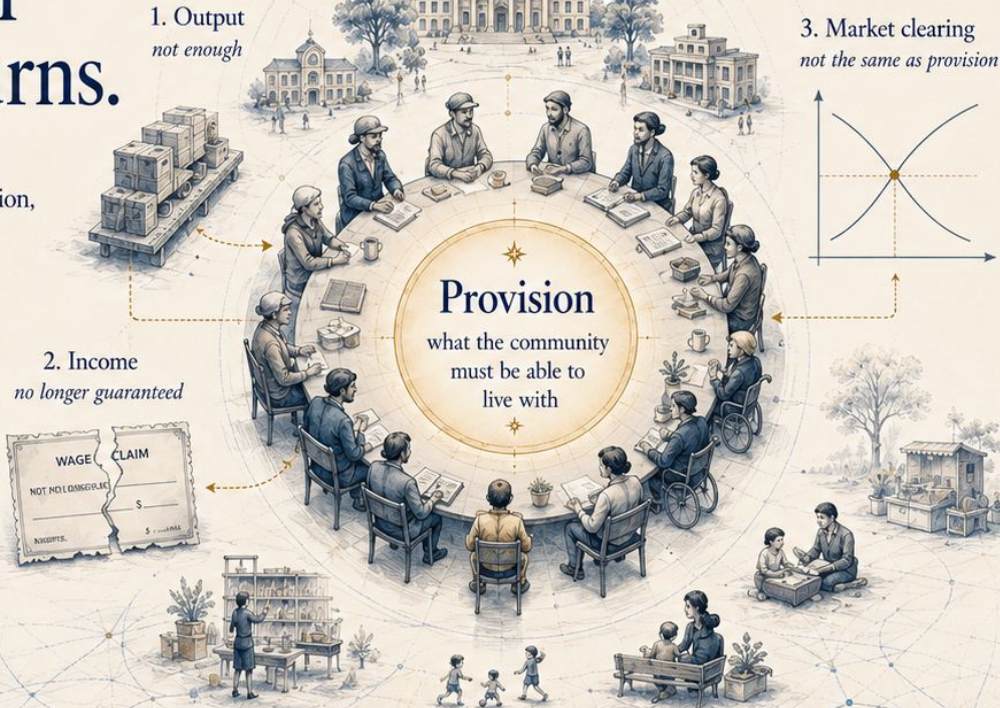
The work continues.
The return path fails.

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.



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.

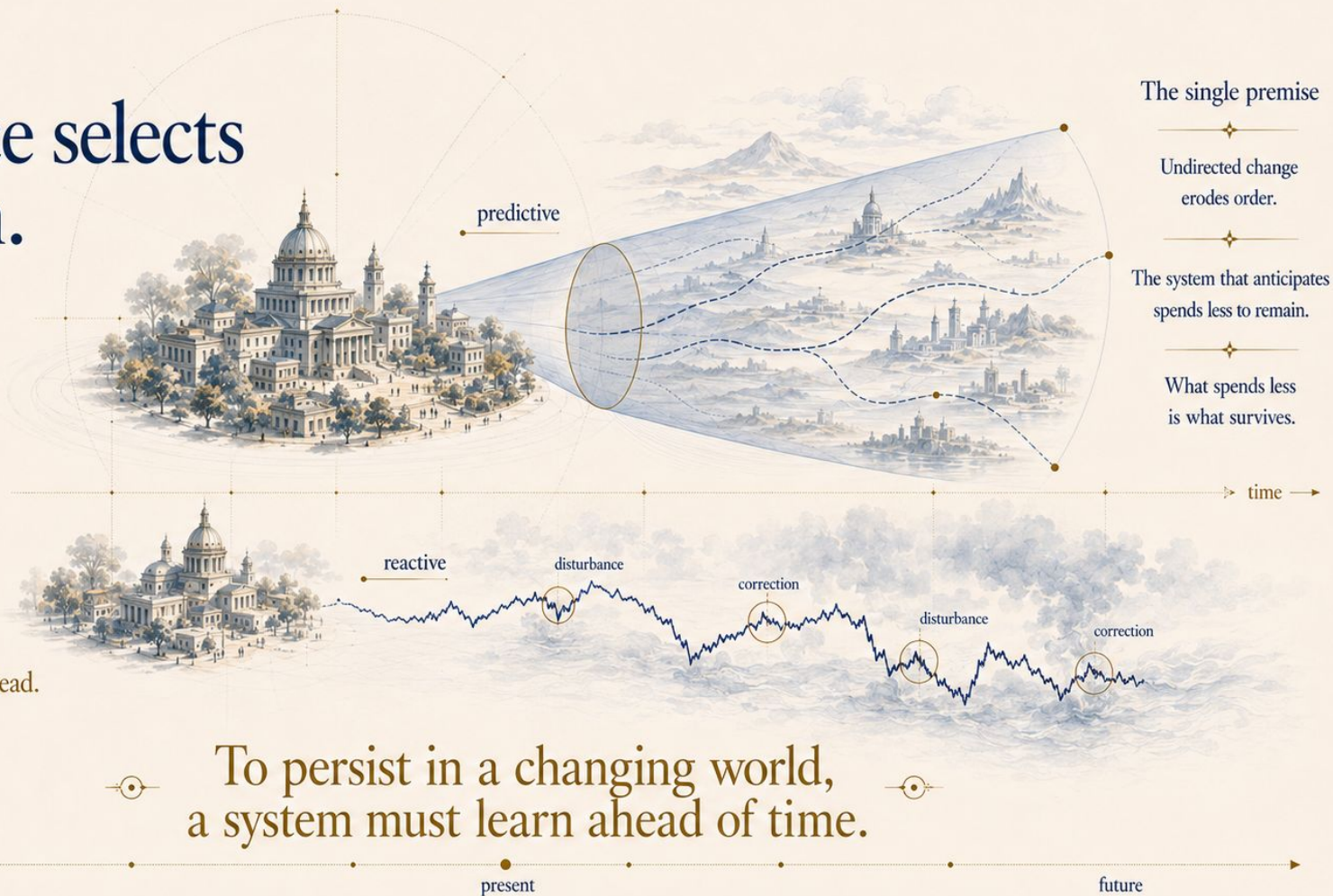
Persistence selects prediction.

