# Moonshots

Human and Planetary Health Innovation

TERASAKI INSTITUTE FOR BIOMEDICAL INNOVATION

Washington Global Health ALLIANCE connect + inform

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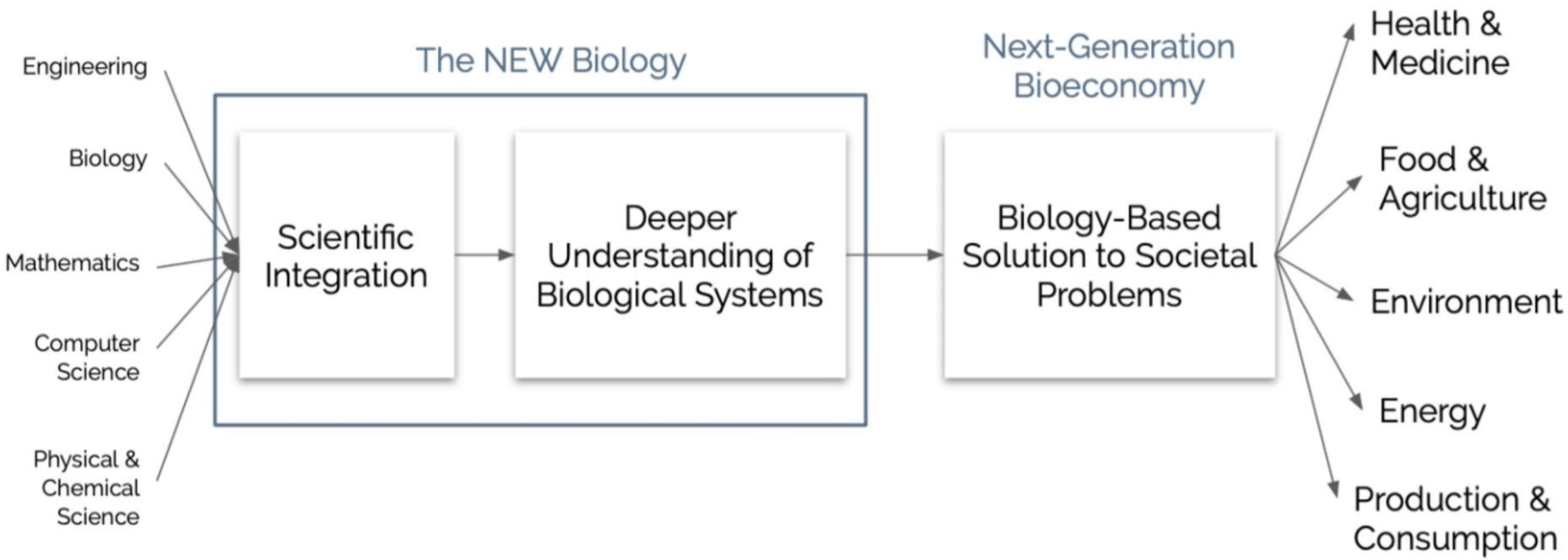
# A legacy of Inventing For Humanity and Planet

*…You brought the vision to align Global Good with the bigger vision that you, Bill Gates and I shared: the belief that invention can be so much more than tools or toys for the rich. That we could build an interdisciplinary research and invention process to improve life …*

