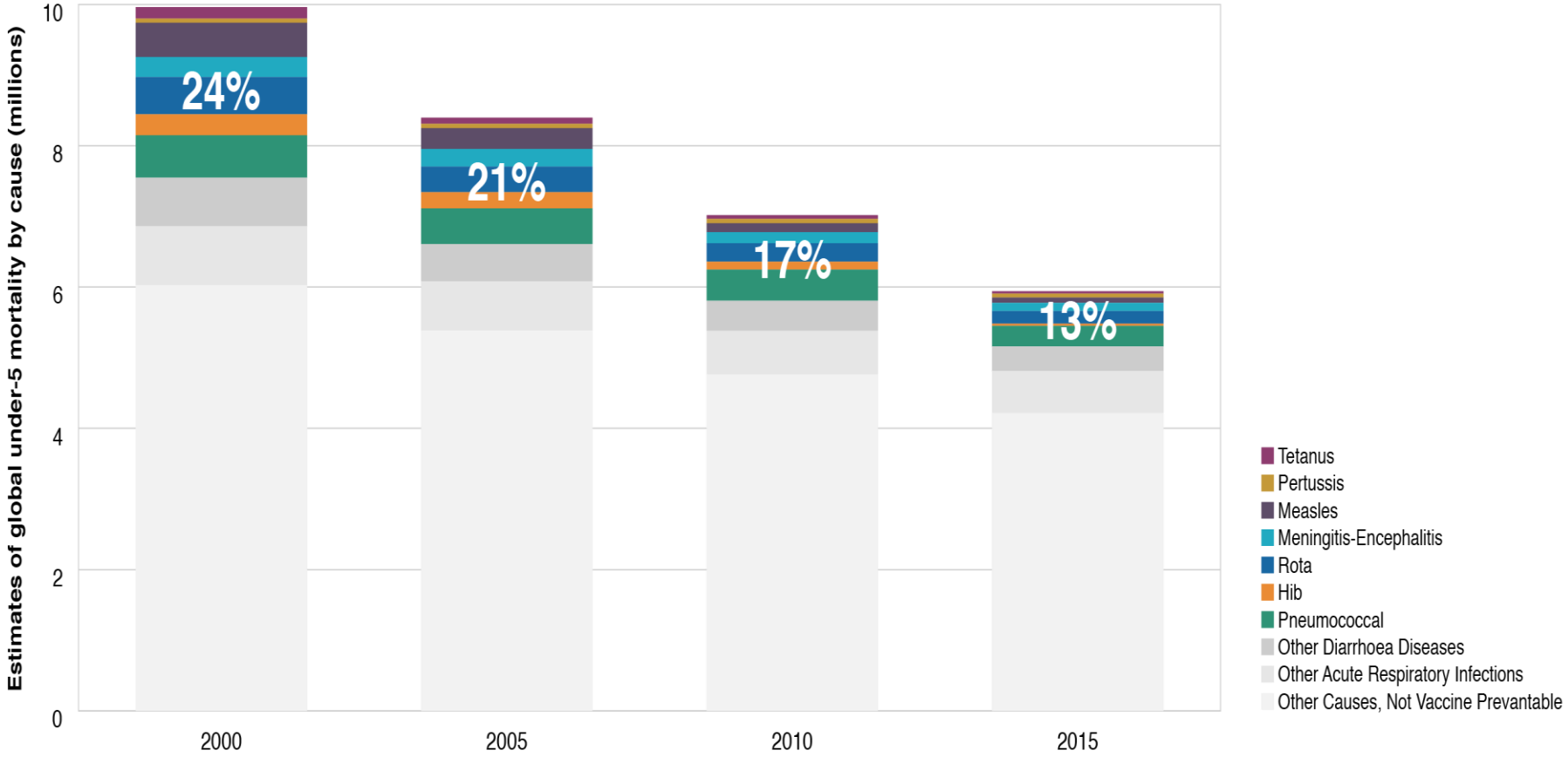
# Access to Vaccines: Where are we, Why are we there, Where do we need to get to ?

**Martin Friede**

Initiative for Vaccine Research

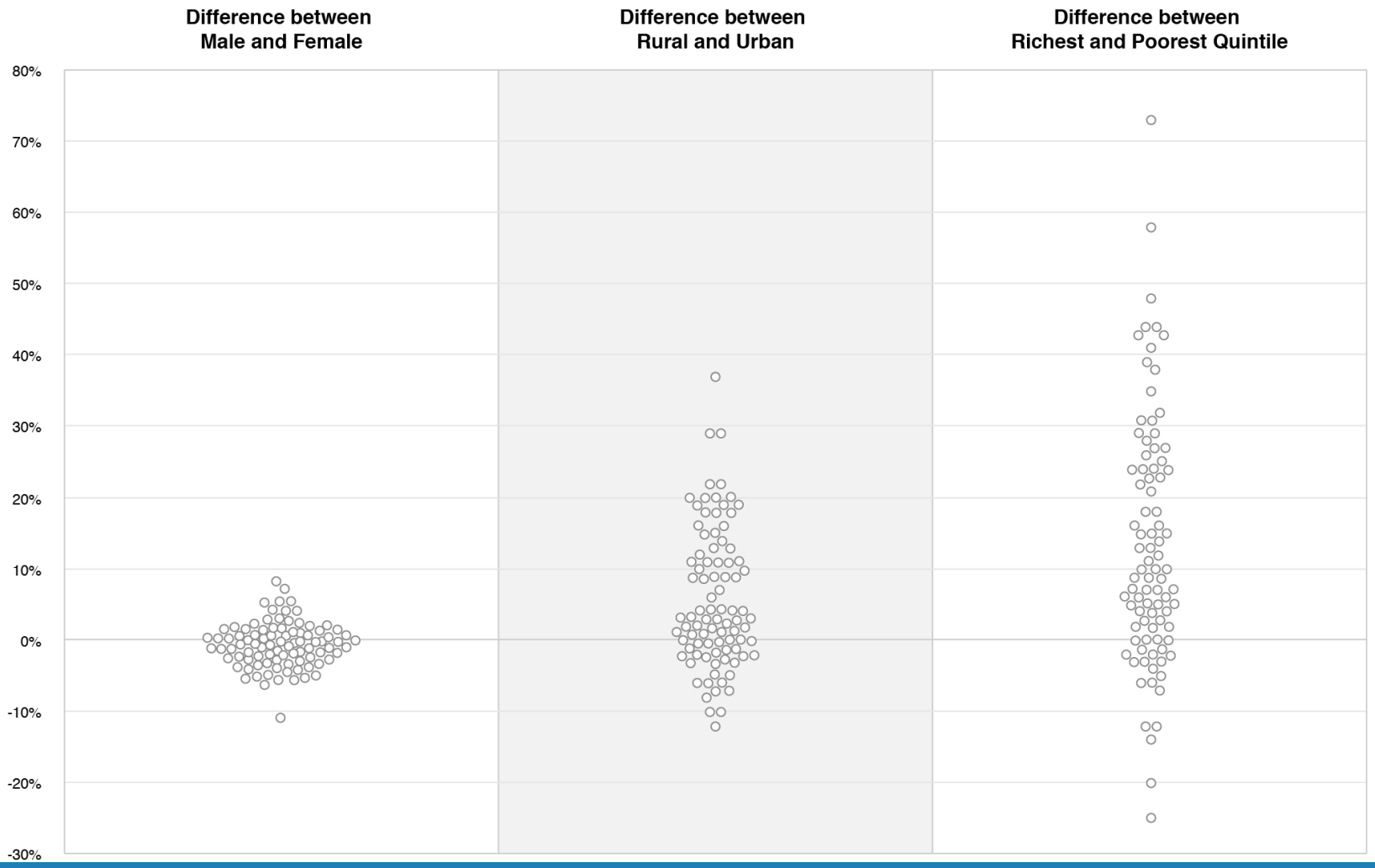
World Health Organization

# Vaccines work, but vaccine preventable diseases are still a significant cause of under-5 mortality




Source: Rota: Preliminary data (US Centers for Disease control), Hib and PCV: John's Hopkins University, other causes: WHO - Global Health Observatory

