

The Innovation Revolution and Its Implications for Development

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Recent years have seen a growing sense of excitement about the possibility of harnessing technology to improve the lives of poor people around the world. A cluster of different technologies—identification, communication, payment, digitalization and data processing—are being combined in innovative ways, leading to an explosion of new applications in many of the world’s poorest countries. These have the potential not only to spur progress in the developing world, but also to alter how global efforts to tackle poverty are forged—what kinds of interventions are attempted and how interventions from different development actors are organized.

THREE REVOLUTIONS

We identify three areas where there is the potential to deliver far-reaching change through technology-driven innovation: the ability to provide assistance directly to poor people; to manage complex development interventions at scale; and to raise accountability to citizens of poor countries. In each case, change is already under way, ushering in novel ways of tackling long-standing problems and introducing new players and energy to global development efforts.

The Finance Revolution

Lack of access to basic financial services—a formal bank account, plus services for saving, credit,

insurance and sending money—is one of the defining characteristics of poverty. Only 23 percent of adults living on less than \$2 a day report having an account at a formal financial institution.¹

The advent of mobile money promises to upend the status quo. Mobile money offers a commercially viable business model for serving poor customers where traditional banking falls short—a model that overcomes the constraint of access by substituting mobile phone ownership and networks of agents for physical banks, and that allows small-value transfers and minimal fees by encouraging a shift away from cash to electronic money, where simple movements of money incur virtually no transaction costs.

The near universal take-up of mobile money in Kenya—where 67 percent of the population lives on less than \$2 a day, as compared with the 73 percent of adults who use mobile money, with the latter share rising rapidly—suggests that it should soon be possible to conceive of a world where virtually all poor people are “banked.”

The implications of this are profound. First, access to financial services can help the poor escape poverty (and prevent the near-poor from falling into poverty) by enabling them to better protect their assets, to invest in education and income-earning opportunities, and to protect themselves against shocks. Evidence shows that access to financial services is associated with other important behavioral changes. One study from the Philippines found that access to formal savings increased women’s economic empowerment by raising their influence over household consumption choices, children’s education and use of family planning.²

Second, access to financial services will act as an enormous boost to the participation of poor consumers in various product markets. This will invigorate the base of the pyramid, spurring the creation of new enterprises that can provide a wider range of goods and services targeted at the poor. In Kenya today, more than 500 organizations use M-PESA to pay bills and conduct transactions, including utilities, medical saving plans, crop insurance for smallholder farmers and teacher payment programs (as an alternative to school fees).³

Third, universal access to mobile money can provide the “infrastructure” for governments, donors and charities to give money directly to the poor at very low transaction cost. During the last decade, cash transfer and safety net programs have emerged as important tools for supporting poor communities, building their resilience and inducing behavioral change. An estimated 750 million to 1 billion people are today beneficiaries of cash transfers in the developing world, with at least 40 countries having experimented with conditional cash transfer programs.

Using mobile money as the delivery mechanism can dramatically increase the efficiency of these programs. GiveDirectly, an online charity that enables global citizens to send money directly to poor households in rural Kenya

via recipients’ cell phones, commits to putting 94 percent of donations into recipients’ hands. (The remaining 6 percent is spent on identifying and tracking recipients and on wire costs.) By contrast, a traditional cash transfer program in Zambia achieved a conversion rate of 73 cents in transfers for every \$1 spent on the program.⁴ Further efficiency gains are possible with mobile technology by eliminating the leakage of funds to nontargeted beneficiaries.

Mobile-based transfers can also reduce the large costs borne by recipients in accessing cash transfer programs. Research shows that cash transfers employing traditional payment methods can cost beneficiaries the equivalent of 20 percent of the grant value in transportation costs—a share that could undoubtedly be reduced in an environment where universal access to financial services has been achieved.⁵

The simplicity and low cost of giving money directly to the poor via mobile money could fundamentally alter the calculus of investments for the poor, including those funded by foreign aid. The aid industry has traditionally been dominated by in-kind transfers: the provision of goods, services and knowledge that donors suspect recipients want. The provision of aid in the form of cash, in place of aid in kind, is less expensive to implement, provides recipients with the flexibility to choose what they want to purchase, and stimulates the local economy as recipients spend their money locally.⁶ Contrary to the fear that income received via transfers might be frittered away, research shows that it is typically spent on food, education, health and business investments.⁷ Evidence from a recent trial found that transfers via mobile money, as opposed to traditional payment mechanisms, brought additional benefits resulting from their lower cost, greater privacy, and the intrahousehold dynamics that govern their receipt.⁸

Transferring money electronically could emerge as the benchmark against which all other poverty-focused investments are judged. Justifying an alternate investment would require demonstrating its superiority against a simple electronic transfer. This would significantly raise the bar in comparison with the metaphorical helicopter test—that is, throwing money out of a helicopter hovering

above a poor region—against which aid efforts have traditionally been judged.

