DEVELOPMENT Outreach

PUTTING KNOWLEDGE TO WORK FOR DEVELOPMENT ❧ JULY 2010

World Bank Institute

ABOUT THIS ISSUE

In a post-crisis world, innovation may be the single most important driver of economic growth and competitiveness.

Our authors share their thoughts on how to mobilize innovative solutions to reduce poverty smarter, better, faster, and differently. As Sanjay Pradhan, Vice President of the World Bank Institute, points out, the time is right to move development forward through creative and integrated uses of technology and social theory. In his guest editorial, Aleem Walji argues that we now have the capacity to scale up innovative approaches to meet the needs of people at the "bottom of the pyramid" when traditional markets fail to do the job.

Articles from two new books open this issue: Jean-Eric Aubert on innovation policy, and Gordon Conway and Jeff Waage on the role of science and technology. Then Jean-François Rischard looks at how policy must foster a vital *creative class* that underpins a country's competitiveness.

James Koch opens the section on innovation processes by summarizing Santa Clara University's framework for bottom-up social entrepreneurship. Mari Kuraishi of Global Giving takes us back to the creation of the Development Marketplace ten years ago; Iqbal Quadir of MIT shows how mobile technology facilitates power at the grassroots; Marla Capozzi shares highlights of McKinsey's leadership research on innovative organizations; Tim Brown and Jocelyn Wyatt apply IDEO's processes to developing country needs; Diana Wells advocates for the power of individual change-makers in today's world; and Richard Murby and I argue that the merger of social media and communication is transforming innovation processes.

Finally, there are stories about innovation at the ground level—how Development Marketplace winners took their projects to scale; how geo-referencing is putting Nairobi's slums on the map, and how BRAC in Bangladesh became a learning organization.

Edith R. Wilson
ISSUE EDITOR

Development OUTREACH is published three times a year by the World Bank Institute and reflects issues arising from the World Bank's many learning programs. Articles are solicited that offer a range of viewpoints from a variety of authors worldwide and do not represent official positions of the World Bank or the views of its management.

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Illustrations are by Nusa Maal/Sense Smart.

Cover: Naylor Design, Inc., Washington, DC; Page 14: UKCDS; Page 18: GSBI, Santa Clara University; Page 19: The World Bank; Page 22: Erin Ivanov/Newscom; Page 30: Sam Panthaky/AFP Photo/Newscom; Page 36: Newscom; Pages 39-40: Joel Selanikio/DataDyne; Page 41: Erica Hagen.

This magazine is printed on recycled paper, with soy-based inks.

ISSN 1020-797X

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THE WORLD BANK

DEVELOPMENT
Outreach

VOLUME TWELVE, NUMBER ONE ~ JULY 2010


PAGE 14


PAGE 19


PAGE 41

SPECIAL REPORT
THE POWER OF INNOVATION

2 Catalyzing Change through Innovation
SANJAY PRADHAN

4 Innovations in Development: Where traditional markets fail
Guest Editorial
ALEEM WALJI

POLICY

7 Innovation Policy for the Developing World: Success stories and promising approaches
JEAN-ERIC AUBERT

10 The Three Strands of Innovation
AN INTERVIEW WITH JEAN-FRANÇOIS RISCHARD BY AUDREY LIOUNIS

13 Why Science Is Important for Innovation
GORDON CONWAY AND JEFF WAAGE

PROCESS

16 Social Entrepreneurship as a Bottom-Up Model of Socio-Economic Development
JAMES L. KOCH

19 Development Marketplace: A Silicon Valley for development
MARI KURAISHI

22 Mobile Technology: One core lesson, many possible solutions
IQBAL Z. QUADIR

23-24 Sidebar: Behind the Scenes. The World Bank in Information and Communication Technologies

25 Leadership and Innovation
MARLA M. CAPOZZI

29 Design Thinking for Social Innovation: IDEO
TIM BROWN AND JOCELYN WYATT

32 Communications as Innovation in Social Enterprise
EDITH R. WILSON AND RICHARD MURBY

36 Ashoka Fellows Change the World
DIANA WELLS

PROJECTS

38 Development Marketplace Winners: On the path to replication and sustainability
TOM GRUBISICH

41 Putting Nairobi's Slums on the Map
ERICA HAGEN

44 BRAC: A Laboratory for Systemic Solutions
KIRSTEN SPAINHOWER

46 **KNOWLEDGE RESOURCES**
47 **BOOKSHELF**
48 **CALENDAR OF EVENTS**

"THE NEED FOR INTELLECTUAL EXCHANGE, THINKING OUTSIDE THE BOX, AND COOPERATION HAS NEVER BEEN GREATER."

catalyzing CHANGE through INNOVATION

SANJAY PRADHAN

THE NEED FOR INTELLECTUAL EXCHANGE, thinking outside the box, and cooperation has never been greater. Vast poverty and inequality contribute to global problems, such as climate change, disease, environmental destruction and armed conflict. Galvanizing societies and institutions to solve these unprecedented challenges requires a renewed effort and enhanced capacity to create and transform knowledge into reform. Consequently, just as in so many other fields, a stepped-up rate of successful innovation will be of the essence in achieving development results.

We know that ours is a world of change that will go through a massive re-thinking of its ways in the next decade. This also applies to the development profession and its recipes for reform and change. All of us are challenged to reinvent our work by adopting and adapting technology and social theory much more rapidly, or fall behind. We must develop the "Apps for Development" that can make us more efficient, effective and help us benefit the lives of many more people.

As this issue of Development Outreach demonstrates, the World Bank Institute can be a hub and convener of development practitioners with the required expertise and tacit knowledge of cutting-edge development solutions. By pooling this human capital into "network capital" through the formation of teams, partnerships, and alliances, we can facilitate the creation, deepening, and sharing of knowledge that will help transform this knowledge into workable solutions. As the new home of Development Marketplace, we have a pipeline of innovative ideas second to none, and we are rapidly expanding the tools that can be deployed.

What is the role of the World Bank and other development banks in this rapidly changing context? We know that the answers cannot be provided by the Bank alone, nor will they be found in the outdated North–South development paradigm. To maintain our position at the forefront of assisting people, institutions, countries, and regions in addressing development challenges, the banks need to become true catalysts of innovation. We need to empower and inspire, finance and train, scan and scale.

While the World Bank Group has often fostered innovation in addressing development challenges—for example, carbon markets, and of course the Development Marketplace—these efforts will need to become more sustained and systematic in the future—part of our culture. Given the dimensions of these challenges faced by the global community, the Bank is focused now on accelerating the pace of innovation and adoption of new ideas. That's why this issue of Development Outreach looks at what is involved with stepping up the pace of innovation to catalyze change in development.

Sanjay Pradhan is Vice President, the World Bank Institute. Prior to that, he was the Director, Public Sector Governance for the World Bank. He earlier served as the World Bank's Sector Manager, Public Sector and Poverty Reduction for the South Asia region, including Bangladesh, India, Nepal, Pakistan and Sri Lanka.

Innovations in Development

Where traditional markets fail

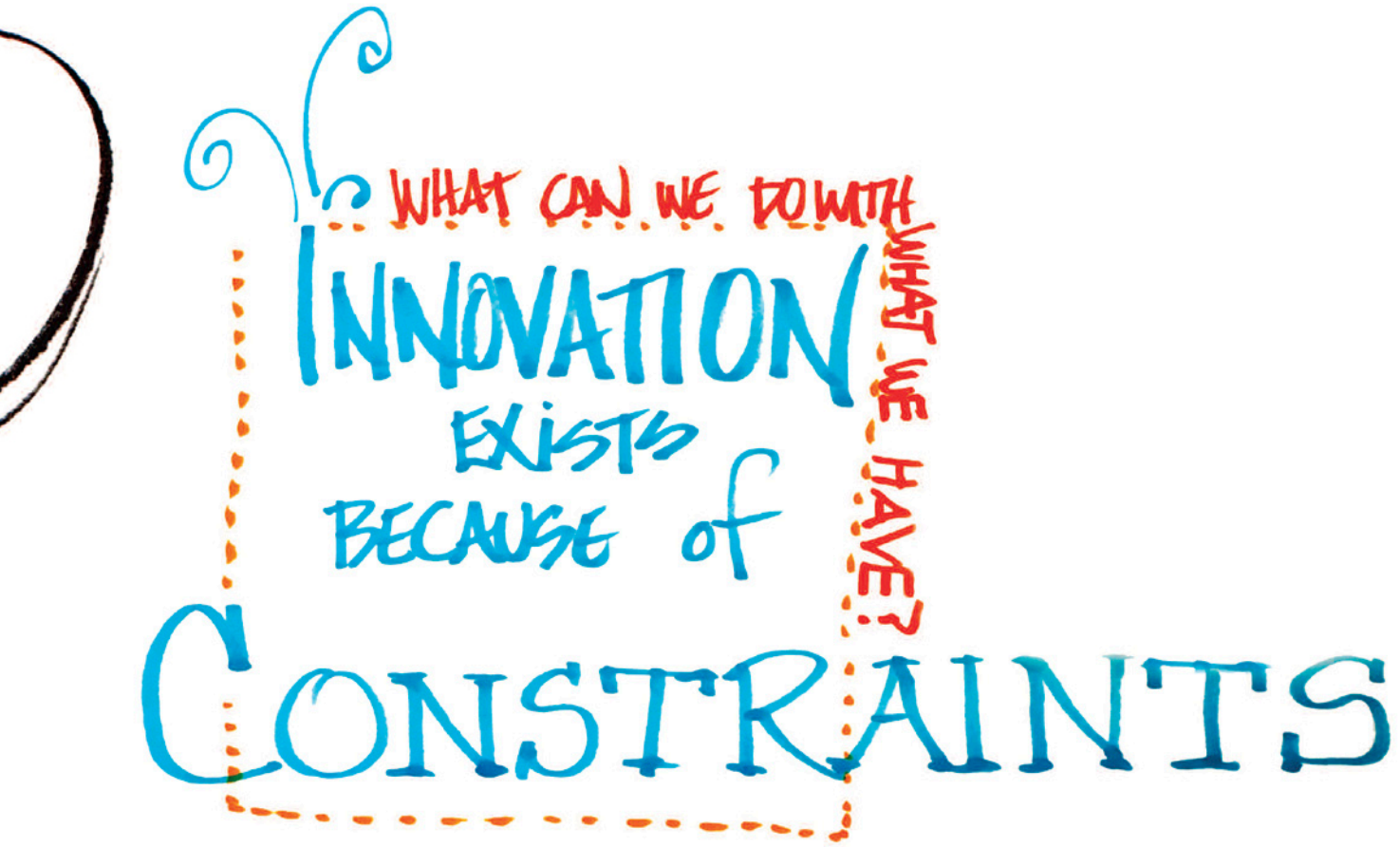
Guest Editorial

BY ALEEM WALJI

AS WE THINK ABOUT the last several decades and what has really moved the needle in international development, we can't help but acknowledge the revolution in financial services to the poor that has now grown into the multi-billion dollar micro-finance industry. And while there is still considerable room to grow and deepen access, when I see the likes of Citigroup, Deutsche Bank, and Morgan Stanley investing in the space, I'm confident that the industry has turned an important corner and is well on it's way to reaching scale. In the language of financiers, micro-finance is now an investment class in its own right, attracting a new breed of investors, deepening capital markets, and creating a pathway to further growth.

What is less clear, however, is what happens to successful micro-entrepreneurs beyond micro-finance? What pathways are available to them as they mature, require growth capital, and need non-financial services to meet the demands of growth? While not all micro-entrepreneurs *graduate* beyond micro-finance, the roughly 5-10% that are poised for growth consistently face obstacles: poor linkages between micro-finance institutions (MFIs) and commercial banks, collateral rather than cash-flow based lending decisions, and imprecise metrics to assess social value as they serve largely Base of the Pyramid (BoP) customers.

Micro-entrepreneurs often fill gaps where markets and public agencies fail to meet the needs of poor customers and citizens. They provide water, low-cost education, health services, and a variety of other products and services where traditional markets fail. Therefore, in addition to measuring



financial returns on investment, there is a case to be made that the development community should pay more attention to non-financial indicators as well. But that's where things get complicated, most interesting and difficult.

How do you measure social returns on investment? What is the value of increasing literacy rates, reducing infant mortality in a given area, or providing access to safe drinking water? Even if we can't answer such questions precisely, how do we compare investments in the social sector amongst themselves? Can the Gates Foundation talk about the impact of their investments in health and education in a way that allows for assessments in comparison to other Foundations, Governments, or the private sector? Without such basic vocabulary and generally accepted principles of social accounting, how can we expect the social sector to grow and attract larger flows of capital beyond pure philanthropy?

An interesting array of social investment intermediaries are emerging. GIIN (Global Impact Investing Network), for example, is mobilizing *impact investors* interested in social and financial returns to develop standards across industries to enable portfolio analyses and support research promoting an analytical understanding of the industry. Similarly, ANDE (the Aspen Network of Development Entrepreneurs) is a global network of more than 85 investors focused on Small and Growing Businesses (SGBs) in the developing world. ANDE is committed to dramatically increasing the flow of capital to SGBs most capable of generating jobs and economic growth.

The term *hybrid investing* is starting to emerge thanks to people like Jed Emerson, Timoth Freundlich, Jim Fruchterman and institutions like the Skoll Foundation through its commitment to social entrepreneurship. Hybridity in this context refers to an optimization between financial and social returns on investment. Is this a turning point signalling more inclusive capital markets over time? Can we imagine a day when the NASDAQ and NYSE are complemented by social exchanges where investors can choose from a range of financial products providing different combinations of social and financial returns?

The Development Marketplace (DM) has supported more than 250 social entrepreneurs globally with more than $60 million in seed grants underwriting innovations in fields as diverse as health, education, agriculture and climate change. These investments were deliberately early-stage and targeted innovative solutions providers from across the developing world. Ten years on, it's an important opportunity to take stock. Where are these entrepreneurs today? How many of them have business models that have proved to be sustainable? What are their

primary constraints to growth? Do they have access to growth funding and from what sources?

We are on the brink of a potentially game-changing force in development. There is a growing recognition that governments acting alone cannot provide public services to all of their citizens. They need partners from civil society, commercial enterprises, and private *non-commercial actors* including social entrepreneurs to complement, support, and create new business models for the delivery of public goods and services. While there is no shortage of actors playing a gap-filling role, there are few models that work at scale. The experience of the Grameen Bank and BRAC in Bangladesh is instructive. While Grameen developed a core set of principles and a franchise-able model to provide micro-credit to the poor, BRAC opted to create a fully forward and backward integrated mega-NGO providing services across the social service supply chain. Both serve millions of people in Bangladesh and beyond. While Grameen has inspired thousands of me-too micro-finance institutions, BRAC has expanded to places like Afghanistan and East Africa with impressive speed.

But there are many paths to scale. There is no one model or one entity that can meet the growing demands of poor and under-served populations throughout the developing world. There is an opportunity to capture the creativity, innovation, and entrepreneurial spark of the social entrepreneurship community and to create the basic financial infrastructure to support their growth. Because of transformation tools like the mobile phone and emerging broadband networks across the developing world, the technology infrastructure is increasingly available and enabling. But what about the enabling financial intermediaries, markets, technical assistance, legal services, angel investors, social venture investors and the like? Where will the Silicon Valley for social entrepreneurship emerge? India, East Africa, East Asia, or somewhere else?

A TOWER OF BABEL
TERMS CURRENTLY USED

SOCIALLY RESPONSIBLE INVESTING

SOCIAL INVESTING

MISSION-DRIVEN INVESTING

SUSTAINABLE AND RESPONSIBLE INVESTING

BLENDED VALUE

VALUES-BASED INVESTING

MISSION-RELATED INVESTING

ETHICAL INVESTING

RESPONSIBLE INVESTING

IMPACT INVESTING

PROGRAM RELATED INVESTING

TRIPLE-BOTTOM LINE

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE SCREENING

From: Investing for Social & Environmental Impact, Monitor Institute, 2009.

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What is clear is that we cannot sit on our hands and continue to do business as usual. While considerable gains have been made in reducing global poverty over the past five decades, there are still too many people hungry, too many children dying of preventable illnesses, and too few people with access to clean water, sanitation, and energy. Time is not on our side and waiting for the perfect solution to emerge is not the lesson surfacing from the most successful businesses of our age. Start small, think big, fail fast, iterate. While this sounds more like the mantra of a technology company than a global development institution, I don't think that development problems are best solved in think tanks, banks, and high level policy institutions alone. They require field testing, rapid prototyping, and perhaps mostly importantly listening to our users—the citizens. Innovations in development are rarely found in large, multilateral development global development institutions. They are found on the ground, in the field, and in partnership with local communities, civil society groups, and indigenous entrepreneurs. The surest path to scale is pay to attention to what works, identify models and principles that work across contexts, and provide the resources for organic growth.

That's what this issue of *Development Outreach* is about. That's where we hope to shine a bright light.

Aleem Walji is the Practice Manager of the World Bank Institute's Innovation Practice, including the Development Marketplace. He recently served as Head of Global Development Initiatives at Google with a focus on eastern Africa. Walji has been involved with supporting the growth of small- and medium-size enterprises in Tanzania and Ghana, increasing their access to finance. Before that, he was the CEO of the Aga Khan Foundation in Syria. His particular interests lie in rural economic development, entrepreneurship, and public-private partnerships.

Innovation Policy for the Developing World

Success stories and promising approaches

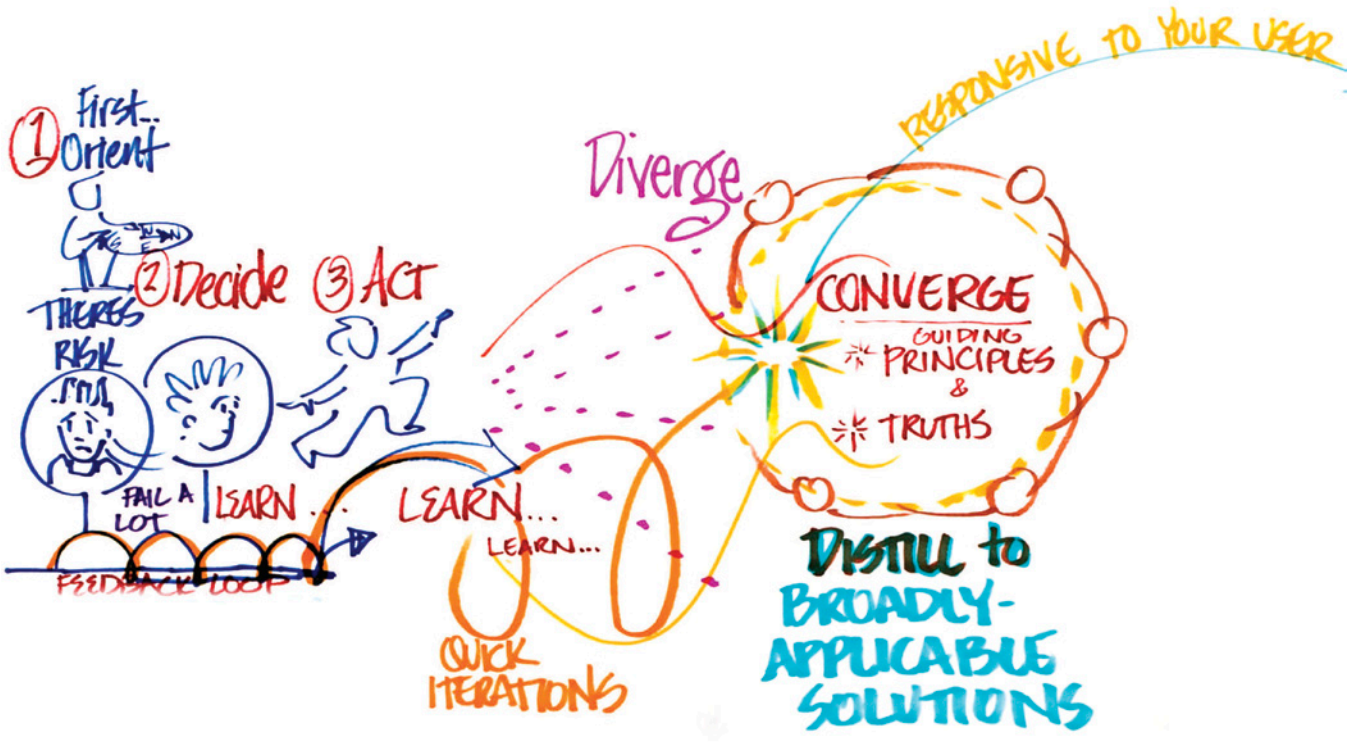
BY JEAN-ERIC AUBERT

INNOVATION, particularly technological innovation, is widely touted as a panacea for development. As more and more countries begin to formulate policies that support innovation, they expect to find a magic bullet in the experiences of the advanced and some of the more dynamic less developed economies. But emulating foreign success stories and models is not so easy. Moreover, the developing world is extremely diverse, ranging from giant powerhouse economies to poor fragile states. I will nevertheless present here some useful principles and illustrations that can help inform effective approaches to innovation in the difficult institutional and business climates of low- and medium-income countries.[1]

Understanding innovation

IT IS IMPORTANT TO UNDERSTAND what constitutes innovation in the developing world. Generally it does not mean something "new" in absolute terms, but something new for the society in question. An innovation may be well known in one place, but virtually unknown in another for lack of dissemination. Even modestly innovative ideas can make an enormous difference: for example the use of mosquito nets to fight malaria or inventive uses of information technologies, including mobile phones for trade services, health care, and business management. These have had a tremendous impact in poor countries.