Nathan Myhrvold, in a letter to Maurizio Vecchione, July 7th 2020

# The Dawn of the Bioeconomy




Converging system biology, big data for planetary and human health

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# ENABLING CONVERGENT TECHNOLOGIES INNOVATION

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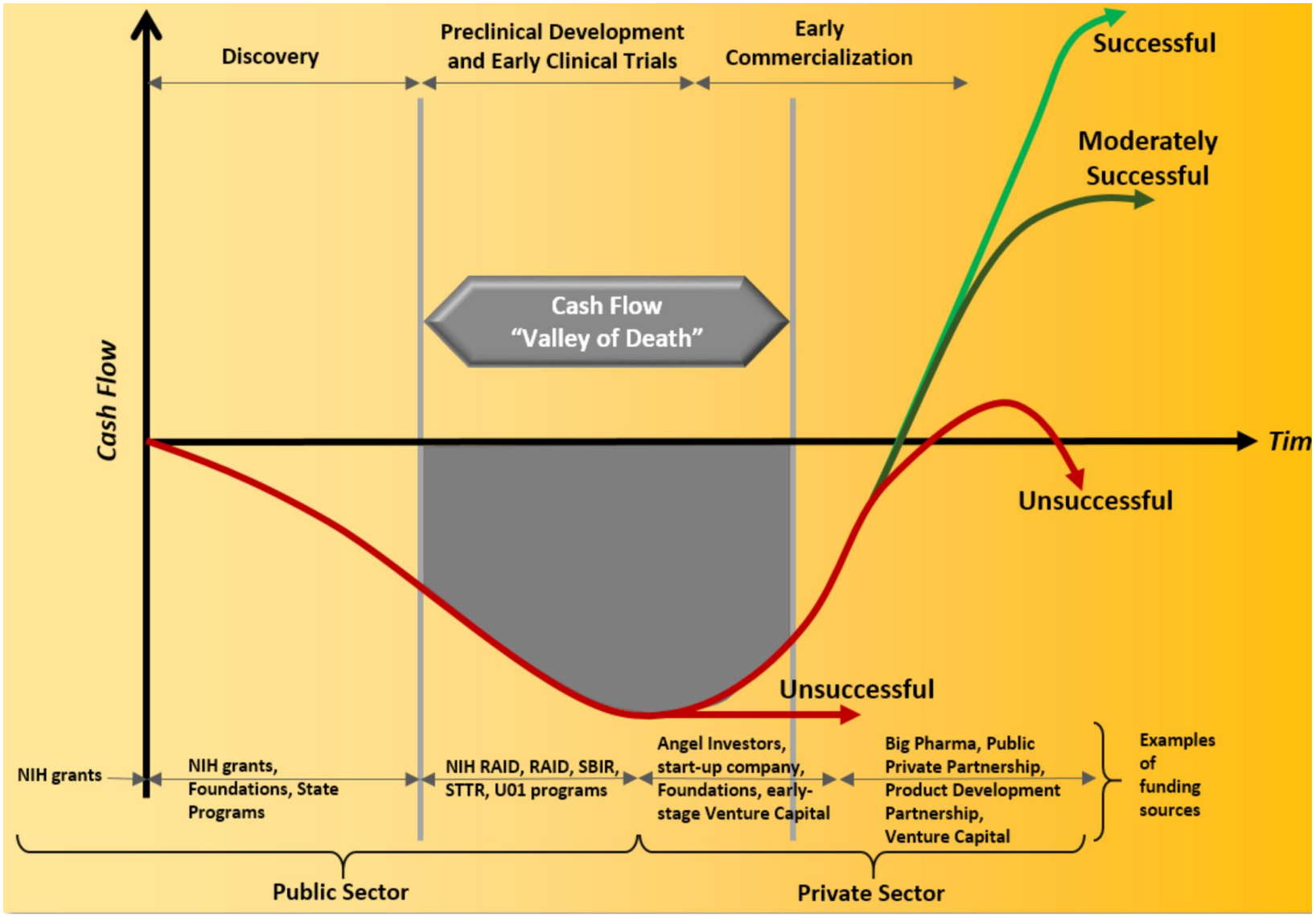
# INTERDISCIPLINARITY

Why scientists must work together to save the world PAGE 305

# We have a translational gap: the valley of death




RAID: Rapid Access to Interventional Development; SBIR: Small Business Innovative Research;
RAPID: Rapid Access to Preventive Intervention Development; STTR: Small Business Technology Transfer.