# Inequities in coverage



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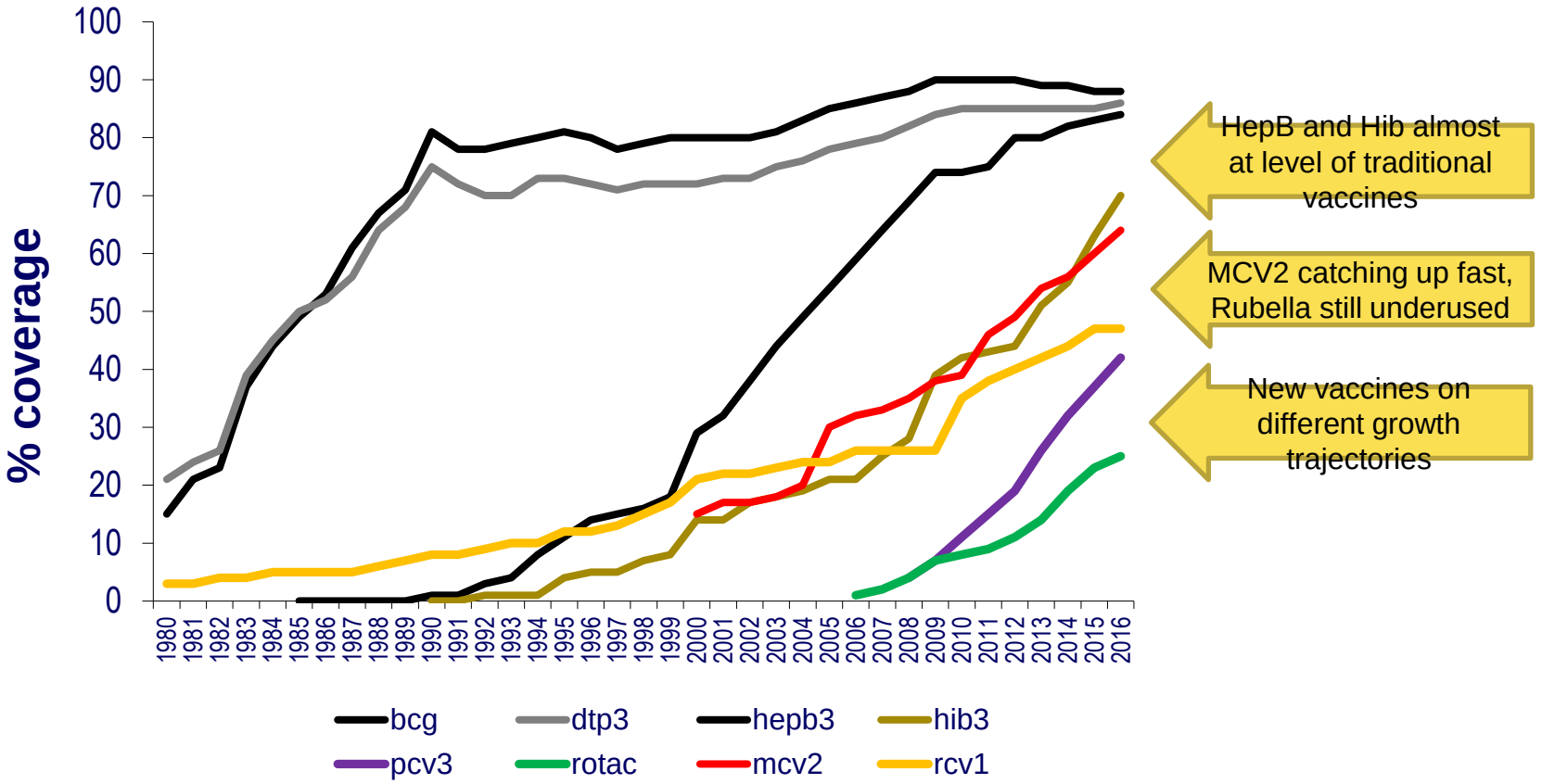
# Children in many countries still don't benefit from all recommended vaccines

