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THE GRAND CHALLENGES APPROACH

ALIGNING INVESTMENTS FOR DEVELOPMENT INNOVATION: CHALLENGES, PRIZES AND BONDS

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On June 18, 2012, at the G-20 Summit in Los Cabos, Mexico, Prime Minister Stephen Harper announced an investment of $40M over five years of a total $100M in "AgResults" – an innovative, Canada-led initiative in partnership with the governments of Australia, Italy, the United Kingdom and the United States, as well as the Bill & Melinda Gates Foundation. The purpose of this important initiative is to improve access to sufficient, safe and nutritious food. AgResults uses an approach called an Advanced Market Commitment to leverage private investments in research and implementation. (More information on this announcement can be found at http://news.gc.ca/web/article-eng.do?nid=681059.)

Advanced Market Commitments are one of a number of new models to fund innovation for development that have emerged over the past decade. From Social Finance UK's efforts to develop Social Impact Bonds, to the creation of the X-Prize Foundation, to the Bill & Melinda Gates Foundation's Grand Challenges in Global Health initiative, a growing number of organizations, institutions and countries are beginning to explore different models to fund development innovation and to leverage private sector resources to solve critical development challenges.

To date, however, there has been confusion about the nature of and relationship among these approaches. This post attempts to provide some clarity around these issues by outlining a model of how seven of the most common of these financial mechanisms fit together in a coherent and holistic manner.

Seven Mechanisms for Funding Development Innovation

The following are descriptions of seven of the most common funding mechanisms for development innovation that are currently being deployed or developed. It is important to bear in mind that it is still early days in the development and implementation of these models, and that different organizations and institutions are employing/will employ different variations on the models that are described below. These descriptions are not exhaustive but rather are intended

[1] David Brook and Peter Singer contributed to this article and take responsibility for its content. We are grateful to Jocalyn Clark and Andrew Taylor for comments on an earlier version of the manuscript. Alex Dehgan and David Ferguson at USAID first suggested the overarching use of the Grand Challenges approach to align different funding mechanisms. Steven Buchsbaum and David D'Argenio at the Bill & Melinda Gates Foundation developed the principles of the Grand Challenges Approach listed in this post.

to provide a flavour for the types of mechanisms and their characteristics that are currently in play.

1. **Grand Challenges Grants** – Traditionally the Grand Challenges approach has used grant funding, based on the principles outlined later in this post. More recently, there has been increasing segmentation in these grants between a pipeline of smaller proof-of-concept grants transitioning to scale with larger grants and partnerships. In addition, some grant pipelines in other agencies that look very much like challenge grants are not currently branded as such but share many of the same characteristics. In this model, the financial risk is entirely borne by the public or not-for-profit institutions issuing the grant at the proof-of-concept stage, with shared risk at the transition-to-scale stage between the payer and the scaling partner, if there is a matching component to the grant.

   Examples: Grand Challenges Explorations grants from the Bill & Melinda Gates Foundation, Grand Challenges Canada Stars in Global Health, Saving Lives at Birth grants, Canadian International Food Security Research grants and many others.

   A key point to note is that this traditional version of grand challenges grants can be expanded to an overarching approach that unites and aligns a number of different financial mechanisms, as outlined below.

   The strength of this approach is that it can lead to the development and/or proof of concept for new and novel ideas to address a very broad array of issues and challenges. The primary weakness of this approach is the need to provide up-front funding for all of the innovation that takes place. In addition, there are few mechanisms to ensure that these new ideas are validated, translated into products and/or services and taken to scale so that they can make a lasting impact.

2. **Product Development Partnerships** – The purpose of a product development partnership is to address barriers to investment in health research to tackle pressing global health challenges. To do so, Product Development Partnerships bring together a range of organizations and institutions, including innovators as well as public and private sector actors and institutions. In general, the public sector partner (sometimes in conjunction with not-for-profit partners) provides grants to incentivize investments in the development of new health products and/or services. In this model the financial risk is shared between the public or not-for-profit institutions and private sector partners issuing the grant.

