INNOVATION FOR A COMPLEX WORLD

Global perspectives on how social innovation can promote the well-being of humanity

2 **Innovation for the Next 100 Years** *By Judith Rodin*

6 **Social Innovation and Resilience: How One Enhances the Other** *By Frances Westley*

9 **Social Innovation Creates Prosperous Societies** *By Kevin Chika Urama & Ernest Nti Acheampong*

12 **Innovate and Scale: A Tough Balancing Act** *By Christian Seelos & Johanna Mair*

15 **Forging Ahead with Cross-Sector Innovations** *By Won-Soon Park*

18 **Tapping the Entrepreneurial Potential of Grassroots Innovation** *By Anil K. Gupta*

21 **Embracing the Paradoxes of Innovation** *By Zia Khan and Kippy Joseph*

This supplement was produced by *Stanford Social Innovation Review* and funded by The Rockefeller Foundation.

Innovation for the Next 100 Years

By Judith Rodin

What social innovation means to the Rockefeller Foundation and the changes the foundation is making to ensure a strong basis for innovation for the next 100 years.

A centenary comes but once in the lifetime of any organization—and it's a milestone we are privileged to celebrate at the Rockefeller Foundation in 2013. This rare and exciting moment presents us an opportunity to think broadly about our rich history, assess our strengths and achievements, and recommit to our mission to "promote the well-being" of humanity throughout the world.

Our first one-hundred-year span has been marked by incredible scientific discoveries, medical advancements, and changes in technology that have revolutionized the world. Although a great deal has changed since John D. Rockefeller Sr. founded the Rockefeller Foundation, our commitment to innovation has remained steadfast.

Innovation is deeply embedded in the DNA of all that we do, from advancing the field of public health to developing the field of artificial intelligence. Our focus has always been to incubate those novel ideas, programs, products, or practices that have a clear positive impact on the social and economic well-being of the world's poor and vulnerable. This commitment still inspires us today to do more than just foster greater innovation by ourselves and our grantees; we also bolster and support the field of social innovation as a whole—creating more resilient systems, communities, and people.

In that spirit, we've leveraged our centennial year to convene people from around the world to help us understand the depth and scope of increasingly complex global challenges, as well as the opportunity for innovative ideas and practices to solve them.

This special supplement of the *Stanford Social Innovation Review* is an essential part of that effort. Within these pages we have invited some of the foremost thinkers in the field to share their perspectives on social innovation and offer specific ideas for how we can increase impact and improve lives.

Before hearing from these experts, I want to share what social innovation means to the Rockefeller Foundation, what we've learned over the last century, and how we are making needed changes to ensure that we build a strong basis for innovation for the next 100 years.

A Century of Innovation

The term *innovation* has become a ubiquitous buzzword, meaning different things to different people. It is used to describe everything from the smart phone in your pocket to a new financial service for the poor. Not only do we describe products and services as innovative, we use the term to describe ourselves. A search through the professional networking site LinkedIn in 2010 revealed that "innovative" was the second-most used term to describe a person.

At the Rockefeller Foundation, we define innovation as a break from previous practice, occurring when different points of view or existing practices are framed, imagined, or combined in new ways. Innovation succeeds when it creates new pathways for solving entrenched social problems, resulting in lasting transformation of the systems that most affect vulnerable populations and leave stronger social relationships in their wake.

We believe that innovation emerges gradually. It is not a bolt of lightning or a light bulb that suddenly brightens over our heads. Often, innovation is an improvement on invention, not the invention itself. It's adaptable, adjustable, and applicable to new challenges.

Building an organization that could evolve with the times and confront new challenges as they emerged was the extraordinary genius of Rockefeller Foundation founder John D. Rockefeller Sr. His foresight to tackle problems around the globe and "attempt to cure evils at their source" broke with the traditional approach to charity that focused on fixing local ills in isolation. And it's the reason the foundation has been able to remain at the leading edge of innovation for 100 years.

Rockefeller did not believe in innovation for innovation's sake. He believed in the greater purpose of discovery and its potential to better society and the way people live. In this manner, he and Andrew Carnegie

Judith Rodin is president of the Rockefeller Foundation. Before joining the foundation, she was president of the University of Pennsylvania.

were not only the fathers of modern philanthropy, they were the first social innovators. Only they called it by a different name: scientific philanthropy.

Scientific philanthropy—or what Ohio State University professor and author Robert H. Bremner not so elegantly referred to as charity "purged of its sentimentality"—emerged as a response to the indiscriminate, ineffective, and often corrupt giving of aid in the post-Civil War era. The scientific approach suggested—for the first time—that giving needn't be an exercise confined solely to the emotion of the right brain, but also should encompass the logic of the left. Aid and relief, when systematized, organized, and even prioritized, could make a greater difference in solving immediate problems.

This philosophy was gaining popularity just around the time John D. Rockefeller Sr. hired the Rev. Frederick T. Gates to help him determine how best to distribute his vast wealth. Among his earliest gifts were funds to help establish the University of Chicago and the Rockefeller Institute for Medical Research, which would later become Rockefeller University.

But his greatest investment was in creating the Rockefeller Foundation. The foundation's focus on the root causes of problems, along with its broad charter, were two of the innovations that led to the development of modern philanthropy.

In 1914, the foundation's board of trustees appropriated the first funds for use outside the United States—$25,000 to create the International Health Commission. The commission's pioneering work helped lay the foundation for many of the approaches used today in public health. The following year, the foundation launched a program of international fellowships to provide training for post-doctoral scholars at the world's leading universities. At the time, Trustee Wickliffe Rose called the effort "backing brains."

One of those brains belonged to Dr. Howard W. Florey, a former Rockefeller Foundation fellow and professor of pathology and head of the Sir William Dunn School of Pathology at Oxford University. In July 1936, Florey received an initial grant of £250 to be used for lab equipment that would allow him to continue to study chemical approaches to pathology. In 1945, Florey, along with Alexander Fleming and Dr. Ernst B. Chain, received the Nobel Prize in Medicine for research leading to the development of penicillin.

Perhaps the greatest example of supporting ingenuity was also among John D. Rockefeller Sr.'s biggest gambles. When a young Albert Einstein requested $500 for his research, Rockefeller told his deputy, "Let's give him $1,000. He may be on to something." We all know how that story ends.

This idea of "backing brains"—engaging partners and other institutions to work toward a strategy or goal—is an enduring trait of Rockefeller's approach. The foundation recognized, and continues to recognize, that the expertise needed to solve the problems of a complex and ever-changing world does not exist within our walls alone. Investing in the insights of others can unlock the door to innovation. The foundation has also long recognized that knowledge on its own is not enough for innovation. To be useful, knowledge must be shared among networks, both internal and external.

In the early decades of its history, foundation officers were required to keep a journal of their travels, observations, and results, which were then shared with

staff across the organization. To build and maintain strong networks before the advent of computers or social networks, staff members wrote the names of grantees and contacts on small note cards that were filed in big oak card catalogs within our offices—which we maintain still today.

In addition to investing in insights and sharing knowledge, another lesson emerges from our first 100 years—again and again, the greatest social innovations have been born from crisis. Rampant yellow fever and hookworm led to transformative vaccines. One billion people on the cusp of starvation made a Green Revolution possible.

The Rockefeller Foundation has funded many health programs, including (top) dispensaries treating hookworm disease in Alabama, United States, and (bottom) researchers in Accra, Ghana, investigating yellow fever.

Innovating for the 21st Century

The crises we face today are more nuanced and much more complex than in the past—huge in scale and scope, with no regard for man-made borders, and inextricably linked. Author Jeffrey Conklin calls this new brand of interconnected global challenges "wicked problems."

Despite their complexity, these crises also present us with greater opportunities. Advancements in technology, travel, and communication mean we can transfer knowledge much faster and with a greater degree of specificity than ever before. We are able to more quickly warn of shocks and disruptions in one region, such as infectious disease, that will affect people in other regions. In other words, we are able to be more democratic, more global, and more collaborative than ever before.

In 2007, the Rockefeller Foundation launched its Accelerating Innovation for Development initiative, aimed at exploring the potential of open and user-centered innovation models to address the needs of the global poor. The initiative sought to adapt and test approaches such as crowdsourcing, competitions, user-centered designs, and user-driven innovation methods across various issues and geographies, particularly in the developing world.

Innovations in markets and financial products have also created new opportunities and sources of capital that we couldn't have imagined decades ago. The acceleration of impact investing, a practice the Rockefeller Foundation has helped to grow, has provided access to greater amounts of money to solve pressing social problems. For example, the Rockefeller Foundation played an important role in creating the New York City Acquisition Loan Fund—in which a group of foundations put up the initial high-risk tier of $36.2 million in capital for new affordable housing projects. This allowed commercial lenders such as JP Morgan, HSBC, and other large banks with lower risk tolerance to provide approximately $190 million in second-tier debt. In only a few short years, this partnership enabled New York City to build thousands of units of affordable housing.

Lessons We're Learning

Over the years, we've learned a great deal about what works and what doesn't when it comes to creating and catalyzing opportunities for innovation. First, there must be room for experimentation and risk-taking. Providing this flexibility requires more than just betting on the next Einstein—it means creating space for the next Einstein or Paul Farmer to take risks with his work and, if needed, a place to fail safely. For philanthropy in particular, it's about mitigating the risk by using the capital and other means at our disposal to provide an opportunity for others to invest and collaborate.

Second, in addition to space, innovation needs time and demands patience. The Rockefeller Foundation's work to eradicate yellow fever began in 1916, but the vaccine that would ultimately achieve this goal would not be developed for another thirty years. Even with the advanced technological capabilities and the immediacy of the Internet, innovation still requires incubation and an enabling environment to develop. This continues to be an opportunity for foundations, which, because of broader missions and flexibility, have traditionally been able to commit to programs for the long haul.

That's not to say, however, that ideas should be given a boundless timeframe to develop and scale up. This leads to the third lesson: defining clear outcomes. Goal setting and impact measures need not be the enemies of innovation. In fact, when framed in the context of who will benefit and how, goals and measures can help us achieve even greater impact.

Successful innovations come from a process where the people who will ultimately benefit from a product or service are given a voice in its development. For example, the foundation funded the for-profit company IDEO to work with nonprofits. One of these is Conversion Sound, a social enterprise that develops hearing aids for poor people in rural

India. Through the IDEO process they discovered that because authority commands such respect, particularly in the rural parts of India, hearing aid technicians would be more effective if they wore uniforms. That wasn't an idea that could have come from any lab or research facility, but it made a huge difference in the success of the program.