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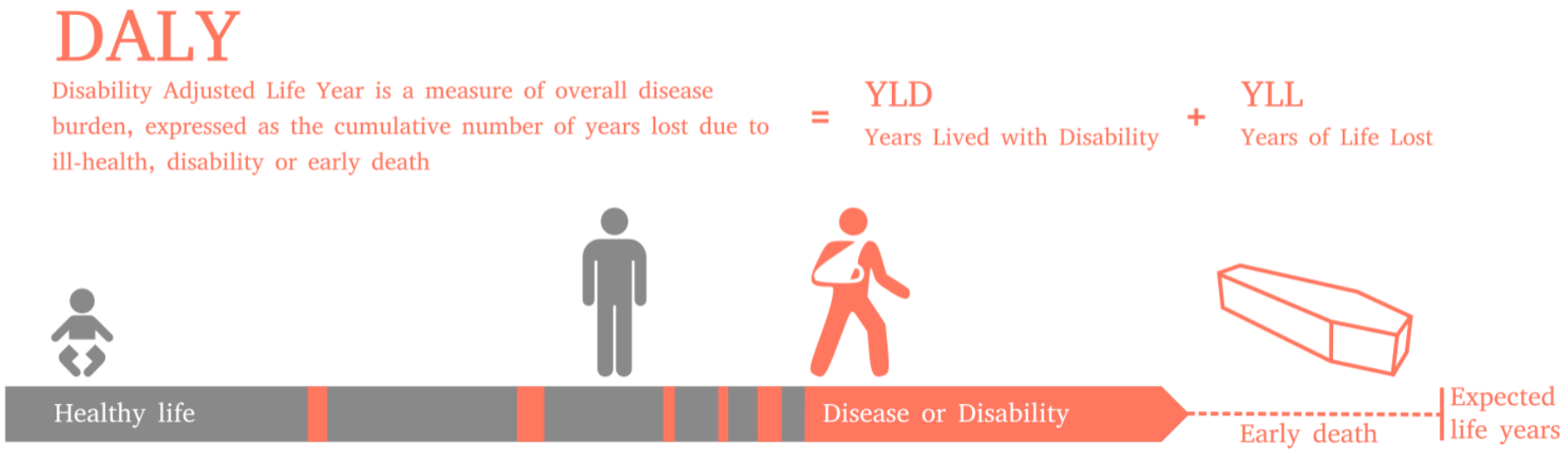
