

1 / 20

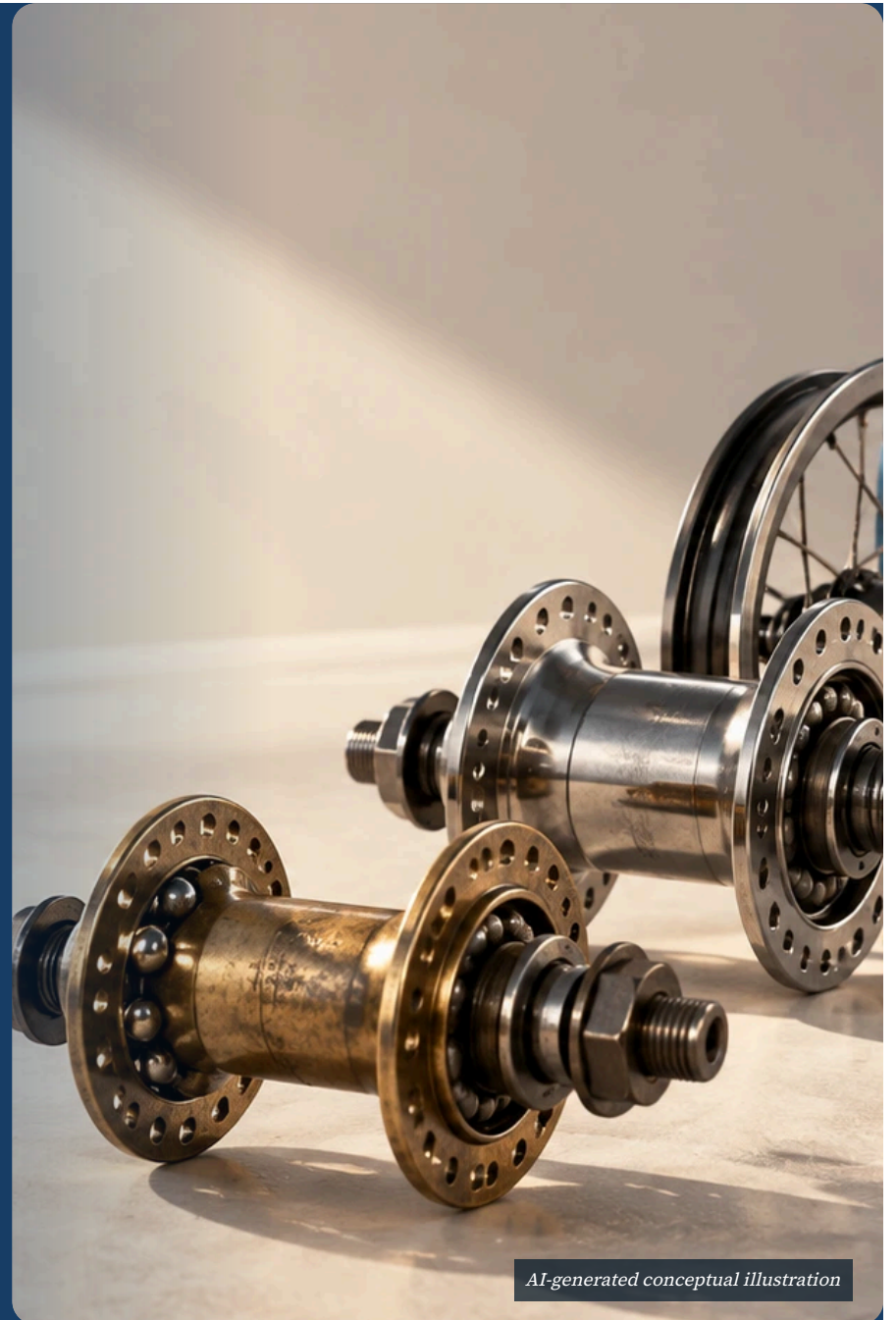
A useful idea is only the beginning.

THE ECONOMICS OF INNOVATION

Why do useful ideas become ordinary practice in some societies, while remaining isolated achievements in others?

Ashish Kulkarni

Takshashila Institution · October 2026



AI-generated conceptual illustration

Useful ideas reshape economies as they spread.



An innovation system needs all three.

“Until many users adopt a new technology, it may contribute little to our well-being.”