The Management Revolution

The scope and effectiveness of development interventions is, in large part, a function of the quality of project management. Development plans and strategies have often failed to deliver due to the difficulty of administering interventions at a scale where they can generate transformational change. Today, however, the creative application of modern technologies can expand the possibility frontier of future development efforts by enabling better targeting and real-time data collection and analysis.

About half a billion people in the developing world have had their biometric identification (using fingerprinting or iris or facial recognition) recorded in a government database—a number that is currently rising at an astounding rate of 25 percent a year.⁹ This information has been used to direct assistance to specific groups, from 1.5 million flood-affected households in Pakistan to 110,000 ex-combatants in the Democratic Republic of the Congo. Biometric data has also been used to reduce the risk of fraud and corruption in elections, to monitor school attendance and civil servant absenteeism, and to test whether conditions (such as a mother's visit to a health clinic) are being met in conditional cash transfer programs. Among the key objectives of AADHAAR—the world's largest identification project, which is currently being rolled out in India—is to address the leakages in social programs and to enable migrant mobility. As biometric identification expands, so does the possibility of more accurate programs to assist the poor and other vulnerable communities.

Spatial identification and mapping can also serve to enhance the targeting of programs. These technologies are increasingly being employed to ensure the equitable distribution of programs across different geographical areas and in supporting coordination across different donors and nongovernmental organizations (NGOs). Most recently, they have proven valuable in responding to crisis situations, such as the monitoring of violence in Nairobi and the search for missing earthquake victims in Haiti, both organized by Ushahidi.

A lack of reliable data has long been recognized as one of the biggest constraints on managing development programs and the pursuit of results-based management—a core principle of effective aid. Data weaknesses limit both understanding of the conditions prevailing in poor countries and the impact of development interventions. Modern technologies allow data to be collected and analyzed in real time (or with drastically reduced lags), with greater reliability, at less cost and in larger quantities. Cell phone surveys allow data collection to be conducted remotely in conflict-affected environments and to bypass weak institutions, which are often the underlying cause of low-quality data. The various innovations described in this paper automatically create an auditable trail, typically running from the issuing agency all the way to ultimate beneficiaries, which can then be analyzed to help evaluate interventions and make them more effective.

The Accountability Revolution

A regular complaint made of the development industry is its lack of accountability to the people it is intended to help. Official aid agencies are chiefly accountable to rich-country parliaments and to citizens, neither of which is well placed to determine the impact of aid on beneficiaries. Services financed by development organizations often employ long and complex accountability chains between providers and beneficiaries; and the longer the chain, the greater the risk that the interests of citizens will be diluted or distorted along the way.

During the past decade, there has been a growing interest in social accountability mechanisms, which strengthen citizens' ability to monitor and demand accountability from service providers and funders. Examples include participatory budgeting, public expenditure tracking, community score cards, social audits, citizen charters and freedom of information acts. A study of community-based monitoring of a health project in Uganda found that it improved the quantity and quality of health services and dramatically reduced infant mortality.¹⁰

A first step toward domestic accountability is to enhance the voice of citizens in development planning. This has traditionally meant inviting representatives of civil society groups to consultation sessions when national development

strategies and donor country strategies are being conceived. Today's technologies offer a more satisfying solution through the polling and aggregation of individual preferences. Ben Leo from the ONE campaign has suggested that the new round of Millennium Development Goals should be developed in precisely this way, which could result in a radically different focus. For instance, the Afrobarometer, a survey of African households, found that four times more households stated poor infrastructure (for example, roads and power) as their biggest concern than did health (and education ranks lower still). Greater reliance of polling in planning can facilitate a switch from supply- to demand-driven development.

The same technologies that facilitate ex ante consultation of beneficiaries could similarly be applied to support ex post consultation, to strengthen the feedback loop from beneficiaries to service providers and aid agencies. Technologies can also be used to bypass actors along the accountability chain, such as through the provision of cash or electronic vouchers in place of in-kind transfers.

New media are transforming the way that citizens can hold governments and other development actors accountable for their efforts. In many countries, poverty issues have a low profile: there is a "poverty of coverage." New media are breaking down this barrier. Advocacy efforts can now be organized at a high speed and at a low cost. One example of impact is the recent shelving of a \$3.6 billion dam in Myanmar. Advocacy can also help speed the diffusion of proven development technologies; it has raised awareness of microfinance in Africa and provided multiple avenues for concerned citizens to become engaged with development programs.