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.



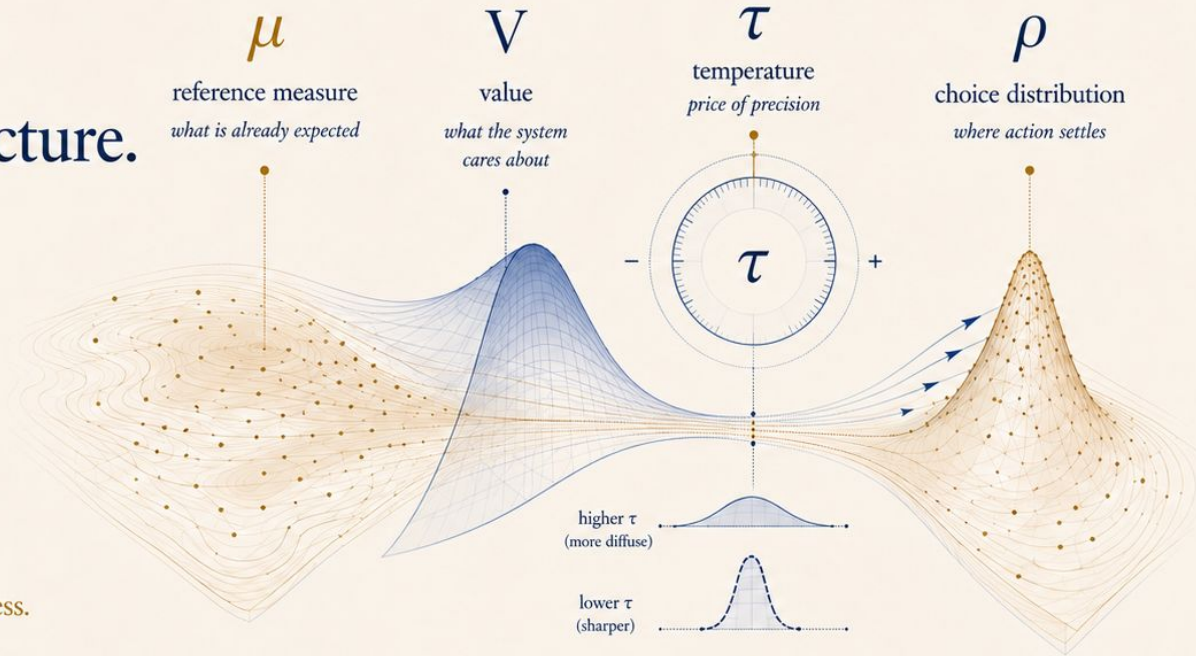
Choice has a forced structure.

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.



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.

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

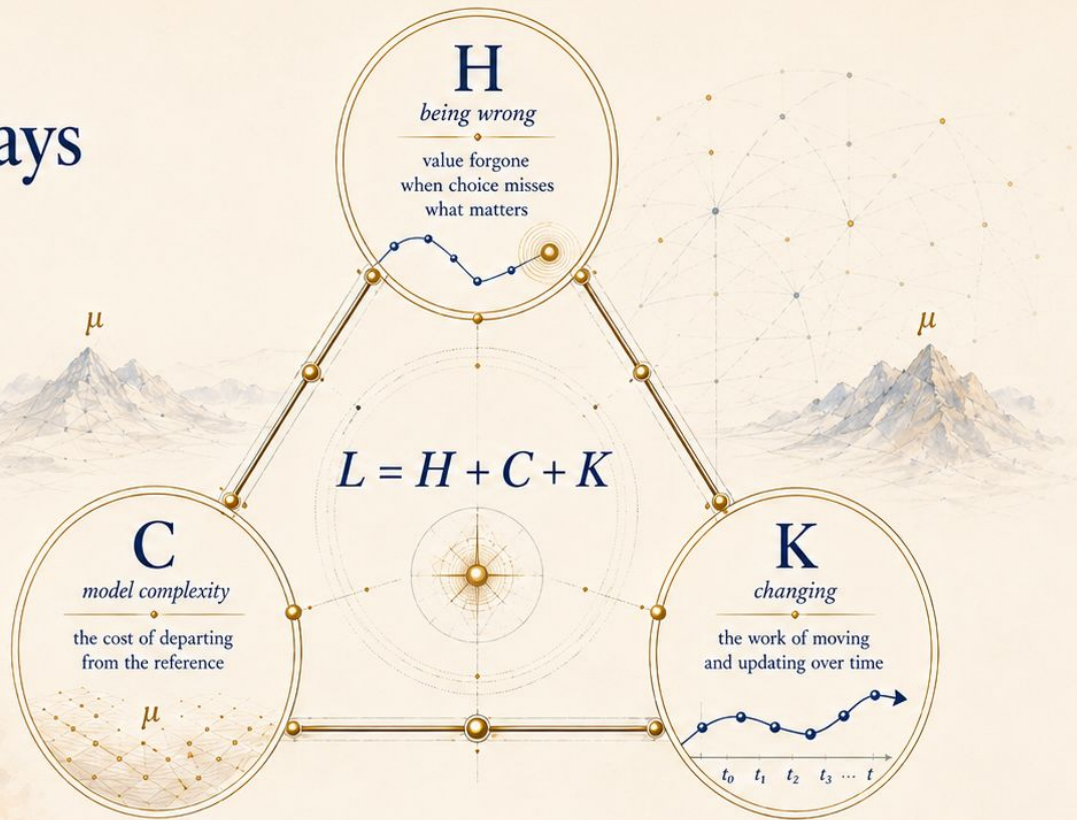
Choice is value acting on a reference.