[Hall & Khan · author draft, p. 3](#)

Academic sources: [Hall & Khan \(2003\)](#)

3 / 20 · 3 minutes

New combinations. Not just new machines.

ONE BAKERY. FIVE WAYS TO INNOVATE.

01

The good

A new bread, or
better quality.

02

The method

A different way to
make it.

03

The market

A new
neighborhood to
serve.

04

The supply

A new source of
flour.

05

The organization

A different way to
organize delivery.



Generated illustration

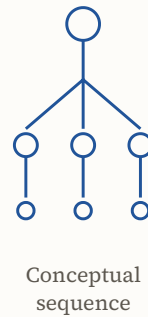
Schumpeter's five combinations widen the meaning of innovation.

Academic sources: [Schumpeter \(1934\)](#) [Broadberry & Zhai \(2025 working paper\)](#)

A breakthrough needs practical improvement.

01 Possibility

Macroinventions open new technical paths.



Practicality

Better performance

Lower cost

Greater reliability

Microinventions make a possibility more useful.

A refinement may be what finally makes adoption worthwhile.

Academic sources: [Mokyr \(1990\)](#) [Mokyr \(1998 manuscript\)](#)

Knowing why. Knowing how. Better together.

Where / when	Knowing why	Knowing how
Mediterranean–Atlantic · c. 1470	Celestial altitude and latitude	Navigate with a mariner's astrolabe
France · 19th century	Microbes drive fermentation	Improve brewing; prevent spoilage
Britain · 1830s	Electromagnetic induction	Build an electric generator
Scotland · 1860s	Microbes cause putrefaction	Apply antiseptic wound treatment
Japan · 1950s	Understand statistical variation	Monitor processes; reduce defects

Practice also asks questions that science learns to answer.

Academic sources: [Mokyr \(2005\)](#)

6 / 20 · 3 minutes

Nobody knows enough alone.



AI-generated conceptual illustration

PRINCIPLE

The scientist

Knows why it could work.

PROCESS

The technician

Knows how to make it work.

PLACE

The user

Knows the local problem.

Innovation combines knowledge dispersed across people and places.

The institutional plumbing: legal and property rights · policing · capable taxation and public spending.

Our reading of this imagined community: dispersed knowledge works better when cooperation is dependable.

Academic sources: [Hayek \(1945\)](#) [Greif & Laitin \(2004\)](#)

What does winning reward?

CREATE VALUE

Improve the offer.

A better product.
A real cost saved.
A problem solved.

SECURE A TRANSFER

Protect the position.

Exclusive permission.
Protection from rivals.
Political favor.

What the rules reward shapes where effort goes.

Baumol's point: the rules can direct entrepreneurial effort toward production, rent-seeking, or destruction.

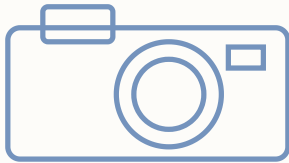
Create value: win customers with faster deliveries.

Capture rents: secure an exclusive licence that shuts out rivals.

Illustrative strategies. A firm can pursue both; competition over favours can waste resources as well as transfer income.

Academic sources: [Baumol \(1990\)](#)

The new arrives. The old loses value.



Film photography

Skills, equipment, and businesses built around an old method.



Digital photography

New capabilities.
New opportunities.
Old assets lose value.

The people who gain and the people who lose may differ.

Keep experimentation possible. Take transition costs seriously.

Academic sources: [Aghion & Howitt \(1992\)](#)

A rival can spur innovation. Or discourage investment.

CLOSE RIVALS



Escape competition

An improvement can help either firm pull ahead.

A DISTANT LAGGARD



Discouraged investment

Fiercer rivalry can make catching up less rewarding.

The effect depends on who competes, and how.

The paper combines a model with evidence from UK firms' patents. Rivals can change incentives differently depending on how close firms are technologically. It does not tell every country how much competition to choose.

Academic sources: [Aghion et al. \(2005\)](#)

Invention is one puzzle.
Sustained growth is another.

Technical achievement

≠

sustained economic growth

China had major technical achievements long before industrialization in Europe.

Later growth differed across **regions** and **periods**.