Innovation may also mean the development of productive sectors that may be new to a particular economy, but can



enable them to compete successfully in the world or regional markets. Numerous examples from recent decades can be cited: textiles in Tunisia, the auto industry in Romania, cut flowers in Kenya, computer components in Vietnam, and ecotourism in Costa Rica. All these activities were highly innovative in the respective countries, and have since generated significant job growth and wealth.

So what lessons can governments learn from these success stories?

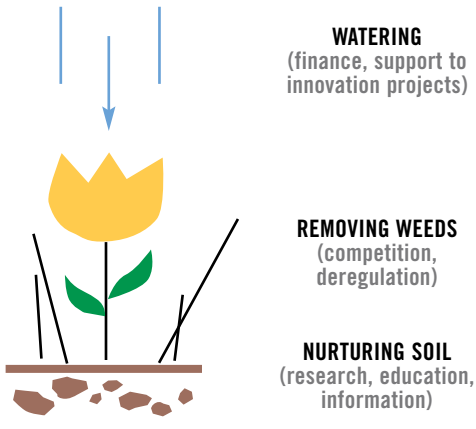
Acting as a gardener

INNOVATION IS NORMALLY INSTIGATED by a key actor: the entrepreneur who brings the project to fruition in designing the new product or process, looking for finance, and exploring markets. He or she interacts with different organizations within the so called innovation system, such as universities, public laboratories, banks, customer associations, other enterprises. In addition, the environment in which innovation takes place is strongly influenced by broader factors such as the macroeconomic situation, the level of infrastructure development, and the quality of governance.

Innovation policy is, therefore, fundamentally different from simply promoting ideas and projects from research to market, or—the reverse—identifying needs and calling upon research or the science base to satisfy them. This linear and mechanistic view of the innovation process is misguided; a holistic and biological approach is more appropriate. Governments should see their role as creating a favorable climate in which innovative projects can flourish.

Governments have basically three functions: providing incentives and facilities to elicit or support innovative projects; removing bureaucratic, regulatory, competitive and other obstacles to innovation; and improving the knowledge base and its use in developing technical education and R&D structures. The government should thus act as a gardener tending to a plant (see Figure 1): he waters it, removes weeds and pests, and applies fertilizers.

FIGURE 1: INNOVATION AS GARDENING



Source: Innovation Policy: A Guide for Developing Countries, Washington, D.C.: World Bank, 2010.

With efficient instruments

THE MOST IMPORTANT TOOL for supporting innovators is a flexible and agile agency able to serve their technical, financial, commercial, and other needs. All OECD countries have such bodies, providing incentives for the key actors, for example: matching funds to induce universities and industry to take part in joint projects. Some developing countries have also been able to set up efficient agencies, such as Chile's Foundation Chile which, by carrying out the functions mentioned, was instrumental in setting up the salmon and wine industries. Low- and medium-income countries generally do not see the need for an agency entirely devoted to innovation promotion, since they already have to deal with the bureaucratic hurdles presented by a number of other bodies dealing with related policy matters such as industry, trade, or foreign direct investment (FDI). Nevertheless, the creation of an agile, innovation-focused agency (or a program when a new institution with vested interests is not advisable) is essential.

Another important element of a system that supports innovation policies is a solid network of decentralized technical "sounding boards" that are accessible to entrepreneurs and potential innovators. A good example is the Japanese network of prefectural laboratories, established in the early 20th century, funded by the central government and the local authorities, which played a decisive role in the rise of Japanese industry, in particular small businesses. Such a technology infrastructure is key. In developing countries, attention is rightly paid to central Metrology, Standards, and Quality Control bodies, but local "antennas" providing at least minimal technical support and connections to sources of expertise are often neglected, or they are stymied by the profit-making rules that are imposed on them.

Well-designed, large-scale technology programs, developed through public procurement, have had a considerable impact on innovation development. For example, breakthrough technologies have resulted from the US defense and space programs. And some emerging countries have demonstrated their ability to mount large-scale technology programs, such as Brazil's aviation and agriculture industries. Low-income countries also need to take some form of large-scale approach, but adapted to their needs and resources, such as pro-poor technology programs. A recent World Bank project in Rwanda is an example of good design. The project provides a package of interventions, including financial support to communities, technical assistance and training, and improved infrastructure (energy sources and telecoms).

Innovators need to be insulated against bureaucratic regulations, monopolistic predators, and corporatist behaviors. Innovation policy requires a strong legal framework, and constant vigilance in removing, reshaping, or fine-tuning the diverse regulations that may prevent innovative initiatives, such as tariffs schedules, standards, intellectual property rights

(IPR), customs procedures, and so on. Although this issue is generally well understood in the developing world, countries lack the requisite judicial and enforcement mechanisms. Some countries have partly overcome these problems by creating special economic zones, techno cities and the like, that are relatively free from bureaucracy and friendly to entrepreneurs.

It is clear that developing countries, lacking the resources and a conducive institutional and business environment, should be particularly pragmatic in their innovation policy.

Being pragmatic

ALL SUCCESS STORIES have drawn heavily on comparative advantage. These advantages may result from natural endowments (a wine-friendly climate in Chile), human resources (a cheap, educated labor force in Vietnam), or market positioning (Romania's proximity to East European markets). Successful countries have cleverly exploited these advantages. Initially, they did not set the bar too high, nor did they neglect the technologies needed to move them up in the value chain.

These countries systematically scout around the world for new knowledge (e.g. new technology and new management methods) while gradually building up their own local capabilities. Korea is a good example. It began to develop its industrial base (shipbuilding and electronics) by buying technologies abroad and investing massively in technical and vocational education, before investing in higher education and research and becoming a global innovator. The lack of adequate policies for upgrading their knowledge base explains why a number of developing countries that have been successful in the cheap labor sectors (textiles, cut flowers, and others) have had trouble expanding into new growth areas.

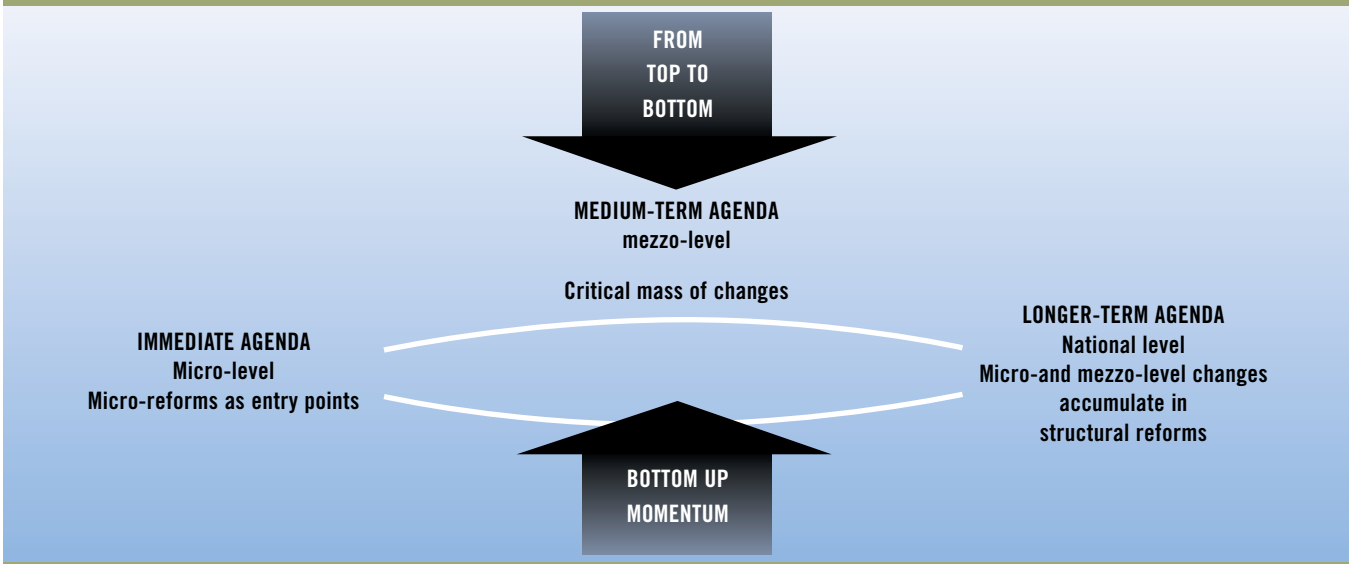
Another key lesson is that countrywide change rarely happens quickly. Movement is normally gradual, starting with localized success stories in specific industries or geographic areas. Even in innovation-supportive climates, policy makers in charge of promoting innovation have had to demonstrate institutional creativity to advance their cause. After a few illustrative cases, they built up a critical mass of initiatives using both top-down and bottom-up approaches, conducive to broader reforms (see Figure 2). China is a prime example. It started with reforms in a few coastal areas to test what works, before extending them to other parts of the country, thereby rising up in the value chain and in technological sophistication.

Regional initiatives, sometimes spontaneous and not stimulated by the central government, play a critical role in the change process. An example is the information and communication technologies (ICT) and software industry in Bangalore, India. The rapid spread of the "innovation buzz" to the rest of the economy, helped create a general climate of trust for reforms and investment in other sectors.

Building dynamic innovation climates takes time—at least a decade. It takes three to five years for innovation projects to bear fruit; and seven to ten years before a specific industry or site can show significant job creation or income generation. At the same time it is important to seek support from recognized outsiders (for example, through international policy reviews) in order to strengthen the credibility of policy initiatives.

INNOVATION POLICY
continued on page 15

FIGURE 2: SCALING UP INSTITUTIONAL CHANGE: FROM MICRO-REFORMS TO NATIONAL REFORM



Source: Innovation Policy: A Guide for Developing Countries, Washington, D.C.: World Bank, 2010.

The Three Strands of Innovation

An interview with Jean-François Rischard by Audrey Liounis

IN HIS 2002 BOOK, *High Noon*, economist and former World Bank vice president Jean Francois Rischard stressed that in order to address urgent, global issues, the world needed "imagination and a different type of thinking"—and needed it within two decades, not five or ten.

Eight years later, global challenges have become even more overwhelming and innovation even more imperative, says Rischard. Between the exponential growth of the two key forces—global population and the new world economy—and the slow and linear movement of human institutions and human mindsets is a broadening "management gap." Addressing global "hyper-change and hyper-complexity" requires improvement of human management capacity through four drivers: more innovative individuals, more innovative entities, more innovative nations and more innovative planetary management.

Development Outreach spoke with Rischard about the third driver—innovative nations.

DO: How does a country develop policies that promote innovation?

JFR: The key concept for me is not so much innovation or innovation policy, but rather transforming what you have into a knowledge-based economy.

About a dozen countries—including Finland, Ireland, Malaysia, Chile, Singapore, and Korea—made huge leaps forward in the late 1990s by doing three specific things. First, they dramatically increased the quantity and sophistication of knowledge throughout their societies. Second, they boosted the size and diversity of their service sectors. Third, they pursued systematic, multi-year, knowledge-based economy campaigns that had distinctive characteristics, both in terms of content and process.

This content had five pillars—you have to have all of them to succeed. The first pillar is education and life-long learning, which countries like Singapore, Korea, and Finland lifted to a very high level of quality. Secondly, they enabled a lively "innovation ecology" that would foster the "creative class" and business innovation, on

top of science and technology-led innovation. The third pillar is a quality business environment. The fourth is an advanced information and communication technology infrastructure—these days that means bandwidth. And the fifth pillar is a model government and change-friendly values within the population.

It is a much bigger deal than just focusing on R&D or on science and technology.

DO: How does a country create the "innovation ecology"?

JFR: As the governments of successful knowledge economies understood better than others, in today's world the right innovation ecology will foster three distinct strands of innovation. In addition to classical innovation from researchers and scientists, equally important is that coming from two other groups: the creative class and the business world.

Creative class members do not necessarily have PhDs or even diplomas in anything. They are often young people, probably wearing jeans, creative enough to invent a new software game that makes millions of addicts. They come up with new ways of using data, folding furniture, new ways of organizing marketing campaigns. They write movie scripts or theatre plays. There are an estimated 150 million of these creative-class types in the world, one-third of them in the US.

Those who provide business process innovation probably have MBAs. They re-think supply chains; they reinvent entire business models for, say, computer makers or clothing manufacturers.

Most governments make the mistake of only focusing on the classical source of innovation in designing innovation policy—research and development budgets, incubators, techno parks, university spin-offs. In doing so, they miss out on the other two strands of innovation that today are as important if not more important, and which require different policies.

For example, to attract the creative class to your country or to your city you must provide highly attractive living and working conditions. You must support the creative industry sector—and in general the sector of sophisticated services—with the best possible broadband, informatics, and communications facilities. Dubai did a great job at attracting creative class types by designing the city and the special zones to meet these kinds of needs. And finally, you must have a school system good at boosting creativity at the primary school and secondary school levels, not just the higher education focus needed to breed the usual kind of innovation.

To foster the third strand, you need to attract as many enterprises, big and small, from all over the world into your country as you can. You must have excellent foreign direct investment support, start-up support, and small and medium enterprise support, a fluid business environment with low transaction costs, superb infrastructure and logistics.

The requirements for the first and second strands may often be easier to meet than for the third strand. You get there one step at a time, chipping away at obstacles. Many countries are strained just to meet the needs of the first strand.

DO: Of the five pillars you identified as specific to successful knowledge-based economies, which is the first one that a country should address?

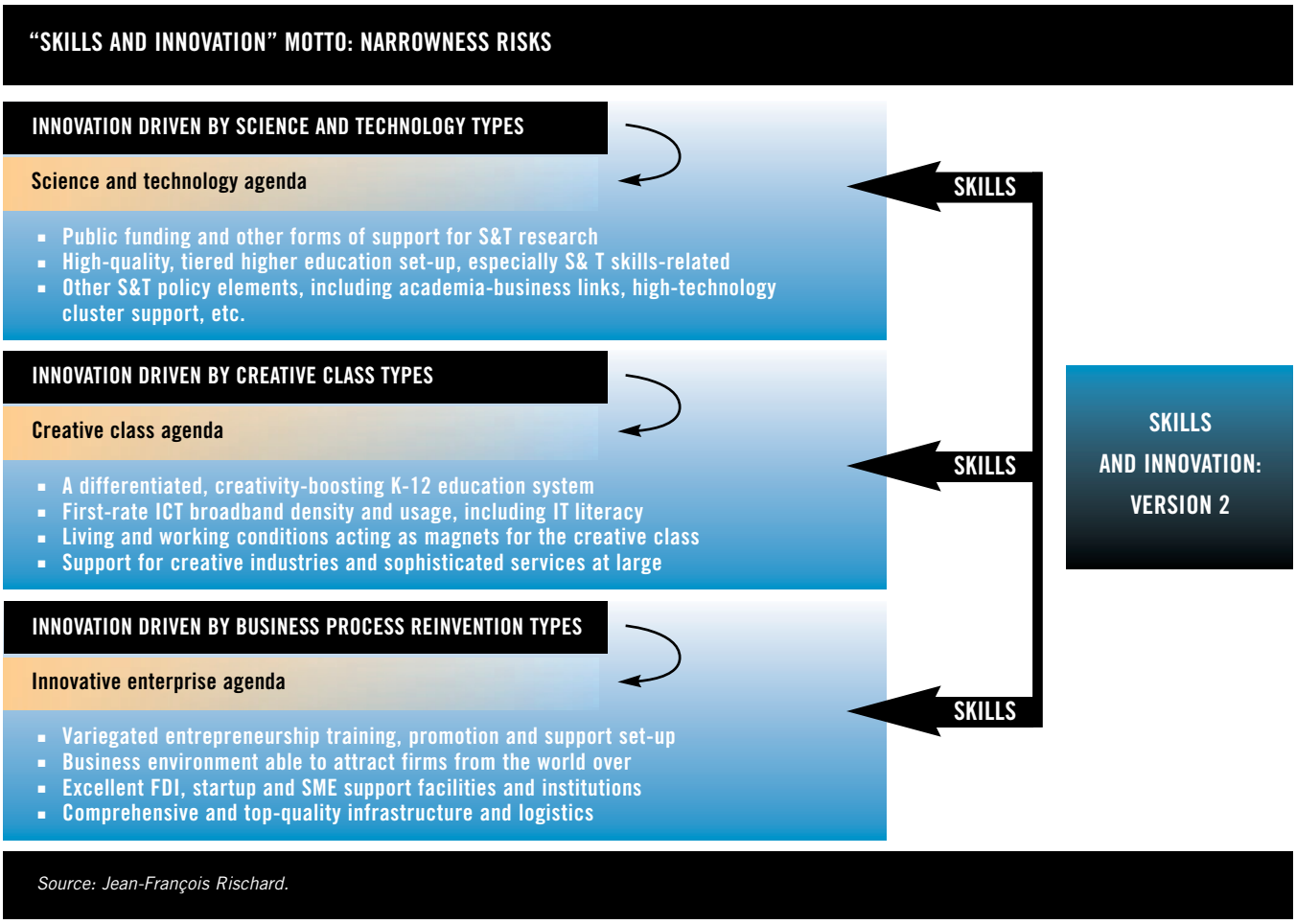
JFR: To do a good job at this, you must eventually be good at all five pillars. But they have different profiles. An education system cannot be reformed overnight—it takes more than half a decade for sure. An innovation ecology takes five or six years to develop, even though some components move faster then others—attracting the creative industries and the creative class, for example. Dubai did that in a few years. But creating a deep-down science and technology culture and research platform takes many years, and for some developing countries it may not be possible.

In terms of the business environment pillar, a government can move very quickly. We saw Saudi Arabia and Georgia improve their business environments in just one year, moving into the top league of the World Bank Doing Business ratings. Another area where improvements can be made quickly is the creation of a top-rate information communication technology infrastructure and usage pattern. That can be done in three or four years, as we saw in Korea, Malaysia, and Estonia.

The fifth pillar of model government and change-friendly national values is a much slower moving process; it has to do with whether people are change-friendly or not, the degree of openness to the rest of the world, and whether the government is actually a role model for the whole exercise and not hopelessly inefficient. It is difficult to quantify, but certainly without this pillar it will be hard to progress in the other areas. Finland, Singapore, New Zealand would be the obvious models for the finer points about values and model government standards. Some of the countries I am talking about used to be

THE BROADER PERSPECTIVE: EVOLVING CONCEPTS AND POLICY AGENDA

Source: Jean-François Rischard.



quite conservative, by the way, and had many cultural barriers to innovation.

But while all the champion countries moved in all this areas, they all took some out-of-the-box process steps to make a lot of changes very fast and very deep. They made profound transformational changes not in 25 years, but in less than a decade. They aimed very high, almost crazily high. For each, there was a deliberate, organized, conscious strategy to change. An Irish minister summarized it this way: "ambition is an asset."

