INNOVATION = IDEAS + CHANGE

Promoting productivity

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Truism: if we don’t change, productivity will flat line

- New knowledge is the only source of LR productivity growth
- Francis Bacon (1660s) … man (sic) does not create material things, he only creates ideas.

Imagine if the state of knowledge stagnated in 1500s

Better productivity like happiness…

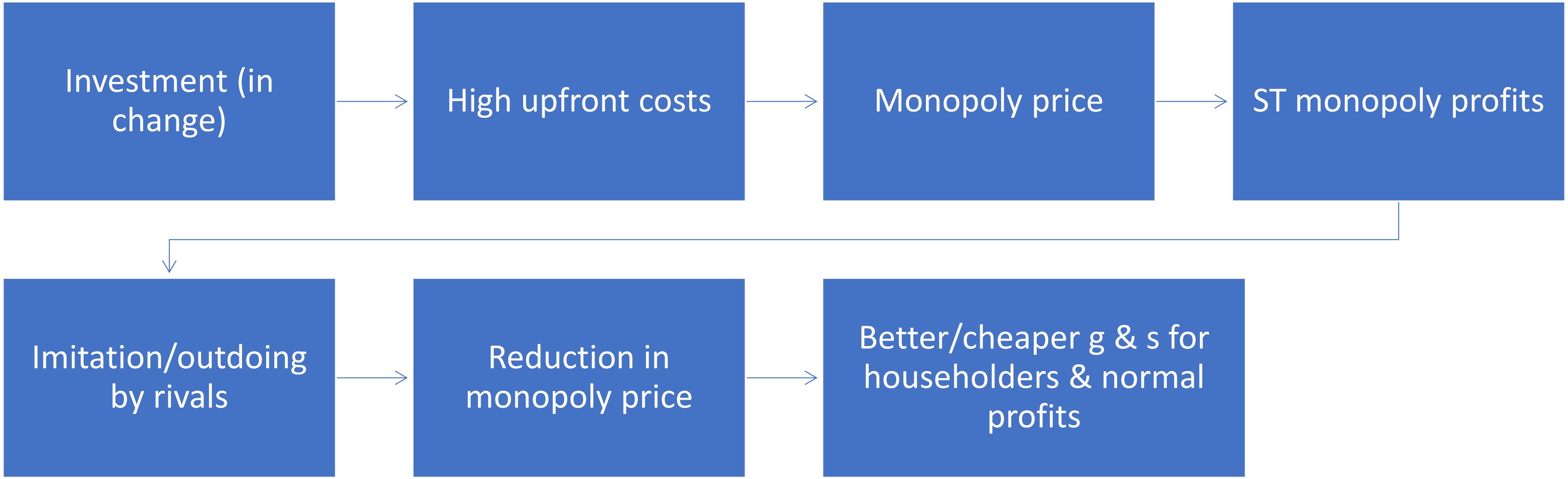
- We all want more
- No single simple solution but multi-faceted
- But there are some common elements across economies

Focus here – lifting business productivity through innovation (= new products, processes, ways of operating, marketing & distribution channels, technologies, managerial posture)

Innovation =
new-to-the-world or
new-to-the-firm
(imitation)

- In practice no clear dividing line
- New-to-the-world builds on the work of others
- Much copying involves adaption / mistakes
- All business productivity improvements should eventually lift well-being of the mass of householders

One archetypical process



Economists' research focussed on 2 points

- The initial investment (R, D and C)
- Imitation by rivals (aka competition)
- Why companies do and don't do investment in the creation and development of new ideas
- If the schema above is such a good idea – why don't all firms do it?

State of innovation today….

- Parts, ideas for complete product spread across many specialist suppliers & customers (i.e., not like Bell Labs/AT&T, DuPont, GE, IG Farben pre-1950s)
- Markets for technology more important - Innovation is a team sport
- Key features - <u>uncertainty, non-codifiability and opacity</u>

Uncertainty

- Unknown future cost- or demand-side conditions
- Not all contingencies can be predicted
- Often need ex post renegotiations
- Scope for opportunistic behaviour

Non-codifability

- If difficult to accurately codify the technology idea being traded, parties may fail to trade
- Fear the other party will act on the literal terms—rather than the spirit—of the agreement

Opaque

- Quality of technology/idea hard to assess esp. if trade infrequent
- Quality is only revealed through use
- Trade may fail to occur
- Legal remedies (litigation) can be pyrrhic victories

What then are features of successful innovators?

- Immersion within agglomerations – specialised clusters
- Reinforce pathways from ideas to fruition (e.g., commercialisation pathways; export pathways)
- Resourcing - heart of what eventually succeeds (history is replete with examples of unexploited opportunities which are never developed)
  - Government defence agriculture, space and health spending major impact on the innovative activities of their civilian firms

(US, UK, Sweden, Israel and France – see Mowery and Rosenberg 1998; Mowery 2012; Aschhoff and Sofka 2009; Audretsch, Leyden & Link 2012; Foray, Mowery and Nelson 2012)4.]