Last, we have learned that although these new approaches to social innovation hold unprecedented promise, in many instances, the thinking and the technology have outpaced the ability of organizations to effectively implement and scale up the solutions in the real world. One thing we've seen consistently is that the capacity for implementing new approaches in the field often cannot keep up with the pace of innovation methods in development. We believe that innovation must be just as much about capacity-building among organizations, communities, and individuals. And that is the focus of our current work at the Rockefeller Foundation, driven by our twin visions: ensuring that the benefits of globalization are reaching vulnerable populations, and building the resilience of those populations against the shocks and disruptions of the 21st-century world.

Innovating for Resilience

As I mentioned, one of the important lessons we've learned is that big, systems-changing innovation often takes great patience—time, quite frankly, that we don't always have when helping vulnerable populations. As we spend time searching for the next vaccine or the next mobile technology, people are suffering under the weight of extreme poverty, dirty water, droughts, and floods. They are struggling to maintain their crops, educate their children, or access the health care they need to keep their families safe and healthy.

We cannot predict the future form and scope of the shocks that communities and systems will have to withstand and recover from—whether they result from climate change, financial crisis, armed conflict, or social upheaval. In the face of these challenges, innovating for resilience—resilient networks, communities, and organizations better able to respond to and adapt to these unexpected events—is among the most important kinds of innovation we can pursue.

Take climate change, for example. These shocks will continue to increase as warming temperatures heat our planet, and as global populations shift to cities and areas closer to low-lying coasts. By 2070 about 60 percent of the world's population increase will be in Asia, which will be home to seven of the ten cities most exposed to flooding. At present, Asian cities lack the resources to prepare for and manage the shocks of weather events. But fortunately, innovations in flood management that are both affordable and effective may help mitigate the disastrous impacts we've seen in the aftermath of previous floods in the region. Among them is the concept of failing safely. With proper plans in place, transportation lines and electrical grids can be shut down in advance of major weather events to ensure that they can be restored much more quickly than if they were allowed to fail on their own.

Innovating for resilience is critical if we are to protect against the disruptions of a 21st-century world. As we do so, we should keep in mind the qualities resilient networks, communities, and organizations share. Among them are:

Flexibility | able to change, evolve, and adapt at a rapid pace.
Redundancy | able to change course and adopt alternative approaches.
Resourcefulness | able to identify problems, establish priorities, and mobilize resources and assets to achieve goals.
Safe failure | able to absorb shocks and the cumulative effects of slow-onset challenges so as to avoid catastrophic failure if thresholds are exceeded.
Responsiveness | able to re-organize and re-establish function and order following a failure.
Learning | able to internalize experiences and apply those lessons to decrease vulnerabilities to future disruptions.

The goal of social innovation, and those who work in the field, should be to make our world more resilient than it is vulnerable; to do what we can to reduce the shocks and disruptions; and most important, to ensure that all people, particularly the poor, can withstand that which we cannot prevent or even predict.

Our focus has always been to incubate those novel ideas, programs, products, or practices that have a clear positive impact on the social and economic well-being of the world's poor and vulnerable.

The Next 100 Years

We all have a role to play in fostering innovation. Governments can enact smarter policies, businesses can open new markets and distribution channels, and investors can infuse greater capital into products that deliver social as well as financial returns.

Here at the foundation, we've begun thinking about our own strategy and the role we will play in fostering innovation over the next 100 years. We're putting in place a model and a strategy that will allow us to be much more nimble, and that will build our ability to test new ideas and learn from our experiences. We are asking ourselves tough questions, not just about what we do, but how we do it. How are we using our tools and our history for innovation? Are we using these effectively?

The articles that follow describe more ways of thinking and catalyzing innovations for the betterment of humanity. I urge you to read these not simply as an academic exercise—after all, innovation is about changing realities for people, and must be considered in real contexts. Instead, consider what concrete, practical steps you can take to enhance flexibility, redundancy, and resourcefulness in your own organizations or ones you work with. Then push yourself and those around you to share with and learn from one another. Just as one actor cannot solve problems alone, innovation is not a job for a single mind. Work to create an environment where collaboration is interwoven in the culture, and a commitment to innovation is clearly communicated and measured.

However we move forward, we must not be afraid to experiment, to make strategic bets, and to take chances. As John D. Rockefeller Sr. said, "If you want to succeed you should strike out on new paths, rather than travel the worn paths of accepted success."

The insights that follow will help us take those next steps. ●

Social Innovation and Resilience: How One Enhances the Other

By Frances Westley

In 1972 Bunker Roy and a small group of colleagues set up the Barefoot College in Tilonia, Rajasthan, India. Their vision was an interesting and catalytic one, joining old and new, traditional and radical. Informed by the teachings and philosophy of Mahatma Gandhi—giving the poor and the dispossessed the means to produce their own necessities—the Barefoot College trained the poor to build their own homes, to become teachers in their own schools, and to produce, install, and operate solar panels in their villages. Roy and his colleagues also emphasized empowering women in general and grandmothers in particular. As a result, "professional" expertise was placed in the hands of the poorest of the poor and the weakest of the weak: village women.

In one way, Barefoot College's innovations were deeply radical—challenging the conventions of village life, professional associations, and traditional culture. In another way they were classic *bricolage*, a term drawn from the junk collectors in France and defined as "making creative and resourceful use of whatever materials are at hand (regardless of their original purpose)." In this case the juxtaposition of elements not normally combined addressed a cluster of intractable problems including the health needs, gender inequalities, energy needs, and educational needs of the developing South.

Barefoot College is clearly a social innovation, and a successful one, that has spread across the developing world: Women from African villages have traveled to India to learn about its ideas and practices, and graduate students from North America are applying the concepts to aboriginal communities in the North.[1]

By juxtaposing the old and the new, the technological and the social, and the political and the economic, social innovations build a resilient social-ecological system. With the earth and its ecological systems pushed close to planetary boundaries, we need innovative solutions that take into account the complexity of the problems and then foster solutions that permit our systems to learn, adapt, and occasionally transform without collapsing. More important, we need to build the capacity to find such solutions over and over again.

Part of building resilience in complex systems is strengthening cultures of innovation. These are cultures that value diversity, because as any *bricoleur* knows, the more (and more different) the parts, the greater the possibility of new and radical combinations. But these cultures also need to encourage the kind of communication and engagement that allows disparate elements to meet and mingle, and that allows for experimentation and support rather than blame. Such cultures support social innovation, and social innovation in turn builds resilience.

Resilience theory is becoming more popular as a lens to focus on linked social-ecological systems at all scales, from the individual, to the organization, to the community, to the region, and to the globe. As a theory, it is deeply interdisciplinary, representing the intersection of psychology, ecology, organization theory, community studies, and economics.[2] It is similar to sustainability science in that it is a whole system approach that posits inextricable links between the North and the South and between the economy and the environment. But it differs in that it focuses on the balance between continuity and change, a continuous (or infinite) cycle of release, reorganization, growth, and consolidation that characterizes all resilient living systems.[3]

In the release and reorganization phases, new elements may be combined in new ways. In the growth and consolidation phases, these new combinations attract resources and capital and deliver returns in energy, biomass, or productivity on which the system depends and thrives. To understand this concept, think about a mature forest, with energy and physical capital stored up in biomass. A forest fire triggers a release of energy and resources. New life forms spring up in the fertile ground, absorbing the nutrients quickly. Some of these forms are species that have lived in that forest before; others are new. Not all can survive, so a pattern of dominance results in some species dying out and others accumulating biomass to grow to a mature forest. Resilience theory suggests that a serious

Frances Westley holds the JW McConnell Chair in Social Innovation at the University of Waterloo, where she leads the Waterloo Institute for Social Innovation and Resilience.

loss of system resilience happens only when the system gets trapped at some point in the cycle: System resilience lies in the continuous movement through the cycle, causing the system to adapt or transform in the process.

Now consider this cycle applied to innovation, either technical or social. As Joseph Schumpeter outlined in *Capitalism, Socialism, and Democracy*, entrepreneurs come up with new ideas, using the resources available. Some ideas fail, but others take wing and become new products, programs, processes, or designs that attract resources and become part of the established system. Here too we see a similar pattern: the association of old and new ideas in the idea generation stage; a shakeout of competing ideas and organizations in favor of those able to attract the most resources; a pattern of dominance and consolidation of successful ideas and organizations; and the institutionalization of the innovations so that they become business as usual.

The similarity between the cycle of innovation and the cycle of the release and renewal of resilient ecosystems is striking. But resilience theory suggests that for the broader system (the organization, the community, or the broader society) to be resilient, it is not enough to innovate. Society needs to build the capacity for repetition—over and over again, forever. Moreover, although many innovations allow for adaptation (such as portable homes for the homeless that allow the homeless to live more successfully in extreme temperatures),[4] other innovations, more disruptive and radical, have the potential to transform the system. This was the case of the Barefoot College.

What Resilience Brings to Social Innovation

Resilience theory has many lessons to teach people involved in social innovation. The most important is the need to look at a problem systemically. Western culture has a long history of introducing solutions (particularly technical ones) designed to solve a specific problem, without considering the broader system impacts the solution might have. Consider the race to develop biofuels. The current preoccupation with finding energy sources to replace fossil fuels and petroleum-based products threatens to neglect the multiple system impacts that the production of biofuel has on the environment and society. For example, because biofuels can be grown on poor land (a plus from the point of view of producers), they are likely to absorb land currently used for subsistence agriculture in the developing world, making food security even more precarious.[5]

Another example of negative unintended consequences on the larger system is the development of ecotourism in the Galapagos Islands. The islands offer unparalleled biodiversity. To maintain this diversity and to stimulate the local Ecuadorian economy, ecotourism companies compete to bring small groups of tourists to the islands. The government controls how many people can disembark on an island, but there is less control over the number of boats that can sail or motor close to an island. As a result, the increasing numbers of boats have caused drastic erosion of the coral reefs. What may seem like a panacea can turn out, when viewed from the point of view of the larger system, to be an illusion.

A historical example of an innovation gone wrong was the residential school system for aboriginal Canadians. Proponents believed that the best way to "help" aboriginal people was to assimilate them by teaching them European culture, language, religion, and economic practices. To accomplish this, the government removed hundreds of children from their homes and put them into residential schools, forbidding them to use their native language. At the time most white Canadians saw the practice as an innovative solution to the problems of First Nations people. But even in the light of the social philosophy of the time, it was an intervention that took no account of the systemic nature of the problem. The intervention deeply undermined the general resilience of aboriginal communities, greatly exacerbating the problems that the initiative tried to resolve. It destroyed communal ties and lineage lines and left a whole generation not only poorly assimilated, but stripped of its cultural identity. It is an extreme example of failing to consider the systemic nature of a social problem when attempting an innovative intervention.