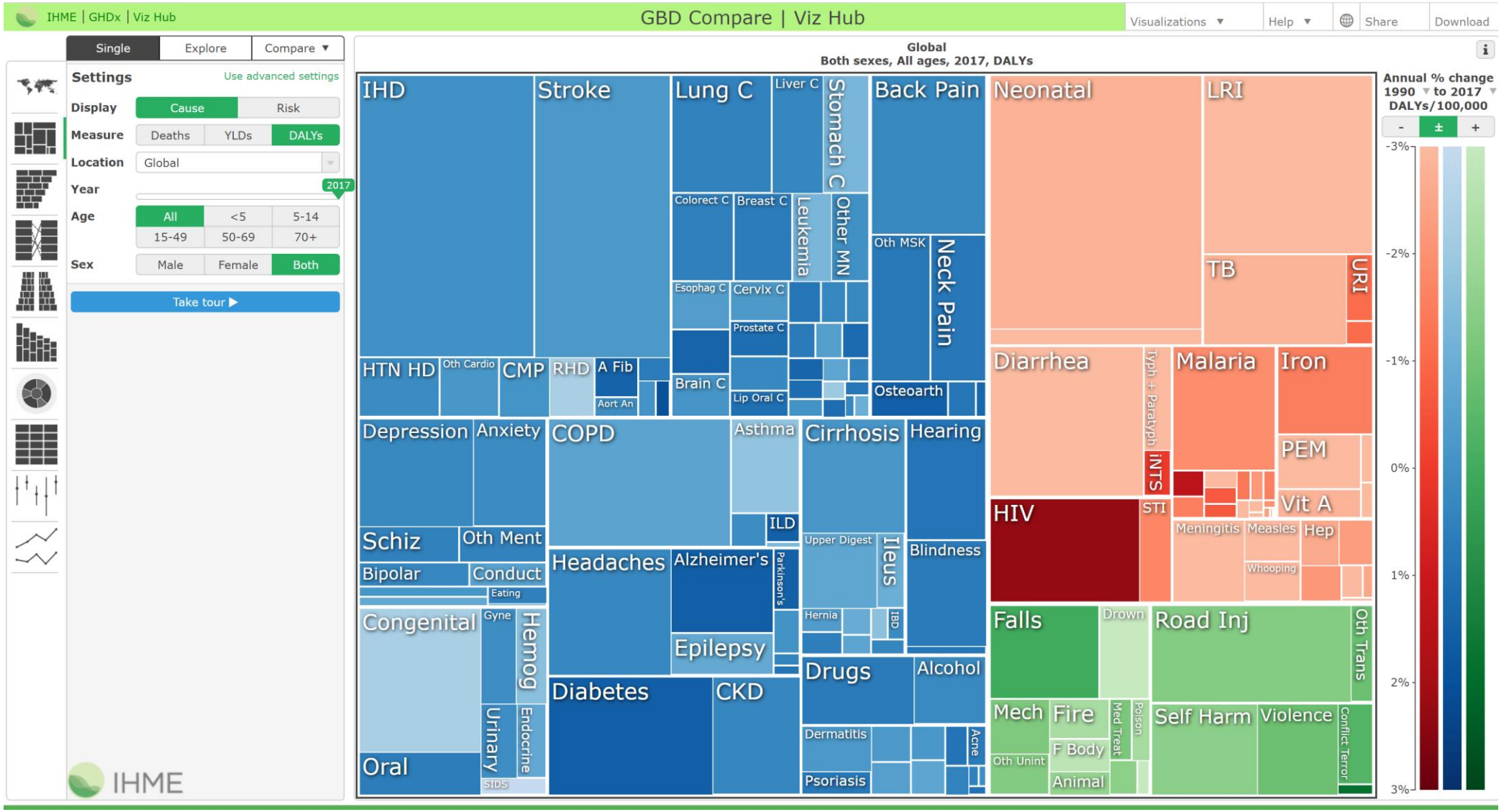
# Measuring Health Impact Quantitatively