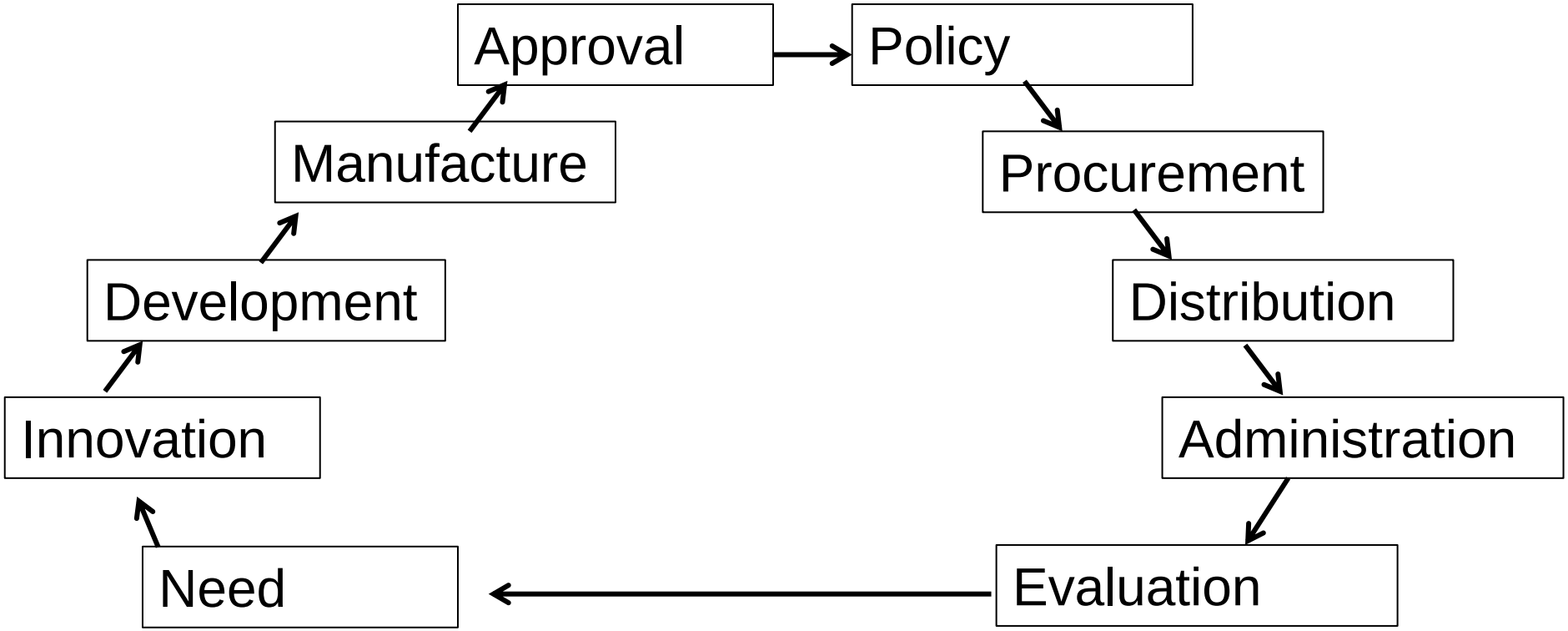



Source: WHO/UNICEF Estimates of National Immunization Coverage, July 2017

# The issues

- Numerous infectious diseases for which no vaccines yet available
- Available vaccine access inequitable – multiple reasons
  - Global capacity
  - Lack of competition
  - Affordability
  - Evidence
  - Procurement
  - Distribution
  - ….

# Holistic view of Access



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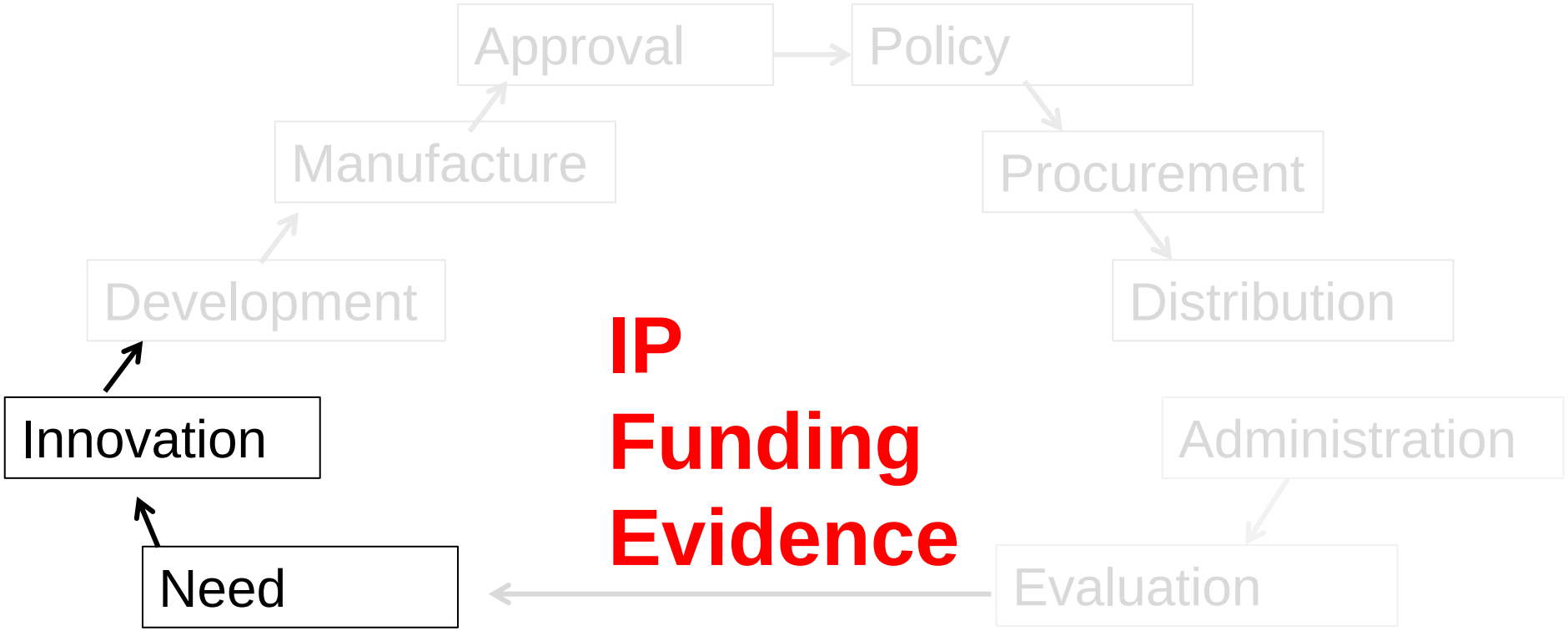
# Innovation of new vaccines



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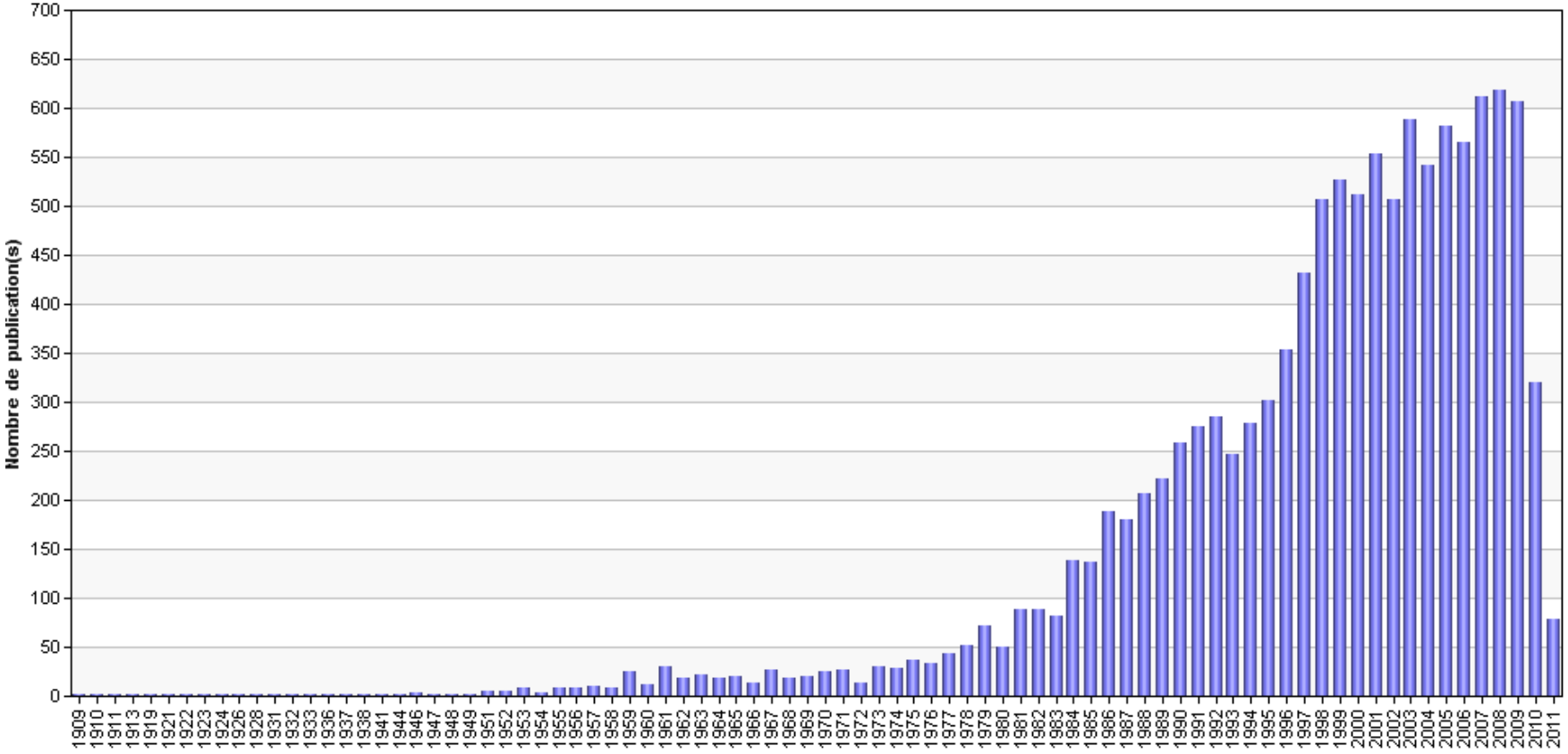
# More researchers, more patents..