Understanding resilience can also help social innovators balance top-down and bottom-up approaches to crafting solutions. For example, relief agencies were concerned that the trauma of displacement would cause Eritrean women living in refugee camps to suffer post-traumatic stress. But it turned out that as long as the women were able to create coherent accounts or stories and share them with others, their stress was manageable. Similarly, when efforts were made to provide people with their traditional foods (such as "famine foods"), communities were much more resilient in the face of famine. Because of experiences such as these, international relief organizations are increasingly working closely with local people (by listening and learning) rather than immediately responding with top-down solutions.[6]

Governments strongly influence setting the parameters and creating the opportunities for innovation to occur at local levels. One of the best examples was the Brazilian government's response to the escalating cases of HIV-AIDS. In 1990 the World Bank found that Brazil was one of the worst hit countries, with almost twice as many people infected as South Africa. The World Bank predicted that both Brazil and South Africa would see astronomical increases by the year 2000. The World Bank recommended that Brazil abandon efforts to treat people with HIV-AIDS and instead focus on prevention. But the Brazilian government ignored the advice and decided to unleash local creativity and innovation. The parameters were that no person—regardless of how poor, insignificant, or illiterate he or she was—would be written off as beyond cure. They lobbied the World Health Organization to reduce the costs of anti-viral drugs and launched an effective communication strategy to make the use of condoms sexy. They then gave enormous discretion to community leaders, including priests and nuns in local parishes, to figure out how to reach every infected person. Health care clinicians worked alongside NGOs to provide the full range of services needed, including testing, education, and delivering and supervising medication.

Despite its high illiteracy rate, Brazil achieved the same compliance rate across all communities as the United States. By 2000 the infection rate had dropped to 1 in 160, a far cry from the 1 in 4 predicted by the World Bank. This is an example of resilience theory at work—looking at the problem and solution systemically, across scales and subsystems, and taking account of the roles that local knowledge and government policy can play in crafting a solution.[7]

What Social Innovation Brings to Resilience

One of the most important attributes that a social innovation approach offers is that it helps people understand the process by

which social systems adapt or are transformed. In particular, the approach shines a light on the various actors (such as social entrepreneurs and system entrepreneurs) who help these processes happen.

A large amount of research on social entrepreneurs has been undertaken. Less research has been done, however, on the system entrepreneurs who are responsible for finding the opportunities to leverage innovative ideas for much greater system impact. The skills of the system entrepreneur are quite different from, but complementary to, those of the social entrepreneur.

The system entrepreneur plays different roles at different points in the innovation cycle, but all of these roles are geared toward finding opportunities to connect an alternative approach to the resources of the dominant system. Opportunities occur most frequently when there has been some release of resources through political turnover, economic crisis, or cultural shift. In the Great Bear Rain Forest in British Columbia (BC), Canada, a political and economic crisis was provoked by the success of aboriginal land claims in the BC courts and the success of Greenpeace International's marketing campaign. This crisis created an opportunity for system entrepreneurs (a coalition of several NGOs) to convene a series of meetings and facilitate a process that allowed stakeholders who had been vehemently opposed to one another (aboriginal groups, logging companies, logging communities, the BC government, and environmental NGOs) to put aside their differences and begin to create solutions.

As these solutions multiplied, the system entrepreneurs moved into a new role: that of broker. They created bundles of financial, social, and technical solutions that offered a real alternative to the status quo. Once workable coalitions of actors and ideas had been forged, system entrepreneurs assumed yet another role—selling these ideas to those able to support the alternative with resources, policies, and media support. When policies were made to formalize new protection policies, financial support packages, and cultural promotion, the system entrepreneurs changed roles yet again by going back to the beginning of the cycle and reframing and challenging the status quo. In the process, the capacity of the social system as a whole to manage such transformations and adaptations had been strengthened. The same process is being used in a modified form in current negotiations around the boreal forest.[8]

In many instances, this kind of transformation takes many years. It requires a long period of preparation in which an innovative alternative is developed and then scaled up when a window of opportunity opens. In Chile, the window of opportunity for the introduction of community fisheries came with the intersection of an environmental crisis (the crash of the local fishery because of overfishing) and a political crisis (the coup that unseated President Augusto Pinochet's regime). System entrepreneurs had been preparing for such an opportunity for many years by creating experimental sites in a few communities, creating a shadow network of international and national scientists, and maintaining good relationships with politicians and bureaucrats expected to survive Pinochet. Because of that preparation, within a few years of the coup a new fisheries law was passed, enshrining community-based fisheries and environment-based management.[9]

Of course, "managing for emergence" is easier in some cultures than others. Some cultures allow ideas to move freely and quickly, combining with other ideas in the kind of *bricolage* necessary for innovation. Studies of resilience at the community, organizational, and individual levels suggest that these same qualities characterize organizations and communities that are resilient to crisis and collapse. The characteristics that these organizations and communities share are low hierarchy, adequate diversity, an emphasis on learning over blame, room for experimentation, and mutual respect. These are all qualities that support general resilience. If they are attended to, the capacity for social innovation will also increase, creating a virtuous cycle that in turn builds the resilience of the entire society.[10]

Final Thoughts

People involved in social innovation and people involved in creating a resilient society can learn much from one another. Resilience theory suggests that the processes of adaptation and transformation are dynamic, cyclical, and infinite. Social innovation is not a fixed solution either; it is part of a process that builds social resilience and allows complex systems to change while maintaining the continuity we rely on for our personal, organizational, and community integrity and identity.

To create a resilient society, it is important not to rely solely on the social entrepreneurs who come up with innovative ideas. Neither should one rely solely on government to create innovative opportunities. Instead, we should watch for those moments when crisis, disaster, or strategic vision opens a window for securing resources for the most promising alternatives.

Last, it is important to focus on a new kind of entrepreneur who complements the social entrepreneur: the system entrepreneur. The system entrepreneur identifies the promising alternatives to the dominant approach and then works with networks of others to stimulate and take advantage of opportunities for scaling up those innovations. Working at the level of the whole system, system entrepreneurs develop the alternatives, attract the resources, and work toward the moment when the system tips.

Notes

1 Bunker Roy with Jesse Hartigan, "Empowering the Rural Poor to Develop Themselves: the Barefoot Approach," *Innovations*, vol. 3, no. 2, 2008: pp. 67-93.

2 Ann S. Masten, "Ordinary Magic: Resilience Processes in Development," *American Psychologist*, vol. 56, no. 3, March 2001: pp. 227-238. Brian Walker, C.S. Holling, Stephen R. Carpenter, and Ann Kinzig, "Resilience, Adaptability and Transformability in Social–Ecological Systems," *Ecology and Society*, vol. 9, no. 2, 2004: p. 5. Karl E. Weick and Kathleen M. Sutcliffe, *Managing the Unexpected; Resilient Performance and the Age of Uncertainty*, New York: John Wiley and Sons, 2011. Charlie Edwards, *Resilient Nation*, London, Demos, 2009. Simon A. Levin et al., "Resilience in Natural and Socioeconomic Systems," *Environment and Development Economics*, vol. 3, no. 2, 1998: pp. 221-262.

3 Crawford S. Holling, "Understanding the Complexity of Economic, Ecological, and Social Systems," *Ecosystems*, vol. 4, no. 5, 2001: pp. 390-405.

4 http://www.youtube.com/watch?v=LH7V3f7tbko&feature=related),

5 http://www.etcgroup.org/content/new-biomassters

6 Astier M. Almedom et al., "Use of 'Sense of Coherence (SOC)' Scale to Measure Resilience in Eritrea: Interrogating Both the Data and the Scale," *Journal of Biosocial Science*, vol. 39, no. 1, 2007: pp. 91-107.

7 James W. Begun and Brenda Zimmerman, "Health Care Organizations as Complex Adaptive Systems," *Advances in Health Care Organization Theory*, edited by Stephen Mick and Mindy Wyttenbach, San Francisco: Jossey-Bass Publishing, 2003: 253-288.

8 Darcy Riddell et al., "Agency and Innovation in a Phase of Turbulent Change: Conservation in the Great Bear Rainforest," in *Using a Positive Lens to Explore Social Change and Organizations*, edited by Karen Golden-Biddle and Jane E. Dutton, New York: Routledge, 2012.

9 Stefan Gelcich et al., "Navigating Transformations in Governance of Chilean Marine Coastal Resources," *Proceedings of the National Academy of Sciences*, vol. 107, no. 39, 2010: pp. 16794-16799.

10 Rob Maunder et al., "Applying the Lessons of SARS to Pandemic Influenza: An Evidence-based Approach to Mitigating the Stress Experienced by Healthcare Workers," *Canadian Journal of Public Health*, vol. 99, issue 6, 2008: pp. 486-488.

Social Innovation Creates Prosperous Societies

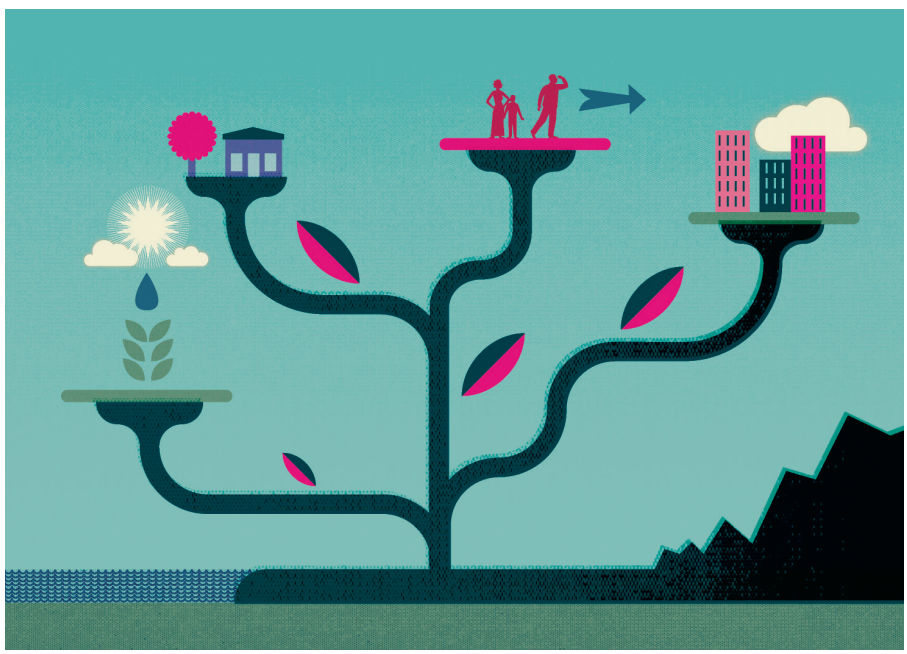
By Kevin Chika Urama & Ernest Nti Acheampong

Rarely has the need for new ways of thinking been more glaring. From the sluggish economic growth and financial instability of the last several years to the perennial issues of political upheaval, resource crises, hunger, poverty, and disease, people have come to realize that the old ways of doing things no longer work. Whether one lives in the developed or the developing world, the fates of Asians, Africans, Europeans, and everyone on the planet are inextricably linked.