For instance, Estonia put into its constitution that people were entitled to digital access. When the Finnish economy was collapsing in the early 1990s, instead of undertaking an austerity program, the Finns tripled the budget for research and development and contributed to the take-off of a huge Nokia-centered cluster. The Irish lowered the tax rate for corporations to 10 percent. Chile studied several forms of fish farming and then enabled farmers all over Chile to go into salmon farming from scratch; today Chile is the second largest exporter in the world in salmon. Dubai considered what it would take to attract creative industries and sophisticated services, and went for it with determination.

In short, there was boldness and speed, as well as nationwide mobilization. These governments communicated their goals of becoming knowledge economies very well. They roped in many stakeholders, and they ran public awareness campaigns. In this way, they applied principles of change management, normally associated with private enterprises, to nations.

Jean-François Rischard served as the World Bank Vice President for Europe from 1998 to 2005, and for private and financial sector development in developing countries in 1994-1998. Mr. Rischard has doctoral degrees in law and economics. He also earned an MBA degree at the Harvard School of Business.

Audrey Liounis has written for publications such as Emerging Markets and Fortune Magazine. She worked at the United Nations before joining the World Bank in 1999.

Reference

Rischard, Jean-François, *High Noon*. Basic Books, 2003.

Why Science Is Important for Innovation

BY GORDON CONWAY AND JEFF WAAGE, WITH SARA DELANEY

WHY IS SCIENCE IMPORTANT? Science underpins improvements in human welfare, through technologies which it develops for health, food production, engineering and communication. Science is also important in solving problems created by human activity, such as environmental degradation and climate change. Science allows us to move forward through incremental improvements in technology, adapted for particular needs and situations. But it also sometimes allows us to leap forward, through fundamental scientific discoveries that entirely change our sets of tools for human improvement and create new platforms for technology, such as the genetic revolution and the consequent development of biotechnologies for improving health and agriculture.

How does scientific innovation work?

SCIENTIFIC INNOVATION involves the successful exploitation of new ideas to generate new techniques, products and processes. Traditionally, scientific innovation has been viewed as a process starting with curiosity-driven, basic research which generates new understanding. This then leads to translational research, which relates this fundamental understanding to systems we want to improve, and then to applied research, which produces the products which we can use. Private enterprise plays a key role in successful innovation —without business investment and marketing, inventions such as penicillin, computers and mobile phones would not exist today.

WHAT DO WE MEAN BY SCIENCE, TECHNOLOGY AND INNOVATION?

SCIENCE is the process of generating knowledge based on evidence.[1] While it implicitly includes both natural sciences (biology, chemistry, physics, mathematics and related disciplines) and social sciences (economics, sociology, anthropology, politics, law), our focus will be largely on natural science disciplines.

TECHNOLOGY is the application of scientific knowledge, and frequently involves invention; i.e., the creation of a novel object, process or technique.

INNOVATION is the process by which inventions are produced, which may involve the bringing together of new ideas and technology, or finding novel applications of existing technologies. Generally, innovation means developing new ways of doing things in a place where they have not been used before. Modern innovation is usually stimulated by *innovation systems and pathways.*

THE PHRASE "SCIENCE AND INNOVATION" in our book implicitly includes science, engineering, technology, and the production systems which deliver them.

People who live in developed countries sometimes forget how scientific innovations have transformed their lives. They live much longer than their predecessors, they have access to a dependable supply and a great variety of foods and other goods, they can travel easily and quickly around the world and they have a myriad of electronic gadgets designed for work and pleasure. Much of this success is due to sound economic policies and to forms of governance that promote equality, justice and freedom of choice, but much is also due to advances in scientific innovation.

INVENTORS PAST AND PRESENT

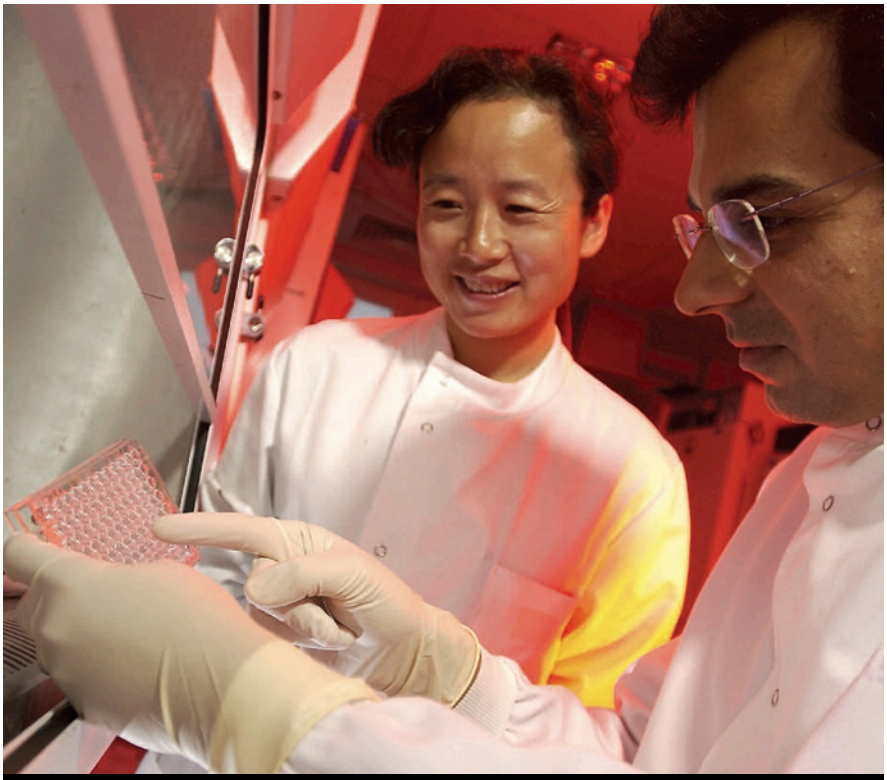
The 20th century witnessed dramatic medical inventions—a vaccine against yellow fever, Fleming's discovery of penicillin, Salk's development of the oral polio vaccine, Barnard's first heart transplant. These and other discoveries have had widespread benefits unimaginable a century before and the pace of discovery shows no signs of abating. In 2005, the average UK life expectancy for men was 78 years, compared to 66 in 1950 and 48 in 1900.[2] The next wave of discoveries is likely to be treatments and cures for cancers and for the diseases of ageing, such as Alzheimer's.

But today it is inventions in electronics and communications that catch the imagination—Jobs' and Wozniak's development of the Apple computer, Berners-Lee's invention of the World Wide Web and its exploitation by Page and Brin in the form of Google, and by Omidyar's eBay.

Arguably the biggest recent impact has come from the mobile phone, but here it is difficult to identify a single inventor. The nature of invention has significantly changed: modern inventions are largely the result of team work.

Alexander Fleming in his laboratory in 1909 at St Mary's Hospital, London.

FIGURE 1: A LINEAR PROCESS OF SCIENTIFIC INNOVATION



Scientists from around the world collaborate to access best expertise.

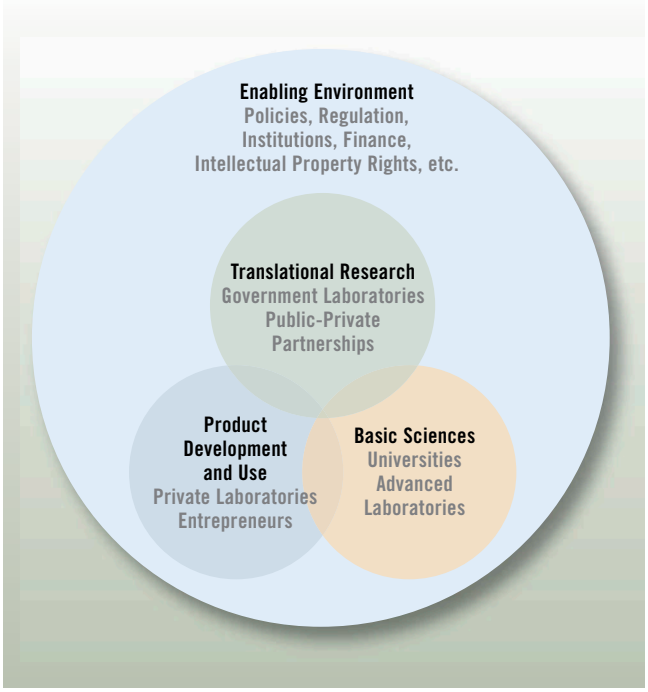
As an example of innovation, consider how new knowledge of the genetics of disease resistance, gained from basic research on a laboratory animal, may lead to translational research on livestock to determine whether similar genes exist that convey useful resistance. If this research is successful, industry may use it to develop products, in this case using livestock breeding methods to incorporate genes conferring resistance into specific commercial breeds for sale to farmers (see Figure 1).

However, today we recognize that scientific innovation is not always a linear process, and that it often involves interplay back-and-forth between basic, translational and applied research stages. It is possible, for example, for applied research to identify a need for more basic research in a new area. Going back to the example above, if new breeds exhibit only patchy resistance to the disease in question, farmers may choose not to buy the product. This may stimulate applied research into the causes of breakdown of resistance, which in turn may stimulate more basic research into resistance mechanisms, so as to generate new solutions.

This research interaction involves a diverse system of players and institutions that influence its progress and success. Together, these are often called a science innovation system. The players may come from companies, universities, government and civil society. Scientists play a key role, of course, but so do other stakeholders, such as policy makers, banks and investors. Involving policy makers allows for a conducive policy and regulatory environment for the development and use of new technologies, while banks and investors provide security and capital for product development (see Figure 2).

A striking feature of science innovation systems today is that they are becoming increasingly international, with groups from different countries bringing specific expertise to the innovation process. Science no longer functions in isolation at a national level as it did with the large-scale emergence of nationally funded science during the 20th century, when it was seen as a way of

FIGURE 2: A SCIENCE INNOVATION SYSTEM



ensuring national security and productivity. Scientists from around the world now collaborate with each other for a variety of reasons, but particularly to access the best expertise, resources and partnerships, and funding and institutions have adapted accordingly.[3] Importantly, certain scientists, institutes and countries participate much more actively in the system than others, thus influencing the direction and benefits of research and outputs.

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This is an excerpt from the new book, *Science and Innovation for Development*, by Gordon Conway and Jeff Waage. UK Collaborative on Development Sciences (UKCDS), London, 2010.

Notes

1 Vermeulen, S. & Bass, S., (2005) *Science and Development.* [Internal Scoping Paper]. IIED, London.

2 Office of Health Economics. (2007) *Life Expectancy in England and Wales.* Available at: www.ohe.org/page/knowledge/schools/appendix/life_expectancy.cfm [Accessed 08 Oct 2009].

3 Wagner, C., (2008) *The New Invisible College*, Science for Development. Brookings Institution Press, Washington DC.

continued from page 9

Within broader development strategies

A KEY SUCCESS FACTOR is to integrate a vision for innovation in long-term development strategies. For example China decided to become "the world's factory." Malaysia aimed at becoming an "information society world leader." This vision allows a country to define priorities and implement them across ministries and throughout its territory with properly aligned policies and investments.

This requires an explicit "government-wide approach." Malaysia has such a mechanism for its ICT policy with a powerful monitoring body attached to the Prime Minister. Tunisia is another role model in the Arab World, using a wide consultation process to develop its Five-Year plan in which becoming an innovation and knowledge society is a major goal. In the developed world, Finland was a model pioneer, with its very influential Science & Technology Policy Council, chaired by the prime minister, and involving all the key ministers, including finance, as well as representatives from the business and labor communities.

Although a number of developing (and developed) countries have tried these kinds of coordinating bodies, in most cases they failed because they did not have sufficient authority. So they became, at best, a locus for reaching soft consensus and for information sharing. Making such bodies work takes strong political leadership, collective will, and clear commitments.

In sum, innovation policy can be a key component of 21st century development strategies, even in poor countries with constraining economic environments. But to succeed, innovators must be supported by high-level central and local government policy makers who have the vision, pragmatism, and the ability to work creatively in institutional contexts.

Jean-Eric Aubert, retired Lead Specialist in WBI (Paris Office), Knowledge for Development Program. Prior to joining the World Bank in 2000, Mr. Aubert worked at the Organization for Economic Cooperation and Development (OECD), leading notably S&T country reviews and flagship publications. He has also acted as consultant for international organizations including the European Commission and UN bodies. He has been responsible as author and editor of more than 30 books and published a number of articles in science, technology policy, social sciences and cultural issues.

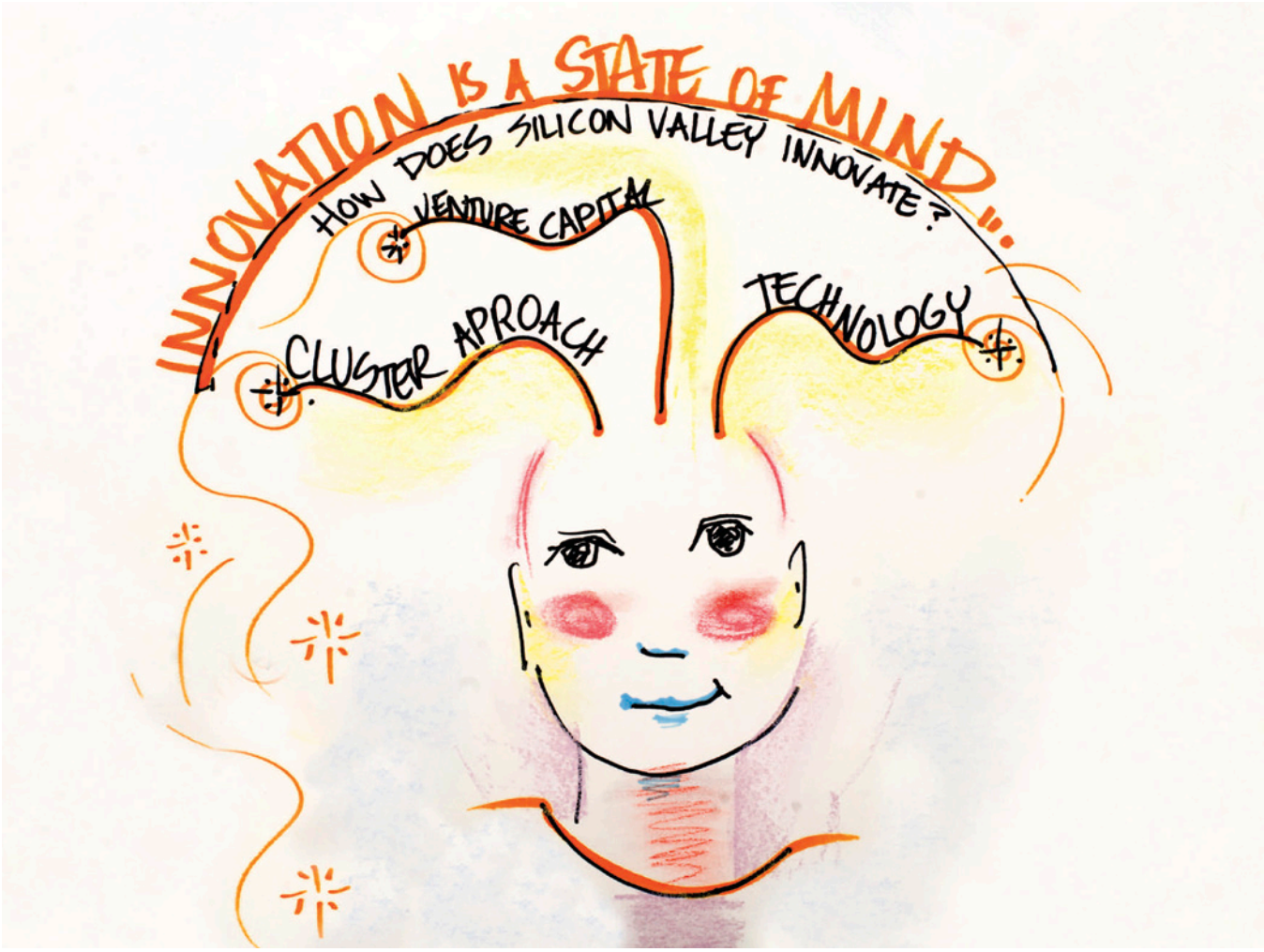
Note

1 These lessons are based on *Innovation Policy: A Guide for Developing Countries,* Washington, D.C.: World Bank, 2010.

Social Entrepreneurship as a Bottom-Up Model of Socio-Economic Development

BY JAMES L. KOCH

IN MOST PARTS OF THE WORLD, if conventional hierarchic organizations and risk-averse bureaucracies fail, they lose their reputation. By contrast, *fail often and fail fast* is part of the innovation ethos in Silicon Valley where failure is associated with learning. Rapid prototyping involves learning through iterative stages of disciplined failure—each characterized by an effort to surface design errors. In this context, engineering design reviews draw on peers with knowledge from across specialized and interdependent organizations within industry clusters to critically examine alternative solutions. Beta tests are used to shorten feedback loops, expose faulty assumptions, and refine design requirements. Similarly, ongoing feedback from early adopters is used to specify the requirements for new product releases, and market segmentation drives subsequent customization to expand market reach. And, since winning in the marketplace entails collective agency, rewards for individuals are tied to the value they contribute to team efforts. Individuals may win trophies,



but in the innovation game teams win championships. What if development worked this way? What if an entrepreneurial ethos and collective agency drove innovation in development?

The growing field of social entrepreneurship represents a bottom-up model of socio-economic development. This model can foster rapid prototyping, tap into tacit knowledge, and enable customization for diverse user requirements. The Center for Science, Technology, and Society at Santa Clara University has developed a learning laboratory, the Global Social Benefit Incubator, which mirrors the innovation ethos of Silicon Valley. Through both mentor-supported distance learning and an intensive two-week in-residence boot camp, this program enables social entrepreneurs from developing countries to accelerate learning by doing as well as from planning and execution (see www.scu.edu/sts/gsbi). Work in the Santa Clara University's GSBI suggests the need to address seven considerations in analyzing whether this kind of social enterprise approach fits a particular organization and offers a promising bottom-up model of socio-economic development.

Analyzing social ventures

Does the venture specify the problems or challenges to be addressed in a particular sector?

Three sector categories are relevant to the alleviation of poverty: those pertaining to the failure of government to provide access to public goods; those pertaining to market failure and the need for innovative market-based solutions to access affordable products or services; and, those pertaining to jobs and inclusive market opportunities (e.g., economic empowerment of the poor as producers through market linkages). The GSBI sector strategy has four key elements—the nature of challenges by geography, technology alternatives, needed business model innovations, and enabling or constraining public policy considerations. Within this framework, the 2008 "water sector" strategy identified alternative social venture models for addressing the specific challenges of access to clean water in thousands of villages across India. In this instance, Naandi Foundation leveraged advanced Reverse Osmosis (RO) membrane technologies that were experiencing cost reductions as a result of expiring patents in combination with an innovative subscription-based business model to provide a scalable solution. In addition, its tripartite approach combined the strengths of an entrepreneurial business with strong industry partners and local governance to provide the basis for ongoing political support and ensure local maintenance.[1]

What is the essence of the solution and business model innovation?

This entails an assessment at three levels: Is there a unique value proposition? Does the solution provide greater value than substitutes or competitive alternatives? Does it deliver on its promise by providing greater economic value to specific target markets of the poor?

What are the investment requirements and probable sources of capital?

Social enterprises can tap multiple sources of capital—grants, the Program Related Investment (PRI), investments of foundations, government or public-private partnership financing, and debt or equity capital tied to various Internal Rate of Return (IRR) requirements depending on the source of capital. In addition, social businesses must demonstrate market acceptance by generating a portion of revenues from recurring or earned income.

Is there proof of concept and evidence of the ability to attract critical resources?

Venture capitalists seek to mitigate risk in three categories, so should governments and development funders: Does the technology or solution work? Is there evidence of market adoption and benefit? Is the leader able to attract key resources, especially a strong team?

Is there a plausible theory of change?

A theory of change comprises inputs, activities, outputs, and outcomes. Activities can be thought of as hypotheses about points of leverage for achieving desired behavioral changes or improvements in living conditions and life choices for the poor. Are these clearly specified and plausible?

Holistic sustainability: Does the social enterprise provide a solution with sustainability at four levels—social benefit at the local level; financial sustainability; conservation of the global eco-system; empowerment of the human spirit?