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.

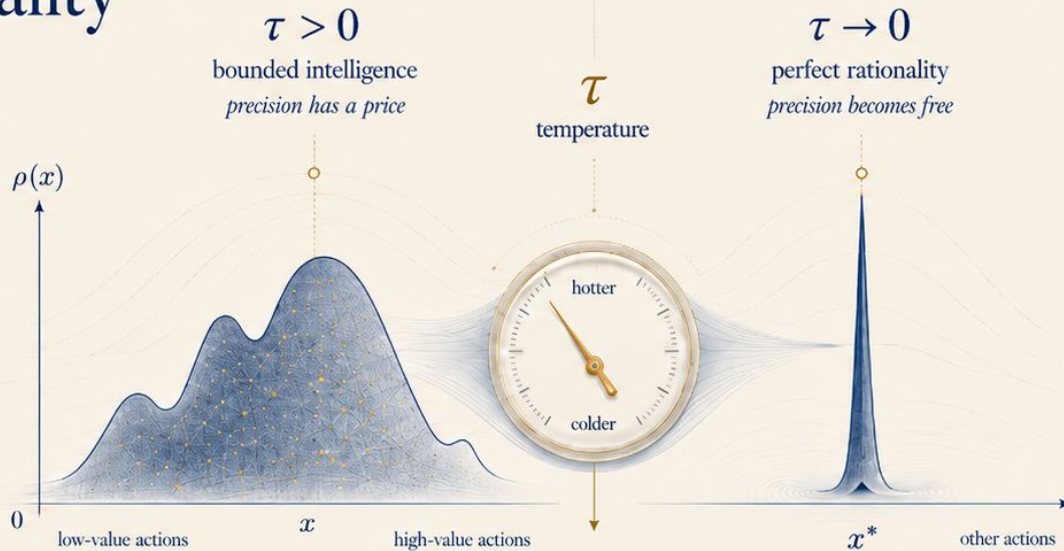
Intelligence is the cost
of staying aligned with the world.

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

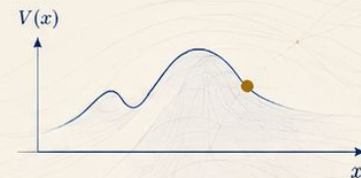
$\tau > 0$
bounded, costly,
distributed

$\tau \rightarrow 0$
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.

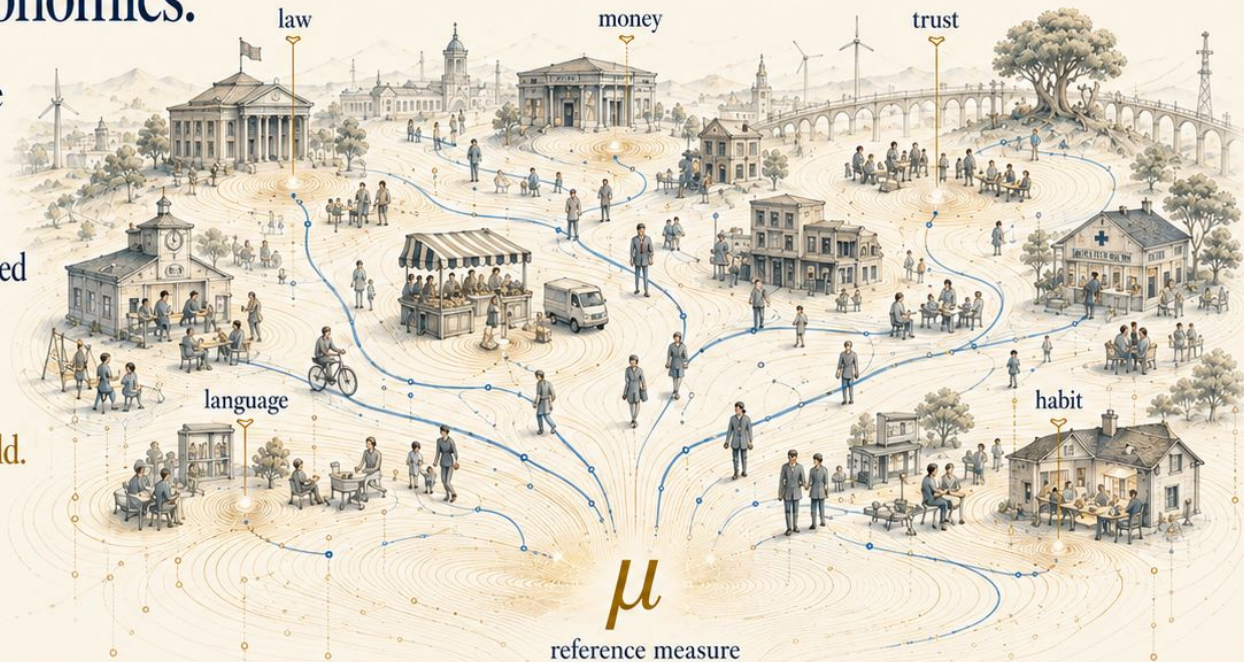


The reference becomes economics.

Agents do not choose against emptiness.

They choose inside a world already weighted by expectation.

Before value acts, there is already a world.



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

$\mu \rightarrow$ 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.