We are in desperate need of a fundamental transformation of social, economic, and cultural arrangements. The old paradigm of government aid is simply inadequate to the challenge. What we need instead are creative and innovative solutions for fostering sustainable growth, securing jobs, and increasing competitive abilities.

All over the world during the past decade, there has been a phenomenal surge of interest in social innovation as a way to achieve sustainable economic growth. In the United States, President Barack Obama launched the Social Innovation Fund, which makes grants to intermediaries that then seek out and fund promising programs. In South Korea, Seoul Mayor Park Won-Soon is integrating social innovation approaches into city government [see "Forging Ahead with Cross-Sector Innovations" on p. 15]. In Europe, the European Commission issued recommendations for fostering social innovations and expanding them across the continent. In the United Kingdom, initiatives such as Big Society are designed to find and scale up the best social innovations. And in Japan, social innovation is rapidly taking root in the rebuilding efforts following the 2011 tsunami and nuclear disaster, which left immeasurable destruction on the country's physical, cultural, and socio-political landscape.

Social innovation is helping to solve some of the world's most pressing problems with new solutions such as fair trade, distance learning, mobile money transfer, restorative justice, and zero-carbon housing. In the process of creating solutions, it is also profoundly changing beliefs, basic practices, resources, and social power structures. Social innovation provides a unique opportunity to step back from a narrow way of thinking about social enterprises, business engagement, and philanthropy and to recognize instead the interconnectedness of various factors and stakeholders.



In Africa, we have made considerable advances in social and economic growth over the past 10 years. Between 2005 and 2008 Africa's gross domestic product (GDP) rose at a 5.5 percent annual rate. It slowed to 2.4 percent in 2009, mainly because of the global economic recession. But unlike most other regions, Africa has made a rather rapid recovery since the downturn. Average GDP is expected to grow at a nearly 6 percent rate in 2012. Amazingly, Africa is now regarded as the second-fastest-growing continent, after Asia. This acceleration in Africa's economic growth reflects fundamental improvements in macroeconomic policies, an improving business environment, and growing political stability in many African countries.[1] Equally important, but less recognized, reasons for the African success story are an increased focus on science, technology, and innovations to drive economic growth, and an increased focus on social innovations and social engineering to improve human well-being.

Organizational, technological, and social innovations are becoming the norm among African youths and women, driving social change and economic development from the grassroots. With the rising African economies, we are witnessing increasing demand for other important transitions: from research and development (R&D) to research for development (R4D); and from technology transfers to the development of endogenous scientific and technical skills and knowledge that drives social change, especially in the area of information and communication technologies. Social innovations are adding an extra dimension to help sustain the African miracle, providing the social capital needed for economic and social growth.

What Makes a Truly Prosperous Society?

Prosperity can be defined as a successful, flourishing, or thriving condition, especially in financial respects. How, then, does one

Kevin Chika Urama is the executive director of the African Technology Policy Studies Network in Nairobi, Kenya. He is also the inaugural president of the African Society for Ecological Economics.

Ernest Nti Acheampong is a research officer at the African Technology Policy Studies Network in Nairobi, Kenya. He was previously a research officer at the International Water Management Institute in Accra, Ghana.

define a prosperous society? And how does one measure whether a society is prosperous? If we are talking about economic prosperity, we can readily invoke the classical macro-economic measure of GDP.

Measuring a prosperous society as a whole, however, is more complex. To describe a society as truly prosperous, we must see several other elements besides robust GDP growth, such as peace and happiness, economic and financial well-being, and individual freedoms and liberties. In other words, a prosperous society consists of economic prosperity and social prosperity combined.

An exemplar of a prosperous society is the United States in the two decades following World War II. During this time the country enjoyed strong economic growth coupled with several significant new industries, including electronics, aviation, plastics, and frozen foods. The United States grew by embracing technology and taking advantage of the confidence bestowed by free market capitalism and democracy. Because of all the new wealth that was created and because of the social structures and political policies that existed (for example, strong unions and high income taxes), the prosperity was shared among all segments of society. More middle-class jobs meant increased wages and more people who could afford housing and leisure, fueling the demand for consumer goods. Socially, the United States became an extremely materialistic society. The period also marked a population boom and the burgeoning of the civil rights movement, which would later have enormous repercussions on the US political and economic system.

Societies that enjoy economic affluence aren't truly prosperous if that affluence benefits only a privileged few, rather than being spread throughout society. That's because social and economic prosperity are intricately linked and highly dependent on each other. Social prosperity requires conditions like good health, well-being, access to lifelong learning, social inclusion, safety, security, and citizenship. Economic prosperity requires conditions like workforce development, job creation, fiscal responsibility, a green economy, infrastructure development, and energy access. Effective coordination and collaboration between the two will result in a lasting social fabric that supports sustainable prosperity and self-reliance.

The old paradigm of government aid is inadequate. What we need instead are creative and innovative solutions for fostering sustainable growth, securing jobs, and increasing competitive abilities.

Social Innovation and Economic Growth

Economists estimate that between 50 and 80 percent of economic growth comes from innovation and new knowledge.[2] In East Africa, for instance, the development of M-PESA (a mobile money payment system born out of social innovation) has become an avenue for 9 million people to gain access to secured financial exchange services. This African success story has completely revolutionized the regional business terrain, at the same time empowering local people by providing an easy-to-use and readily available banking service that hitherto was impossible to access because of a poor banking infrastructure and a strict regulatory framework.

Social innovation has become even more important for sustainable economic growth in recent times. This is partly because some of the barriers to lasting and sustainable economic growth (such as climate change, youth unemployment, aging populations, and increased social conflicts) can be overcome only with the help of social innovation, and partly because of rising demands for alternative models of economic growth that enhance rather than damage human relationships and well-being.

Phrases such as *inclusive green growth*, a *green economy*, and *decoupling economic growth from social and environmental impacts* have become regular parlance in mainstream economics and global institutions such as the World Bank and United Nations agencies,[3] as emerging paradigms to push the sustainable development agenda. Getting these paradigms more widely adopted requires new public policy that addresses social needs along with economic needs. Society can no longer use GDP alone as the barometer of progress.

Africa, and in many ways the entire global community, is transitioning to a phase where innovation will no longer be shaped by industries but will rather be informed by markets and society's demand for products, systems, and services focused on knowledge and learning. Against this backdrop, businesses are looking to social entrepreneurs and social enterprises that pursue financial sustainability and social principle for guidance and new techniques.

One interesting social enterprise that exhibits these characteristics is Ungana-Afrika, an NGO helping to catalyze the incubation of scalable enterprises that leverage pioneering technologies for the benefit of emerging markets and under-served communities. This social enterprise operates on the premise that innovative technologies are not by themselves sufficient to transform the development landscape in Africa. They need to be sustained by innovative business models that are rooted in the social context of disadvantaged but vibrant communities.

Social innovations and enterprises such as Ungana-Afrika are playing pivotal roles in economic growth by opening up new markets that require social solutions, by expanding institutions that orchestrate and are focused on adapting social innovations, and by compelling the emergence of new innovations. Another example, which grew out of the need to reduce waste and diminish landfills, is Freecycle Network, based in the United States.[4] Freecycle matches people who have things they want to get rid of with people who can use them. It now has 5 million members in 85 communities worldwide. Or consider AfroVumbua, in Kenya, which helps innovators in Africa connect with global investors looking for technological opportunities in Africa. There is also Open University, based in the United Kingdom, and other models of distance learning that have made education much more widely available.

Other examples of social innovation can be found in fields as diverse as integrating marginalized populations into the formal economy and involving citizens in public decision-making. The KiberaNet wireless information and communication network

brings education, empowerment, and opportunities to more than 2 million slum dwellers in Kibera, Kenya, using fiber optic cable and solar power. DadaabNet does the same for refugee camps. This is a model for empowering informal settlements (slums) and refugees to take control of their lives and to nurture sustainable development.

The rise of social entrepreneurs and social enterprises is not only contributing to the mobilization of people in the innovation process but also providing the impetus for economic growth and social equality.

Many of the most important social challenges facing the world today require radical innovation that cuts across organizational, sectoral, and disciplinary boundaries.

Integrating Social Innovation with Science, Technology, and Innovation

Governments can improve the climate for innovation and foster the growth of science, technology, and innovation in many simple ways. In Finland, for example, the government's main advisory body on science, innovation, and research (SITRA) has recommended that innovativeness should be made a criterion for competitive bidding in public procurement. They also recommended that a portion of funding for government departments should be clearly designated for innovation and development activities, which are widely interpreted to include innovation in services.

Social innovation has the rich yet unexploited potential to foster science, technology, and innovation development in Africa. Most of the current social innovation initiatives in Africa have been established at the grassroots level, with minimal capacity for influencing decisions at higher levels. For instance, in the agricultural sector, we have seen innovative applications such as M-Shamba and Farmerline, created at the grassroots to provide salient information for farmers on agricultural best practices and minimization of climate change effects.

We need greater recognition by African governments and institutions of the fundamental role of social innovation in science and technology on Africa's development agenda. Fortunately, we are beginning to see the integration of social innovation into the research activities of institutions such as the Council for Scientific and Industrial Research, South Africa. It has initiated a low-income housing research project commissioned by the Department of Science and Technology to provide good-quality, affordable housing for low-income South Africans. Some academic institutions, such as the University of Cape Town, have created centers for social innovation and entrepreneurship to promote and embolden social and environmental change agents. The faculties of the University of Botswana, the University of Nairobi, and Cape Peninsula University of Technology have made efforts to connect to global networks of social innovators, resulting in the establishment of social innovation labs.

Conclusion

Many of the most important social challenges facing the world require radical innovation that cuts across organizational, sectoral, and disciplinary boundaries. These challenges require innovative ways of applying new technology along with new forms of organization, new network processes to build human and social capital, and new grassroots-based solutions. The good news is that social innovation is a remarkably creative field. It is growing in popularity and is having a global impact. Unfortunately, it is still a nascent field, only beginning to take shape and move beyond anecdotes.

Although it is gratifying to note that social innovation has attracted a great deal of interest worldwide, five areas require attention if we are to unleash even more innovations for social and economic prosperity:

- Social innovation needs to be explicitly taken into account when we are formulating science, technology, and innovation policy. To ensure that innovation benefits the entire society, these policies must establish democratic platforms where diverse actors can participate.
- To ensure the successful implementation of social innovation activities in different countries, we need proper coordination and integration of these activities in national and regional socio-economic planning.
- Education and research in science, technology, and innovation must go beyond focusing on elite science and begin to support science that is focused more directly on meeting diverse social needs.
- Social innovation can be successful only if there is sufficient capacity to scale up the innovation. Rejuvenating the social base through a heavy investment in capacity building, and creating a platform conducive to interaction and collaboration, are prerequisites for social innovators to prosper.
- Public-private partnerships play an important role in supporting social innovations. Strengthening these global partnerships and platforms can be effective for understanding and fostering social innovation worldwide.