- Patents on vaccines per year 1900-2015



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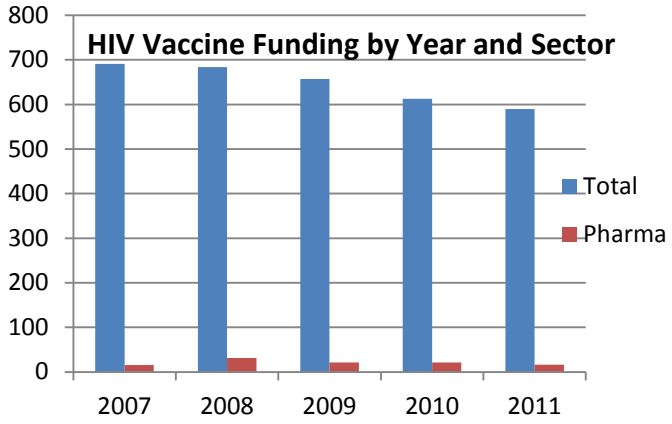
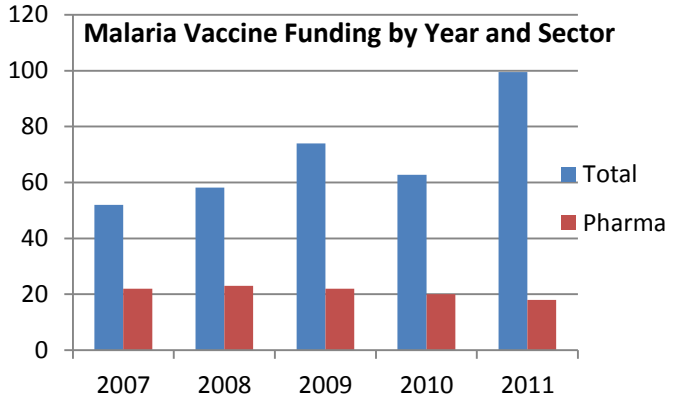
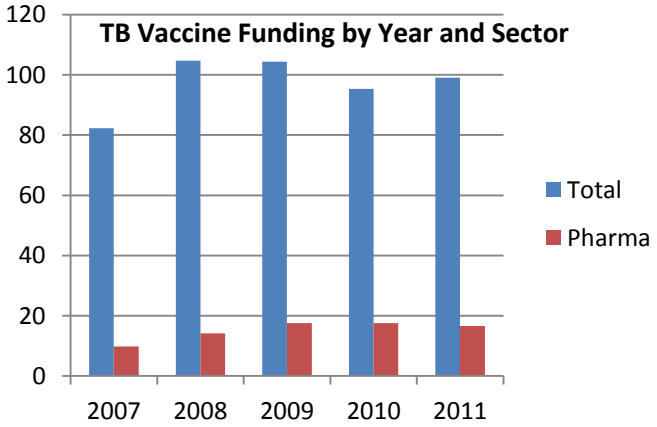
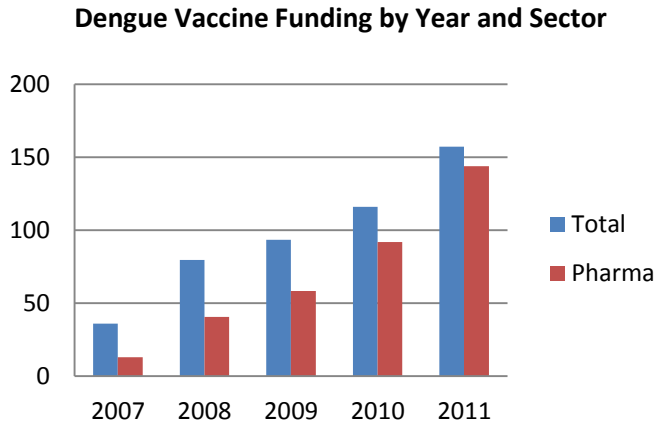
# Vaccine funding by year and sector



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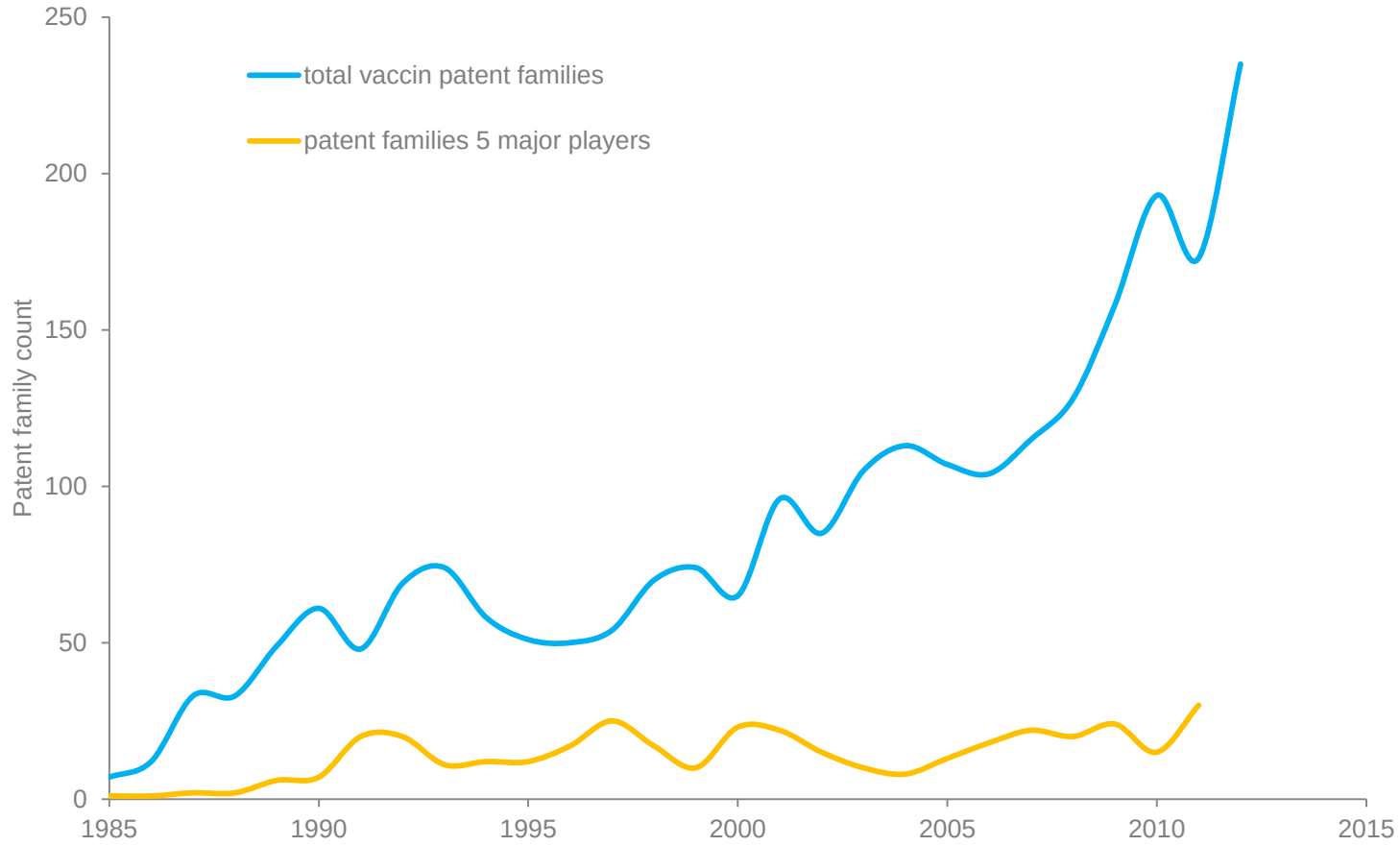
# Patents on TB, malaria, HIV , RSV, Dengue
# All patentees compared to 'big pharma'