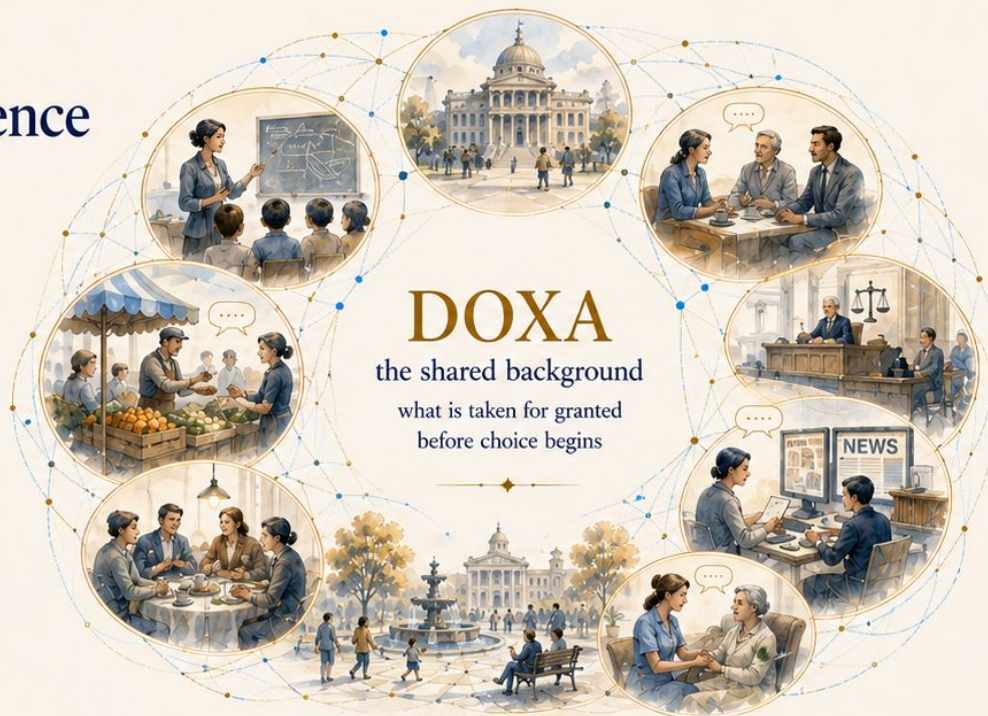
Economics begins inside a shared reference.

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.

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.

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

institutions stabilize μ



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.

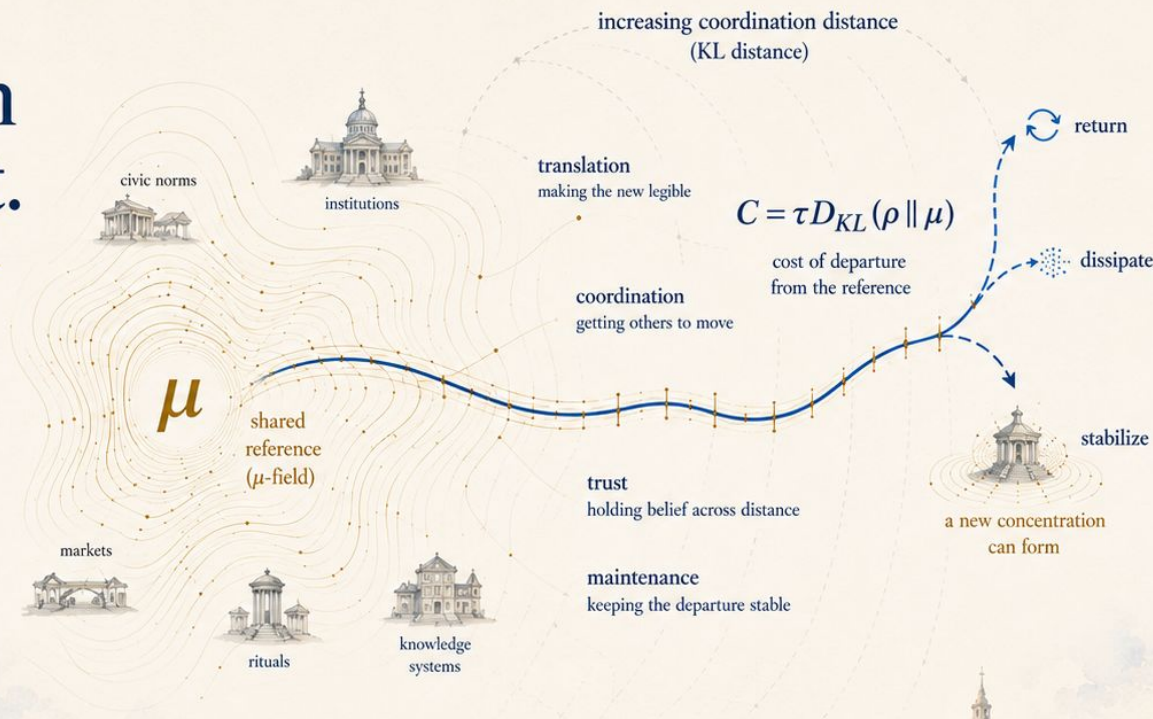
What people can rely on becomes what they can choose through.

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.