Social benefit can be measured in various ways. Cost per outcome, for example, considers the efficiency with which desired outcomes are achieved and might be compared with the Best Available Charitable Option (BACO) or comparable government costs. *Financial sustainability* has to do with whether a "financial engine" exists. For example, are there sources of recurring revenue, adequate reserves, and positive cash flows? *Eco-system sustainability* considers screening for preservation of the natural environment. Empowerment is reflected in evidence of whether leaders are using the organization's vision as an engagement tool. Examples of this might be reflected in increasing organizational capacity, partner or institutional support, volunteers, and community participation in governance.

Given the social venture's value proposition, what is the total addressable market?

This consideration addresses the total size of the market and how much of this market might be served by a particular social enterprise. It also addresses whether business plans exist to realize growth opportunities. Alternatively, does the possibility of "demonstration effects" exist where a successful model can lead to replication by others?

Conclusion

SOCIAL ENTREPRENEURSHIP can be viewed as a bottom-up model of socio-economic development that seeks to overcome government and market failures. This model of economic development has the potential to draw on important

VisionSpring provides eye care and free glasses to people with little access to vision care. VisionSpring is an alumn of the 2003 Development Marketplace and the 2006 Global Social Benefit Incubator.

elements of a Silicon Valley approach to innovation. Through entrepreneurial business planning knowledge and skill building as well as access to Silicon Valley mentors, the Global Social Benefit Incubator has made key elements of the Silicon Valley model accessible to Development Marketplace winners like Digital Design Data in Cambodia and PumpAid in Africa and many others around the world. Based on its work with more than 100 such organizations, the GSBI evidence in support of this bottom-up model is strong. This article suggests seven analytic questions that need to be addressed is assessing whether a given organization is a good fit for a social enterprise approach to achieving sustainability at scale and addressing the urgent challenges of poverty.

James L. Koch is the Executive Director of the Global Social Benefit Incubator (GSBI), the Bill and Jan Terry Professor of Management Leavey School of Business, and founding director of Santa Clara University's Center for Science, Technology, and Society. His research and consulting focus on socio-technical systems and high performance organizations. His current work examines social capital, and the role of technology in improving quality of life at the base of the pyramid.

Note

1 http://www.mitpressjournals.org/doi/abs/10.1162/itgg.2009.4.3.107

Development Marketplace

A Silicon Valley for development

BY MARI KURAISHI

IN 1999, AS NEWS OF PROTESTERS BEING SUBDUED with pepper spray in Seattle at the WTO Ministerial Conference came drifting in, we sat explaining our plans for the World Bank's first Development Marketplace to a senior member of the International Finance Corporation's innovation team. He agreed that innovation was important, and that the Bank Group had not paid enough attention to this in the past—he was on board. He then turned around to us with an indulgent smile: "How many proposals do you think you'll get?"

He had gotten us there. We figured that if we could get 400 we could make a credible showing on par with the internally-focused Innovation Marketplace that we had also hosted in the face of skepticism in 1998.

"Ha," he said, "I'll bet you a car—a nice car, say a BMW—that you won't get more than 200. You're crazy. There's no way there are 400 grassroots groups out there who will respond to a call for innovation ideas and be able to compete the way Bank staff responded to your call for innovation two years ago. I mean, even if they exist, how will they find out about it in time to submit proposals and come to Washington, DC in five months?"

Winners of the 2009 Development Marketplace competition on Climate Adaptation.

I laughed off the bet—we had enough battles to fight without taking on someone who was basically sympathetic to our cause but disagreed on how to get there. There were other people within the institution who were deeply concerned about what we were doing. Some of their concerns:

- *Did it have to be so public?* In 1998, we had broken new ground inside the World Bank by saying any staff member could propose an idea for possible funding. Now the Development Marketplace was being opened up to the whole world. *Where did innovation come from anyway?* A majority of the people we talked to believed that it would be easier for the Bank to bring together a highly-qualified smart group of people (no doubt including many from its own ranks) to tell us what the smartest innovations in the field of international development could be.
- *Should the World Bank's mandate really include innovation?* Others still weren't convinced that innovation was strictly necessary or in the Bank's remit. In their view, the Bank was in the business of supporting reconstruction and development by member governments, and the business was generating enough revenue to cover the institution's costs.

Ten years later, those concerns seem almost quaint.

OPENNESS: Technology has not only transformed the way we do business, but the way people relate to each other. Because technology has driven down the cost of disclosure so dramatically, our cultural norms around disclosure have shifted as well—which in turn has led to greater transparency. Ten years ago, it was an important cultural statement for the World Bank to be willing to host an innovation competition in a public space. Today, it would seem odd to suggest that it be held behind closed doors.

SOURCES OF INNOVATION—Some innovations undoubtedly result from solitary invention, and others may come from smart experts being brought together. But as Mark Granovetter points out:

"…[N]ot all innovations arise from the social inner circle. Indeed, the socially marginal may at times be best placed to break away from established practice…as they are not involved in dense, cohesive social networks of strong ties which create a high level of consensus on standard practice. Thus, studies indicate that the lower an innovation's champion in a corporate hierarchy, the more radical the innovation (Day 1994)." [1]

The first Development Marketplace brought some unlikely people together—from grassroots community leaders in Uganda to scientists from NASA and Supreme Court justices from Central America. Some in fact fit the bill as coming from a lower point in the development expertise hierarchy. The diversity of the participants, in combination with the culture of openness embraced by the Development Marketplace—led to the Development Marketplace of 2000 mimicking what technology does so seamlessly and continuously today. Just think where we would be if Silicon Valley had turned away Pierre Omidyar, Mark Zuckerberg, or Sergey Brin as being too young to know anything worthwhile—no eBay, no Facebook, no Google.

As of 2010, the average Facebook user has 130 friends, and there are 400 million users of Facebook. 70 percent of those users are outside of the U.S.[2] It took Facebook 9 months to reach its first 100 million users (by contrast, TV took 13 years to reach 50 million users).[3] And the digital divide, while still a reality, has been narrowed dramatically in the same period—the computer in our cell phones today is a million times cheaper, a thousand times more powerful, and about a hundred thousandth of the size of the one computer at MIT in 1965.[4] And that mobile device by 2020 is predicted to be the world's primary connection to the web.[5]

This technology-enabled exponential growth of connections makes it possible for ideas to emerge and be transmitted, tested, implemented and improved upon at a much higher pace than ever before. The credo of the Development Marketplace team ten years ago was Darwin, rather than Intelligent Design. In other words, innovations are akin to genetic mutations that have to be tested against an environment, if we want more successful innovations, we have to widen the top of the funnel and increase the number of trials and experiments. A necessary, if not sufficient condition for widening that funnel is an increase in the number of connections, and the velocity of the flow of ideas and experience.

ROLE OF THE WORLD BANK IN INNOVATION—In 2000, even though there was not consensus inside the World Bank that innovation should be part of its mandate, there was emerging consensus outside that something fundamental in the approach to development had to change: "50 years is enough." Ten years later, I believe the consensus that innovation is a part of the Bank's mandate is clearer. For one thing, the Bank's role in leading by example—particularly when it comes to encouraging clients to create institutions and rules that favor innovation—is difficult to quantify, but palpable.

It can also be argued that even if the Bank cannot make innovation a core mandate—it is after all, the banker to the poor rather than the venture capitalist to the poor—it can play an effective role in dissemi-

DM 2003 Fynbos Conservation promotes sustainable livelihood and good conservation practice by supporting the wild cut flower industry in South Africa.

Development Marketplace 2009.

nation and adoption of innovations that have a huge impact on human welfare. As Charles Kenny has pointed out, "The proportion of the world's infants vaccinated against diphtheria, pertussis and tetanus –the DPT shot—climbed from one fifth to nearly four fifths between 1970 and 2006." He also points out that the 'informed consumer' has made dramatic shifts possible, i.e., "The increasing demand for education in particular is an important part of the story behind climbing primary enrollments—less than half of primary-age kids worldwide were enrolled in school in 1950, by the end of the century the figure was closer to nine out of ten." While these improvements may not have led to growth in all affected countries, the welfare gains are undeniable.

So looking forward another decade, what might be the next set of challenges?

GO BEYOND COMPETITIONS—Even though the idea of holding competitions to trigger policy reform has become sufficiently common that books have been written about it, arguably the holy grail of innovation is to move beyond tournaments and competitions.[6] Silicon Valley, after all, doesn't have to hold business plan competitions to have a seamless continuous flow of ideas, pilots, trials—it's grounded in a rich, nurturing environment that attracts some of the best minds and most entrepreneurial spirits in the country. It has been argued by some that Stanford University, or Hewlett-Packard, or Xerox PARC anchored the growth of Silicon Valley. Can the Bank become an analogous anchor to an ecosystem that supports innovation in development? It already played that role when we were inspired to leave the World Bank to found GlobalGiving—our idea was to create a missing key link of that ecosystem.

BREAK THE TYRANNY OF STANDARD PRACTICE—In some sense this should be easy. The World Bank, after all, deals with a very diverse client base. But on the other hand the Bank—as the lender of last resort can insist on its own terms, its own standard practice. Even though the cost efficiencies might point in a different direction, some sort of design thinking methodology, such as that practiced by IDEO might be useful as a re-set exercise.[7]

TAKE THE ANALYTICAL LEAD—The World Bank might be one of the few institutions that, in partnership with some other academic institutions, can provide analytical insight into the value of innovation for the field of international development. Ten years ago, we felt pushed into opening the Bank up to innovation—at some level it was a no brainer. But ten years in, the international community is probably ready to sink its teeth into a thoughtful dialogue about the sources of innovation, the conditions that support innovation, and how to effectively monitor and leverage it for the greatest good.

And yes, we should have taken that bet. We ended up getting 1138 proposals from over 100 countries. An Alfa Romeo Spider would have been nice.

Mari Kuraishi, Founder and President, GlobalGiving Foundation. Before GlobalGiving, she worked at the World Bank where she managed and created some of the Bank's most innovative projects including the first ever Innovation and Development Marketplaces, and the first series of strategic forums with the World Bank's president and senior management. Mari also designed a range of investment projects in the Russia reform program, including a residential energy efficiency project, structural adjustment loans, and legal reform project.

Notes

1 Mark Granovetter, "The Impact of Social Structure on Economic Outcomes," Winter 2004, *Journal of Economic Perspectives* (Vol 19 Number 1, pp. 33-50)

2 http://www.facebook.com/press/info.php?statistics

3 Don Tapscott, "Grown up Digital," 2009 McGraw-Hill, p.30

4 http://news.cnet.com/8301-11386_3-10102273-76.html

5 http://www.pewinternet.org/Reports/2008/The-Future-of-the-Internet-III.aspx

6 Tournament Approaches to Policy Reform, Clifford F. Zinnes, Brookings Institution Press, 2009.

7 Jane Fulton Suri, "Informing our Intuition," *Rotman Magazine*, Winter 2008.

Mobile Technology

One core lesson, many possible solutions

BY IQBAL Z. QUADIR

OVER HALF OF PEOPLE IN POOR COUNTRIES, including a quarter of those over the age of 14 in Afghanistan, use mobile phones. Given the ever-increasing proliferation of mobile technology and the range of opportunities that it is unleashing for the world's poor, how will it engage even more people in commerce, allowing them to solve their own problems? In what ways will it continue to be a democratizing force? What new possibilities will it create? And, perhaps most importantly, how can we apply a core lesson from mobile technology to think differently about empowering the poor?

Dramatically decreasing costs

SINCE PEOPLE IN RICH COUNTRIES—where the digital revolution began—wanted to increase their own mobility and productivity, many of the fruits of this revolution were packaged into mobile devices and related services. Many innovations in hardware, software, wireless transmission, display, and Internet protocol, were possible because the cost of computing power had been decreasing exponentially for several decades, a phenomenon that will likely continue in the foreseeable future.

This decrease in cost has been so dramatic that even people in poor countries today are holding in their hands computers that are effectively thousands of times more powerful than the computers that guided the Apollo lunar mission in 1969. Moreover, the brushfire of innovations that has been engulfing desktops and laptops in rich countries for the past two decades continues to spread to mobile phones everywhere, including in poor countries.

One core lesson

THE CORE LESSON from the proliferation of mobile phones in poor countries is not about technology. It is about economics. When people use mobile phones to connect with each

other, they make better use of their time, miss fewer opportunities, and achieve and earn more. As a result, ordinary people have more money to spend on the very services that make them more efficient and productive in the first place. By purchasing mobile services, paying customers generate revenue for mobile companies who, in turn, invest profits to build infrastructure worth billions of dollars.

In stark contrast, aid to governments for building infrastructure to meet basic human needs has often failed. On the surface, this seems particularly surprising because, in such countries, private commercial ventures are providing mobile services—not considered a basic human need—which ordinary people, including the poor, are happily embracing as paying customers. People's own desire to increase their productivity has been so overwhelming that in places where there are still inadequate roads, poor schools, ill-equipped hospitals, unreliable electricity, and little potable water, mobile phones and supporting infrastructure have proliferated to a massive extent.

Most importantly, when productivity tools—the mobile phone being an illustrative example of one—create commercial opportunities that advance ordinary people's lives, those same people become an enormous resource for their countries. Therefore, we should not take a top-down view of the two billion people living on less than $2 per day and be daunted by the scale of the "problem," but instead should appreciate the bottom-up potential of two billion producers and problem solvers.

Just how big is this potential? Mobile phones provide an indication. There are many studies confirming that economic growth accelerates as mobile phone penetration rates increase. With penetration rates reaching 30 or 40 percent in some of the poorest countries, it follows that, even conservatively speaking, these countries have experienced an additional percentage point of annual economic growth due to mobile phones. But, considering that economic growth has accumulated each year over the past decade, 10 percent of these countries' present-day GDP is easily attributable to mobiles.

Because this increased income is disbursed among the mobile users throughout the economy, it is less vulnerable to abuse than aid that is concentrated in government coffers. And what is more, the resulting purchasing power creates opportunities for entrepreneurs to deliver still other productivity tools to paying customers, further spreading economic benefits. The increased economic clout of ordinary citizens—indeed a dispersion of economic power—strengthens democracy and allows people to demand greater accountability.

Many possible solutions

WITHIN THE FRAMEWORK OF MOBILE TECHNOLOGY, as the core lesson implies, the most successful innovations will be those that increase productivity and improve the lives of ordinary people. Since mobile phones are essentially hand-held computers, their versatility in tackling a variety of tasks is approaching that of traditional computers. With such powerful computers already in the hands of millions, entrepreneurs will continue to capitalize on their versatility, building new businesses on existing and evolving technology.

For example, Kenya's M-Pesa is facilitating mobile banking transactions; Bangladesh's CellBazaar is connecting buyers to sellers in a sort of mobile Craigs List; and, in Haiti, Ushahidi is using crowd-sourcing to aggregate information for crisis response. A number of telemedicine initiatives across the developing world are bringing better healthcare to underserved areas and, mPedigree is using cell phones to tackle fake drugs in Africa. The advent of broadband access in poor countries—making voice communication through

BEHIND THE SCENES

THE WORLD BANK IN INFORMATION AND COMMUNICATION TECHNOLOGIES

BROADENING AND DEEPENING SECTOR AND INSTITUTIONAL REFORM

Over the past decade, the World Bank Group (WBG) has supported the information and communication technology (ICT) reform agenda in more than 85 countries with a strong focus on 65 low-income countries. The support has played a significant role in helping to liberalize telecommunications markets, privatize incumbent operators, revamp regulatory frameworks, and build capacity. infoDev has supported efforts to strengthen the capacity of ICT regulators. Its ICT Regulatory Handbook is among the most popular reference documents used by regulators and its online toolkit version is now recording over 550 visits per day. Countries which have implemented deep sector reforms supported by WBG have attracted over US$100 billion in investment between 1997 and 2008. The annual revenue generated by the ICT sector in low-income countries which have liberalized is equivalent to around 4 percent of their GDP. When indirect benefits are accounted for, the contribution of ICT sector to GDP growth has exceeded 10 percent in ratio in some countries. The World Bank has also helped to broaden the reform agenda beyond the telecommunications sector to the entire ICT sector, including that of e-government applications, and has continued its limited support to postal sector reform in 15 low-income countries, as part of its earlier policy work in helping operators separate their state-owned postal activities from telecommunications activities.

Internet protocol possible without depending on the mobile network—will no doubt give rise to another wave of mobile innovations and entrepreneurial ventures.

Broader implications

THE POSITIVE ECONOMIC IMPACT of mobile phones is so profound that it elucidates the general power of productivity tools in creating individual and collective prosperity from the bottom up. Although this point is perhaps less dramatic when applied to innovations beyond mobile phones, it still holds true: When technology allows ordinary people to become more productive, it gains economic traction, proliferates widely, and yields a host of benefits in the process, setting off a virtuous cycle.

The potential of this virtuous cycle has often been obscured by the vicious cycle of poverty and traditional thinking around it. Widespread poverty has been used to justify aid to central governments, which has often given rise to centralization of power, statism, corruption, and stagnation. However, mobile phones, resulting in immediate economic value for people, are breaking this vicious cycle. They are demonstrating that a more virtuous one, based on boosting people's productivity, is possible.

There are no doubt myriad affordable innovations for agriculture, energy, or sanitation that ordinary people could use to increase their productivity and incomes while tackling challenges. Engineers, scientists, financiers, entrepreneurs and others can design and deliver the means for increased productivity that will jump start this virtuous cycle. When we recognize this, we see that the mobile phone yet again delivers more than originally intended. Indeed, it can mobilize our thinking in the right direction.

Professor Iqbal Z. Quadir is the founder and director of the Legatum Center for Development and Entrepreneurship at MIT and founder of Grameenphone in Bangladesh. For nearly twenty years, he has been advocating for the use of mobile phones to empower ordinary people in low-income countries and for commerce-based solutions for people's advancement.

BEHIND THE SCENES

THE WORLD BANK IN INFORMATION AND COMMUNICATION TECHNOLOGIES

INCREASING ACCESS TO INFORMATION INFRASTRUCTURE

In order to increase access to ICT for low-income people, the WBG has supported innovative financing mechanisms in form of public-private partnership (PPPs), which have included output-based aid (OBA) in Nepal, Nicaragua, Nigeria and Uganda to provide access to over 7.8 million people in rural remote localities. Since 2005, PPPs supporting regional connectivity have been recognized as a powerful vehicle to bring down the cost of international bandwidth and improve affordability of high-speed Internet. Examples of such PPPs are the on-going IFC-supported Eastern Africa Submarine System (EASSy) and the Bank's Regional Communications Infrastructure Program (RCIP) in East and Southern Africa. Together, EASSy and RCIP have triggered a race for connectivity in Eastern and Southern Africa with prices set to decrease five-fold or more. The approach is being replicated and adapted in Central and Western Africa, Western Africa, the Caribbean and the Pacific. Over the past ten years, IFC has also invested US$3.3 billion, which are committed in form of senior loans, equities, guarantees, and risk management products. Of the amount, US$1.8 billion are committed in 32 low-income countries (the equivalent of 84 ICT projects that are mainly geared towards extending mobile and data networks). For the same period, IFC helped mobilize over US$1.1 billion for the account of syndicated banks in the form of B loans and guarantees, out of which US$460 million have been committed in low-income countries. Additionally, IFC has been expanding access to ICT by developing and replicating Advisory Services programs, such as Village Phone, which are now being rolled out in multiple countries. In 30 of the 32 low-income countries where IFC has engaged, the Bank had been active in ICT policy and sector reform. Similarly, over the past ten years, MIGA has issued 38 guarantee contracts for 21 ICT projects (including 12 in Africa) and close to US$1.3 billion, focusing mainly on connectivity. In relative terms, the ICT portfolio accounted for 6 to 10 percent of MIGA gross exposure and contributed to support about US$6 billion of foreign direct investments over the period.