Emerging economies in Africa are encouraging investment in large industrial enterprises, but it's equally important to invest in the smaller social enterprises that are becoming an integral part of the economy, mimicking the true African society—a focus on communities, people, and social structures as measures of prosperity. By encouraging social innovation, policymakers strive to pursue a triple triumph: a triumph for society and individuals by providing services that are of high quality, beneficial, and affordable to users and that add value to their daily lives; a triumph for governments by making the provision of those services more sustainable in the long term; and a triumph for industry by creating new business opportunities and new entrepreneurship.

Notes

1 *Economic Report on Africa 2012: Unleashing Africa's Potential as a Pole of Global Growth*, Addis Ababa, Ethiopia: United Nations Economic Commission for Africa, Addis Ababa, Ethiopia, 2012.

2 Geoff Mulgan, "The Process of Social Innovation," *Innovations*, Spring 2006: pp. 145-162.

3 *Inclusive Green Growth: The Pathway to Sustainable Development*, World Bank, Washington, D.C., 2012; *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*, United Nations Environment Programme, Nairobi, Kenya, 2011.

4 Geoff Mulgan, "Going Global: Social Innovation," March 3, 2010, www.guardian.co.uk

Innovate and Scale: A Tough Balancing Act

By Christian Seelos & Johanna Mair

The term *social innovation* captures our collective desires to find novel solutions to persistent social needs. The necessary innovations at a scale that matches the size of the problem can be enacted only by organizations. Social innovation is thus a crucial organizational topic.

Two issues are of concern. One relates to the challenge of scaling up successful innovations to truly make an impact at the scale of the needs they address. The second relates to the challenge of building a capacity in already established social-sector organizations for continuous innovation rather than "one-hit wonders."

Before proceeding, we should be clear about what we mean by *innovation*. We define innovation as the process that starts with the emergence of an idea that is developed into a new set of organizational activities, technologies, products, or services, and their consequences for external stakeholders as well as the innovating organization.

Scaling and continuous innovation are fundamentally related in a counterintuitive manner: Scaling successful past innovations may make future innovations less productive, and ongoing cycles of innovation may make scaling less productive. Once an organizational innovation has succeeded in building a robust model for delivering needed products and services, subsequent scaling requires much incremental refinement, routinization, and standardization. Scaling thus requires focus and a commitment to the current operating model. On the other hand, continuous innovation is grounded in increasing the variance of ideas and experiments, challenging the status quo, and thinking and acting in fundamentally new ways.

The dual pressure of scaling the innovations of the past to achieve and demonstrate predictable impact today and exploring uncertain innovations for tomorrow creates a difficult balancing act. The ability to manage this tension fundamentally defines an organization's capacity for continuous innovation (OCCI) and its ability to make an impact over time.

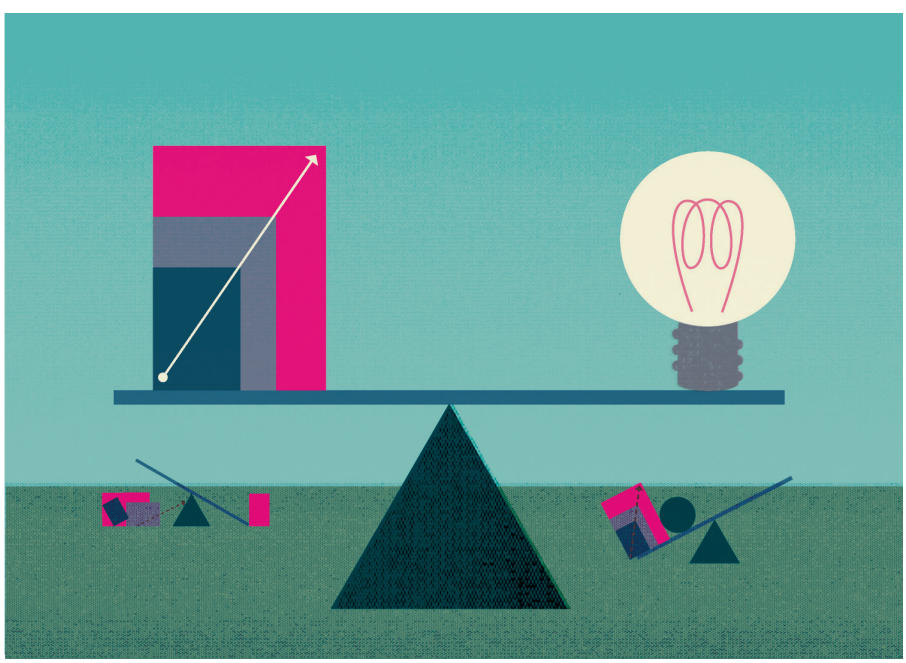
Unfortunately, the literature on OCCI in the social sector is thin and provides little guidance for social sector organizations. And our knowledge base is fragmented and lacks cumulative progress. In a recent workshop on this topic hosted by the Rockefeller Foundation,[1] it became obvious that scholars and practitioners use multiple definitions of innovation (incremental change versus radical innovation, invention versus innovation), refer to different types of innovations (management/operational, product/service, or business model), or focus on different levels of innovation (individuals, organizations, or ecosystems).

This diversity and ambiguity around how people think about innovation and the language used to capture elements of innovation unfortunately stifle progress. People often disagree or fail to find common ground because of different semantics rather than an exchange and evaluation of knowledge or experience.

The Anatomy of Organizational Innovation

To make progress in understanding OCCI, we developed an analytical model of organizational innovation processes. The model serves several purposes that are crucial for making progress in our understanding of OCCI in the social sector:

- To avoid ambiguity about what we mean by terms such as *innovation* or OCCI. The model defines OCCI clearly by specifying its sub-processes and their characteristics. It is a restricted lens, because many other things happen in organizations that are not considered. This enables comparative work on similar aspects across organizations.
- To encompass different types of innovation by being compatible with management or technical innovations as well as new products, services, or business models. The OCCI model is thus generic but can also be adapted to fit particular organizations.
- To bridge relevant levels including individuals, groups, organizations, and the external environment that collectively define the particular characteristics of OCCI. That way, realistic evaluations of OCCI and diagnosis of any external or internal enabling factors or those



Christian Seelos is a visiting scholar at the Stanford Center on Philanthropy and Civil Society.

Johanna Mair is a professor of management, organization, and leadership at the Hertie School of Governance in Berlin and the Hewlett Foundation visiting scholar at the Stanford Center on Philanthropy and Civil Society.

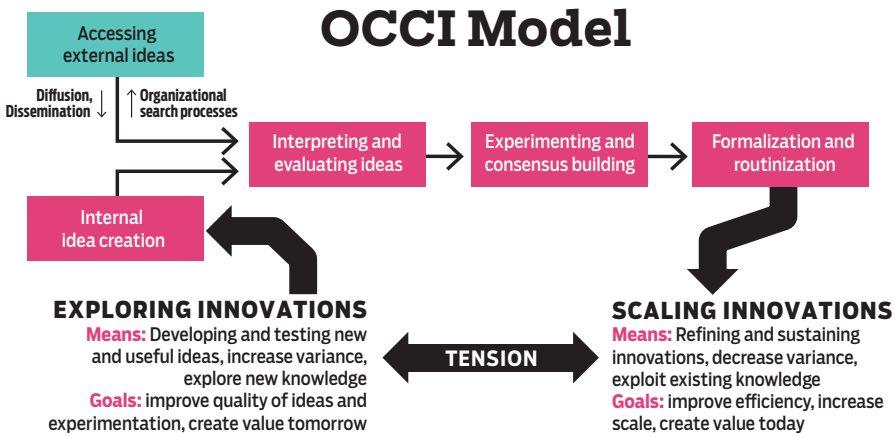
that may derail innovation can be made systematically and more objectively.

- To link organizational innovation processes with innovation outcomes in a dynamic manner that reflects on important feedback mechanisms between past and future innovation. This captures the fact that innovation has consequences not only for external stakeholders but also for the organization itself.

Organizational innovation is often portrayed as a stage model. It starts when individuals or small groups create novel ideas within organizations or access them from the environment. Ideas may also diffuse from their environments through diverse communication channels or may be actively disseminated through various relationship structures. Ideas need to be translated and communicated within organizations to groups of people, because individuals never have all the resources to develop them. Groups interpret and evaluate ideas through various lenses–for example, whether an idea fits and is appropriate (normative lens), whether it is feasible and needed (cognitive lens), whether now is the right time for it (strategic lens), or whether senior management or external powerful stakeholders such as funders will like it (political/power lens).

If an idea survives this initial stage, it needs to be given resources and enacted to determine its practical value. The latter outcome cannot be known in advance. This feature distinguishes innovation from many other organizational activities. Outcomes are uncertain and thus need to be experienced and learned. This experimentation stage is thus crucial to building broader consensus about the nascent innovation.

If consensus is positive the new set of activities is formalized into new structures, processes, technologies, and product and service offerings. The innovation needs to be fine-tuned and improved, usually through incremental changes to create value that justifies the efforts invested in creating it. That fine-tuning builds deep organizational routines and competencies that enable an organization to scale the innovation to meet its ambitions. Innovation thus becomes the new mainstream, and thereby an organization has changed in some important manner. (See "OCCI Model" above.)



A large number of external and internal factors shape and influence OCCI. They include organizational factors such as leadership and power characteristics, organizational mission and culture, levels of creativity, knowledge management and organizational competencies, and explicitness of an organization's strategy. Many external factors have been shown to impact OCCI. They include the particular institutional context, the levels of competition and collaboration among the social organizations in the broader ecosystem, the ways in which organizations engage with the people and communities they serve, and the levels of trust and reputation that define these relationships. The model also explains the low success rate of innovations: Success depends on a complex constellation of many enabling external and internal factors at all stages concurrently, but even a single negative factor can derail innovation at any of these stages.

The Example of Sekem

To understand OCCI it is useful to look at the example of one organization, Sekem, in some detail. Sekem is an Egyptian social sector organization that over the course of 30 years transformed a strip of desert north of Cairo into a thriving agricultural community. Sekem is composed of several businesses based on organic agriculture along with nonprofit organizations such as a medical center, kindergartens, schools, a recently opened university, and a biodynamic-agriculture certification body. To create this community, Sekem had to manage the difficult job of balancing innovation and scaling up. Three factors conspired to almost derail their innovations.

Factors based on cognitive hurdles | When Sekem began exploring biodynamic agriculture in Egypt in the 1970s, neither the farmers nor the government thought that it was a valuable proposition. The farmers believed that it was not economically valuable and did not cooperate. The government authorities stopped initial attempts to cultivate the land, arguing that using cow dung to build up organic soil would contaminate the soil with dangerous bacteria. It took years to convince these stakeholders that biodynamic agriculture was feasible and would improve soil quality. Today, Sekem has a number of profitable companies that produce high-quality food and enable farmers to move out of unprofitable subsistence farming. The trust, reputation, self-confidence, and knowledge developed by these almost failed innovations were the basis for subsequent innovations and building Sekem's OCCI. For example, the idea of pioneering biodynamic cotton agriculture in Egypt was supported by the government because of the trust built during Sekem's successful introduction of biodynamic farming.