- Measuring Impact in Biomedical Sciences
  - DALYs = Disability Adjusted Life Years

    The sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.
- High Impact = Greatest Opportunity
- Lower cost/DALY = Disruptive Innovation



# Measuring the global burden of disease




Source: Global Burden of Disease, University of Washington, Institute for Health Metrics and Evaluation

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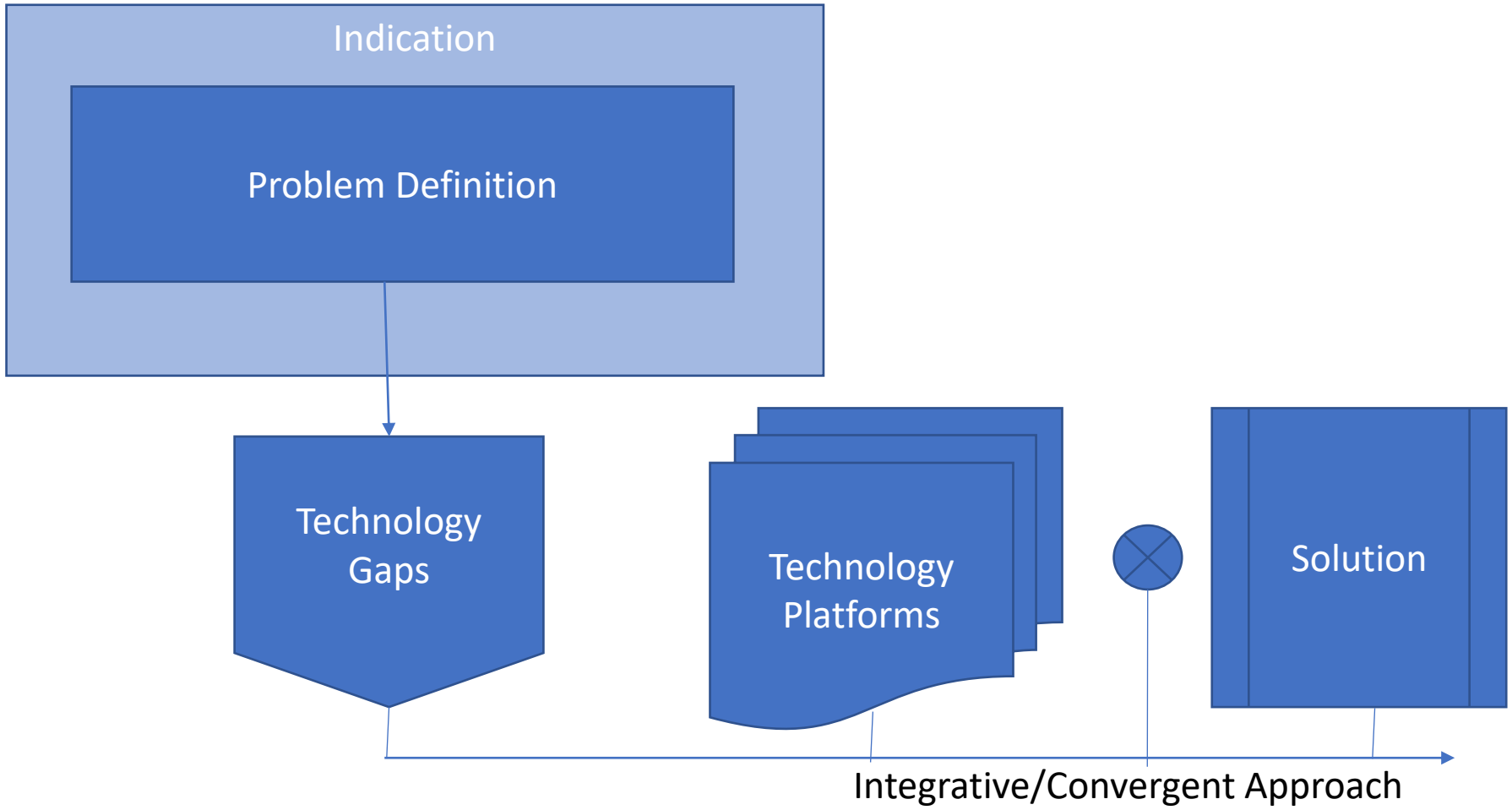
# A problem-first approach