Leadership and Innovation

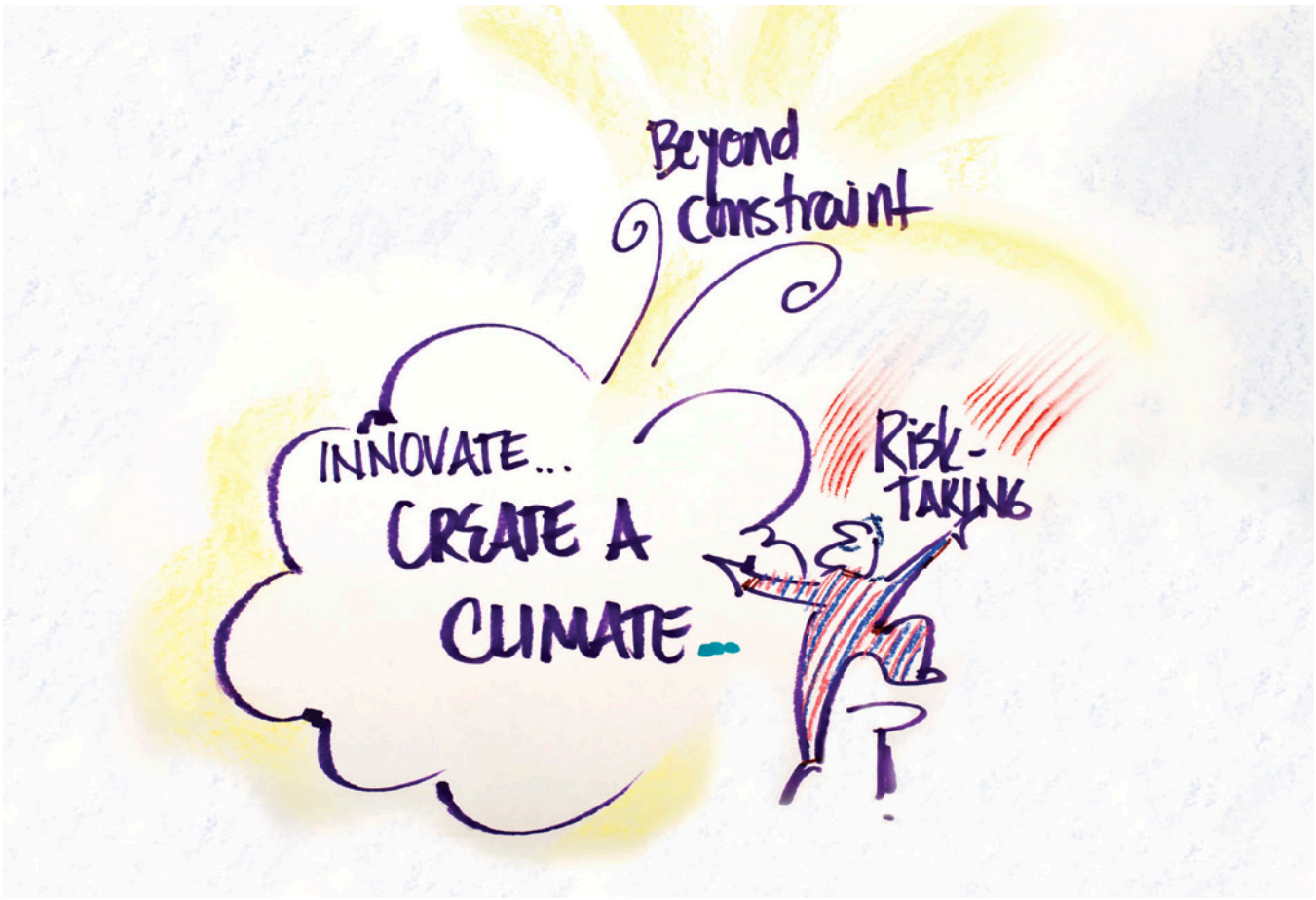
BY MARLA M. CAPOZZI

Leaders say that people and culture are the most important drivers of innovation. This article shows how leaders can create conditions for greater innovation, within and beyond their organizations, to increase development impact.

LIKE SHORT SKIRTS, innovation has traditionally swung into and out of fashion. Today, however, an organization's ability to innovate—to tap the fresh value-creating ideas of its employees and those of its partners, customers, and other parties beyond its own boundaries—is anything but faddish. In fact, innovation has become one of the most important drivers of growth and performance for not just the private sector but for the public and social sectors as well.

Development organization leaders can draw upon the experiences of their private sector peers on successful practices that capture the full potential of innovation as well as how to battle common tensions and challenges, which aren't all that unique to the private sector. Leading strategic thinkers across sectors are moving beyond a narrow definition of innovation to pioneer innovations in not just products but also services, consumer experiences, operational processes, distribution, value chains, policies, business models, and even the functions of management and how people work.

Mohammed Yunus, founder of Grameen Bank and winner of the Nobel Peace Prize, is quoted as saying: "All people are entrepreneurs. Each of us has much more hidden inside us than we have had a chance to explore. Unless we create an environment that enables us to discover the limits of our potential, we will never know what we have inside of us." This is the role of leadership—not to be the innovator—but to create the conditions for innovation. Very rarely is the leader also the innovator as is the case with Mr. Yunus and high-profile exec-



utives such as Steve Jobs from Apple. To create the conditions and then subsequently sustain innovation to create real development impact at scale is even harder.

Senior leaders almost unanimously—94 percent—say that people and corporate culture are the most important drivers of innovation.[1] Our experience convinces us that a disciplined focus on three people-management fundamentals may produce the building blocks of an innovative organization.

A first step is to define innovation and make it part of the strategic agenda. In this way, innovation can be not only encouraged but also managed, tracked, and measured as a core element in an organization's aspirations. Second, executives can make better use of existing (and often untapped) talent for innovation, without implementing disruptive change programs, by creating the conditions that allow dynamic innovation networks across organizational silos, functions and ages to emerge and flourish—within and beyond the organization. We believe that all organizations have pockets of innovation that if tapped can unleash impact. Finally, taking explicit steps to foster an innovation culture based on trust among employees. In such a culture, people understand that their ideas are valued, trust that it is safe to express those ideas, and oversee risk collectively, together with their managers. Such an environment can be more effective than monetary incentives in sustaining innovation.

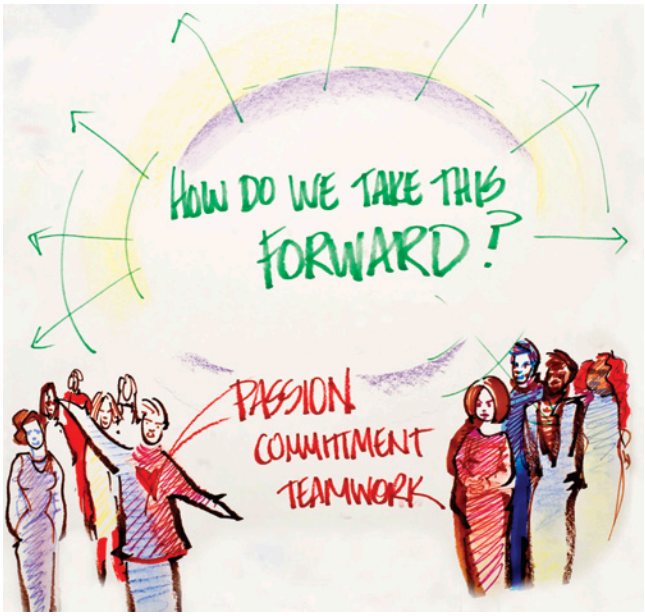
This list of steps is not exhaustive. Still, given the limited time and means of development organizations pursuing innovation with anything other than existing talent and resources often isn't an option. These three fundamentals are a practical starting point to improve an organization's chances of stimulating and sustaining innovation where it matters most—among an organization's people.

Leading innovation

WHILE SENIOR LEADERS cite innovation as important , few explicitly lead and manage it. Those that do (27 percent), see results for doing so. These leaders feel more confident about their decisions and say that they have implemented ways to protect innovation and align the right talent.

In a survey of 600 global business managers, and professionals, the respondents pointed to leadership as the best predictor of innovation performance.[2] As with any top-down initiative, the way leaders behave sends strong signals to employees. Indeed, senior executives believe that paying lip service to innovation but doing nothing about it is the most common way they inhibit it. The failure of executives to model innovation—encouraging behavior, such as risk taking and openness to new ideas, places second. Rewarding nothing but short-term performance and maintaining a fear of failure also make it to the top of the respondents' list of inhibitors.

Holding leaders accountable for encouraging innovation makes a big difference. Thirty percent of the senior executives in the survey were accountable for it, through formal targets or metrics, in their performance reviews. They were more likely than the broader group of respondents to view innovation as one of the primary growth drivers, to manage it formally as part of the leadership team or through an innovation council, and to learn from their failures to achieve it.



Leaders in development organizations can also take a number of other practical steps to advance innovation.

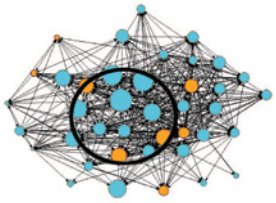
- Define the areas of innovation focus or platforms (e.g., climate change) that support strategic objectives as well as the type of innovation, new development or scaling existing initiatives. By doing so, employees understand the type of innovation needed. In the absence of such direction, employees will come back with incremental and often familiar ideas.
- Add innovation to the formal agenda at leadership meetings. We observe this approach among leading innovators. While sending an important signal to employees about the value management attaches to innovation, it also builds familiarity and over the long term reduces risk.
- Set performance metrics and targets for innovation. Leaders should think about what metrics, for example, would have the greatest effect on how people work. Leaders can also set metrics to change ingrained behavior, such as the "not invented here" syndrome, by requiring 25 percent of all ideas to come from external sources.

Designing innovation networks

CHANCES ARE YOUR ORGANIZATION has some people who are passionate about innovation and others who feel uncomfortable about any topic related to change. Recent academic research finds that differences in individual creativity often matter far less for innovation than connections and networks.[3]

Since new ideas seem to spur more new ideas, networks generate a cycle of innovation. Furthermore, effective networks allow people of different ages, with different kinds of knowledge and ways of tackling problems to cross-fertilize ideas. By focusing on getting the most from innovation networks, organizations can capture more value from existing resources.

EXHIBIT 1: NETWORK MAPS, DISGUISED EXAMPLE OF SIMILAR UNITS IN DIFFERENT GEOGRAPHIES

High-performing unit	Low-performing unit
	
▪ A number of leaders are central; most have collaborative mind-sets ▪ Team structure is decentralized; network is rich in interactions	▪ One leader is central; has uncollaborative mind-set ▪ Team structure is extremely centralized, with fewer interactions

○ Individual in network; size of circle represents individual's degree of connectivity—the larger the circle the more connected the individual; the more central the circle in the map, the more connected the individual.

— Indicates tie or connection between individuals in network; arrow indicates direction of interaction.

Collaborative individual Uncollaborative individual

A sanitized client example.

In one global nonprofit company, we found three groups with distinct perspectives on innovation. One believed that the company was innovative, but the other two, with 57 percent of its employees, thought that it wasn't. When we combined the analysis of personal perspectives on innovation with a network map, we found opportunities for improvement. Paradoxically, the analysis revealed that those employees, largely middle managers, with the most negative attitude toward innovation were also the most highly sought after for advice about it due to the hierarchical culture. In effect, they served as bottlenecks to the flow of new ideas and the open sharing of knowledge. A further analysis of the people in this group highlighted their inability to balance new ideas with current priorities and to behave as leaders rather than supervisors. We have observed that middle managers pose similar challenges in many organizations.

Shaping innovation networks is both an art and a science. Making networks more decentralized is another way to improve collaboration and performance (Exhibit 1). Consider the case of two geographically separate units that undertake the same activities. A larger leadership group with an open and positive mind-set is a distinguishing feature of the higher-performing unit. Its information network is also more decentralized, with a larger number of connections. Hierarchy is still evident in the higher-performing unit, but its information and knowledge network is more distributed, and more of the members participate actively. The lower-performing unit has just one leader, who controls most of the interactions and has a negative mind-set about openness and collaboration, and there are far fewer connections. The network design is more centralized

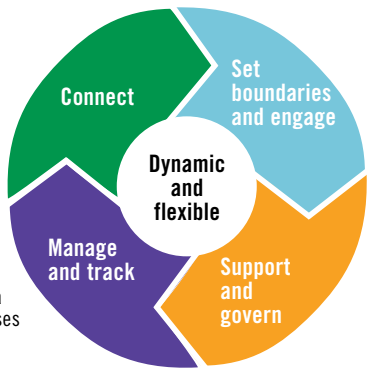
The four critical steps in designing, implementing, and managing an innovation network are presented in Exhibit 2.

Innovation networks, like cross-functional teams, require different skills and attitudes. In our experience, they include

EXHIBIT 2: MANAGING AN INNOVATION NETWORK

1 Connect
- Find pockets of people with right mind-sets for innovation
- Combine people with different approaches to innovation (i.e., idea generators, researchers, experts, producers)
- Ensure a mix of people with different levels of seniority and skills as well as performance
- Define as one network or include sub-networks devoted to specific tasks, objectives

2 Set boundaries and engage
- Define role of network in meeting organization's strategic goals
- Establish network goals and objectives, as well as targets for success
- Define clear expectations
- Establish time frame and time commitment required
- Plan how to establish trust among network members and engage them quickly



3 Support and govern
- Define network's sponsorship and leadership
- Determine technology support required for network members
- Determine role of face-to-face meetings
- Define additional support as necessary (e.g., facilitators, administrative help)
- Define key knowledge and information inputs—both internal and external to network

4 Manage and track
- Define how members will be recognized for contributions
- Establish performance-management criteria based on both individual and group successes
- Establish tracking criteria
- Define timing for assessment, review, and modification of network, and determine who will have these responsibilities
- Decide how new members enter network and current members leave
- Plan process to facilitate network and its impact

Source: McKinsey.

EXHIBIT 3: HOW PROFESSIONAL AND EXECUTIVE OPINIONS DIFFER

Source: 2007 McKinsey survey on innovation.

combinations of several archetypes: idea generators prefer to come up with ideas, researchers mine data to find patterns, which they use as a source of new ideas, experts value proficiency in a single domain and relish opportunities to get things done, and producers orchestrate the activities of the network. Others come to them for new ideas or to get things done. Producers are also the most likely members of the network to be making connections across teams and groups. High performing organizations not surprisingly have a higher percentage of producers.

Cultures of trust

LEADERS SAY THAT making top talent available for projects to meet innovation goals is their single biggest challenge in this area. Some 40 percent of them also believe that they do not have enough of the right kinds of talent for the innovation projects they pursue. A different view emerges from below, however. Employees are more likely to believe that their organizations have the right talent but that the corporate culture inhibits them from innovating (Exhibit 3). We, for our part, believe that defining and creating the right kind of culture, however elusive, greatly increases the prospects for successful and sustained innovation. In this culture, trust and engagement are the most important values where employees know that their ideas are valued, believe it is safe to express ideas and learn from experimentation.

Managers and employees broadly agree about the attitudes, values, and behavior that promote innovation. Topping the list, in our research, were openness to new ideas and a willingness to experiment and take risks. In an innovative culture, employees know that their ideas are valued and believe that it is safe to express and act on those ideas and to learn from trying. Leaders reinforce this state of mind by involving employees in decisions that matter to them.

There is also widespread agreement about the cultural attributes that inhibit innovation: a bureaucratic, hierarchical, and fearful environment. Such cultures often starve innovation of resources and use incentives intended to promote short-term performance and an intolerance of failure. Only 28 percent of the senior executives in the survey said that they are more likely to focus on the risks of innovation than on the opportunities, but only 38 percent said that they actively learn from innovation failures and encourage the organization to do so as well.

Our experience helping organization to innovate suggests that they can make progress by starting with their existing pockets of innovation and positive deviants—people who seem to work more effectively than others with the same resources and in the same environment. Much can be learned by beginning from this positive point of departure versus trying to reduce barriers, a worthy aspiration with many challenges. For example, rather than trying to reward failure, focus on increasing experimentation and testing. Rather than trying to reduce hierarchy, try inviting youth to meetings they would not otherwise attend and listen to their perspectives.

Innovation is a balance of bottom-up and top-down activities. It requires leaders set an agenda and create the conditions for innovation that subsequently engage the organization at all levels in all geographies. And it is the responsibility of employees to rise to this challenge. But it is wise to approach innovation in small steps, implementing just one or a few of the ideas we propose and building from there toward a successful journey.

Marla Capozzi, Consultant in McKinsey & Company where she is a leader in the Firm's Strategy Practice focusing on governance, organizational design and culture to drive innovation. Recent experiences include designing and developing knowledge strategies at leading for-profit and nonprofit organizations, developing executive team governance to drive innovation and designing organizational models for innovation. Her recent work focuses on new diagnostic approaches to the cultural and people challenges associated with innovation and the role of knowledge. She is also Vice-Chair of the Board of Project Bread/The Walk for Hunger.

Adapted from "Leadership and Innovation," *McKinsey Quarterly*, (January 2008).

Notes

1 *The McKinsey Quarterly* conducted a survey of executives on leadership and innovation in September 2007, receiving responses from 722 executives at the senior vice president level and above and from 736 lower-level executives around the world. The respondents represented a broad range of industries. See "How companies approach innovation: A McKinsey Global Survey," mckinseyquarterly.com, October 2007.

2 In August 2007, McKinsey surveyed 600 global business leaders—including senior executives, middle managers, and professionals in many industries—about innovative business cultures.

3 Lee Fleming and Matt Marx, "Managing Creativity in Small Worlds," *California Management Review*, 2006, Volume 48, Number 4, pp. 6–27.

Design Thinking for Social Innovation
IDEO

BY TIM BROWN AND JOCELYN WYATT

DESIGNERS HAVE TRADITIONALLY FOCUSED on enhancing the look and functionality of products. Recently, they have begun using design tools to tackle more complex problems, such as finding ways to provide low-cost healthcare throughout the world. Businesses were first to embrace this new approach called design thinking. Now nonprofits are beginning to adopt it too.

In an area outside Hyderabad, India, between the suburbs and the countryside, a young woman—we'll call her Shanti—fetches water daily from the always-open local borehole that is about 300 feet from her home. Shanti and her husband rely on the free water for their drinking and washing, and though they've heard that it's not as safe as water from the Naandi Foundation-run community treatment plant, they still use it. Shanti is forgoing the safer water because of a series of flaws in the overall design of the system. Shanti can't carry the 5-gallon jerrican that the facility requires her to use. The treatment center also requires them to buy a monthly punch card for 5 gallons a day, far more than they need.

As Shanti's situation shows, social challenges require systemic solutions that are grounded in the client's or customer's needs. This is where many approaches founder, but it is where design thinking—a new approach to creating solutions—excels.

Design thinking incorporates constituent or consumer insights in depth and rapid prototyping, all aimed at getting beyond the assumptions that block effective solutions. Design thinking—inherently optimistic, constructive, and experiential—addresses the needs of the people who will consume a product or service and the infrastructure that enables it.

The Origin of design thinking

IDEO WAS FORMED IN 1991 as a merger between David Kelley Design, which created Apple Computer's first mouse in 1982, and ID Two, which designed the first laptop computer, also in 1982. Initially, IDEO focused on traditional design work for business, designing products like the Palm V personal digital assistant, Oral-B toothbrushes, and Steelcase chairs. These are the types of objects that are displayed in lifestyle magazines or on pedestals in modern art museums.

By 2001, IDEO was increasingly being asked to tackle problems that seemed far afield from traditional design. A healthcare foundation asked us to help restructure its organi-

zation, a century-old manufacturing company wanted to better understand its clients, and a university hoped to create alternative learning environments to traditional classrooms. This type of work took IDEO from designing consumer products to designing consumer experiences.

As an approach, design thinking taps into capacities we all have but that are overlooked by more conventional problem-solving practices. Not only does it focus on creating products and services that are human centered, but the process itself is also deeply human. Design thinking relies on our ability to be intuitive, to recognize patterns, to construct ideas that have emotional meaning as well as being functional, and to express ourselves in media other than words or symbols. Nobody wants to run an organization on feeling, intuition, and inspiration, but an over-reliance on the rational and the analytical can be just as risky. Design thinking, the integrated approach at the core of the design process, provides a third way.

The design thinking process is best thought of as a system of overlapping spaces rather than a sequence of orderly steps. There are three spaces to keep in mind: *inspiration*, *ideation*, and *implementation*. Think of *inspiration* as the problem or opportunity that motivates the search for solutions; ideation as the process of generating, developing, and testing ideas; and *implementation* as the path that leads from the project stage into people's lives.

The reason to call these spaces, rather than steps, is that they are not always undertaken sequentially. Projects may loop back through inspiration, ideation, and implementation more than once as the team refines its ideas and explores new directions. Not surprisingly, design thinking can feel chaotic to those doing it for the first time. But over the life of a project, participants come to see that the process makes sense and achieves results, even though its form differs from the linear, milestone-based processes that organizations typically undertake.