Factors based on normative hurdles | Sekem's early innovations were threatened by a lack of productive workers. Most employees from poor communities did not consider it "normal" to show up at work predictably and on time, attributes required for building a productive and sustainable organization. Through much trial and error, Sekem found a collective action mechanism to achieve this goal. Every organization of the Sekem group forms a morning circle consisting of all employees. Not being at work on time is now highly visible and embarrassing for individual workers. This mechanism created new templates for role behavior required for efficient economic activities. It built Sekem's capacity for instill-

ing new rules and monitoring behavior, creating a greater ability to innovate and scale and to enable OCCI through productive human resources. Today, Sekem employees understand that they are the drivers for innovation. They have the requisite communication channels, processes, and resources to evaluate and test ideas.

Factors based on political/power hurdles | In its early years Sekem ran into disputes with the local Bedouin over land-use rights. The Bedouin, who were nomadic and lived outside the regulatory norms of the country, challenged Sekem's rights to the land it had acquired. Settling this dispute was close to a life-or-death endeavor that severely challenged the organization's motivation to proceed. A few years later, the military occupied and started bulldozing the land on which Sekem had built its first farms, almost eliminating any hope for progress. But Sekem demonstrated commitment and perseverance, which earned it respect and made it less vulnerable. Sekem also engaged in a strategy to build up organizational size and complexity. It created a microcosm of different types of for-profit and not-for-profit organizations and linked up closely with external partners in Egypt and abroad. This strategy created a more resilient and controlled environment, which enabled more productive innovation over time.

The ability to access many different types of resources enabled Sekem to invest more time and effort in exploring risky innovations. The willingness to stay with these innovations and make them work created tremendous learning and also relational resources that enabled Sekem to innovate more productively over time and thus increase its OCCI.

Mapping OCCI and Its Pathologies

Scholars have voiced concerns over the expectations for "social engineering" as implied by the literature on so-called innovation success factors, which suggests that innovation in organizations can be predictably designed. Sekem reminds us how difficult and risky innovation is. Innovation depends on the ability to make a plan work through much effort, investment of resources, and a lot of luck. Innovations rarely work as intended. We believe that the discovery of unintended consequences of our innovation processes and the circumstances of their workings represent an important approach for significant progress toward a realistic understanding of social innovation.

Our OCCI model can be used as a diagnostic instrument to account for factors that could derail innovation. A large number of these "innovation pathologies" have been documented.[2] Working directly with organizations, we may explore some of the following pathologies.[3]

Idea creation/access—individual level | Do people misunderstand an organization's mission and vision? Do people lack motivation or insights because, for example, they are too far removed from the front line? Are people too stressed to reflect on their work and the organization's future? Is the organization driven by setting and meeting targets? Are there signs of the "not invented here" syndrome? Do people fear punishment for potential failures, or are they never recognized for good ideas? Do the most innovative people tend to leave the organization? Are the workforce and management too homogeneous?

Interpretation and evaluation—group level | Are groups built ad hoc, so that there is no consistency and learning in evaluating ideas? Are participants in groups too competitive, so that there is no trust? Are managers overconfident in existing practices? Do senior managers suffer from too-rigid beliefs, values, and assumptions? Do status, cultural, or language barriers prevent efficient and open communication?

Experimenting and consensus building—group level | Are responsibilities for execution unclear? Are people expected to pilot projects "on the side"? Are resources withdrawn from prototypes too early or ad hoc? Do projects that don't work tend to be sustained for too long (failure traps)? Does failure trigger blaming people rather than acknowledging the inherent uncertainty of innovation and learning from it? Is learning from success and failure superstitious and irrational rather than objective and systematic?

Formalization and scaling—organizational level | Do innovations remain invisible to headquarters, for example in very decentralized organizations? Does a power and leadership vacuum prevent successful innovations from being formalized and adopted? Do organizations have inadequate critical execution competencies? Do rapid cycles of innovation prevent sufficient development of the outcomes of innovation processes?

External stakeholders—task environment level | Do funders push organizations in directions that conflict with their sense of identity? Do funders incentivize organizations to "sell" everything they do as an innovation rather than pursuing real innovation? Do impatience, short-termism, and requirements for reporting impact metrics stifle investments in experimentation, failure, and learning? Does a hostile environment stifle efforts at innovation by aggressive or even illegal actions? Are sufficient resources accessible for enabling innovations and making the "waste" created by failures inherent to innovation affordable?

Conclusion

Innovation is risky, difficult, and in many ways unpredictable. It competes with other ways of creating value, such as focusing on many small improvements over time.[4] Getting better at innovation and making innovation more productive are the keys to realizing its potential. Almost all organizations that have operated for some time accumulate structural, behavioral, or strategic barriers to making innovation productive. Getting good at diagnosis and finding ways to eliminate the causes of pathologies increase OCCI. Unfortunately, we are much more likely to talk about successes and achievements than we are to talk about failures and weaknesses.

Creating new products, services, and processes is important, but it is equally important that organizations fully exploit, develop, and scale past innovations to maximize their value potential. Constantly pushing for innovation is counterproductive. But so is getting too cozy with the predictability and convenience of the old ways and losing the motivation and skills required for productive innovation. Learning how to balance these two competing organizational processes is an important task for the entire social sector.

Notes

1 Christian Seelos and Johanna Mair, "Organizational Capacity for Continuous Innovation—Outline of a Research Agenda," *Stanford PACS Report to the Rockefeller Foundation*, March 2012.

2 Jan Schilling and Annette Kluge, "Barriers to Organizational Learning: An Integration of Theory and Research," *International Journal of Management Reviews*, vol. 11, no. 3, Sept. 2009.

3 This section is partly adopted from Shilling and Kluge, "Barriers to Organizational Learning."

4 Christian Seelos and Johanna Mair, "Innovation Is Not the Holy Grail," *Stanford Social Innovation Review*, Fall 2012.

Forging Ahead with Cross-Sector Innovations

By Won-Soon Park

We are living in a remarkable era of connectivity. People living in Seoul, Korea, for example, are becoming much more closely intertwined with people living in New York City, and finding solutions to the myriad issues we all face has become of vital importance.

Such intertwining extends to government, the market, and civil society as well, requiring collaboration among the three sectors in order to create effective solutions. Indeed, our era requires deep understanding, swift decision-making, revolutionary innovations, and empathetic approaches.

In the past, society often operated according to market rationality, and winners and losers were clearly defined. But gradually, the search for solutions inspired the growth of civil society and the birth of numerous civil society organizations from diverse realms. Despite this growth, the civil sector lacked the power by itself to solve these problems. Likewise, the private sector and the government found that they, too, could not solve social problems on their own.

Such constraints led the three sectors to pursue strategic cooperation with the goal of finding solutions to complex issues. This new reality—that cooperation and collaboration, rather than conflict and competition, hold the key—is now apparent. Cross-sector innovation is a tremendous advance over the way that society had been addressing social problems.

As author Peter Drucker wrote, "Innovation is change that creates a new dimension of performance. Change cannot be controlled. The only thing we can do is be in the front, and the only way to stand in front is through organic cooperation and collaboration between sectors."

As the mayor of Seoul, I have striven to create innovative ways of governing that are based on cooperation and collaboration. I have made a point of soliciting greater citizen input and getting citizens more directly involved in decision-making, fostering social enterprises that use innovative approaches to tackle social problems, and expanding collaboration between government, the market, and civil society.

My approach to governing has been shaped over my three decades of work before taking office—as a political activist, as a human rights lawyer, and as founder of a watchdog organization, community foundation, social enterprise, and think tank. I was privileged to be part of an effort to help civil society take root in South Korea (officially known as the Republic of Korea), and I believe that my career traces the evolution of important developments in modern South Korea that have brought us to this moment of innovation and greater collaboration. And so before I detail some of the social innovation efforts Seoul City has pursued, allow me to share a bit of my own personal journey, which I hope will provide greater context.

I have made a point of soliciting greater citizen input and getting citizens more directly involved in decision-making, and expanding collaboration between government, the market, and civil society.

My Journey as a Civil Activist

Since the birth of modern South Korea in 1948, the country has achieved remarkable macroeconomic development through rapid industrialization. Although the country's growth was impressive, it came at several costs, one of which was obliteration of the majority of the nation's civil organizations. These organizations had functioned for decades as a social safety network for citizens, and their destruction caused negative side effects throughout South Korean society.

By the 1970s and '80s, South Koreans were thirsty for democracy. Sparks of mass protests arose nationwide. During this time—my university years—I was jailed for merely participating in protests against the military government and expelled from school.

This injustice motivated me, in 1982, to become a human rights lawyer. My clients came from all walks of life, including students, laborers, intellectuals, and artists. The large-scale pro-democracy rallies that took place in 1987 actively engaged the public and eventually led to the end of the military dictatorship and the installation of a democratic government.

In 1991, I left South Korea and moved to the United Kingdom and then to the United States to research the activities of human rights and civil organizations in those nations. I began the preliminary work to form an international network of organizations to share lessons about innovations that could help solve problems in South Korea.

When I returned to South Korea in 1993, I built on these experiences to found the nonprofit watchdog organization People's Solidarity for Participatory Democracy (PSPD) with a group of jurists, scholars, and activists. We represented different fields but shared a common passion: a fresh new world after the collapse of the military dictatorship.

We led a movement to protect small stockholders' rights and other economic reform campaigns aimed at large South Korean conglomerates—companies that wielded power in the market but failed to fulfill their social responsibilities. We waged campaigns against political corruption. And we engaged a movement to restore fundamental civil rights to citizens whose rights had been infringed by the government.

We didn't think of this as innovation at the time—rather, we seized opportunities and took risks to create lasting positive changes for our fellow citizens. But in hind-

Won-Soon Park is mayor of Seoul, South Korea.

sight, these movements are at the heart of what social innovation is all about, and they helped to create an enabling environment for further social innovations.

Sharing Is Beautiful

By the end of the 20th century, it was clear that South Korea needed more sustainable institutions to encourage civic engagement and voluntary donating and sharing. During this time I again had the opportunity to visit the United Kingdom and the United States and learn about other civil society institutions.

When I returned, I created The Beautiful Foundation, a community foundation, and The Beautiful Store, a social enterprise, to solicit donations of both money and products to help people in need. Our ultimate philosophy was to help people recognize that simply sharing one percent of their own income could have incredible impact. Or as our slogan read, "Even a small bean can be shared by two."