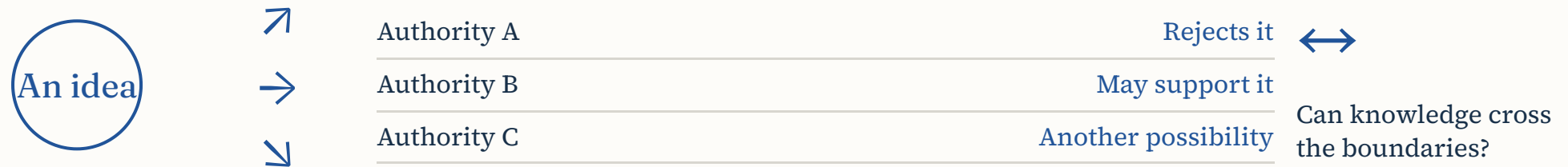
Cold War question: why did Soviet technical achievements coexist with weaker long-run growth than in the US?

One lens: incentives and diffusion. Also consider diminishing returns to capital; invention alone cannot explain the growth gap.

How do useful possibilities become cumulative economic change?

Academic sources: [Broadberry & Zhai \(2025 working paper\)](#) [Easterly & Fischer \(1995\)](#)

A rejected idea needs somewhere else to go.



Alternatives matter when people and ideas can reach them.

Law did not invent central banking. William Paterson, also Scottish, proposed the Bank of England.

John Law's travelling proposal

The Scotsman proposed banking schemes in Scotland and Turin before France permitted Banque Générale in 1716. His system collapsed in 1720: another place to experiment is an opportunity, not a guarantee of sound design.

Academic sources: [Mokyr & Tabellini \(2024\)](#) [Mokyr \(2005\)](#) [Buchan \(2023\)](#)

Institutions are a process.

Institutions are the rules and arrangements that shape behavior.

01

Rely

Keep rules dependable.
People need to plan.

02

Observe

Watch the effects.
Conditions can change.

03

Revise

Use evidence.
Use a known procedure.

Dependable rules can include dependable ways to change.

This is my design principle; institutional change is not always improvement.

“Hence, institutions can be self-undermining and the behaviors that they entail can cultivate the seeds of their own demise.”

Greif & Laitin (2004), p. 634

Academic sources: Greif & Laitin (2004)

Protect the idea. Keep knowledge moving.

INCENTIVE TO CREATE

Recover the investment.

Protection can help
reward an inventor.



ROOM TO BUILD FURTHER

Adopt. Combine. Improve.

Access helps others
use the pool of knowledge.

What does stronger protection change at the margin?

A trade-off to investigate. Not an estimated universal optimum.

“The key is to match problems to institutions.”

[Alex Tabarrok · Launching the Innovation Renaissance \(2011\)](#)

Compare patents, prizes, buyouts, and advance market commitments.

Further viewing: [How ideas trump crises](#) (TED, 2009).

Academic sources: [Stiglitz \(2014 working paper\)](#)

Give the state a role.
Then scrutinize the role.

The appropriate role
remains open.

What would otherwise happen?

Examine horizons, uncertainty, and spillovers.

Can the state do this well?

Examine capacity, incentives, and accountability.

Can unsuccessful support end?

Make withdrawal part of the design.

A non-zero role establishes neither its size nor its form.

Ashish's perspective: [Reflections on The Entrepreneurial State ↗](#)

Academic sources: [Mazzucato \(2011 report\)](#) [Rodrik \(2004 working paper\)](#)

AI capability is the start. Work has to change.



Access and usage are inputs. Productivity is an outcome.

The moving frontier matters. AI capabilities can improve while organisations are still adapting to the previous generation. Adoption choices need regular review.

Kwa et al. document rapid progress on selected software tasks. This is evidence of a moving frontier, not proof of equal progress in every domain.

Academic sources: [Brynjolfsson, Rock & Syverson \(2021\)](#) [Kwa et al. \(2025; updated 2026\)](#)

Delay has a cost. So does error.

WAIT TOO LONG

Miss learning.

Useful adoption and capability building may be delayed.

Training and bounded trials

MOVE WITHOUT ENOUGH CHECKS

Risk harm.

Mistakes can be costly and damage trust.

High-stakes treatment decisions

Choose the pace for the activity, not just the technology.

My judgment: India should move faster at current margins.

Education

Personalised feedback ↔ confident errors

Health

Administrative help ↔ unsafe clinical advice

Justice

Find and organise records ↔ biased summaries affecting decisions

Discussion examples: separate bounded assistance from consequential decisions, with human accountability.