Inspiration

THE CLASSIC STARTING POINT for the inspiration phase is the brief. The brief is a set of mental constraints that gives the project team a framework from which to begin, benchmarks by which they can measure progress, and a set of objectives to be realized—such as price point, available technology, and market segment. A well-constructed brief allows for serendipity, unpredictability, and the capricious whims of fate—the creative realm from which breakthrough ideas emerge.

Tata Nano, the world's cheapest car, designed and produced in India.

Once the brief has been constructed, it is time for the design team to discover what people's needs are. Traditional ways of doing this, such as focus groups and surveys, rarely yield important insights.

A better starting point is for designers to go out into the world and observe the actual experiences of smallholder farmers, schoolchildren, and community health workers as they improvise their way through their daily lives. Working with local partners who serve as interpreters and cultural guides is also important, as well as having partners make introductions to communities, helping build credibility quickly and ensuring understanding. Through "homestays" and shadowing locals at their jobs and in their homes, design thinkers become embedded in the lives of the people they are designing for.

Earlier this year, Kara Pecknold, a student at Emily Carr University of Art and Design in Vancouver, British Columbia, took an internship with a women's cooperative in Rwanda. Her task was to develop a Web site to connect rural Rwandan weavers with the world. Pecknold soon discovered that the weavers had little or no access to computers and the Internet. Rather than ask them to maintain a Web site, she reframed the brief, broadening it to ask what services could be provided to the community to help them improve their livelihoods. Pecknold used various design thinking techniques, drawing partly from her training and partly from Ideo's Human Centered Design toolkit, to understand the women's aspirations.

Because Pecknold didn't speak the women's language, she asked them to document their lives and aspirations with a camera and draw pictures that expressed what success looked like in their community. Through these activities, the women were able to see for themselves what was important and valuable, rather than having an outsider make those assumptions for them. During the project, Pecknold also provided each participant with the equivalent of a day's wages (500 francs, or roughly $1) to see what each person did with the money. Doing this gave her further insight into the people's lives and aspirations. Meanwhile, the women found that a mere 500 francs a day could be a significant, life-changing sum. This visualization process helped both Pecknold and the women prioritize their planning for the community.[1]

Ideation

THE SECOND SPACE of the design thinking process is ideation. After spending time in the field observing and doing design research, a team goes through a process of synthesis in which they distill what they saw and heard into insights that can lead to solutions or opportunities for change. This approach helps multiply options to create choices and different insights about human behavior. These might be alternative visions of new product offerings, or choices among vari-

ous ways of creating interactive experiences. By testing competing ideas against one another, the likelihood that the outcome will be bolder and more compelling increases.

To achieve divergent thinking, it is important to have a diverse group of people involved in the process. Multidisciplinary people—architects who have studied psychology, artists with MBAs, or engineers with marketing experience—often demonstrate this quality. They're people with the capacity and the disposition for collaboration across disciplines.

To operate within an interdisciplinary environment, an individual needs to have strengths in two dimensions—the "T-shaped" person. On the vertical axis, every member of the team needs to possess a depth of skill that allows him or her to make tangible contributions to the outcome. The top of the "T" is where the design thinker is made. It's about empathy for people and for disciplines beyond one's own. It tends to be expressed as openness, curiosity, optimism, a tendency toward learning through doing, and experimentation. (These are the same traits that we seek in our new hires at IDEO).

Interdisciplinary teams typically move into a structured brainstorming process. Taking one provocative question at a time, the group may generate hundreds of ideas ranging from the absurd to the obvious. Each idea can be written on a Post-it note and shared with the team. Visual representations of concepts are encouraged, as this generally helps others understand complex ideas.

One rule during the brainstorming process is to defer judgment. It is important to discourage anyone taking on the often obstructive, non-generative role of devil's advocate, as Tom Kelley explains in his book *The Ten Faces of Innovation*.[2] Instead, participants are encouraged to come up with as many ideas as possible. This lets the group move into a process of grouping and sorting ideas. Good ideas naturally rise to the top, whereas the bad ones drop off early on. InnoCentive provides a good example of how design thinking can result in hundreds of ideas. InnoCentive has created a Web site that allows people to post solutions to challenges that are defined by InnoCentive members, a mix of nonprofits and companies. More than 175,000 people—including scientists, engineers, and designers from around the world—have posted solutions.

The Rockefeller Foundation has supported 10 social innovation challenges through InnoCentive and reports an 80 percent success rate in delivering effective solutions to the nonprofits posting challenges.[3] The open innovation approach is effective in producing lots of new ideas. The responsibility for filtering through the ideas, field-testing them, iterating, and taking them to market ultimately falls to the implementer.

Implementation

THE THIRD SPACE of the design thinking process is implementation, when the best ideas generated during ideation are turned into a concrete, fully conceived action plan. At the core of the implementation process is prototyping, turning ideas into actual products and services that are then tested, iterated, and refined.

Through prototyping, the design thinking process seeks to uncover unforeseen implementation challenges and unintended consequences in order to have more reliable long-term success. Prototyping is particularly important for products and services destined for the developing world, where the lack of infrastructure, retail chains, communication networks, literacy, and other essential pieces of the system often make it difficult to design new products and services.

After the prototyping process is finished and the ultimate product or service has been created, the design team helps create a communication strategy. Storytelling, particularly through multimedia, helps communicate the solution to a diverse set of stakeholders inside and outside of the organization, particularly across language and cultural barriers.

VisionSpring, a low-cost eye care provider in India, provides a good example of how prototyping can be a critical step in implementation. VisionSpring, which had been selling reading glasses to adults, wanted to begin providing comprehensive eye care to children. VisionSpring's design effort included everything other than the design of the glasses, from marketing "eye camps" through self-help groups to training teachers about the importance of eye care and transporting kids to the local eye care center.

Working with VisionSpring, IDEO designers prototyped the eyescreening process with a group of 15 children between the ages of 8 and 12. The designers first tried to screen a young girl's vision through traditional tests. Immediately, though, she burst into tears—the pressure of the experience was too great and the risk of failure too high. In hopes of diffusing this stressful situation, the designers asked the children's teacher to screen the next student. Again, the child started to cry. The designers then asked the girl to screen her teacher. She took the task very seriously, while her classmates looked on enviously. Finally, the designers had the children screen each other and talk about the process. They loved playing doctor and both respected and complied with the process.

By prototyping and creating an implementation plan to pilot and scale the project, IDEO was able to design a system for the eye screenings that worked for VisionSpring's practitioners, teachers, and children. As of September 2009, VisionSpring had conducted in India 10 eye camps for children, screened 3,000 children, transported 202 children to the local eye hospital, and provided glasses for the 69 children who needed them.

Systemic problems need systemic solutions

MANY SOCIAL ENTERPRISES already intuitively use some aspects of design thinking, but most stop short of embracing the approach as a way to move beyond today's conventional problem solving. Certainly, there are impediments to adopting

DESIGN THINKING
continued on page 43

Communications as Innovation in Social Enterprise

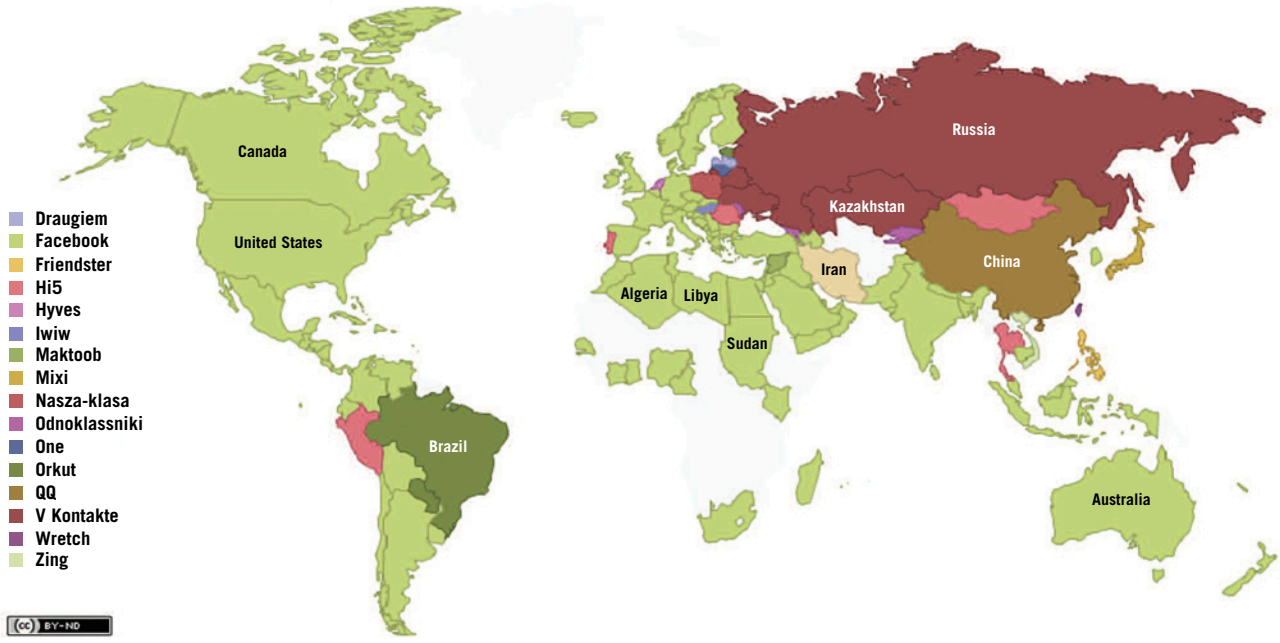
BY EDITH R. WILSON AND RICHARD MURBY

WITH THE MERGER OF SOCIAL MEDIA and communication and the speed at which social networks are building out around the world, only one thing is certain: a vital part of daily life is changing fundamentally all over the world, including how innovative ideas spread.

What does that mean for our ability to identify, nourish, finance, replicate and scale up new ideas to meet human needs "smarter, better, faster and differently"? For instance, how can we ensure that social entrepreneurs in rural Indonesia have the biggest possible impact on the lives of people in Mexico, to pick two countries full of dynamic energy and important experience with poverty reduction? Promoting such direct "South-South" knowledge exchange is increasingly valued, but how can it become a reality?

Previously development organizations or civil society groups would have served as intermediaries to identify creative approaches to social enterprise. After that, the news would have been passed through personal contacts, presentations, conferences and even a case study. Eventually the core ideas from Indonesia might have made their way into policy and implementation in Mexico.

WORLD MAP OF SOCIAL NETWORKS



Source: Many Eyes (http:;//many-eyes.com) © IBM. Map data © 2007 ESRI.

A World of possibilities

TODAY, WE CAN ALL SEE completely new possibilities springing up all around us as individuals and organizations are sharing ideas directly with others, and finding them instantly when needed. Both Indonesia and Mexico have 1% of their large populations using Facebook, for instance. In a single year, Indonesia went from 2 million to 21 million Facebook users, a growth rate of 800%, making it the third largest Facebook nation. Mexico has nearly 10 million users, with 300% growth last year. Many more are joining as we write.

Not only can an idea in Indonesia or Mexico be spotted through a search engine query, it can also surface on platforms where groups of people with similar needs are self-organizing every day. And they can read about it in the language they prefer. Someone with an idea in Bahasa Indonesian can—right now—use Google Translate to post that idea in Spanish or English on Facebook, just as someone in Mexico can do the same into English or even Indonesian—without a development worker as intermediary.

As Clay Shirky says in his book, *Here Comes Everybody: The Power of Organizing Without Organizations*, "The ability of people to share, cooperate and act together is being improved dramatically by our social tools." He warns, though, that taking advantage of these opportunities will require a significant amount of "unlearning"—that "when a real, once-in-a-lifetime change comes along, we are at risk of regarding it as a fad…."

All around us people are texting, blogging, tweeting, uploading, downloading, crowd-sourcing, wiki-ing, linking in, geo-referencing, i-chatting, skyping, flipping, videotaping, and more. Tomorrow, the range of possibilities will be even greater.

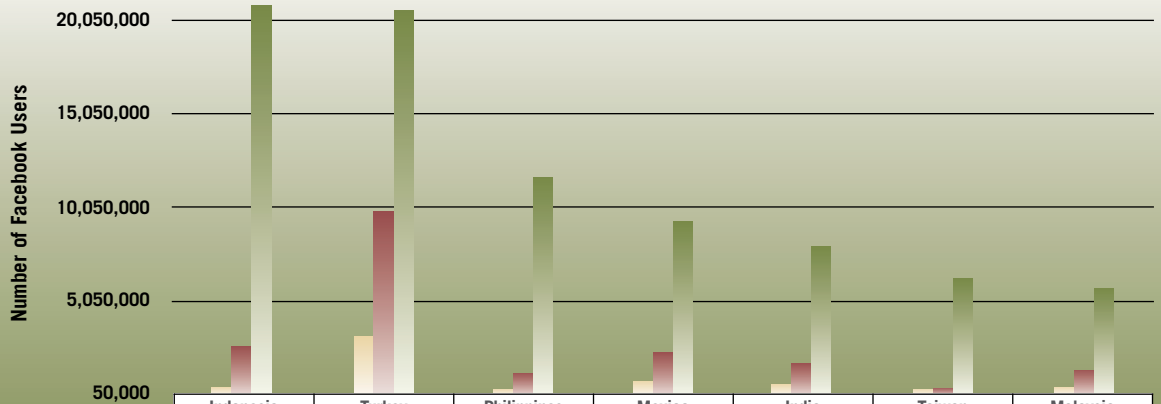
Social networking in poor countries climbing

SOCIAL NETWORKING is emphatically not a phenomenon confined to Americans or Europeans. Africa, long regarded as the toughest test for Internet usage, has already seen dramatic increases in popular use in both urban and rural areas. Experts such as Russell Southwood of Balancing Act predict that the decade ahead will see usage soar as the benefits of an estimated US $50 billion of investment in network infrastructure kick in.[1] As mobile and internet capacity is built out and converges, not only are more people taking advantage of it but they are demanding local content. Vernacular language websites and broadcasting, including new formats such as radio via internet and mobile are increasing, making the new communication mediums available to larger numbers of Africans without Western education or language skills.[2]

Facebook, YouTube and Wikipedia already number among the top 10 websites used by Nigerians. YouTube is a top 10 website in all African countries surveyed. In Kenya, considered a bellwether, 85% of Internet users participate in some form of social networking.[3] "People kept telling me that kids were using Facebook in cafes in rural Kenya, and I didn't believe it—until I saw it for myself," said Southwood.

Faster than most of us can adjust, the tools for social dialogue and interactive communication are becoming available to almost everyone in the world through this new generation of social tools fueled by plunging economies of scale of ever more powerful technology. The ease, cost and reach has changed radically in the past five years; picturing what the next five years will bring not just in technology but changing behavior

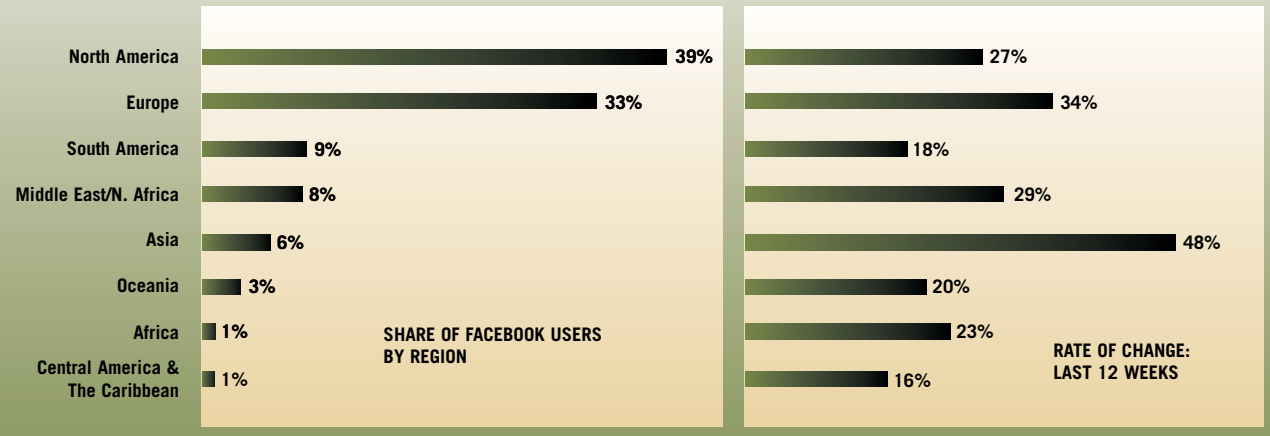
FIGURE 1: FACEBOOK USERS IN COUNTRIES WHERE THERE IS A SIGNIFICANT INCREASE WITHIN THE PAST TWO YEARS (2008-2009)



	Indonesia	Turkey	Philippines	Mexico	India	Taiwan	Malaysia
Mar-08	112,240	3,027,120	105,000	687,460	529,140	57,180	291,560
Mar-09	2,325,840	9,759,780	1,026,300	2,142,080	1,561,000	205,500	1,197,560
Mar-10	20,775,320	20,538,740	11,561,740	9,208,560	7,809,800	6,107,100	5,552,660

Source: Braillargeon 2008 and Burcher 2009 and 2010.

FIGURE 2: SHARE OF FACEBOOK USERS BY REGION



Source: O'Reilly Research.

calls for great imagination. Think back five years ago —did you foresee the rapid acceleration of Facebook, Twitter, or Skype?

Social media creates ecosystems for innovators

SO HOW SHOULD INNOVATORS think about social media specifically related to the flow of new ideas around the world? For our part, we see it as the creation of "social ecosystems" that support, superbly, the processes essential to successful innovation. These include the functions of **idea-sharing, scanning, broadcasting, replicating, and scaling** through new forms of financing. These new ecosystems are, in essence, superpowered and supercharged by their *speed of transmission* combined with *a fluid exchange of ideas across multiple media forms* and *a variety of channels* and *the inclusion of voices not limited by language or location.*

Blogging and social network platforms with wide audiences and interactivity turn out to provide a much more productive and efficient approach for idea-sharing than writing letters to the editor or even email. Wiki communities and other forms of working "in the cloud" make collaboration infinitely easier for people working continents apart.

Increasingly, web-based competitions allow global scanning for new solutions. These can take the form of competitive markets (InnovCentives) or collaborative communities (Ashoka's Changemakers).[4] The combination of Internet penetration and a new generation of software tools that makes it practical to run global competitions is giving exponential reach and impact to innovation prize-giving. "It took me eighteen months to develop my initial product from conception to functional prototype. With InnoCentive and my second product, the research to sketch to engineering drawings to prototype took two months," says Mark Bent, CEO of Sunnight Solar. In both arenas, crowd-sourcing is increasingly used to surface and even select the most interesting new proposals.

Interesting experiences are being broadcast directly, easily and inexpensively. Informal, video creation and distribution via YouTube and Facebook is providing vast new potential audiences for entrepreneurs. Examples of this can be viewed in the 44 youth entrepreneurs in the April 2010 Latin American Development Marketplace or the 150 videos posted in one week featuring finalists of the November 2009 Global Development Marketplace competition on climate adaptation. Many thousands more are instantly available on YouTube, Ning platforms, and many more. .

Financing, the hardest hurdle that any small entrepreneur has to jump, has also experienced its own reinvention. With the personalization of microfinance via the Internet, private individuals are making small loans to individual entrepreneurs halfway across the world. As of 2009, Kiva has facilitated over $128 million in loans to 300,000 entrepreneurs globally, 82% of which were made to women. Since 2002, GlobalGiving has helped over 100,000 donors donate $28 million to 2,620 projects. This and other new flows of financing are just beginning to evolve.

Translation engines will now spread ideas globally

DESPITE THE PERILS OF PREDICTION in such a fast moving situation, we see one major, transformative development that is imminent: the emergence of multilingual social networking as a seamless part of daily life. Moving from language to language is about to become close to ordinary. This could have a huge impact on innovation. Translation may supply, we argue, one of the missing keys to the international replication of ideas—the grease that will help them flow more quickly from region to region.