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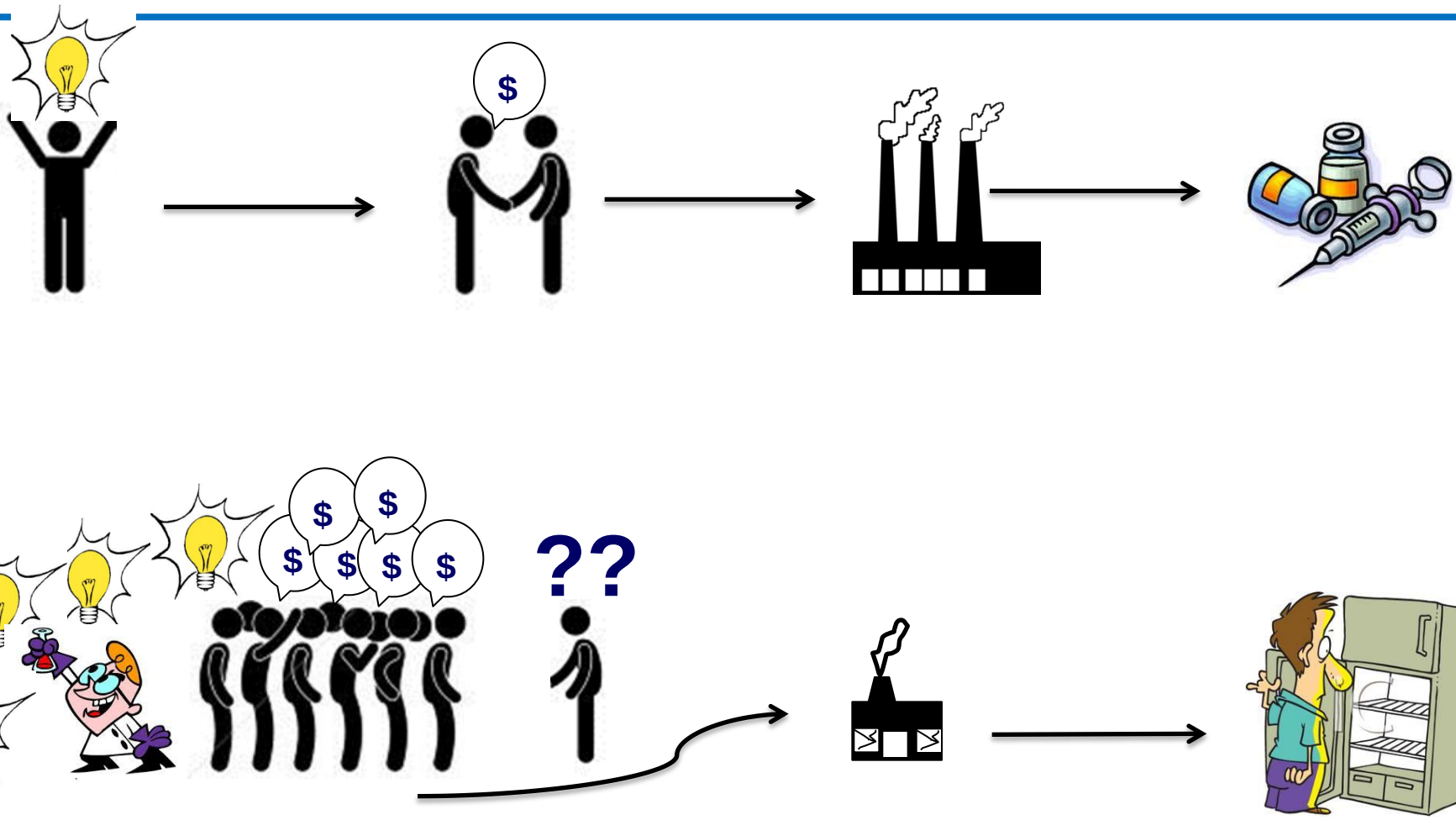
# Effect on Business Models



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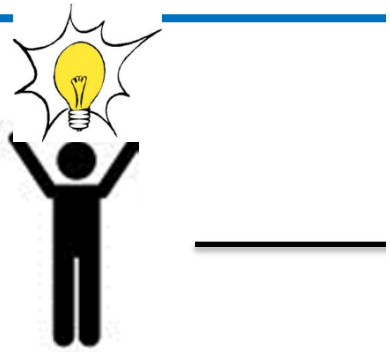
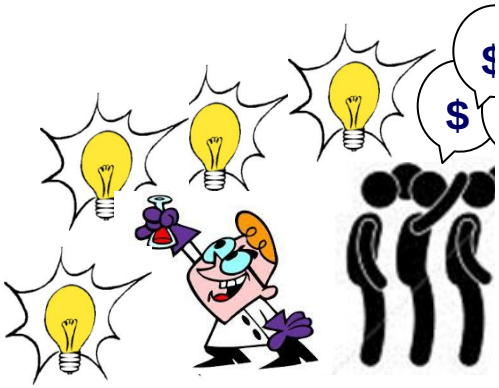
# Effect of 'Frivolous' patents…







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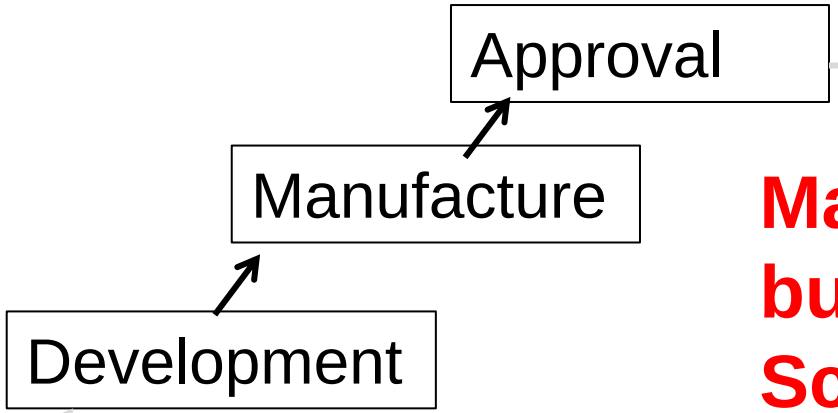
# Development Manufacture and Approval