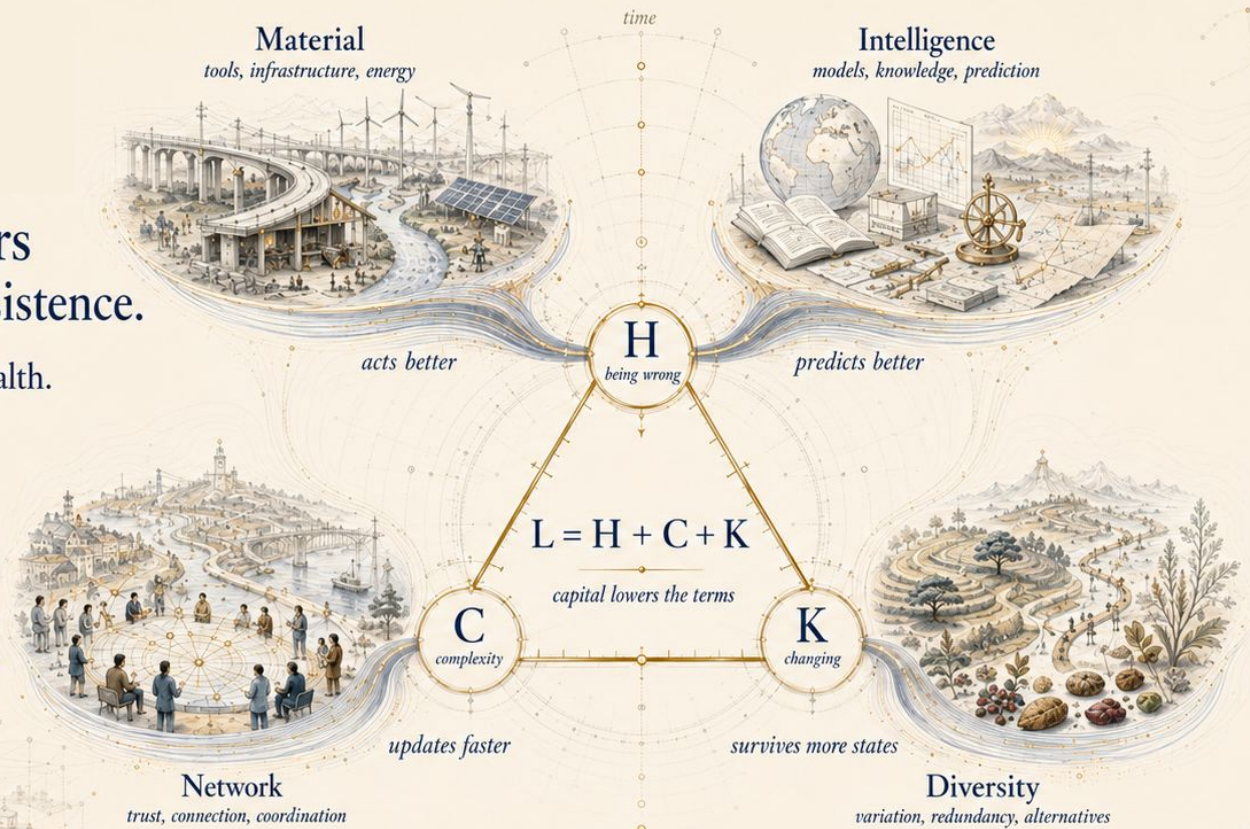
Some departures fail. Some become institutions.

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.

Pooling
value stops
circulating

Flow
value keeps moving
keeps H bounded

Resilience
diversity survives shocks
keeps C bounded across states

Exclusion
a group falls out
of support

one distribution,
many paths

Openness
the population stays connected
keeps the distribution whole

Monoculture
one reference
cannot survive
surprise

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

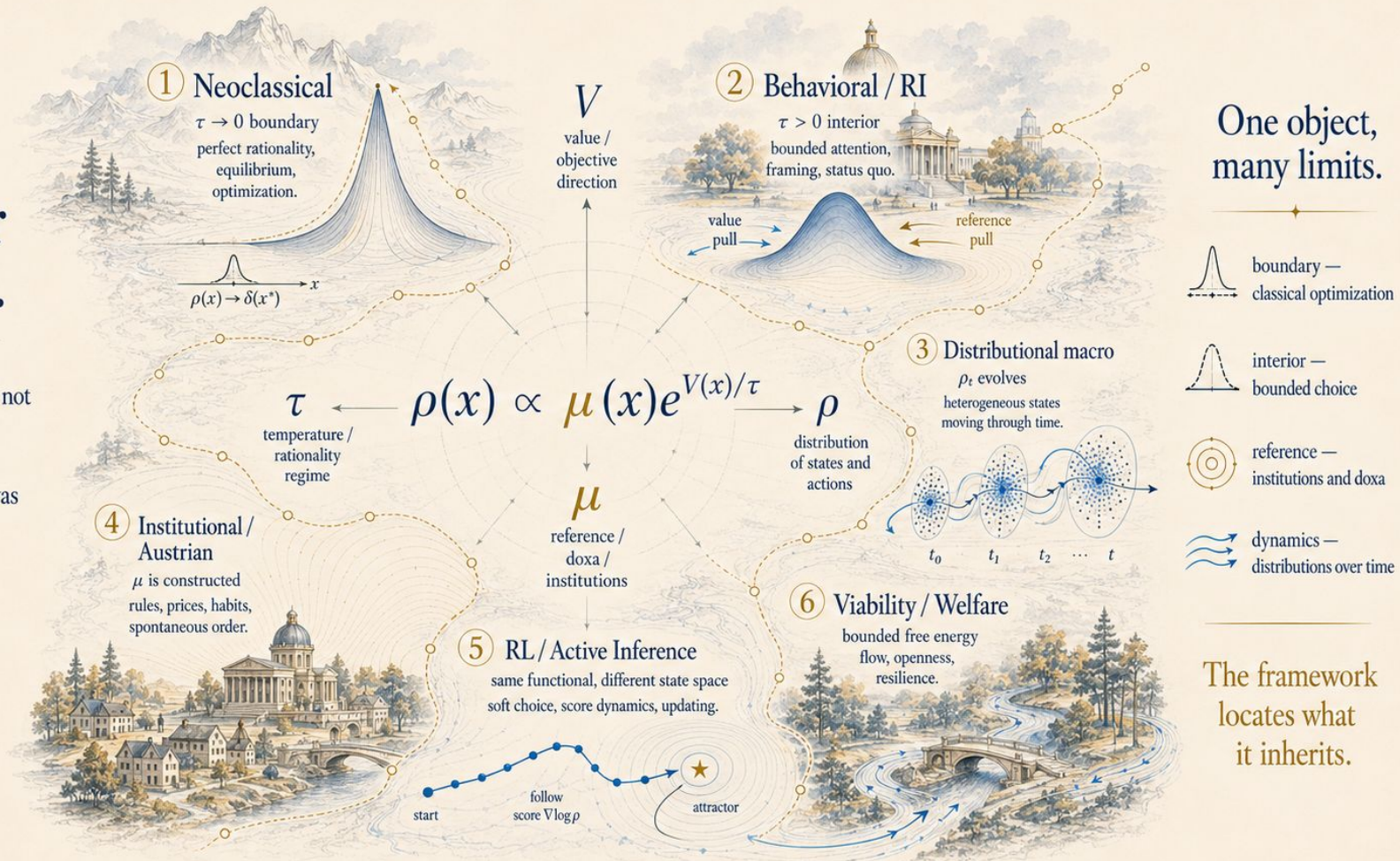
Justice appears as
a condition of
persistence.