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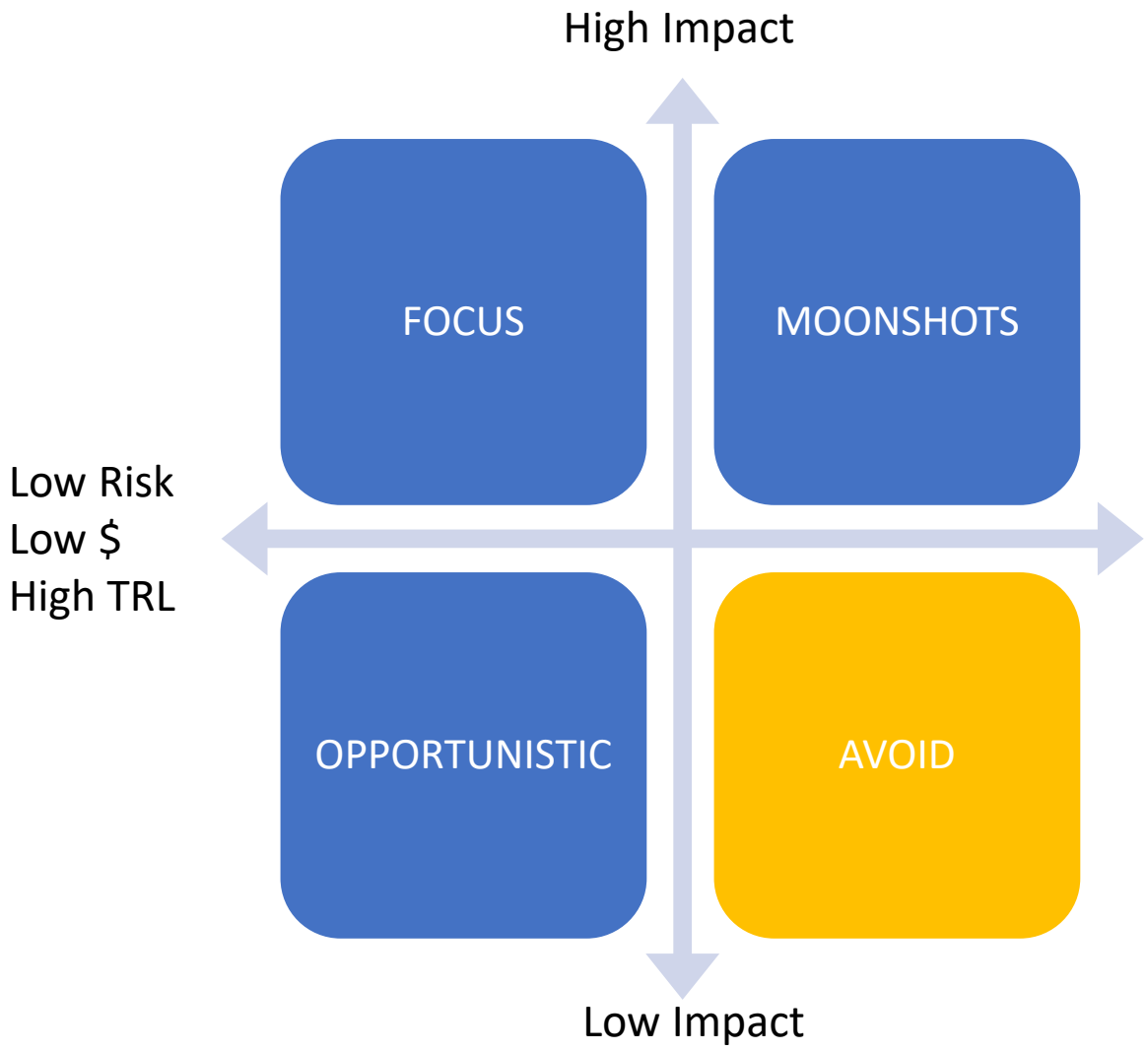
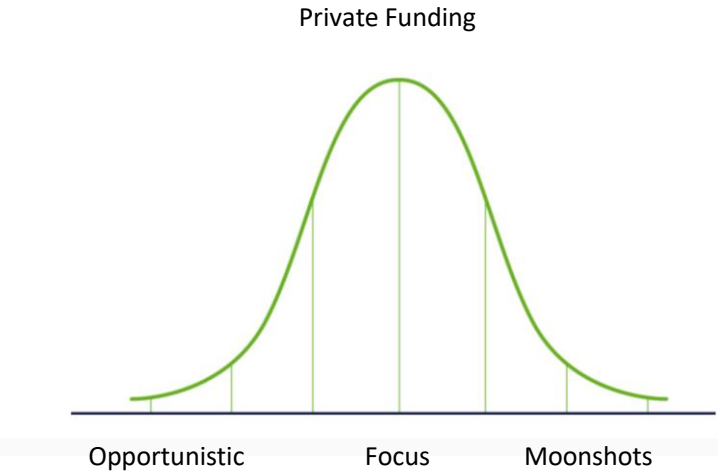
# High Impact Project Attract Private Sector Funding

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# A continuum of opportunities

**Human Health** ⟷ **Climate Tech & Planetary Health**

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# Large Markets with significant ROI opportunities