Since 2000, the Beautiful Foundation has donated about 100 billion won ($93 million) to many civil society organizations working for underprivileged South Koreans. Several companies, organizations, and individuals continue to use the model of the Beautiful Foundation's One Percent Sharing campaign to spread the culture of collaboration and cooperation among their members.

The Beautiful Store sells second-hand goods while promoting recycling, sharing, and the fair trade movement. There are more than 130 Beautiful Stores across South Korea, with more than 400 employees and 10,000 volunteers. The stores generate more than 30 billion won (about $28 million) in annual sales.

A subsidiary, The Beautiful Coffee, imports coffees and teas from underdeveloped nations; with its 3.5 billion won (about $3.2 million) in annual profits it builds local infrastructure (such as schools) and supports communities in those nations. The Beautiful Store also supports flood prevention efforts for the Ganges River in India and in cooperation with Oxfam supports minority groups in Vietnam.

Altogether, the Beautiful Foundation is more than a sum of these programs. Alongside the many other non-governmental organizations that have emerged in South Korea during the last few decades, the foundation is working to build a better society through social innovation.

Redesign for Social Innovation

While other social enterprises and institutions began to surface in South Korea, there was still a great need for a place where individuals, organizations, governments, and other institutions could collaborate around big ideas.

And so, after teaching at Stanford University in 2005 and visiting numerous think tanks, I decided to bring this innovative organizational type to South Korea. I created the Hope Institute, which aimed to reconceptualize and redesign South Korean society through active engagement and support at several different scales: from ordinary citizens to corporations to the South Korean government.

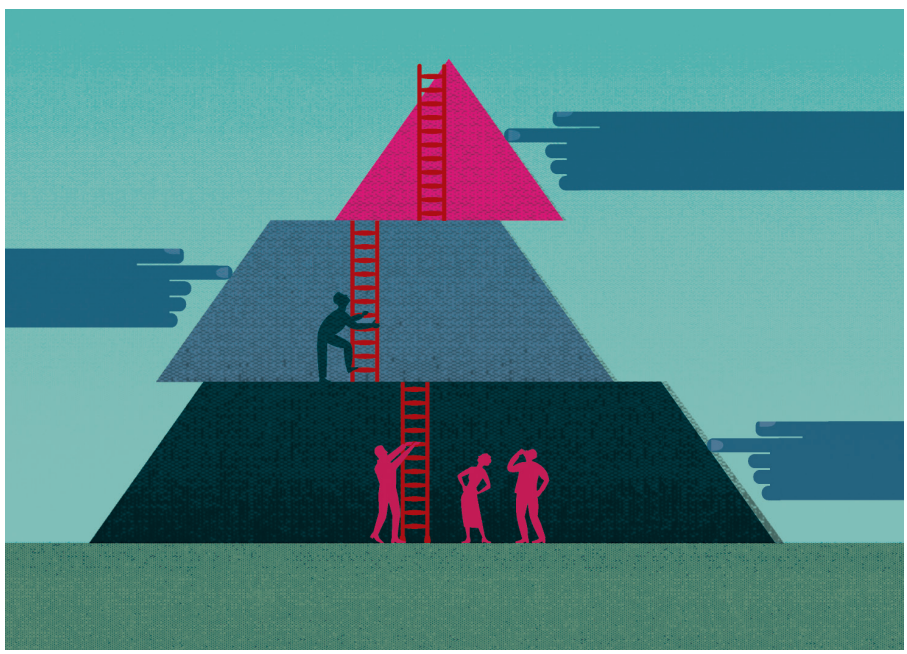
The Hope Institute engages in a variety of vital, sustainable activities: devising creative policies to improve living environments; operating a "social designer" school that offers education about social innovation for social enterprises and assists people in starting social enterprises; and consulting with local governments on social economic policy and initiatives to revive local communities.

The Hope Institute also conducts experiments to induce the active cooperation of local governments and public institutions in improving citizens' lives. Through these efforts, the institute quickly came to see that cross-sector cooperation and convergence were the most effective means to tackle the problems plaguing South Korean society.

A Social Designer Comes to City Hall

Though the Hope Institute had significant impact in forging serious partnerships with the government and other public institutions, there were fundamental barriers to large-scale change due to traditional, at times inflexible, government decision-making. It was not easy to convince the government of the necessity of partnership when even citizens were not fully convinced of its worth.

Citizens' confidence in the media, economy, democracy, and their environment was eroding. Most important, trust, the cornerstone of maintaining and developing civil society, began to dissipate. Citizens sensed the crisis instinctively and began to demand a change in local government. It was in this challenging environment, in September 2011, that I made my decision to run for mayor of Seoul.



During my campaign, even my background in citizen participation could not prepare me for the intense demand for social innovation among our citizens. People showed a clear preference for an administration that would actively engage citizens in governance.

Seoul citizens had a strong sense of ownership of their city and wanted to exercise their rights as citizens to bring about chang-

es to welfare and health—they had little interest in grandiose, empty promises.

In this environment, my campaign slogan, "Citizens are the mayor," seemed to resonate. I won the election as an independent candidate—the first independent to be elected mayor of Seoul—defeating candidates from both the ruling and opposition parties.

Transforming City Government

Since becoming mayor, I have ensured that innovation and cross-sector collaboration are deeply rooted in city administration. I give citizens venues for their voices and enlist their support and participation.

One method we have used to increase citizen participation is establishing the Seoul Innovation Planning Division, which is responsible for collecting examples of innovation from around the world and researching how they may be applied in Seoul. The division also gathers the creative ideas of Seoul citizens and then spreads and systematizes those ideas. We also designated a critical administrative center of Seoul as a social innovation park, where organizations are creating a living social innovative ecosystem.

The Seoul City administration is also undertaking numerous initiatives for cross-sector innovation. The *Simincheong*, physically located in Seoul City Hall, acts as a "speaker's corner" for anyone who wants to send a video message to the city administration. It is modeled after the forum for free speech at London's Hyde Park Corner. Opinions can be up to 10 minutes long and are broadcast on the Seoul City website.

Moreover, several committees responsible for encouraging citizen participation and feedback have been formed within the administration, and experts from various fields and working-level government officials continuously engage in dialogue with business people, scholars, civil activists, and ordinary citizens on issues that affect our society.

Seoul City administration has also established online platforms to allow citizen participation and information sharing that will in turn enhance transparency in city operations. I have more than 660,000 Twitter followers, who express their ideas, concerns, and suggestions to me in real time and discuss those issues among themselves on Twitter.

We've created several other initiatives to increase citizen participation in government. One of these is the One Less Nuclear Power Plant campaign to improve our environment. Another initiative is the City 2.0 campaign for the spread of transparent information and communication. Yet another is the Seoul Plan Citizen Participators, an organization that involves citizens in Seoul's urban planning initiative "Seoul 2030."

Other initiatives launched by Seoul City administration are the Residents' Participatory Budgeting System, a citizen-participatory budget plan that allows citizens to secure 50 billion won (roughly $47 million) in 2013 for projects of their choosing, as well as a campaign to declare Seoul "A city where citizens share with one another."

All these initiatives are part of an effort to make Seoul a city where information is readily accessible from anywhere, at any time. Leveraging the power of collective intelligence fosters the free expression of ideas and opinions among citizens and ensures that they are adequately considered in Seoul City's policymaking processes. Today, a drawing of a large ear greets those who enter Seoul's newly built City Hall.

Creating Super-Sectoral Social Innovation

But no matter how good a job government does to involve the ideas of its citizens, we cannot expect to solve all of the complex problems we face using the perspective of just one expert or the skills of just one sector.

No matter how good a job government does to involve the ideas of its citizens, we cannot expect to solve all of the complex problems we face using the perspective of just one expert or the skills of just one sector.

As we become increasingly interdependent, the once-rigid boundaries between the public sector, private sector, and civil society are being challenged—each sector pursues innovation and convergence. The time has come for us to pinpoint the competences of each sector and strategically use them to improve the well-being of all citizens. In short, we need super-sectoral social innovation.

One way we foster this kind of innovation is encouraging partnerships between government and business. Indeed, many South Korean corporations now understand that prioritizing social responsibilities is a prerequisite for business success. The sharing of corporations' resources, information, and know-how can accelerate solutions to the chronic and complicated problems weighing on society.

To help corporations increase their impact, Seoul City has developed alliances with businesses that leverage the unique strengths of each sector. Corporations enter into these collaborations by offering financial support, donations, volunteer work, and employment.

For instance, when a company donates a heating system and a food supplier delivers meals to seniors living alone, these businesses take on roles that are beyond the capacity of Seoul City's budget and administrative competence but have direct social impact. The business sector also directly invests in social outcomes through innovative mechanisms such as the social investment fund created by Seoul City to support cooperatives and social enterprise by matching the amount that businesses contribute.

This is just one example, but we are working diligently to ensure that super-sectoral social innovation and citizens' participation in governance take root more deeply. I hope the lives of citizens can be fostered and designed by citizens themselves. This is how citizens become mayors of Seoul.

South Korea is a country of transition, and South Koreans are a people who have experienced many trials and errors. We will likely continue to do so. But we are also a people known for our perseverance and our desire to create lasting friendships with other countries, regions, and cities. If we pursue innovations based on strong solidarity between people and free of sectoral divisions, there is no limit to what we can achieve—in Seoul City and in the world.

Tapping the Entrepreneurial Potential of Grassroots Innovation

By Anil K. Gupta

The unmet needs of disadvantaged people living in developing countries pose a complex challenge for development planners, but like many challenges, it also provides an opportunity for creative communities and individuals to develop alternative approaches. One such approach, which I have been intimately involved with for more than two decades, is leveraging grassroots innovation.

The traditional approach to helping disadvantaged people is a top-down one, in which government, NGOs, or businesses create solutions and provide them to the poor. Many large corporations, for example, have convinced themselves that they can serve the poor by producing and delivering goods and services at an affordable price—the bottom-of-the-pyramid approach.

These businesses, governments, and aid organizations seldom consider acquiring ideas or innovative products and services designed at the grassroots by the people they are trying to assist. The question of reciprocating what those people have shared with them seldom arises. Despite the billions of dollars spent on developmental aid, we still do not find many databases, either online or offline, of innovative solutions developed by disadvantaged people themselves.

We should not discount completely the merit of providing certain goods and services to the people at the bottom of the economic pyramid, but the fact remains that poor people are not at the bottom of the knowledge, ethical, or innovation pyramids. Unless we build on the resources in which poor people are rich, the development process will not be dignified and a mutually respectful and learning culture will not be reinforced in society.

Anil K. Gupta is a professor at the Indian Institute of Management in Ahmedabad and coordinator of the Honey Bee Network and the Society for Research and Initiatives for Technologies and Institutions.

The search for inclusive development has become imperative because social tensions and disquiet among marginal communities have been increasing. Many governments spend more resources fighting their own people—often considered to be rebels or extremists—than on investing in the ideas and imagination of local communities and individuals.