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.



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.

$$\Delta V \rightarrow \Delta \rho \rightarrow \Delta \mu$$

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.

Repeated
paths become
reference.

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

VALUE LANDSCAPE

POPULATION ———— • V

REFERENCE ———— • ρ

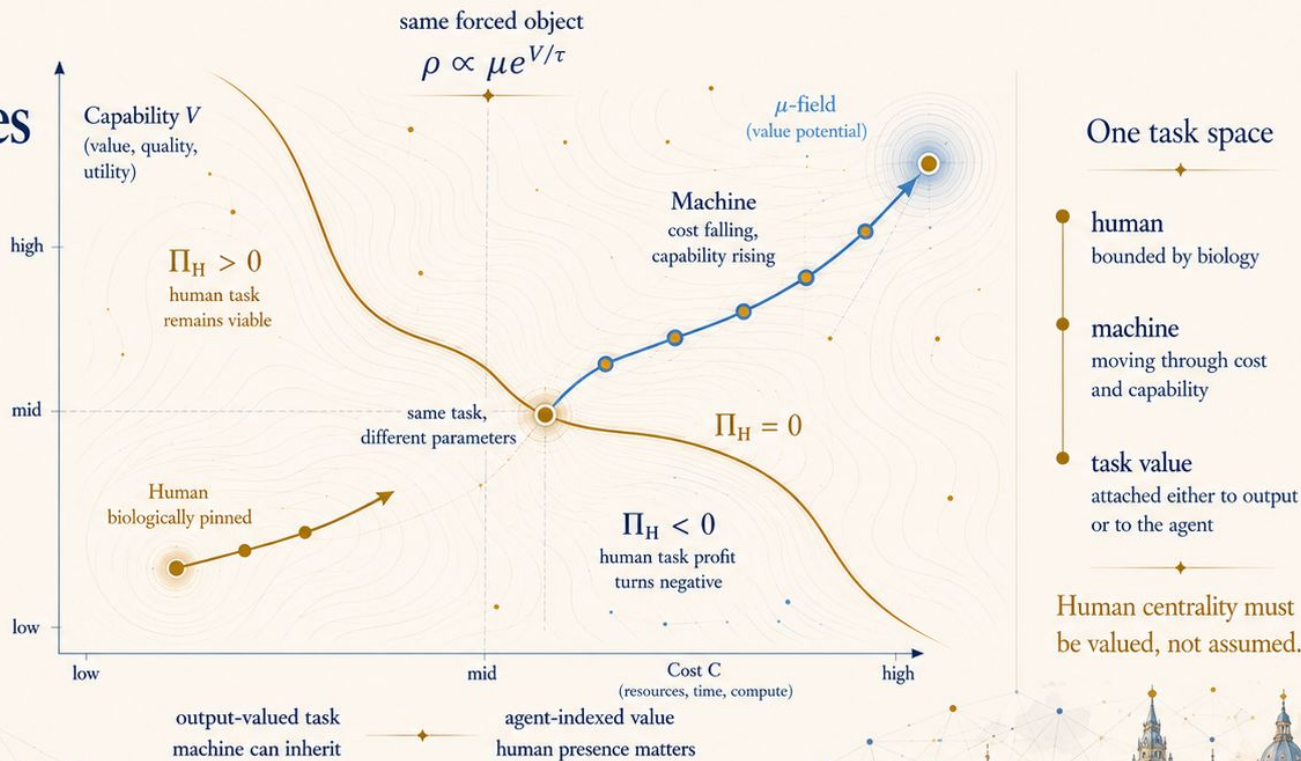
————— • μ

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.



The transition is one moving inequality.