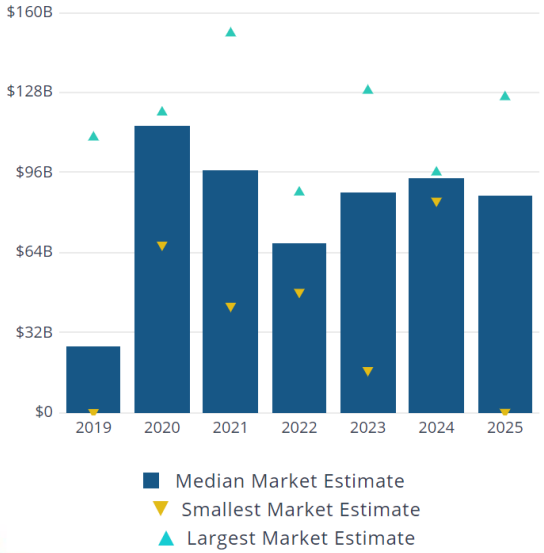
**Human Health** — **Climate Tech & Planetary Health**

| 1,065 | 3,387 | 2,888 | 365 | $54.88B | $25.00M |
|---|---|---|---|---|---|
| Companies | Deals | Investors | Exits | Capital Invested | Med Post Val |

## Market Size Estimates

View Companies and Deals

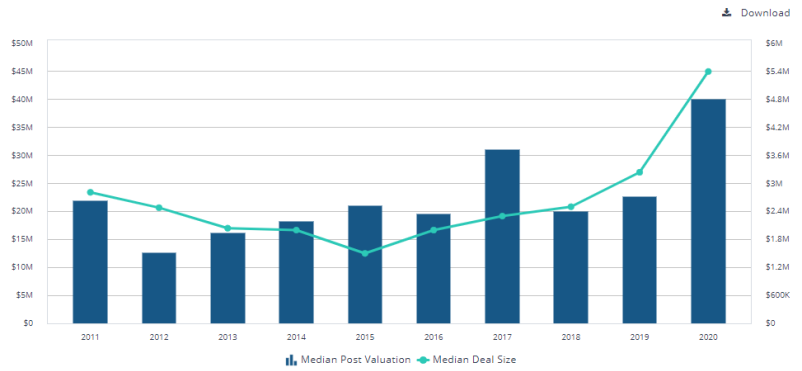
Biomaterial, Clean Meat, Organs-on-Chip, Population Health Management, Precision Medicine, Stem Cell ...



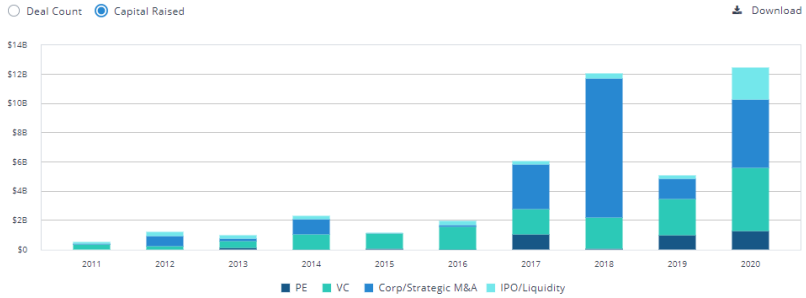

| Year | Estimates by Year | Implied CAGR | Median Market Size Estimate |
|---|---|---|---|
| 2019 | 11 | — | $26.80B |
| 2020 | 3 | +329% | $115.00B |
| 2021 | 2 | +90% | $97.10B |
| 2022 | 2 | +36% | $68.05B |
| 2023 | 5 | +35% | $88.25B |
| 2024 | 5 | +29% | $94.00B |
| 2025 | 12 | +22% | $87.07B |

Exclude Outliers (5)