Too often development organizations, philanthropies or the private sector have not translated their content into multiple languages, and in so doing, have limited themselves to

interacting with people who speak dominant languages such as English. Most people using the web—about 72 percent—speak a first language other than English. Asia accounts for 36 percent of global web usage, Europe for 28 percent and North America less than 22 percent.[5]

Today Google Translate handles 52 languages and is used hundreds of millions of times each week. Global Voice's Linqua volunteers now translate in 17 languages, with 12 more in test-mode.[6] As the quality of machine and volunteer capabilities improves, translation is moving rapidly from a time-consuming, expensive, difficult process to one that is timely, affordable and routine. Not just multi-media but multi-lingual formats are about to become standard operating procedure for on-line dialogue and for social enterprise organizations.

This may be one reason why Joichi Ito, the CEO of Creative Commons, argues that ideas don't scale, they "spread" and that worthy ideas go viral. In the new age of translation ahead of us, ideas will spread wider and faster than ever before.

Never a better time

IN THE TIME IT TOOK US TO WRITE THIS ARTICLE, more than 4 billion pieces of content has been shared on Facebook, more and more of it in the developing world.

The almost imperceptible merging of communication and social media has moved both to the center of the innovation agenda. Behavior is changing all over the world. These changes are spilling out in all directions. For those who seek to encourage the timely creation and spread of innovative solutions in development and increase their impact, there has never been a better time.

More than ever before, incremental increases in the use of communication will yield exponential returns in audience, dialogue and impact. To do this, we need to be creative and forward-leaning, and to focus relentlessly on ways to connect non-traditional audiences. If we truly care about scaling up innovative solutions, we should scale up and invest in all aspects of these new social ecosystems. This is a moment to think boldly and use to the maximum the incredible range of communication media and tools now at our fingertips.

After all, everyone else is.

Edith R. Wilson is Advisor in the Innovation Practice of the World Bank Institute and blogs for Development Marketplace. A graduate of Harvard's Kennedy School of Government, she served in senior roles in civil society, government and the private sector before joining the World Bank in 1998.

Richard Murby, a Welsh-born consultant based in Washington DC, is a technologist who has spread his time between internet start-ups and international organizations. He can be found on Twitter @fwdmedia.

Notes

1 "Connect Africa," Rwanda conference 2007, GSMA.
2 Southwood/Balancing Act, 2010.
3 TNS International for Government of Kenya.
4 Boudreau and Lakhani 2009.
5 Miniwatts Marketing Group.
6 http://globalvoicesonline.org/linqua/

Ashoka Fellows Change the World

BY DIANA WELLS

WHILE REDUCING THE COST OF SOLAR ENERGY and increasing the income of rural farmers are big problems, these specific problems will be solved and there will be new problems. We live in a time where the numbers and complexity of problems seem to be outracing the numbers of solutions. Ashoka works to increase the numbers of people creating solutions – solutions to all of society's problems. Ashoka's vision is a world where "everyone is a changemaker."

Over the last 30 years, Ashoka: Innovators for the Public has identified and supported more than 2500 leading social entrepreneurs, Ashoka Fellows, in more than 70 countries working on every imaginable social problem: from Bart Weetjens using rats to detect landmines in Africa to Vineet Rai starting the first social venture fund in India to Albina Ruiz sees an opportunity for a dignified living wage from recycling or repurposing garbage Peru. These Fellows have dramatic (often national and global scale) impact in their specific fields. And yet, as Bill Drayton, who is the founder and current CEO describes it, the biggest impact social entrepreneurs can have is not necessarily their solutions to problems; it is their "recruiting thousands of local changemakers to give their ideas wings in community after community." In addition, Ashoka has taken what is has learned in sourcing these social entrepreneurs across the globe and applied this learning to sourcing other innovators across

Ashoka Fellow Shaheen Mistri walks with children on a stone walkway in India.

the life-cycle of innovation—whether this is through Ashoka's Youth Venture program or Ashoka's Changemakers.net online collaborative competitions.

Now after thirty years of work, Ashoka has successfully built a global community distinguished by its attention to system change and ethical entrepreneurial leadership. The knock-out test for electing Ashoka Fellows and for starting new Ashoka initiatives is the same: there needs to be a system change idea in the hands of an entrepreneur. Rather than looking to someone who is building one school or one hospital, Ashoka looks for individuals who are changing the way children learn or the way healthcare is delivered. In other words, rather than investing in incremental innovation, Ashoka thinks the most leveraged way to invest in social innovation is to invest in the people who have system change ideas.

Ashoka defines **system changes** as impact resulting from the social entrepreneurs, ideas and networks we support that affect (or have the potential to affect) large numbers of people. We understand that Ashoka Fellows change systems in five different ways:

- redefining interconnections in market systems (market dynamics and value chains),
- changing the rules that govern our societies (public policy and industrial norms),
- transforming the meaning of private vs. citizen sector (business social congruence),
- fully integrating marginalized populations (full citizenship and empathetic ethics) and
- increasing the number of people who are social problem solvers (culture of changemaking and social entrepreneurship).

How does Ashoka know whether it has changed systems? How do we understand, define and measure changes in a system? Recently we significantly revised our global survey of Ashoka Fellows to tackle these questions. In collaboration with Ashoka's Corporate Executive Board, we interviewed a sample of Ashoka Fellows (172 Ashoka Fellows) from 31 countries in 10 languages and we found that **83 percent of Fellows (76% five years post election as Fellows) have changed systems at a national level in at least one way.** On average, Fellows change systems in three different ways.

We have learned that Ashoka Fellows change systems primarily through the power of their ideas. Most build organizations to serve as vehicles to advance their ideas and significantly contribute to strengthening the citizen sector. Ashoka Fellows recognize that achieving large-scale change spreads and advances their ideas through complex and diverse networks.

Bill Drayton's genius, in starting Ashoka, was to recognize that in order to understand where the world is going you must understand early stage innovation as a predictive factor for future trends. Over 30 years Ashoka has built a global network and institution to do just that. We have built a community where these changemakers can learn from and support each other AND PERSIST. From this community we can recognize patterns and together we transform fields, sectors, geographies and the world.

But perhaps most important of all, we know that these individuals inspire others to behave in similar ways. With these many examples in our ever-growing community, we hope to inspire the rest of the world's citizens to better understand how to most effectively engage in social change and to be effective changemakers. With the ever-increasing rate of change before us, it is now more critical than ever to ensure more individuals are mastering the skills of empathy, teamwork and leadership to be effective changemakers. The only answer to more problems is more problem-solvers. For this reason we believe the only answer is to build a world where all citizens are playing roles to solve the world's most pressing needs—a world where *everyone is a changemaker.*

Diana Wells is President of Ashoka, and the creator of one of Ashoka's core programs—Fellowship Support Services. She received her PhD in Anthropology from New York University. She is on the Advisory Board for the Center for the Advancement of Social Entrepreneurship (CASE) at Duke's Fuqua School of Business and on the Board of GuideStar International.

Development Marketplace Winners

On the path to replication and sustainability

BY TOM GRUBISICH

EVEN BEFORE PANOS VARANGIs and his team of World Bank staff, insurance practitioners, and academics competed for a US$117,000 grant in Development Marketplace 2000, they were, like chess players, already planning how to fund and test their concept in countries beyond the scope of their DM application.

The team thought ahead because their project—bringing weather-based index insurance to farmers at the mercy of the vagaries of weather—was 100 percent innovative. Since weather insurance was untested, particularly in emerging economies, Varangis—then a senior economist at the World Bank—and his team sought to test various approaches of channeling weather insurance to farmers and rural entrepreneurs in a number of countries with diverse climatic conditions.

Shortly after they won their DM grant to test weather insurance in three African countries—Morocco, Tunisia, Ethiopia—and Nicaragua, they won a US$200,000 grant from an Italian Trust Fund, while at the same time they managed to leverage World Bank projects in the field of agricultural insurance in countries such as India, Mexico, Mongolia, and Ukraine.

The feasibility of piloting the concept was tested in Morocco, but concerns over declining trends in the rainfall in the test region made the premium of rainfall insurance relatively high and perhaps beyond the means of farmers. In Tunisia, climatic conditions in the selected areas and government policies related to drought compensation for farmers did not enable piloting the concept of weather insurance. But the concept was piloted in the other countries, and farmers there were able to protect their income against severe weather events that drove many of them to ruin and left them mired in subsistence poverty.

The combination of enabling factors included: (a) climatic conditions and availability of good meteorological data, (b) a positive institutional, policy, and regulatory environment, (c) local stakeholders recognizing they had a problem that needed a solution, and (d) ability to provide effective capacity building to these stakeholders.

A young girl uses The Elephant Pump in Paulo, Central Malawi. Development Marketplace 2006.

But those conditions didn't mean piloting the concept came easy in Ethiopia, Mexico, Mongolia, India, Nicaragua, and Ukraine.

"What really made the difference was the local champion," said Varangis, now a principal banking specialist at the International Finance Corporation (IFC), the private sector arm of the World Bank Group. "It was finding someone who dived into the idea, who believed in it, and who put in their own resources.... Our local champions, insurance companies, have relationships with the customers—farmers. We needed these champions because, unlike them, we were there today, but we cannot stay forever."

In 2009, with €24.5 million assistance from the European Commission and additional help from the Netherlands Ministry of Foreign Affairs, the IFC has

established a Global Index Insurance Facility to help farmers and SME agribusinesses survive drought and other weather-related disasters. "You can't draw a bright line from the original grant by Development Marketplace to this and other weather index insurance funding, but the connection's there," Varangis said.

The water-harvesting project

WHILE FINANCING is the No. 1 ingredient for any development project, it is only one key element for achieving sustainability, i.e. taking an idea beyond pilot demonstration to widespread replication, emphasizes Development Marketplace 2006 winner B.P. Agrawal.

"The project has to be holistically sustainable—culturally, societally, institutionally, technologically, and politically," Agrawal says, pointing to his innovative water-harvesting project that benefited six villages in the perennially arid state of Rajasthan in western India. The project is called, in Hindi, Aakash Ganga (River from Sky).

Today, four years after he won a US$200,000 award in the Development Marketplace 2006 competition, Agrawal is on the cusp of getting a contract from the Indian government that could be worth US$12 to 14 million, and bring water harvesting to 40 to 100 villages that would benefit 100,000 to 250,000 people.

But getting to that point of replication was a steep climb around and over governmental procedures and skepticism. In 2007, Agrawal sought to get endorsement from the Indian Prime Minister's Office, but, he said, officials there didn't believe that villagers would be willing to help pay for the infrastructure costs of water harvesting. Fortunately, he had the bank passbooks with him showing the community contributions of as much as 30 to 40 percent of the costs of harvesting. "When they saw these numbers, they started believing in Aakash Ganga," he said."The PMO [Prime Minister's Office] told me to go to the State Government." He did, "but I got nowhere in two years." The administration, he said, is averse to taking up development projects with "the slightest risk and humongous potential."

Agrawal wouldn't give up. In April 2009, he saw a new opportunity when the Indian Supreme Court ordered the national government to use science and technology to solve the country's worsening water problem. He went to the national Department of Science and Technology, which had been tasked with the responsibility of finding ways to bring water to 2,000 communities. "In five minutes, the department official I saw said, 'The social enterprise model is amazing. It's a wonderful idea. I'm going to support it.'"

In December, Agrawal won a planning grant for his envisioned expansion from the U.N. Development Programme and the Indian Ministry of Rural Development. He expects to close on a contract with the Indian Government by March 31, finally taking his 2006 pilot project to the circuitous goal of replication.

The EpiSurveyor

DATADYNE, WHICH BEGAN DEVELOPMENT of its now widely used EpiSurveyor mobile electronic data collection system with an initial US$50,000 DM grant in 2003 for a pilot project in Zambia, has won succeeding grants totaling US$1 million for its now web-based EpiSurveyor.org and expanded the pioneering system to more than 120 countries worldwide. But company co-founder Joel Selanikio, a pediatrician turned social entrepreneur, thinks it's time for DataDyne to build future sustainability and expansion with profits, not just more grants.

"Grant funders have their own priorities, and it is nearly certain that one day they will tell you they are cutting funding because they want to focus on something else," he said. "That decision on their part does not necessarily have anything to do with the quality of what you are doing. That is clearly not 'sustainable'."

Selanikio says DataDyne is currently charging a self-selected group of its clients—about 20 of 1,300—for premium services, and using that revenue to fund free basic service for everyone else.

This "freemium" hybrid, he says, will also help DataDyne stay innovative. "Paying users give urgent and demanding feedback," he said. "Paying users expect you to quickly fix problems. A pay-based model always exerts an upward pressure on quality—in some cases by eliminating bad software projects—while an entirely grant-supported model does not necessarily do so."

The UV water bucket

LIKE DATADYNE'S SELANIKIO, Flor Cassassuce, whose "UV water bucket" was a US$170,000 DM 2006 winner, thinks her project needs to become profitable to achieve sustainability and reach her target of bringing clean water to 1 million rural households in Mexico over 10 years.

Irish Red Cross worker in Aceh, Indonesia, interviewing schoolchildren using Episurvey or mobile data collection software. Development Marketplace 2003.

"We learned we couldn't rely on development donors and the government, which is always changing," she said. "We had to start a social company that's built on a self-supporting economic model." A parallel nonprofit company—EOZ Institute of Rural Technology—will oversee distribution of the water purifier in rural areas.

As a bridge to that goal, Cassassuce and her two partners in their new for-profit GRUPO EOZ enterprise are seeking funding from the Mexican government for a pilot that, if successful, would create a network of microfranchise operations. City dwellers would be able to purchase an improved UV water purifier at their local supermarket, and then earmark profits from those sales to help families in rural communities of their choice obtain the purifier. "Many city dwellers come from the country, where they still have many relatives, so this 'solidarity movement' concept will work," Cassassuce said.

The basic UV water bucket that Cassassuce and her team brought to 1,500 families in La Paz, Baja California, has been transformed into a sleek piece of hardware. "It's beautiful," she said.

The Pump Aid project

PUMP AID, A LOW-TECH BUT HIGHLY EFFECTIVE, easily maintained clean-water project that won a US$120,000 award in the DM2006 competition, has grown from a group of pilot villages in Zimbabwe to locations throughout the country and also expanded to Malawi. Expansion has included installation of low-technology (bamboo) "Elephant Pumps" that deliver water for US$400 and sanitation systems in both countries. Founder Ian Thorpe has received funding or pledges covering US$32 million of a US$89 million five-year plan—launching in April 2010—that would bring clean water to 10 million people in Sub-Saharan Africa, improved sanitation to 4 million in the region, and increased food security.

VillageReach-sponsored vaccination session under way in Namaita, Mozambique. Development Marketplace 2003.

Thorpe said the social entrepreneur, like any other entrepreneur, "recognizes a need and then structures a response with adequate market research and input from prospective customers."

That's just step one—the concept stage. To carry the project to implementation, and then achieve sustainability and replication, the social entrepreneur must proceed to other milestones. Thorpe continued:

"Once a product is in the market, it is vitally important to maintain strong lines of communication with the customers to improve the product or the service while controlling the costs. There needs to be an emphasis on long-term customer satisfaction, which means that whatever you are providing must deliver sustained benefit. When launching in a new market, it will always be necessary to adapt to the circumstances, and the product may also need to be redesigned. Marketing is also vital in order to create demand.

"Many development projects do not succeed because they ignore these basic principles of business and fail to value feedback from those who the project is designed to serve."

DM winners emphasized the importance of rigorously assembled performance data that didn't leave unanswered questions but at the same time was easy to digest.

VillageReach vaccine-delivery programs

"EVERY PROJECT TELLS YOU They're building a model, but what clearly separated us was that both donors and investors always understood what we were working to achieve," said Craig Nakagawa, Social Business Director of VillageReach, whose first of a series of grants began with its US$250,000 award in the DM2003 competition to deliver vaccines to remote areas of rural Mozambique.

"Because of our work in last mile logistics and distribution we generate a lot of data, and people were impressed with the high degree of transparency we provide as a result." From its initial pilot success launched by the DM grant—which brought vaccine coverage of the population to over 95 percent—VillageReach has received a commitment from the Mozambique Government to expand its vaccine project nationwide over the next five years. At the same time, VillageReach has expanded its work to programs in India, Malawai, Nigeria, and Senegal. The financial underpinnings of this replication come from a succession of grants, including one from the Bill and Melinda Gates Foundation worth US$3.3 million.

"Donors and investors return to us to provide additional support because they have confidence that our model is replicable other countries," VillageReach Strategic Development Director John Beale says. But it all began with that first DM award, Beale and Nakagawa said. "Winning that award was a huge endorsement of our model," Nakagawa said.

Tom Grubisich is a writer, blogger and consultant to the World Bank Institute's Innovation Practice, focusing on building a Community of Practice among the Development Marketplace 2009 contestants.

Putting Nairobi's Slums on the Map

The Map Kibera team just prior to going out in the field, November 2009.

BY ERICA HAGEN

THE STREETS OF KIBERA, one of the largest slums in Africa, are narrowly winding pathways strewn with garbage, divided down the middle by streams of sewage and waste that make walking treacherous. Corrugated iron and mud shanties are packed together on every possible inch of space. The railroad track provides the only boulevard; its dismantling from time to time serves to vent local frustrations otherwise disregarded by politicians. Electricity is stolen from main power lines or absent entirely. Chickens cluck down the paths, and dogs and goats pick through enormous garbage piles alongside young children.

Kibera, in Nairobi, Kenya, is spread across about 550 acres of government-owned land, 5 kilometers southwest of the city center. Its population has been calculated at anywhere from 200,000 to more than one million, and varies seasonally.[1] Historically, the land was given to members of the Nubian tribe during the colonial era in exchange for their service in the British Army, but Kibera's land tenure remains informal and is often subject to dispute.

Kibera is nonetheless a vibrant community surviving and often thriving with hundreds of small shops, health clinics, schools, churches, mosques, community groups, movie theaters, corn mills, battery charging kiosks, kerosene stations, water vending points, and pay-showers and latrines. Music pours from radios and CD shops, and life proceeds in a rhythm much like any other urban spot in the world. Until recently, however, the area appeared on public maps only as an amorphous, blank spot labeled "Kibera." In official registers it is designated a forest.

Publicly available information about Kibera is minimal, although it is one of the most heavily studied informal settlements in the world. UN-HABITAT, the United Nations agency for human settlements, is headquartered minutes away, and

academic and non-governmental organizations frequently survey residents, but the information rarely comes back to the community. Major media outlets do not report on the informal area unless serious violence or turmoil erupts, when they often serve to inflame tensions. Maps that have been made are not widely available, and are often outdated; new structures are erected quickly as old ones are taken down, and what was yesterday a bakery might today be an electronics shop and tomorrow a hair salon. Informal channels of incorrect information and secrecy are also key contributors to conflicts.

Luckily, it is also information that is becoming easier and easier to develop and share via new technologies, allowing people to bypass traditional mechanisms and represent themselves. To help enable such representation, last October, my partner Mikel Maron and I began a project called Map Kibera with the objective of training residents to create their own map: the first online, public map of Kibera. We used tools from OpenStreetMap and partnered with local organizations such as the Social Development Network (SODNET), Carolina for Kibera, and Kibera Community Development Agenda (KCODA). This effort was a first step toward local ownership and creation of shared information.

Map-making has long been a means for exerting power; the Survey of Kenya still requires a justification for requesting some regional paper maps. Traditionally, maps have been essential military tools for conquering new lands. Without access to a map there is no way to plan for development and resource flows; it is easy for the powerful to overlook or extract from a region. In Kibera, for instance, water lines traverse the area bringing water to outlying areas while allowing for few inlets into Kibera itself, forcing residents to pay exorbitantly for a resource flowing right under their homes.[2] Control of information, now more than ever before, determines who enters the conversation about policy-making and access to resources.

With initial funding from Jumpstart International, an American organization, and assistance from Kenyan partners, we began to train a group of thirteen young people between the ages of 19 and 34—one hailing from each village of Kibera, with a mix of young men and women and a variety of tribal affiliations. Realizing that the data collected would to make an impact, we also trained local community media members and others on digital tools such as Wordpress software and storytelling using Flip camcorders, enabling a rich assortment of tools for self-representation and storytelling to become available to the community.