   Examples: The Meningitis Vaccine Project, the International AIDS Vaccine Initiative, the TB Alliance and others.

   To date, these partnerships have been moderately successful at developing new health products and services, and at beginning to move them to market. What remains to be seen is whether these products will go to scale, leading to transformational health impacts.

3. **Impact Investing** – Impact investing refers to investment funds where some or even all of the market returns are foregone in return for an increased level of social impact (over traditional investment funds). In this model, the financial risk is split between the investors who invest in the impact investment fund and, potentially, public or not-for-profit institutions if they provide a first-loss provision or other strategy to de-risk investments in the fund.

   ***Examples**:* The ACUMEN Fund, the Small Enterprise Impact Investment Fund and others

   The strength of this model is that it helps to provide capital to take transformative products and services to market that might not attract investment based solely on their market returns. The real challenge with this model is that is can be very difficult to quantify the social impact and, therefore, to demonstrate the necessary social returns on investment.

4. **Innovation Prizes** – Rather than funding ideas, the basic concept of an innovation prize is to provide a significant financial reward for the first innovator or team of innovators to achieve a tightly defined target product or service. In addition to well-known competitions like the X PRIZE, there is increasing interest in the public sector in the use of innovation prizes. For example, in January 2011, the Obama Administration implemented the America COMPETES Reauthorization Act, which provided all U.S. government agencies with the authority to use prize competitions to advance their core mandates and to drive innovation. In this model, the financial risk is primarily borne by the innovator who attempts to develop solutions with no guarantee that even a successful solution will earn a return (as only the first successful solution is awarded the prize).

   Examples: The Google Lunar X PRIZE, the Bright Tomorrow Lighting Prize from the U.S. Department of Energy, the Night Rover Challenge from the National Aeronautics and Space Administration, and many others.

   The main benefit of the prize approach is that the payer only pays for success. The weakness of this approach is that, by their nature, prizes require tightly-defined specifications that clearly articulate when and under what conditions the prize will be awarded. As such, it is very difficult for a prize strategy to drive new and novel thinking in areas where the desired outcomes cannot be readily articulated or measured.

5. **Advanced Market Commitments** – An Advanced Market Commitment provides a guaranteed purchaser and purchase price for a product or service that is supplied at a sharply discounted rate to low-income countries and communities. Advanced Market Commitments can also be applied to the uptake of products and/or services, which is similar to the pay-for-performance mechanism described below. In this model, the financial risk is borne entirely by the innovators, who only receive the promised subsidy upon deployment and uptake of a viable health solution.

   Example: In 2009, five countries (Canada, Italy, Norway, Russia and the United Kingdom), working in conjunction with the Bill & Melinda Gates Foundation, committed $1.5B through an Advanced Market Commitment to purchase pneumococcal vaccines, providing manufacturers with the necessary financial

certainty to invest in vaccine development and new manufacturing facilities. The initiative is expected to save 7 million lives by 2030. AgResults discussed above is another example.

As with the Innovation Prize model, the strength of this approach is that the payers pay only for successful results. The weakness of this approach is that it requires pre-specified and measurable outcomes.

6. **Pay-for-Performance Programs** – In pay-for-performance programs, rather than funding a specific product, payments are based on the achievement of specific, defined outcomes. As with the previous model, in this model the financial risk is borne by the innovators, who only receive the promised subsidy upon deployment and uptake of a viable health solution.

   Example: The Global Alliance for Vaccines and Immunization runs a program to encourage the immunization of children in 53 countries through a three-dose series of DPT (diphtheria, tetanus and pertussis). For every child who is immunized above the baseline, the government of that child's country receives a $20 payment.

   As with the previous mechanism, the most significant strength of this mechanism is that payments are only made for actual outcomes delivered. The primary challenge with this model is that it depends on clear and measurable metrics that can be identified at the outset, and it provides negative incentives for any activities that may have beneficial outcomes but do not lead to directly measurable results.