**National regulatory agency**

**Market, market, market !**
**business model**
**Scale and economy of scale**

**Value proposition (burden, impact)**
**Clinical capacity**
**Funding**



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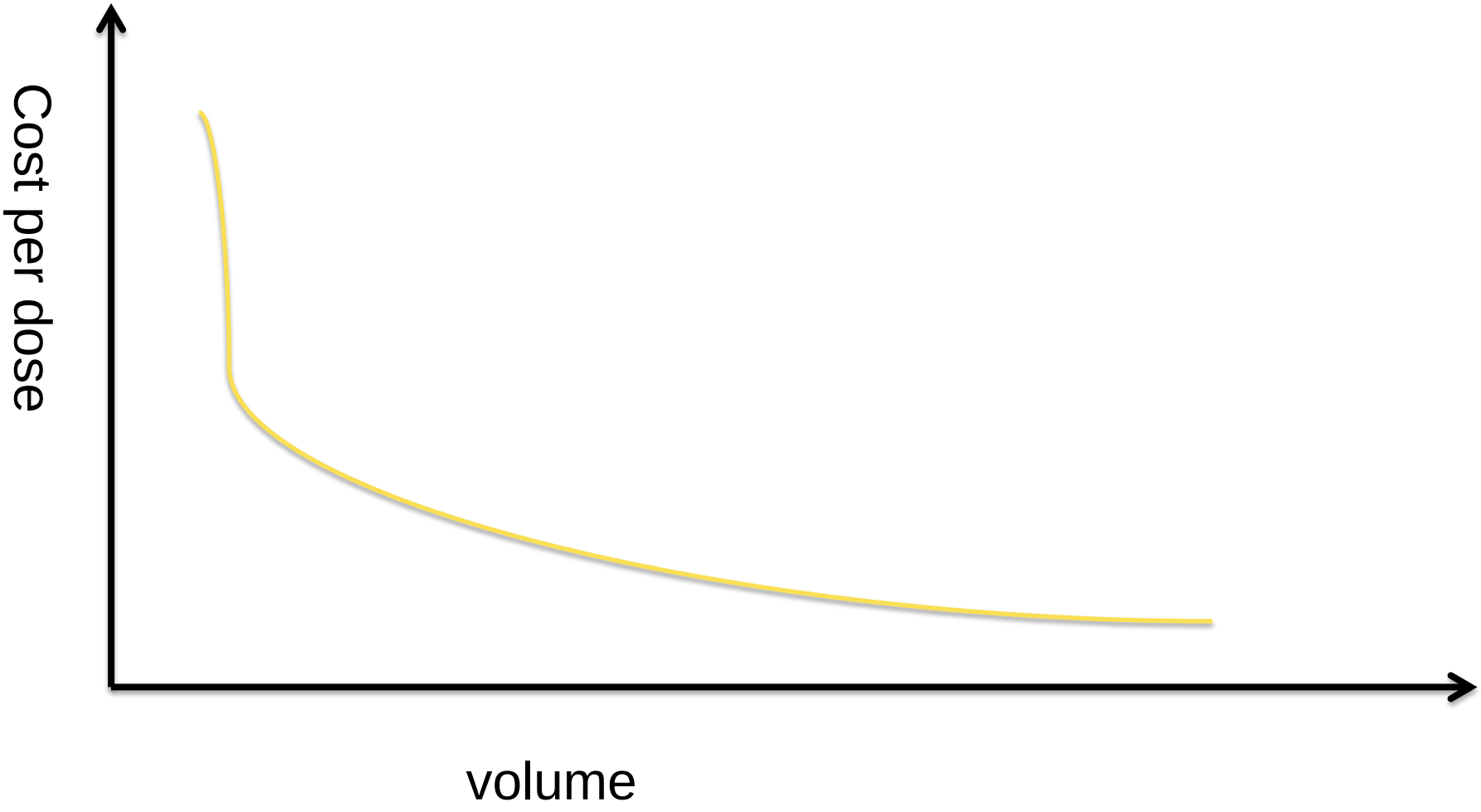
# Economy of Scale



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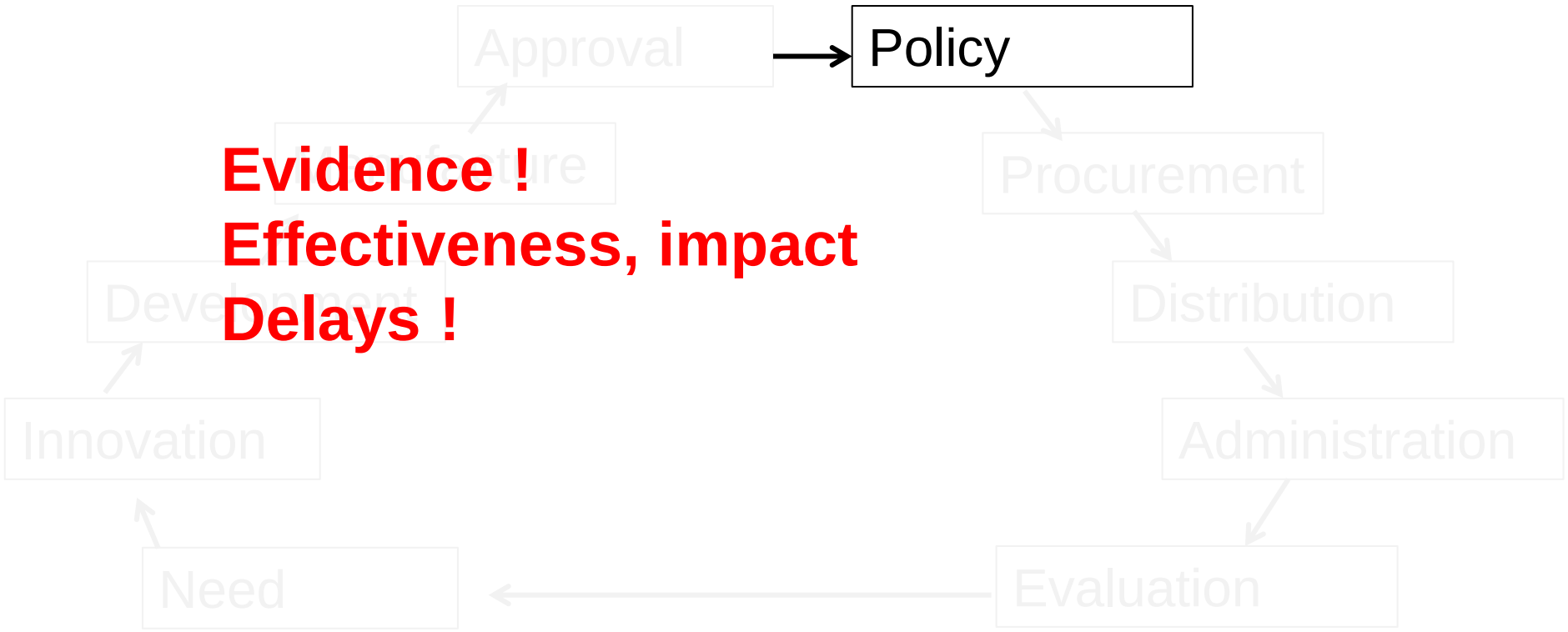
# A Holistic View of Access