Within three weeks, the mapping team had produced one of the densest maps ever made, labeling "points of interest" throughout Kibera. The mappers were allowed to choose what features were most important to collect, and agreed to try for every single water point, toilet, clinic, pharmacy, school, church, mosque, and NGO office, plus anything else at their discretion. They painstakingly uploaded the data using the Java OpenStreetMap editing software, overcoming a substantial lack of computer experience. Some signed up for their first email account. And all learned the joys of Facebook.

The map is available now through OpenStreetMap (OSM), a volunteer global mapping project often referred to as The Wikipeda of Maps. Based on the premise that crowdsourced information is more current and reliable than traditional means of collecting information, OSM allows anyone to contribute geographic details they have collected with GPS devices and other tools and add them to the map. Other data collection methods include tracing over aerial imagery, and drawing on and scanning paper maps, known as Walking

KIBERA STRUCTURES

Source: http://mapkibera.org

Papers. A thriving global grassroots mapping community provides ever-increasing detail and coverage, monitors accuracy collectively, lobbies governments for data, and finds new ways to use geographic data. Recently, OSM volunteers mapped Haiti remotely to support emergency efforts.[3]

After the initial success of Map Kibera, we began to turn our attention to issues of sustainability and impact. We recently established a company called GroundTruth Initiative in order to expand work on mapping and digital citizen media to other regions, using Map Kibera as a pilot. The second phase expands on an evolving concept for GroundTruth: community information development—gathering, reporting, and analyzing local information using digital tools, and using that information for advocacy. The Map Kibera group is now working with local organizations to create a seamless link from the community to government agencies and others in powerful positions to make these collective voices heard. With support from Unicef and partners SODNET and KCODA, the new phase involves three concurrent threads: more detailed mapping in thematic areas such as health and education; media development including an Ushahidi website called Voice of Kibera and video news reporting; and SMS monitoring of services and incidents. A series of community meetings using a paper printout of the map will kick off community discussions on topics such as health, security, education and water, allowing for local feedback.

The final outcome should be nothing less than a new model for participation in civic processes, and a new representation of Kibera based on the knowledge held by its residents.

Erica Hagen founded Map Kibera with partner Mikel Maron in October of 2009, and established GroundTruth Initiative, LLC in March 2010. She received a Master's of International Affairs from Columbia University in New York, where she focused on journalism and international development. She has worked in four countries on project evaluation and communications, and in the United States on refugee and immigrant issues. She holds a B.A. from Reed College in Religion.

Kaushal Jhalla contributed to this article.

Links

http://mapkibera.org
www.openstreetmap.org
http://kibera.ushahidi.com
www.kcoda.org
www.sodnet.org
http://cfk.unc.edu

References

Kenya: The Unseen Majority: Nairobi's Two Million Slum-Dwellers, Amnesty International. London: Amnesty International Publications, 2009.

Notes

1 On the low end, see Stefano Marras, "Mapping the Unmapped," http://www.afronline.org/wp-content/uploads/2009/06/kibera_mapping_the_unmapped.pdf
On the high end, see Amnesty International and many other NGOs: http://www.amnestyusa.org/all-countries/kenya/page.do?id=1011181

2 *The Unseen Majority*, p.6

3 Haiti Wiki: http://wiki.openstreetmap.org/wiki/WikiProject_Haiti

Design Thinking

continued from page 31

design thinking in an organization. Perhaps the approach isn't embraced by the entire organization. Or maybe the organization resists taking a human-centered approach and fails to balance the perspectives of users, technology, and organizations.

One of the biggest impediments to adopting design thinking is simply fear of failure. The notion that there is nothing wrong with experimentation or failure, as long as they happen early and act as a source of learning, can be difficult to accept. But a vibrant design thinking culture will encourage prototyping—quick, cheap, and dirty—as part of the creative process and not just as a way of validating finished ideas.

Design thinking can lead to hundreds of ideas and, ultimately, real-world solutions that create better outcomes for organizations and the people they serve.

Tim Brown is the CEO and president of IDEO, a global innovation and design firm. He is author of *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (HarperBusiness, 2009), a newly published book about how design thinking transforms organizations and inspires innovation.

Jocelyn Wyatt leads IDEO's Social Innovation group, which works with enterprises, foundations, nongovernmental organizations, and multinationals to build capabilities in design thinking and design innovative offerings that meet the needs of local customers.

Adapted from the original article by Tim Brown and Jocelyn Wyatt, "Design Thinking for Social Innovation," *Stanford Social Innovation Review* (Winter 2010) vol.8, No. 1, pp.30-35.

Notes

1 Jocelyn Wyatt, E-mail correspondence with Kara Pecknold, September 23, 2009.

2 Tom Kelley and Jonathan Littman, *The Ten Faces of Innovation: IDEO's Strategies for Defeating the Devil's Advocate and Driving Creativity Throughout Your Organization*, New York: Random House, 2005.

3 "Accelerating Innovation for Development: The Rockefeller Foundation and Inno-Centive Renew Partnership Linking Nonprofit Organizations to World-Class Scientific Thinkers," Rockefeller Foundation, June 23, 2009.

References

7 Brown, Tim. *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*, New York: HarperBusiness, 2009.

Minkel, J.R. "Net Benefits: Bed Netting, Drugs Stem Malaria Deaths: Proactive African Countries See Fewer Children Felled by the Mosquito-Borne Disease," *Scientific American*, February 4, 2008.

Pauling, Linus, Barclay Kamb, Linda Pauling Kamb, et al., *Linus Pauling: Selected Scientific Papers*, Volume II—Biomolecular Sciences, London: World Scientific Publishing, 2001.

Positive Deviance Initiative. "In Memoriam: Jerry Sternin,"

Positive Deviance Initiative. "Nutrition in Viet Nam,"

Positive Deviance Initiative. "The Viet Nam Story: Narrated by Jerry Sternin,"

Positive Deviance Initiative. "What Is Positive Deviance?"

Starr, Kevin. "Go Big or Go Home," *Stanford Social Innovation Review*, fall 2008.

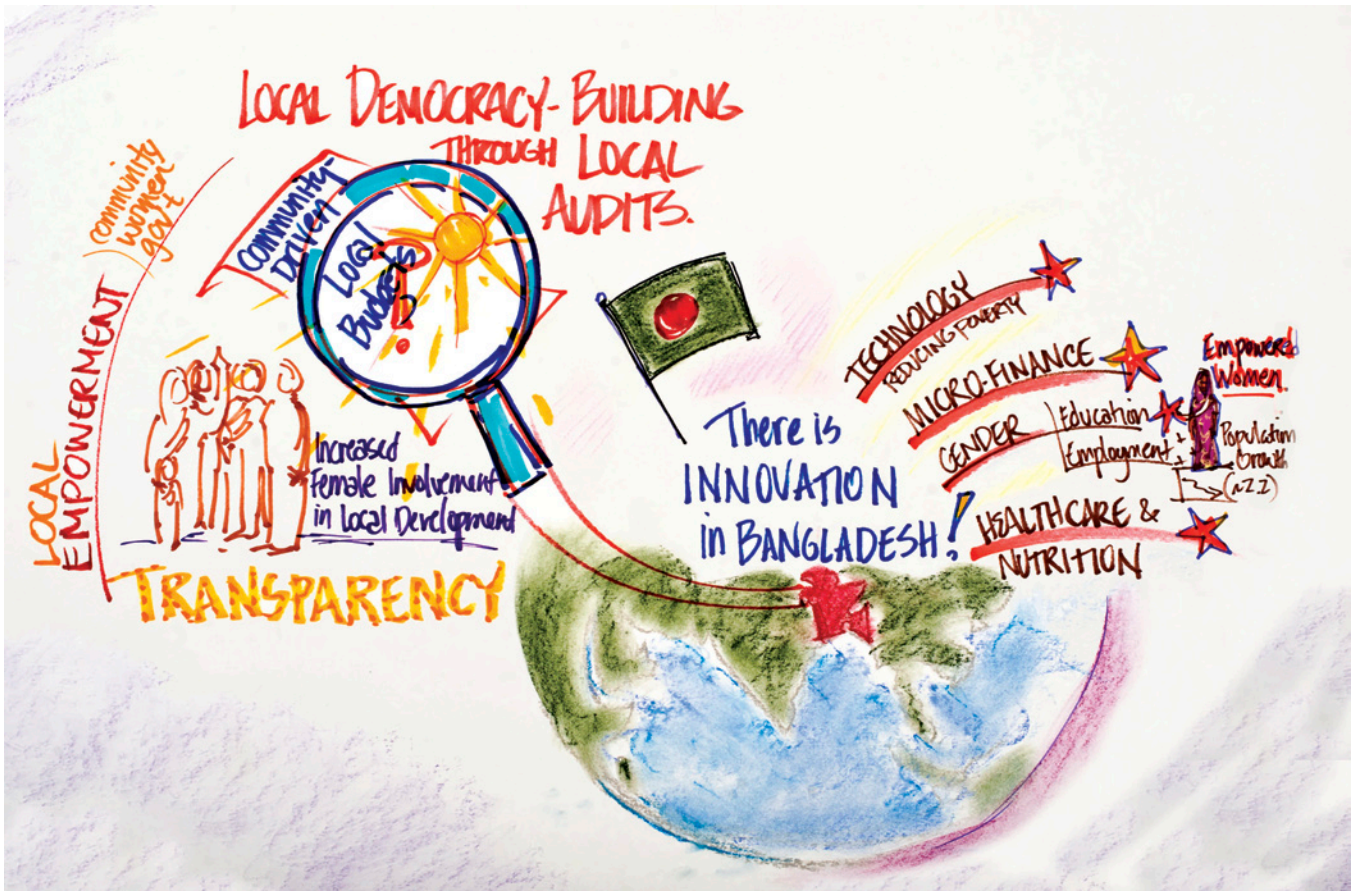
BRAC

A Laboratory for Systemic Solutions

BY KIRSTEN SPAINHOWER

IN THE UNITED STATES, Silicon Valley has become synonymous with innovation. We are currently riding a wave of creative responses to some of the world's most intractable problems, led by many different actors from a variety of backgrounds. New innovations are being developed at exponential rates, but experimentation to produce technological advances still needs practical application and field-testing to assess whether something new is even useful. Halfway around the world, a leading Bangladeshi service provider known as BRAC has been doing exactly this—since 1975.

Social entrepreneurs are at the forefront of testing both processes and technological innovations on the ground. In the spirit of many initiatives that start small then scale up, social enterprises typically produce small, short-term changes with effects that ripple through existing systems, thereby catalyzing big changes over the long term. Some organizations seek to address challenges by inventing a technical solution, others innovate by addressing systemic barriers at a societal level.



However, the characteristic shared by social entrepreneurship initiatives that both achieve a large scale and are transformative at a societal level is an emphasis on experiential learning by individuals and the organization (Alvord et al 2003).

An example of a technical solution is the distribution of water pumps in rural settings. Development organizations have funded thousands of water pump models over the years to bring clean water to rural populations. Yet insufficient knowledge of socio-economic situations or cultural settings resulted the failure of getting pumps to communities in need. Indeed, despite the availability of a technology, years of research have found that the presence of a technology doesn't necessarily guarantee that the population it is meant to serve will have access to it.

Rooted in the philosophies of Amartya Sen and Paolo Friere, the Bangladesh Rural Advancement Committee (BRAC)—one of the world's largest NGOs—believes that the lack of universal access to such basic things as water constitute a failure in the market that limits the poor from accessing basic services and earning a living wage. In response, BRAC creates multiple entrepreneurial opportunities along the entire value chain to address underlying inequities inherent in the market economy.

Sir Fazle Abed, a former corporate executive with Shell, established BRAC in 1972. Though it started out in response to Bangladesh's Liberation War and the resettling of refugees returning from India, its mission evolved into that of empowering people and communities by alleviating situations of poverty, illiteracy, disease and social injustice. Its innovative approach grounded in social entrepreneurialism succeeds in addressing some underlying causes of poverty in a manner unlike many other development organizations. By applying a holistic framework to the alleviation of poverty, systemic issues surrounding class and caste are more easily dismantled.

BRAC takes a societal-level approach, developing interventions intended to achieve scale and affect positive changes by enabling individuals to realize their potential. BRAC focused its work on women and children, who are traditionally the most vulnerable, recognizing that women, as the primary caregivers, would ensure both the education of their children and the inter-generational sustainability of their families and households (BRAC 2010). Because of this orientation, the empowerment of women and the education and health of children is at the core of BRAC's mission.

In addition to the provision of micro-credit, BRAC owns an array of pro-poor commercial enterprises strategically linked to its development programs. Recognizing the numerous barriers that restrict the poor from participating fully in the market, BRAC does not rely only on loans. Instead, it developed interventions along the whole supply chain - both upstream and downstream - that maximize benefits to the poor.

For example, in the agricultural sector, BRAC works with low-income women in poultry, livestock, fisheries, sericulture, crop farming and social forestry. Within each of these sub-sectors, BRAC has designed an integrated set of services, including training in improved production techniques, provision of improved breeds and technologies, supply of technical assistance and inputs, organizing participatory farmer experiments with new technologies, and marketing of finished goods (BRAC 2010). These interventions are located along the entire value chain at critical points where the poor typically have trouble accessing services or achieving competitiveness.

BRAC realized that the effective design and implementation of its programs would require evidence-based research. From the beginning, it took a very unpopular approach considering that many organizations which generate public goods start out as donor dependent. Specifically, rather than submitting a glowing report highlighting initial successes to its donors, BRAC told of sobering lessons learned from disappointing results. It recognized that success would only be realized by creating strategies based upon the realities on the ground. Three years after BRAC was founded, it set up its own independent Research and Evaluation Unit, well before such a thing became the standard. This group provides the analytical research needed to improve existing programs and offers direction on new avenues of development based on field experiences.

BRAC's organizational structure forces it to take a critical look at failures in a systematic way. Feedback mechanisms inform programs by leveraging the knowledge of its staff and beneficiaries to make continual improvements. David Korten, author of "When Corporations Rule the World," referred to BRAC "as near to a pure example of a learning organization as one is likely to find." By design BRAC is structured as a learning organization that seeks to transform the society in which it operates. As a counterpoint to the innovations occurring in the sterile labs of Palo Alto, California, BRAC's research unit serves as its own innovative model. Here BRAC finds solutions to development challenges within a real world laboratory of ideas.

Kirsten Spainhower is an Operations Officer at the World Bank. She has a Bachelor of Science from the Evergreen State College and a Master's of Forestry from Yale. Kirsten has spent most of her career focused on rural development challenges.

References

Bangladesh Rural Advancement Committee. May 20, 2010. http://www.brac.net

"BRAC in Business." *The Economist.* The Economist Newspaper Limited, 18 Feb. 2010. http://www.economist.com/business-finance/displaystory.cfm?story_id=15546464

Osberg, Sally. "The House That BRAC Built." Review of Book. Stanford Social Innovation Fall 2009. http://www.ssireview.org/articles/entry/the_house_that_brac_built/

Solomon, Marla J., and A. Mushtaque R. Chowdhury. "Knowledge to Action: Evaluation for Learning in a Multi-Ogranisational Global Partnership." Development in Practice 12.3/4 (Aug. 2002): 346-54. JSTOR. Web. 29 Apr. 2010. http://www.jstor.org/stable/4029506

Alvord, Sarah H., L. David Brown, and Christine W. Letts. Social Entrepreneurship Leadership That Facilitates Societal Transformation—An Exploratory Study. Working paper. http://www.hks.harvard.edu/leadership/Pdf/AlvordBrownLettsWorkingPaper.pdf

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http://ww2.fundacionchile.cl/portal/web/guest/home

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The Stanford Social Innovation Review (SSIR) is a quarterly magazine that features strategies, tools, and ideas for nonprofits, foundations, and socially responsible businesses.

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http://www.schwabfound.org/sf/index

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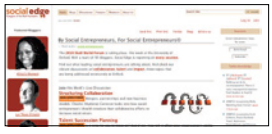

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The Skoll Foundation supports Social Edge, where social entrepreneurs, nonprofit professionals, philanthropists and others in the social sector connect to network, learn, inspire one another and share resources.

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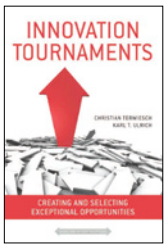
SCIENCE AND INNOVATION FOR DEVELOPMENT, *by Gordon Conway and Jeff Waage, UK Collaborative on Development Sciences, 2010.*
This book describes science as a tool for providing evidence and discovering solutions which has been neglected recently by many key decision makers.

CHANGE BY DESIGN: How Design Thinking Transforms Organizations and Inspires Innovation, *by Tim Brown and Barry Katz, Harper Business, 2009.*
This book introduces the idea of design thinking, the collaborative process by which the designer's sensibilities and methods are employed to match people's needs.



INNOVATION TOURNAMENTS: Creating and Selecting Exceptional Opportunities, *by Christian Terwiesch and Karl T. Ulrich, Harvard Business School Press, 2009.*
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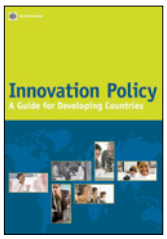
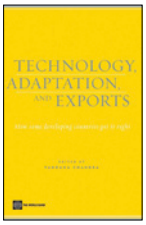


INNOVATION POLICY: A Guide for Developing Countries. *World Bank, 2010.*
This guidebook draws upon a large and diversified set of policy areas as sources of knowledge and competence in order to provide a holistic discussion of innovation policy. It offers a broad methodological framework into which concerned policy making communities can design, conceive and implement policy measures adapted to their context.



TECHNOLOGY, ADAPTATION, AND EXPORTS: How Some Developing Countries Got it Right, *by Vandana Chandra, The World Bank, 2006.*
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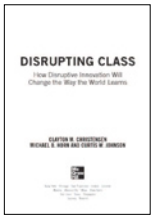
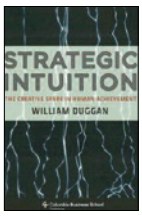


DISRUPTING CLASS: How Disruptive Innovation Will Change the Way the World Learns, *by Clayton Christensen et al., McGraw-Hill, 2008.*
Filled with fascinating case studies, scientific findings, and unprecedented insights on how innovation must be managed, *Disrupting Class* opens our eyes to new possibilities, unlock hidden potential, and make us think differently. The authors provide a bold new lesson in innovation.



STRATEGIC INTUITION: The Creative Spark in Human Achievement, *by William R. Duggan, Columbia University Press, 2007.*
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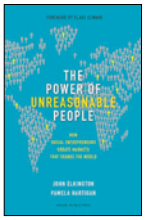
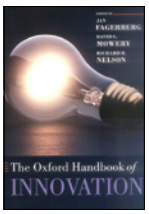


THE POWER OF UNREASONABLE PEOPLE: How Social Entrepreneurs Create Markets That Change the World, *by John Elkington and Pamela Hartigan, Harvard Business School, 2008.*
Through vivid stories, the authors identify the highly unconventional entrepreneurs who are solving some of the world's most pressing economic, social, and environmental problems.



THE OXFORD HANDBOOK OF INNOVATION (Oxford Handbooks), *Jan Fagerberg, David C. Mowery, and Richard R. Nelson, eds., Oxford University Press, USA, 2006.*
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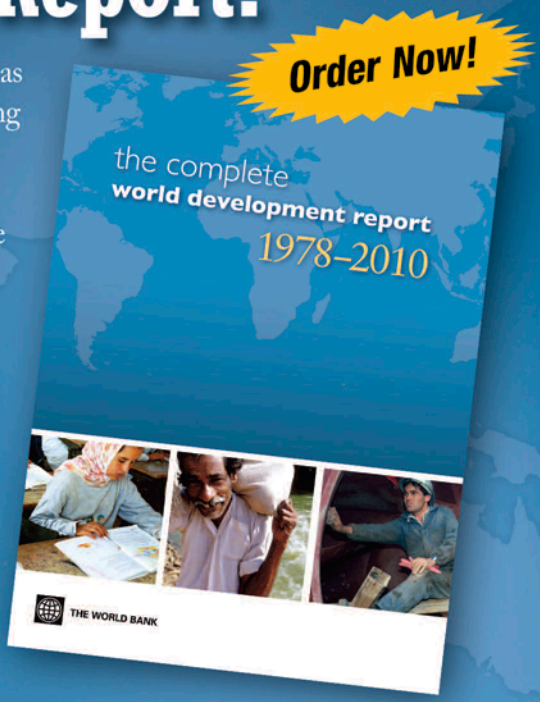

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