Advocacy relies on transparency in the resources, outputs and outcomes of development interventions. As new media develop beyond the written word to include multimedia that can be recorded and uploaded simply using mobile phones, the scope and power of transparency are being magnified. Thanks to transparency, absenteeism among public school teachers—estimated at 25 percent in India and 27 percent in Uganda—can be more forcefully tackled. Governments have been encouraged to simplify processes: Kenya's Revenue Authority has placed customs, excises and value-added

taxes on an electronic portal; Tanzania's mPayments initiative permits taxes to be filed without citizens having to visit a government office.

Of particular importance, the accountability promoted by media access and scrutiny in developing countries extends to all development resources, not just aid, and to all development actors, not just governments. Donors, NGOs and private corporations are subject to the same standards to promote development or at least avoid harm.

WHAT IS DIFFERENT THIS TIME?

There are no silver bullets in development, and technology certainly cannot be viewed as an exception. However, the technology-driven innovations described in this policy brief can alter the underlying relationships that have entrapped the poor and can be a catalyst for change.

Many technologies have been hailed in the past without ultimately recording much impact because they could not be successfully adapted to developing countries. The innovations described here can avoid this fate. Although the technologies they employ may originate in the West, their application is uniquely tailored to the local environment in which they are being deployed. This reflects a more fundamental point about the role of technology and innovation in development: Successful innovations for development rarely depend on new and complex technologies, but rather on ones that are mature and proven. Their success instead stems from the way technologies are combined and harnessed.

Moreover, the innovations described are less important as solutions themselves than as providing the means for other development interventions to become more efficient, more effective and to reach scale. The technologies they employ are defined by their ability to disintermediate complex activities and in the process to drive down transaction costs. It is these characteristics that imply the potential to more readily achieve scaled-up impact.

A NEW APPROACH TO DEVELOPMENT

At its root, development is about identifying solutions that can be successfully brought to a scale where

they achieve a transformative impact. Historically, most attempts to provide development interventions at scale have employed subsidized models, in which the government, official donors, foundations and/or international NGOs (INGOs) agree to bear most or all of the cost of the intervention. These actors are typically large organizations with extensive networks at the subnational level that enable them to reach poor populations, often extending to the level of individual villages and communities. They are driven by the pursuit of greater inclusivity, equity and ultimately universality.

Subsidized models are credited with a number of successful scaling transformations in developing countries: HIV/AIDS treatment in sub-Saharan Africa, community-driven development projects in Indonesia and Afghanistan, and safety net programs in Mexico and Brazil. Nevertheless, there are limits to what subsidized models can achieve. There simply are not sufficient financial resources to extend subsidies to cover the full range and scope of development challenges, and efforts can be undermined by the typically poor capability of ministries and local governments to manage and implement programs.

An alternative approach is to use for-profit models. Whereas subsidized models depend on central planning to spur the transition to scale, for-profit models harness market forces, which offer a rapid route to scaling up where commercial opportunities exist. Private corporations and social enterprises replace governments, donors and INGOs as the investors behind these ventures. Meanwhile, private networks of agents and supply chains provide a route to beneficiaries. The private sector brings expertise in due diligence and selection for identifying the most viable innovations and knowledge of how to build efficient approaches to finance and delivery. Critically, they have a culture of risk taking that is necessary for developing unproven innovations.

Yet for all the enthusiasm that for-profit models have generated, there have been disappointingly few examples of their interventions reaching scale, either in delivering services to poor people or in involving them as suppliers. In most cases, the private sector has been reluctant to incur the fixed costs of creating a new market at the base

of the pyramid when operating margins are seen as small. And there remain concerns—some valid—regarding the potential for private firms to exploit the poor through uncompetitive behavior and monopoly pricing.