Examples: jet engine, computer networking, radar, Microsoft windows, the Internet, computer memory technologies – see Fuchs 2010, Mowery 2012

Let’s unpack agglomerations – specialised clusters

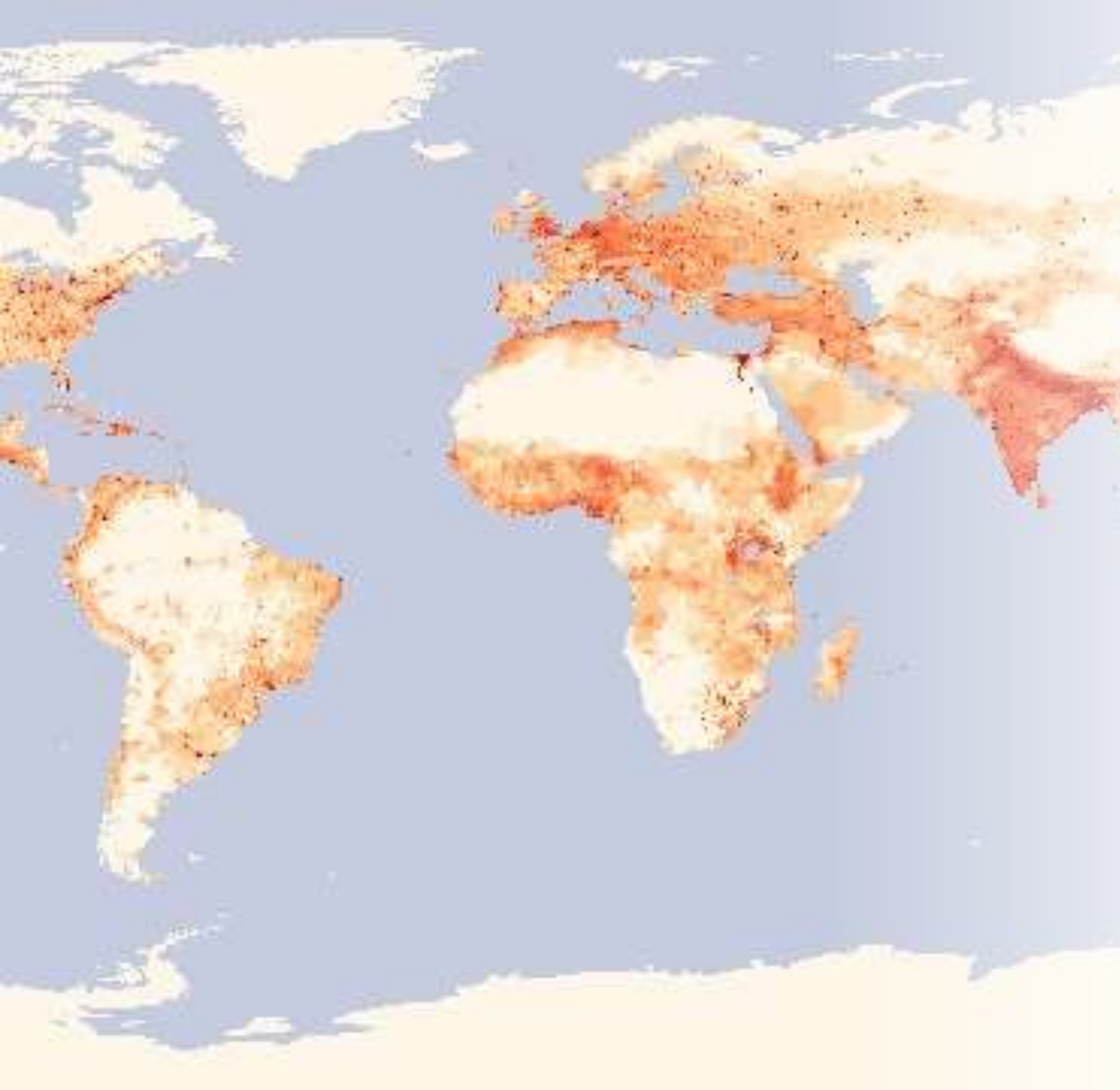
- In-person relationships – mitigate opportunism, increase confidence
- Transmit tacit information & knowledge
- Triangulates info to instil confidence
- Deep specialised input markets – esp labour
- Enhance pathways to commercialisation/use
- Reduction in uncertainty premia has massive impact on the present value of the innovation investment

Role for government...?

- Dominant and unshaking intellectual thought since Smith (1776),
- Vigorous competition, fuelled through free markets, forces competition
- To many economists: competition = price competition
- Since Schumpeter, competition = process, organisation, market and product competition. Price is minor consideration.

Re-think government policy re-markets and firms

- **If competition = change to sophisticated production technologies & long and complex production chains**
- **Then can be major roles for large economy-wide institutions**
- **Limited role for government if competition = price competition**
- **But role for government in supporting agglomerations**
- **Policy ≠ industry welfare. Need to strengthen areas of strength**
- **Export correlated with innovation**



Success of agglomeration dep on ability to build on each others' ideas

- EU – Smart Specialisation
- USA – Regional Innovation Engines
- UK – Innovation Accelerators Program
- Canada – Superclusters

THANK YOU

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