Academic sources: [Hall & Khan \(2003\)](#) [Brynjolfsson, Rock & Syverson \(2021\)](#)

Try one change in one permit office.

PROPOSED TRIAL · A DISTRICT OFFICE IN INDIA

Can an AI assistant reduce incomplete permit applications?

This is a hypothetical test, not a reported programme.

Diagnose

Are missing documents the binding constraint—or is delay caused by staffing and approvals?

Test

Let AI flag missing documents on copies. Keep the officer's decision authoritative; compare with a human-only process.

Reconsider

Measure time, missed omissions, false flags, and appeals. Expand only if service improves without worse errors.

A faster model will not fix an unrelated bottleneck.

Academic sources: [Hausmann, Rodrik & Velasco \(2005\)](#)

Skills travel through people.

01

Learn beyond kin

A master outside the family opens access to useful skills.

02

Move between workshops

Compare methods. Carry know-how to another workplace.

03

Improve in practice

Supervised work makes a useful idea usable.

British watchmaking: skilled artisans and relatively few restrictions on hiring apprentices helped turn knowledge into practical improvements.

The evidence supports adaptable training and learning beyond kin, not a classless Britain.

For today: mass university education need not reproduce supervised learning through real work. How might we combine the two?

A possible route: degree programmes with sustained work under skilled mentors. A proposal to examine, not a result from the historical paper.

Academic source: [de la Croix, Doepke & Mokyr \(2018\)](#)

Make useful ideas worth trying. Help them spread.

An innovative society makes it worthwhile to create, experiment, and spread useful ideas.

Its institutions must also evolve as the conditions for doing
those things change.

Migration & open borders → people and skills Patents → rewards and access

AI diffusion → organisational change Education & apprenticeship → useful know-how

Academic sources: [Hall & Khan \(2003\)](#) [Greif & Laitin \(2004\)](#) [de la Croix et al. \(2018\)](#)

Which rule would you revisit?

Which rule was once useful
but now obstructs innovation?

What evidence would
justify changing it?

What would you keep
dependable?

Use a concrete case. Make the mechanism explicit.

[Continue with the readings ↗](#)

References and PDF readings

Full citations for the core slides. Earlier drafts and working-paper versions are labelled. Source links support the mechanisms described; they do not establish every policy judgment in this talk. Slide 10: Broadberry and Zhai, printed pp. 28–29. Slide 11: Mokyr (2005), printed pp. 297–298 and 341–342.

Hall & Khan (2003)

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Broadberry & Zhai (2025 working paper)

Broadberry, Stephen, and Runzhuo Zhai (2025). Innovation and the Great Divergence. CAGE Working Paper 771/2025, September version.

[Publication / repository](#) [Read PDF](#)

Working-paper version. Compare regions and periods; the paper does not establish a universal Europe–Asia ranking.

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Personal reflections

These are Ashish's notes, offered alongside the academic references:

- [Reflections on The Entrepreneurial State](#)
- [Risks, investment, and the government](#)

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The quoted sentence follows a comparison of innovation-support institutions.

Revision record

3 October 2026 — slides 1–20: removed all speaking notes and cover duration; reduced navigation; added rounded image corners and bread imagery; centred slides 4, 5, 7, 9 and the conclusion. Added verified quotations, historical why/how examples, institutional context, John Law’s banking episode, Cold War discussion, AI pace and domain examples, a concrete hypothetical permit-office trial, and a new apprenticeship slide. Added academic references and Ashish’s public state-innovation reflection. Rebalanced teaching time to retain the 75-minute session.

3 October 2026 — visual revision after Ashish’s review: rebuilt the 19 slides with point-making titles, varied compositions, locally hosted Fraunces and Source Serif typography, and two labelled generated conceptual illustrations. Kept all speaking notes, timing, academic references, and evidence boundaries. The design review tightened the diffusion headline to avoid treating widespread adoption as a condition for any economic effect.

3 October 2026 — prepared the October version from the February presentation and the subsequent discussion. Added the rewards-to-effort lens, institutional revision, and an activity-specific approach to AI adoption. Kept the role of the state open. Added academic sources, version labels, examples, and evidence boundaries to every substantive slide.

3 October 2026 — redesigned the October deck after content approval: message-led titles, varied mechanism diagrams, local presentation fonts, and

labelled conceptual imagery. Preserved source boundaries, speaking notes, and timing.

Approved for publication by Ashish on 3 October 2026.