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

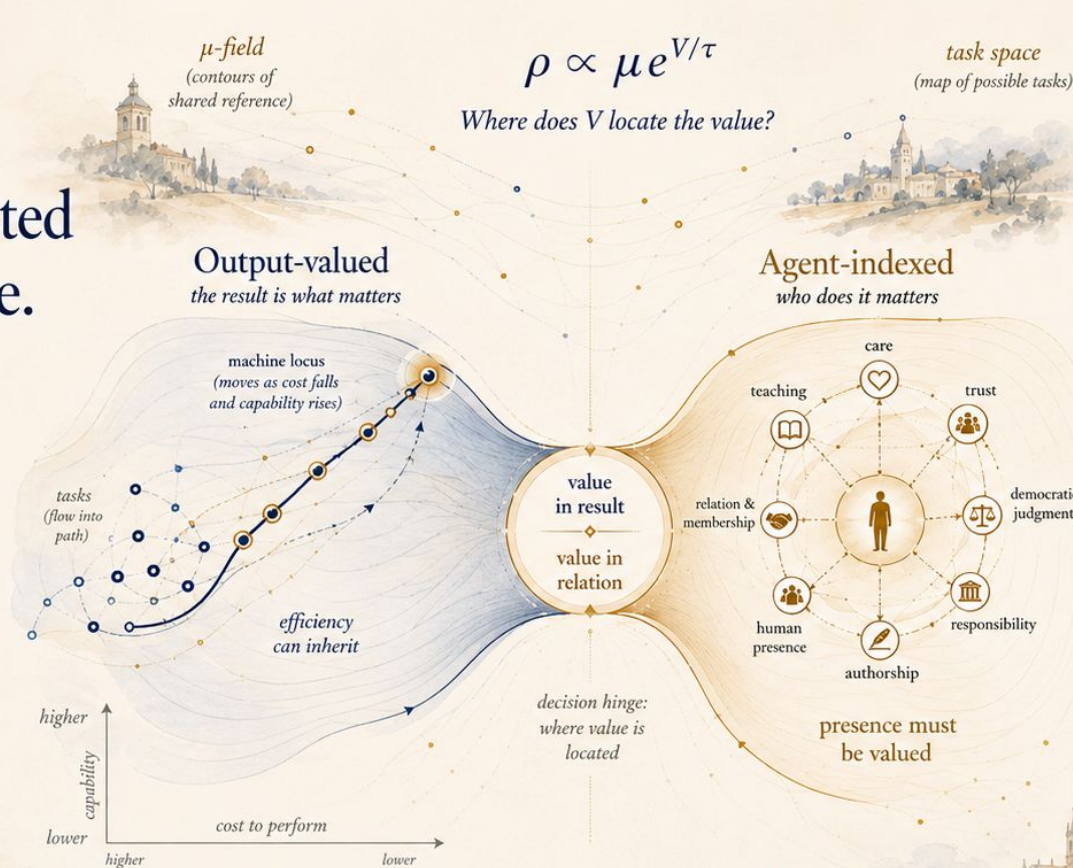


There is no protected human coordinate.

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.



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 .

① LAND
territory, soil,
agriculture,
geography

② LABOUR
human effort,
craft, skill,
cooperation

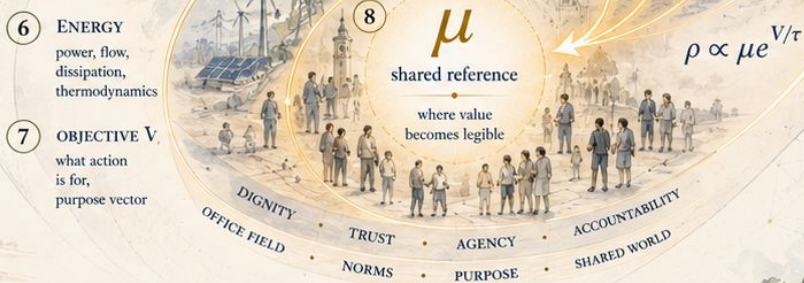
③ CAPITAL
tools, machines,
infrastructure,
coordination

④ INTELLIGENCE
models, maps,
prediction,
abstraction

⑤ ROBOTICS
embodied action,
actuation,
execution

⑥ ENERGY
power, flow,
dissipation,
thermodynamics

⑦ OBJECTIVE V
what action
is for,
purpose vector



The inversion

- ① land binds
territory is scarce
- ② labour binds
work is scarce
- ③ intelligence binds
cognition is scarce
- ④ action becomes cheap
purpose binds
- ⑤ 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.

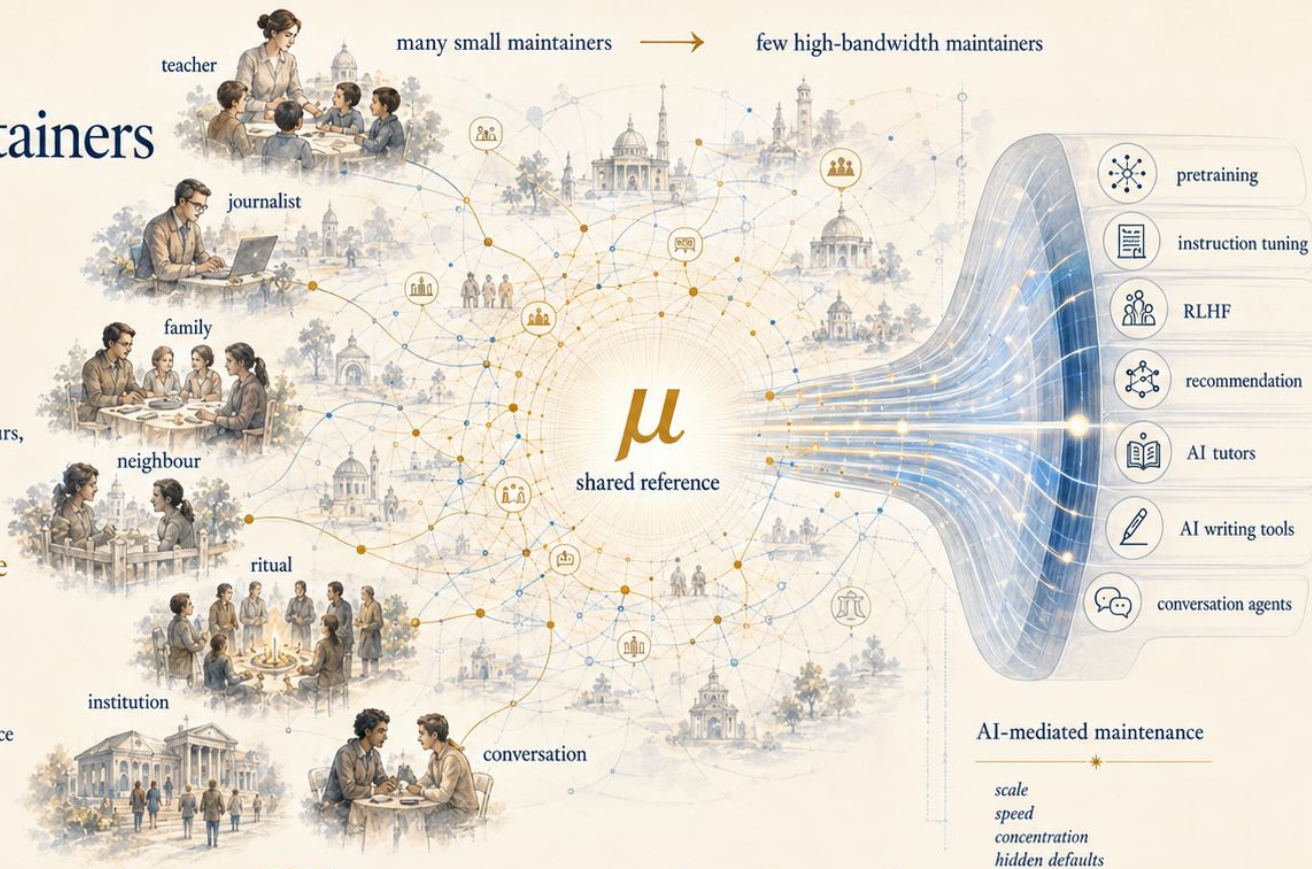
Doxa was never self-maintaining.