7. **Social Impact Bonds** – Social impact bonds are like pay-for-performance programs, but with the financial risk shifted to a third party (such as development agencies, private foundations or high net worth individuals). A social impact bond is a formal contract among participants, which includes a payer (normally a government or government agency), private investors and service delivery organizations. The private investors make an up-front investment to support an innovative social program or service, and receive returns based on the outcomes of that program or service.

   Example: The first social impact bond was launched by Social Finance UK in September 2010 at Peterborough Prison in England, to fund rehabilitation services for short-sentence prisoners released from the prison with the aim of reducing re-offending.

   Because of their comparative novelty, social impact bonds have yet to be implemented in the development sector. One of the primary barriers to doing so is the need to identify a payer who would make payments upon the validation of impact. It has been suggested that this role could be played by large, multilateral organizations, aid agencies and/or private foundations that are interested in the social outcomes that are produced.

Individually, each of these models offers a different approach to enable innovation for development. Although they have each enjoyed a measure of success, none of them yet offer a complete pathway to: generate new ideas, translate these ideas into novel products and/or services, and scale up the products and solutions to maximize outcomes and impact. We have been involved with an eighth emerging model, the **Grand Challenges Approach**, which we

believe offers a framework through which to better understand and harness the collective power of these previous models.

The Grand Challenges Approach

The "**Grand Challenges Approach**" was first developed over a century ago to solve mathematical challenges of the day. There are several different working definitions of "grand challenge," all of which focus on a similar core element, identifying a specific "critical barrier" that, if overcome, would have significant impact. In the context of global health, the following definition has been suggested: A grand challenge is one or more specific critical barrier(s) that, if removed, would help solve an important health problem in the developing world, with a high likelihood of global impact through widespread implementation.

More recently, the Bill & Melinda Gates Foundation and Grand Challenges Canada have used this approach for:

1. **Mobilizing, selecting and enabling innovators:** We have mobilized a global community of innovators to address global health challenges through the competitive selection and funding of high-quality projects, validation of proof-of-concept innovations and solutions and, at the program level, support for building a community of innovators through, for example, hosting meetings for those communities and enabling knowledge transfer among them.
2. **Forging partnerships**: We have engaged key global health partners to leverage resources and expertise, maximize impact and brand Canada as a leader in global health innovation.
3. **Scaling impact and measuring results:** We have developed clear program metrics to consistently measure impact across projects and are working towards catalyzing the most impactful innovations to sustainably go to scale where they are needed the most.

The Grand Challenges Approach is guided by five core principles:

1. **Focus** – Strategic and well-articulated grand challenges serve to focus research efforts, and to capture the imagination and engage the world's best researchers
2. **Best Ideas** – Projects are selected based on widely distributed, public, transparent calls for proposals seeking the best ideas
3. **Collaboration** – Funders, investigators and other stakeholders actively collaborate to accelerate the process and integrate advances to ensure these advances serve those most in need
4. **Impact** – Projects are selected not only for scientific excellence, but also for their likelihood to achieve the desired impact, and they are milestone-driven and actively managed
5. **Global Access** – Projects and investigators make global access commitments to ensure the outputs of their research are available to those most in need.

The Grand Challenges Approach has traditionally been associated primarily with the use of grants. Building on this traditional model, the Grand Challenges Approach can go beyond simply providing grants to stimulate ideas. Instead, we have suggested that the approach provides a structure through which to engage, coordinate and align a broad range of partners and financial

mechanisms. In so doing, the Grand Challenge Approach can provide a system that encompasses all aspects of the innovation process, from ideas through to impact (See Figure).

By aligning different mechanisms for funding development innovation, it should be possible to leverage the strengths of each individual approach to form a coherent and comprehensive strategy, in order to drive impact and lasting change. The potential for the Grand Challenges Approach to align these seemingly disparate financial mechanisms is illustrated in the Figure below, in which the Grand Challenges Approach is the light blue box that encloses the seven mechanisms. Such a system for aligning funding mechanisms should have both a greater likelihood of identifying meaningful solutions to tackle a critical development problem and a greater likelihood of these solutions being successfully taken to scale. We welcome comments and suggestions as we continue to develop this model.

The Grand Challenges Approach: Aligning Investments in Development Innovation