



Located at the University of Chicago, the **Development Innovation Lab's** (DIL's) Market Shaping Accelerator brings together the world's leading market shaping scholars including Nobel laureate **Michael Kremer** (UChicago), Professor and former Chief Economist of the FCDO **Rachel Glennerster** (UChicago), and Professor **Christopher Snyder** (Dartmouth) to advance the effective use of market shaping to address global challenges. This team has contributed to both the foundational research as well as the most prominent policy successes and current efforts in this space. They spearheaded the design of the \$1.5 billion **Pneumococcal Advanced Market Commitment** (AMC), provided expert advice to global leaders on vaccine procurement during COVID-19 as part of the **Accelerating Health Technologies Group**, and are advising the \$1 billion **Frontier Climate AMC** to accelerate the development of carbon capture technologies. With this new hub, the team will now aim to systematically accompany key market shaping efforts from theory through implementation to final payment.

Market shaping instruments promote innovation by channeling the creativity of the private sector toward targeted global challenges. Three different vaccines and hundreds of millions of doses came to market following the AMC for Pneumococcal Vaccine saving an estimated **700,000 children's lives**. The US government's commitment to **purchase 700 million doses** of COVID-19 vaccines in advance of clinical approval through Operation Warp Speed led to vaccines becoming available in the United States in record time. **New subscription models** for antibiotics are helping to tackle antimicrobial resistance (similarly the US is considering the **PASTEUR bill**). Beyond health, **contracts for difference** and feed-in tariffs have accelerated the development and scale up of renewable energy, as already mentioned, the **Frontier Climate AMC** is advancing technological development for carbon capture and **NASA's use of mile-stone payments** led to the development of SpaceX's Falcon9 rocket.

Climate change and biosecurity (including pandemic preparedness) present immediate dangers for our global community and demand urgent innovation and action at scale. DIL's Market Shaping Accelerator aims to harness the momentum and interest generated from global successes in vaccine development and recent expansions to other sectors to accelerate the adoption of these instruments by governments, multilateral institutions, and major philanthropies in service of solving our world's most pressing challenges.

OUR PLANS FOR 2023

- **Provide expert advice** on market shaping opportunities to policymakers and philanthropists targeting global challenges.
- **Launch a competition** to surface and develop high-impact market shaping proposals to address challenges such as climate change and biosecurity (including pandemic preparedness). We have included a menu of potential market shaping proposals below.
- **Deliver an accessible online course** enabling policymakers and philanthropists to design and implement effective market shaping proposals.

THE CASE FOR INVESTING IN INNOVATION

From renewable energy to new vaccines, innovations have the potential to create enormous social value. Innovations, after all, are the ultimate drivers of economic growth.

But markets under-incentivize innovation. Innovations may be easy to copy or they might be subject to constraints on pricing that means the profits for innovators are often far smaller than the social value their inventions make possible. The COVID-19 vaccines enabled global economic activity to resume, but only a small fraction of those benefits were captured by the pharmaceutical firms that developed them.

Innovation is particularly under-incentivized when it comes to challenges such as climate change and pandemic preparedness. We all benefit from lower emissions and reduced disease transmission - in fact, it is impossible to exclude any one of us from enjoying such a benefit once it has been made possible. As a result, it is also quite difficult to motivate any individual to pay their share of that benefit as many instead opt to free-ride on the investments of others.

However, even for those innovations that are sufficiently incentivized through patents, the outcome is often still unsatisfactory. This is because patents grant innovators a temporary monopoly which allows them to sell their innovation for a higher price than a competitive market would allow. Thus patents incentivize innovation at the cost of excluding many who would benefit, in particular the poorest and most vulnerable.

THE CASE FOR MARKET SHAPING

Market shaping instruments provide a way to incentivize innovation and ensure we all benefit.

In contrast, to “push” funding inputs (e.g. research grants), market shaping “pull” funding rewards outputs and outcomes. They signal to firms there will be demand for socially useful innovations and they generally are not spent until the goals have been achieved.

There are a variety of ways to shape markets, including:

- **Offer prizes for solutions** to difficult technical problems (e.g. better algorithms for estimating carbon stored in forests and soils; better weather forecasting).
- **Results-based financing** (e.g. rewarding firms for increased adoption of clean technologies).
- **Advance market commitments** where donors commit to subsidizing future purchases of a new product, thereby leveraging future demand to drive innovation now.