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



What changed

-  **bandwidth**
one maintainer can reach millions
-  **concentration**
few pipelines shape many defaults
-  **visibility**
assumptions move below articulation
-  **accountability**
local correction weakens

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.

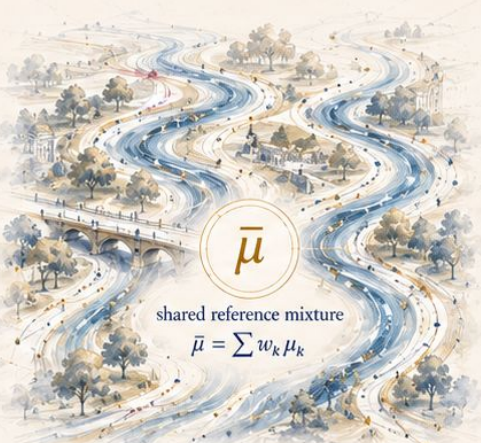
Doxic capture
one reference dominates



resilience fails

too concentrated
→ capture

Viable doxa
one connected distribution, many paths



shared reference mixture

$$\bar{\mu} = \sum w_k \mu_k$$

coherence without monoculture

maintained spread
→ viability

Doxic collapse
references lose shared support



openness fails

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

$$\frac{\nabla V}{\tau}$$

what to optimize

+

2. Doxic alignment

$$\nabla \log \mu$$

what world is assumed

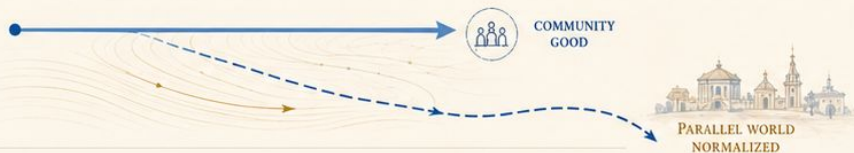
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3. Behavior

$$\nabla \log \rho$$

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.

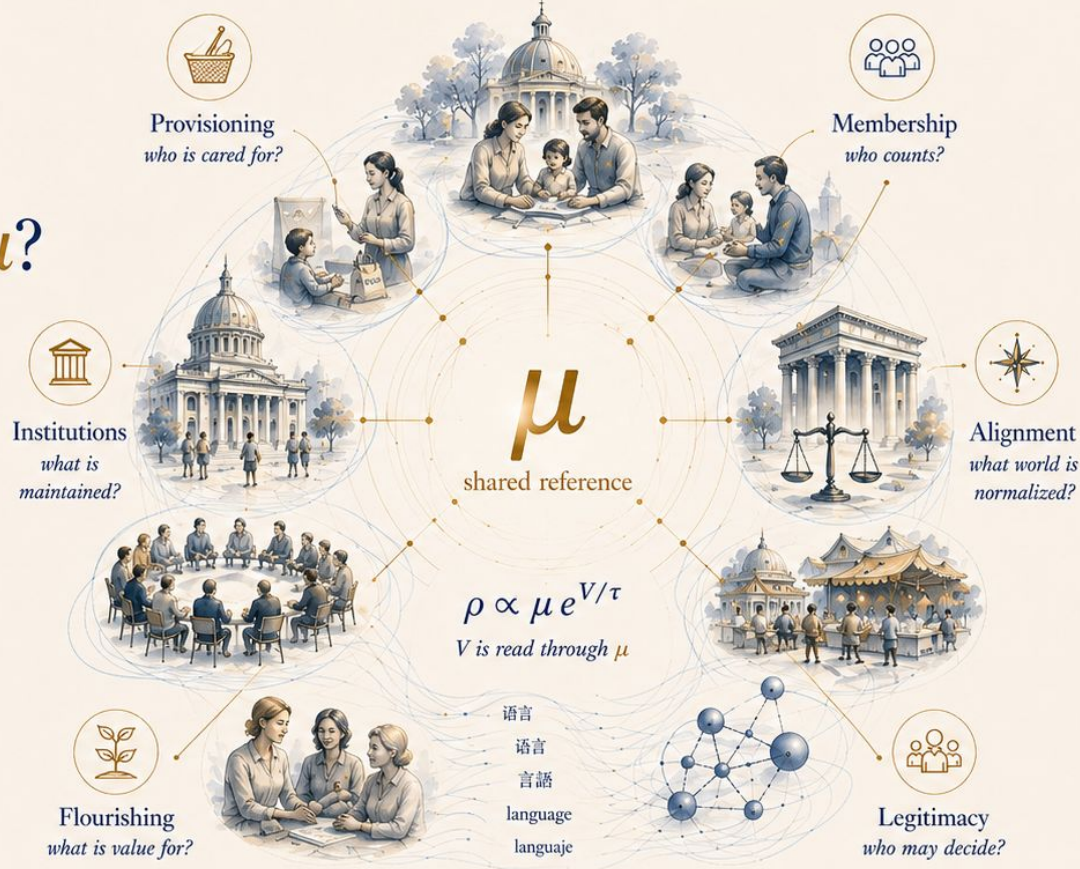
Values aim the system. Doxa bends the path.

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.

Intelligent Economics

a discipline for governing shared reference

Provisioning
who is cared for

Alignment
*what world
is normalized*

Aggregation
*how shared
judgment forms*

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

μ
shared reference

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