Median Post Valuation vs. Median Deal Size




Investments Over Time

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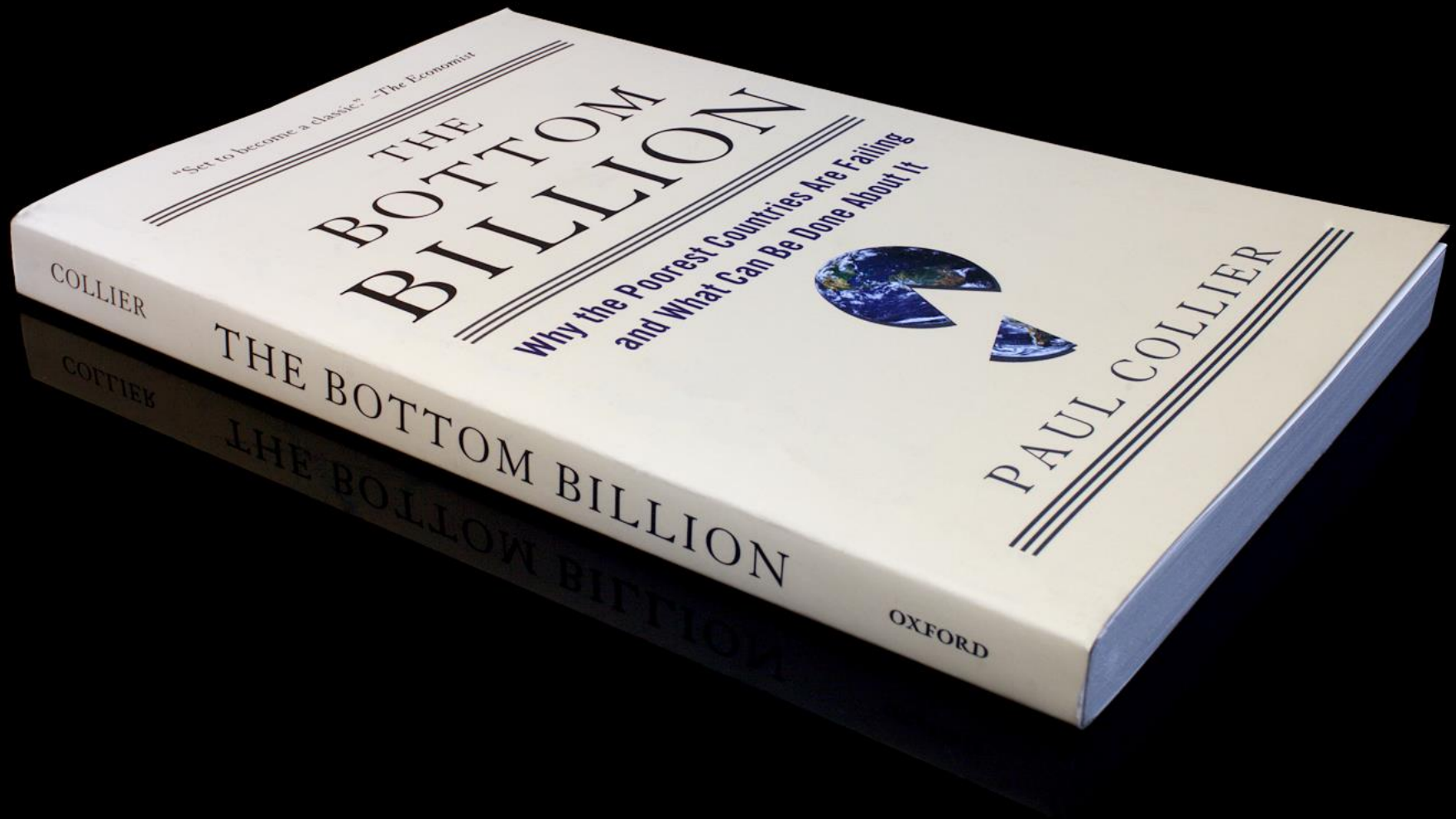
# GLOBAL INNOVATION