A major advantage of such market shaping instruments is that they can be open to all firms to compete - they do not require picking a winner in advance.

Another advantage is they can include a co-payment from consumers which incentivizes firms to develop products that consumers will actually adopt.

MENU OF MARKET SHAPING PROPOSALS

Through our competition, we seek to surface challenges well suited to be addressed with market shaping instruments, support the development of viable proposals, attract external funding to move selected proposals into action and finally follow these mechanisms through to completion.

Climate Mitigation

- **Carbon removal:** The **Frontier Climate AMC**, which involves an initial commitment to buy US\$925M of permanent carbon removal between 2022 and 2030. While this is an exciting first step, there is a huge need for new instruments and additional significant incentives for carbon removal as net-zero targets will be impossible to meet without much greater innovation. As **Frontier** notes “as of 2021, less than 10,000 tons of carbon dioxide has been permanently removed from the atmosphere by new technologies – 1 million times short of the annual scale needed.”
- **Green steel:** In 2020, steel was responsible for between 7% and 9% of global anthropogenic CO₂ emissions (**World Steel Association**). An AMC could accelerate the development of green zero technologies, reduce the green premium required over the longer term and enable the global steel sector realize net-zero ambitions.
- **Cheap and clean cooling:** Higher temperatures and rising incomes will result in growing demand for cooling. But without more energy efficient and clean cooling systems, this will exacerbate climate change. Energy efficiency improvements in cooling technologies and reduced use of polluting refrigerants over the next four decades could avoid GHGs equivalent to **4–8 years of global emissions in 2018 levels**. This **report** suggests radically more efficient cooling could, by 2050, save India about US\$380 billion — 15% of its GDP in 2016 – and avert 16 gigatons of emissions. Relatively modest amounts (~US\$50-US\$100 million) allocated to market shaping efforts in cooling could accelerate the transition (though larger sums would have still greater impact - this **report** suggests an AMC with a cost of \$196 to \$373 million).
- **Stubble burning in Agriculture:** Stubble burning led to **66,000 premature deaths** in 2015 in India, as well as generating greenhouse emissions (**0.6% of total global CO₂ emissions in 2019**). This practice is also common in other regions of the world, including parts of Africa. An AMC in India costing **several hundred millions of dollars** that led to a substantial reduction in stubble burning would be a high return investment given the disease burden and contribution to greenhouse gas emissions.

Climate Adaptation

- **New crop varieties:** The Green Revolution in India **increased yields** by 44% between 1965 and 2010. A new generation of climate-resilient crops could increase yields in Sub-Saharan Africa and protect against growing climate variability. Some **drought-resistant** and **flood-resistant** crops have already yielded benefits (e.g. increasing returns to labor and incomes of poor households), but much more innovation across a range of crops and climates is required. Relatively modest sums (US\$50 million - US\$100 million) could support a portfolio of new crops. There are examples of high return push funding (**an overall Benefits-Costs Ratio on the order of 10:1**), and a pull mechanism would have the added benefit of attracting private sector expertise and incentivizing market adoption.

Pandemic Preparedness

- **Pandemic preparedness:** **Glennerster et. al** (2022) calculate expected global losses from pandemics of over \$800 billion annually. They suggest a range of investments would mitigate these losses and deliver high returns: vaccine production capacity, research, development and production of a universal coronavirus vaccine, development of broad-spectrum antivirals and new antibiotics. Promising candidates for market shaping instruments include broad spectrum antivirals, a universal coronavirus vaccine as well as an intranasal coronavirus vaccine.

Contributors



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The Development Innovation Lab uses the tools of economics to develop innovations with the potential to benefit millions of people in low- and middle-income countries. DIL brings together researchers with governments, firms and nonprofits to identify, test, and refine innovations, positioning them for scale.



EPIC

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The Energy Policy Institute at the University of Chicago (EPIC) produces data-driven research that advances society's understanding of the global energy challenge and translates research insights into real-world impacts through strategic outreach and training for the next generation of global energy leaders.



**RADICAL
INNOVATION
FOR
SOCIAL
CHANGE**

The University of Chicago

The Center for RISC is the brainchild of Steven Levitt, professor of economics at the University of Chicago and co-author of *Freakonomics*. We are a social innovation lab. We investigate today's most challenging social issues by combining unconventional perspectives with empirical data, generating radical solutions with real-world relevance. We then test and scale those solutions through a mix of partnerships with academics, nonprofits, government agencies, and private corporations.