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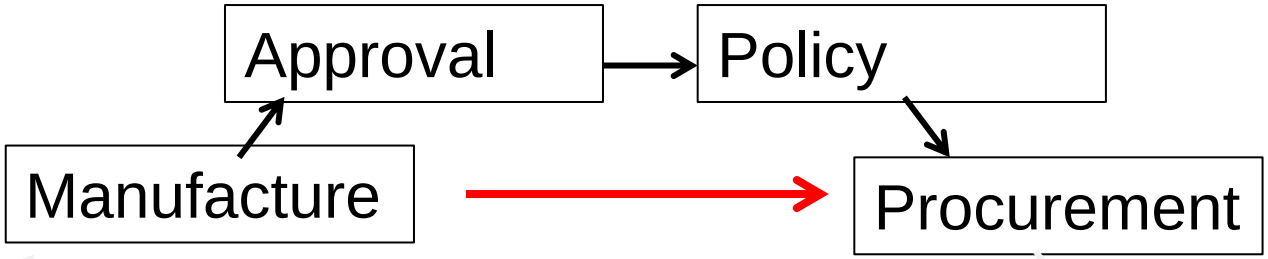
# Procurement




**Cost Benefit, Effectiveness**
**Cost per dose**
**Competition**
**Number of doses**
**Total cost**



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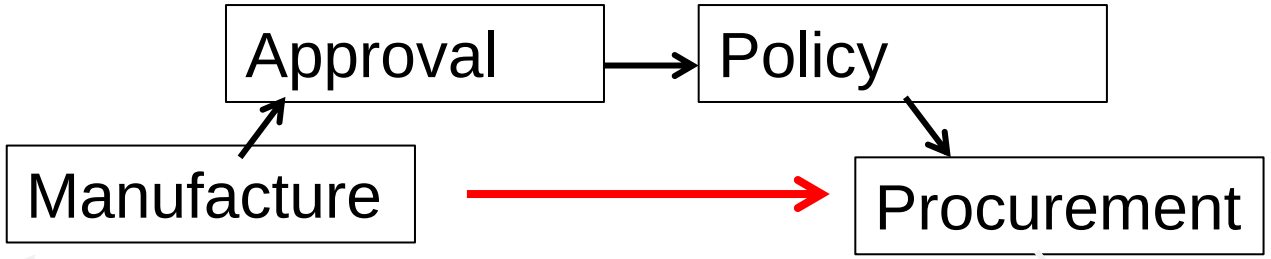
# Procurement




Development
Innovation
Need
Evaluation
Administration
Distribution
Cost Benefit, Effectiveness
Cost per dose
Competition
Number of doses
Total cost

**Stock-outs**
**Shortages**
**Outbreaks**
**Scares**



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# Distribution and Administration




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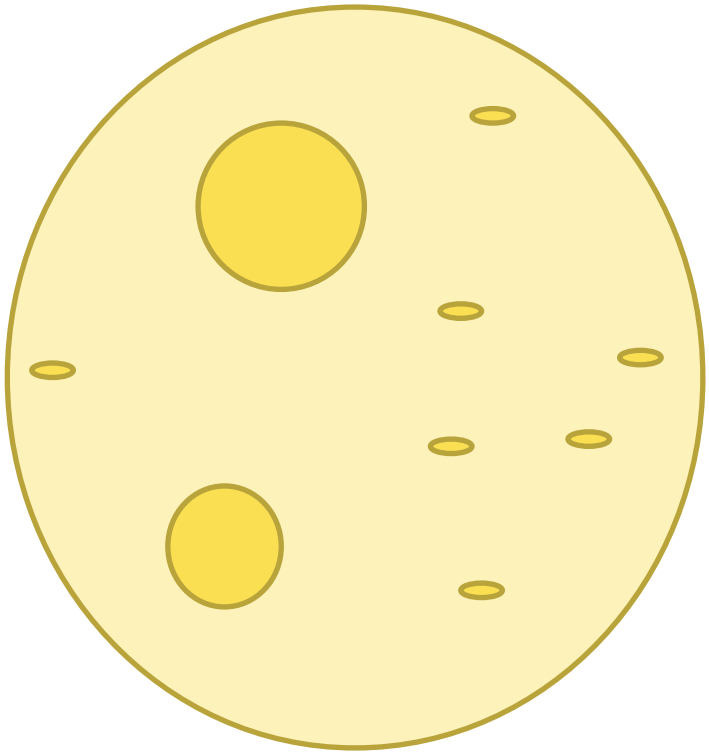
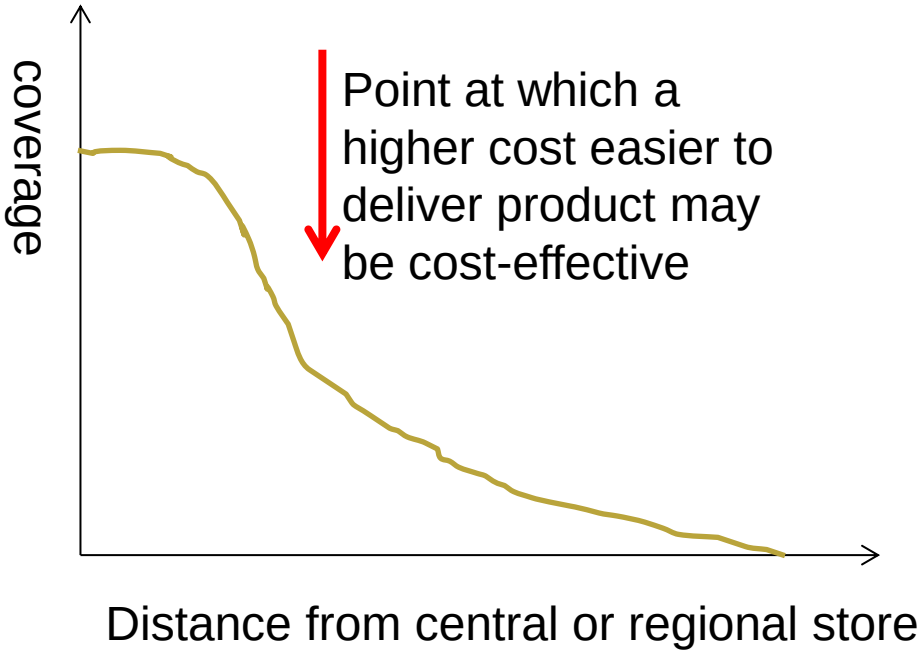
# Novel Vaccine Delivery Technologies

- Easier to transport (no cold chain, light weight)
- Easier to administer (no needle)
- Fewer administrations
- BUT……. New formulations cost more !!
  - Is the added cost worth the ease of delivery and administration ?

# Total Systems Effectiveness



Hypothetical country….