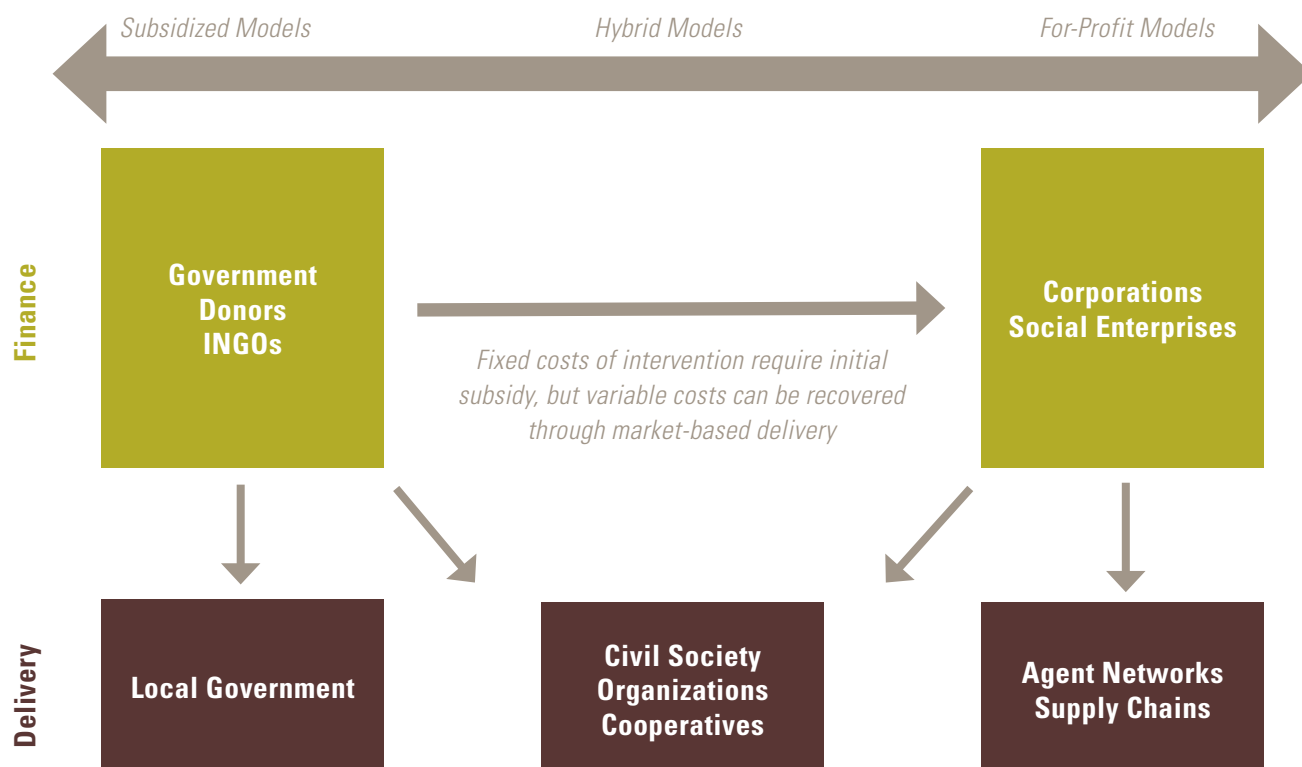
Revolutions in finance, management and accountability can catalyze new scalable solutions through both subsidized and for-profit models. The take-off of mobile money and cash transfer programs for the poor will strengthen consumers' participation in markets and thus expand the scope for market-based service delivery. Improved management capacity will increase the feasibility of administering programs at scale and lead to the development of new services and products specifically tailored to low-income markets. Enhancing citizens' accountability will reduce aversion to private sector involvement in the provision of public goods by reducing the scope for exploitation and supporting a shift toward demand-driven services.

However, the weaknesses of subsidized and for-profit models will not simply disappear. Overcoming these weaknesses requires partnerships between nonprofit and profit actors through the creation of hybrid models (figure 1).

Hybrid models would combine the development efforts of a government, donor, foundation and/or INGO with that of a private corporation under a joint venture, which builds on the financial and accountability strengths of the nonprofit sector and the management, implementation and innovation strengths of the private sector. These ventures offer most promise in those instances where the fixed costs associated with creating a new market prohibit a commercial intervention from moving forward, but where variable costs could feasibly be recovered through market-based delivery if scale economies were to be reached.

Finance from the nonprofit actor would provide a temporary subsidy to support the intervention during the early stages of scaling up, to meet the development of business models with scalable systems for research and development, market testing, piloting and evaluations, institution and skills development, and marketing and education campaigns. These costs

FIGURE 1. HYBRID MODELS FOR DEVELOPMENT SOLUTIONS AT SCALE



may not be recoverable in a commercial sense, but they would have the potential to generate large social returns and serve the development objectives pursued by government, donors and INGOs.

Another aspect of hybrid models would be to create a clearer separation between the finance and delivery components of scaling up. Subsidized models and for-profit models have usually paired up financing institutions and implementing organizations along traditional lines—government with government, NGOs with NGOs, corporations with other private actors. Under hybrid models, financing institutions would determine the mode of delivery based on its suitability for a given intervention. This could drastically expand the possibilities for scaling up and lead to significant efficiency gains.

The case of M-PESA shows how this dynamic can work: A technology developed through a donor-funded

challenge; a business innovation to create a network of trusted agents developed by the for-profit corporate sector; new public regulations and accountability to ensure no abuse of monopoly power despite a network covering most of the poor; and a further round of innovations by NGOs in response to the changed circumstances of “banked” poor people.

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ENDNOTES

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- ³ Vaughan, Fengler and Joseph (forthcoming).
- ⁴ See <http://aidwatchers.com/2009/05/how-to-help-the-poor-have-more-money-well-you-could-give-it-to-them/>. The World Bank advises close examination of all programs where administrative expenses are above 12 to 15 percent. See Grosh et al. (2008).
- ⁵ Johnson (2008); Arora and Metz Cummings (2010); UIDAI (2010).
- ⁶ Harvey et al. (2005); Davies and Davey (2007).
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