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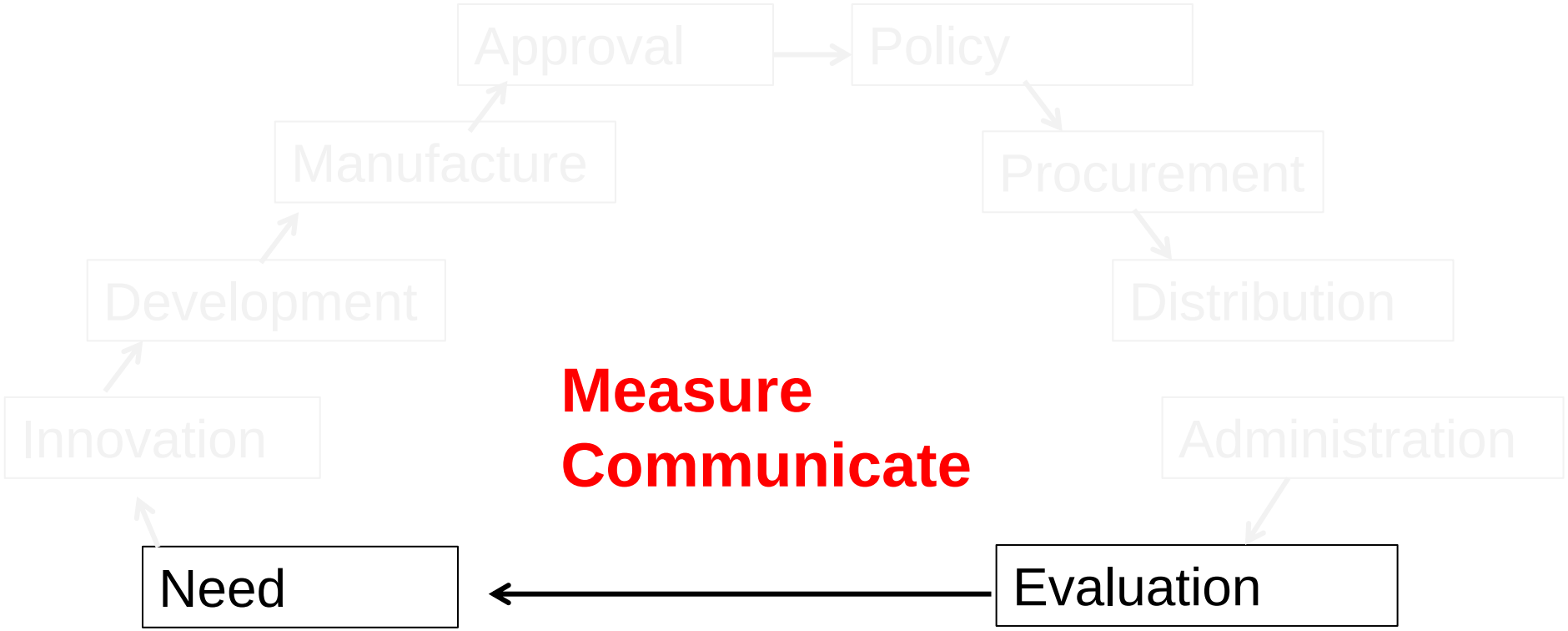
# Evaluation and Need



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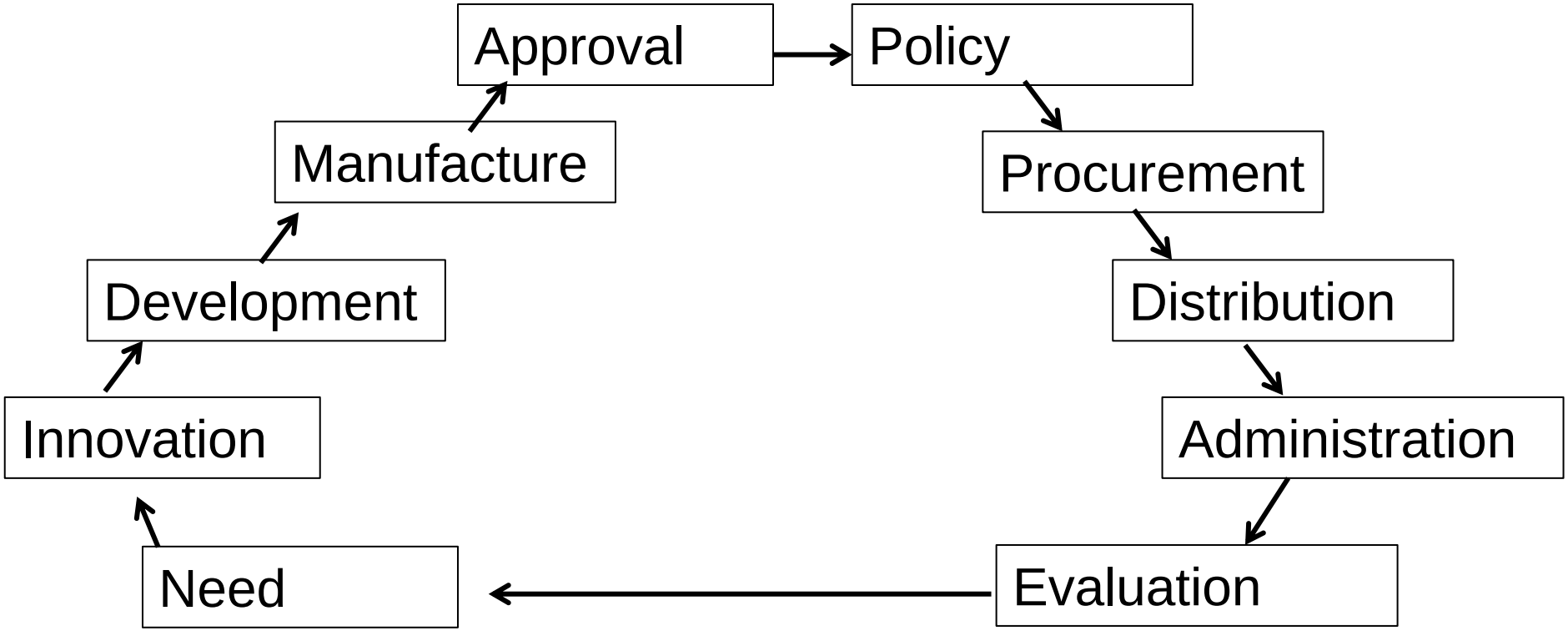
# Holistic view of Access



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# The current downstream challenges

| | |
|---|---|
| Inadequate systems | • Trained human resources<br>• Vaccine supply chains<br>• Information systems |
| Vaccine supply & price | • Availability<br>• Financing<br>• Pricing & procurement |
| Reaching the "5th child" | • Unregistered & migrant populations<br>• Failure of integration: missed opportunities<br>• Conflicts and crisis<br>• Hesitancy and refusals |

# Solutions exist: the challenge is to scale them up

**Inadequate systems**

- Norms and standards; capacity strengthening
- Innovations in supply chain technology and design
- A systematic approach to strengthening information systems

**Vaccine supply & price**

- Improving vaccine supply intelligence
- Vaccine pricing transparency and procurement support
- Improved costing and budgeting tools

**Reaching the "5th child"**

- Mapping missed populations and improved microplanning
- Reducing missed opportunities
- Guidelines and support for vaccination in humanitarian emergencies
- Addressing hesitancy and refusals


# Thank you