Instead of treating economically poor people as a *sink* of public aid, assistance, advice, and corporate goods and services, we should treat them as a *source* of ideas, innovations, and institutional arrangements with which formal public and private institutions can engage.

Many triggers can push an innovative idea to evolve into a full-fledged solution. Sometimes an accident leads to a new discovery. Innovations can also emerge when an idea in one field is applied in a totally different field, which I call analogue innovation. For example, Yusuf, an innovator in Rajasthan, developed a groundnut digger that is pulled behind a tractor. As it is pulled along, the digger picks up the soil and the uprooted pods, agitates the soil and pods, drops the soil, and keeps the pods in a sieve. An entrepreneur from another part of India heard about the digger, licensed the technology, and adapted it as a beach cleaner. The principle was the same but the domain was very different.

Engagement between the formal and informal sectors can take place if we recognize, respect, and reward creative grassroots knowledge systems. Enabling local communities and individuals to convert their ideas into products and services—by blending modern science and technology, design, and risk capital—constitutes the heart of grassroots innovation.

Building on People's Knowledge

Taking a grassroots approach to innovation is not easy. Before embarking on this approach one must first understand and reconceptualize the interface between natural, social, ethical, and intellectual capital. *Natural capital* was the first capital to come about when societies began to enclose resources and started asserting individual or collective property rights. The boundaries around a resource or the limitations on its extraction gave rise to the value of natural capital. It can be saved, exchanged, or consumed with or without renewability.

Respect for group norms gave rise to *social capital* that required a reliance on trust, reciprocity, and third-party sanctions. For example, if a person used a gill net with a small mesh, he could catch small fish, something that might benefit him but hurt the community. To prevent that, the community could sanction this behavior and penalize the offender.

When a person regulates his own behavior from within, it is called *ethical capital*. When we restrain ourselves from fishing in the spawning period because it is not the right thing to do from the perspective of fish population dynamics and sustainability, our restraint gives rise to ethical capital. There are no external sanctions, only internal guilt or a sense of responsibility.

Unless we build on the resources in which poor people are rich, the development process will not be dignified and a mutually respectful and learning culture will not be reinforced in society.

Knowledge about the various ways in which people regulate their own behavior or that of others in managing resources (natural or otherwise) constitutes *intellectual capital*. Only a small part of intellectual capital is governed by intellectual property rights.

Entrepreneurial outcomes may be guided by individual or collective access to resources or the ability to convert resources into investment with or without keeping social and ethical capital in mind. Grassroots innovators typically employ an enormous

amount of social and ethical capital, and their innovations often reinforce the renewability of natural capital.

But not all innovations or innovation-based enterprises need to be sustainable or pursue a larger social good. In some instances, innovators can do the opposite by ignoring or harming social and ethical capital. For example, using dynamite in a lake to stun or kill fish, which are then scooped up, is a non-sustainable act.

Creating Grassroots Innovations

Grassroots innovations emerge when existing systems and practices fail to serve people's needs. They can arise through serendipity, systematic experimentation, trial and error, or combining solutions in new ways. In some regards, the methods of problem solving in the formal and informal sector are similar. Formal plant breeders, for example, look for odd plants that have desirable characteristics and either through recurrent selection or back crossing incorporate those characteristics in established plant varieties. Farmer breeders in the informal sector also do this. To illustrate these processes, it is useful to look at examples from the Honey Bee Network's work.

In India and other countries with large populations of underserved people, one of the greatest social problems is the plight of marginal farmers. More than 100,000 Indian farmers committed suicide during the last decade in parts of Maharashtra, Andhra Pradesh, Punjab, and other regions of India. Their suicides were attributed to excessive borrowing to grow Bt cotton and their inability to pay those debts. When we visited the homes of affected families in Maharashtra and inquired whether they knew about non-chemical (and less expensive) ways of controlling pests, the unfortunate answer was "No." This isn't because there aren't any alternatives—there are—but because the information about the alternatives is not widely available.

Take cotton, a crop that consumes 40 to 50 percent of the total chemical pesticides used in India. A farmer from Haryana, Harbhajan Singh, discovered that by irrigating cotton in alternate rows, he could reduce his irrigation costs by half and his pest control expenses substantially without affecting the yield adversely. Growing lady's finger around a cotton crop is another economical solution for controlling pests. The flowers of lady's finger are similar to that of cotton. Lady's finger belongs to the same plant family and blossoms earlier than cotton. By attracting pests, it can reduce the impact of pests on cotton.

In the course of my work I have also learned that farmers can do the right things for the wrong reasons. I discovered that some farmers grew coriander around a field of chickpeas, apparently to repel pests. At my suggestion, a friend at the International Crops Research Institute for Semi-Arid Tropics researched the practice and found that coriander did not repel the pest, but instead, being nectar rich, it attracted the pests' predators. The outcome was the same.

but the underlying logic was different. This example demonstrates the positive role that formal or institutional scientists can play in grassroots innovation, by validating or adding to people's ideas.

These and other solutions can easily be shared as open source ideas, which may even be relevant worldwide. There are many examples of farmers who have benefited by the Honey Bee Network's open-access database of innovations, but many more can benefit if the database gets translated into different languages and is shared widely through social media channels.

Creating the Honey Bee Network

Almost a quarter-century ago, it became clear to me and others that inclusive development could not be imagined without incorporating diversified, decentralized, and distributed sources of solutions developed by local people, on their own, without outside help. We started the Honey Bee Network, an organization that seeks out innovations developed at the grassroots, organizes them in a readily accessible way, and provides them to people at the grassroots who can use the innovations to improve their lives and their communities.

Since its founding, the Honey Bee Network has mobilized more than 170,000 ideas, innovations, and traditional knowledge practices from 545 Indian districts. Most of these ideas, innovations, and practices were gathered by volunteers reaching out to people where they live and work. A very small number of these ideas reached us by people taking the initiative to do so on their own. Many times, grassroots innovators don't even know that they have innovated.

The Honey Bee Network is so named because it is based on the behavior of honeybees: We should cross-pollinate ideas by promoting people-to-people learning, whenever possible in the local language; like flowers (which attract honeybees for their own good) we should not let people feel shortchanged because their knowledge is being taken without their consent or involvement. Furthermore, the knowledge providers should not remain anonymous. Instead, their identity should be acknowledged and their intellectual property rights should be protected. If one of the only resources in which people are rich is taken away from them without acknowledgment,

attribution, or reciprocity, then little remains with them. Hence the need to protect people's knowledge rights. And if any income is generated from the commercialization of their knowledge, we should return a reasonable share back to the people who developed the innovation (honeybees, after all, don't keep all the honey for themselves).

To provide institutional support to complement the work of the Honey Bee Network, we have created several formal organizations: the Society for Research and Initiatives for Technologies and Institutions (SRISTI) was established in 1993; the Grassroots Innovation Augmentation Network (GIAN) was established in 1997; and the National Innovation Foundation (NIF) was set up in 2000 at the initiative of the Indian Ministry of Finance as an autonomous institute under the Department of Science and Technology (DST).

In 2009 SRISTI created a Web portal (www.techpedia.in) that now has summaries or titles of more than 150,000 engineering projects pursued by 400,000 students from more than 500 institutions. The goal is to put the problems of the informal sector and small-scale industries on the agenda of students so that more inclusive development takes place.

The Honey Bee Network has spread to more than 75 countries. The strongest network outside of India is in China, followed by Malaysia. China already has a database of about 3,000 grassroots innovations. An international congress on grassroots creativity and innovations was held the first week of December 2012, at China's Tianjin University of Finance and Economics.

The Honey Bee Network does not restrict itself to technological innovations alone. There are common-property institutions in which communities develop innovative rules to manage natural resources, and there are many inspired teachers who dedicate themselves to innovative approaches in education. Similarly, there is a great deal of folk cultural creativity that deserves to be recognized to maintain the experimental and creative traditions. For each one of these, one needs to create avenues for documentation and entrepreneurship development.

Building upon grassroots innovations as a fundamental building block for societal transformation is a valid and practical strategy. Many countries have not yet resolved to scout, spawn, and sustain such innovations. But I hope that as income disparities increase and social tensions mount, the policy and institutional space for grassroots innovations will expand. Inclusive development requires harnessing the minds on the margin that are not marginal minds.

Creative Ways to Foster Grassroots Innovation

After more than two decades of experience creating organizations that foster grassroots innovation, a great deal has been learned about how to do this successfully. What follows are seven creative ways to foster grassroots innovation.

1. **Encourage the growth of micro-venture finance.** Venture capital is critical in providing risk capital for funding the entrepreneurs who arise from grassroots innovations. In 2003, the NIF, with the help of the Small Industries Development Bank of India, established the first full-fledged venture capital fund for grassroots entrepreneurs, the Micro Venture Innovation Fund. This fund has enabled 186 grassroots entrepreneurs to develop and spread their innovations.

2. **Expand the public pool of innovations by providing financial incentives to innovators.** In 2011, the Honey Bee Network and NIF created the Grassroots Technological Innovation Acquisition Fund. Patent rights to dozens of technologies were acquired from innovators by paying a notional amount to create a public pool of innovations for licensing at no or low cost to small entrepreneurs within and outside of India. Providing this kind of financial incentive helps attract innovators to the program and reduce barriers to diffusion.

3. **Recognize, respect, and reward innovators where they live.** It is important to honor innovators at the grassroots level—where they live. One way we have found to recognize them is to organize learning walks (what we call shodhyatras) that go from village to village, visiting the homes of outstanding knowledge holders to honor innovators at their doorstep. During these walks we also organize other activities that draw ordinary people in, such as biodiversity and idea competitions for children and recipe competitions for women.

4. **Create community fabrication workshops in the homes of innovators.** To encourage innovators to share their work and to get budding innovators involved in creating new things, we have built fabrication workshops inside the homes of innovators. These shops, which are open to the community, have machinery and tools that would otherwise be unavailable, particularly in rural areas. The workshops also foster a spirit of cooperation that helps further grassroots innovation.

5. **Build partnerships between formal and informal science.** A natural product laboratory, Sadbhav-SRISTI-Sanshodhan, was created more than 10 years ago at SRISTI through a grant from a private philanthropist in Mumbai. It is now supported by DST and other institutions. It works on the ideas, innovations, and traditional knowledge of people in four areas: agricultural, veterinary, human, and microbial diversity.

6. **Invest in children's ideas as part of an inverted model of innovation.** Because children approach problems unencumbered by experience, they can sometimes find ingenious solutions to problems that bedevil adults. One child, for example, suggested a modification to the walker used by the elderly or people who cannot walk without support. Instead of all of the legs being the same height, the modified walker had height-adjustable front legs so that people could use it to climb stairs.

7. **Mobilize university students to address unsolved social problems.** Undergraduate and graduate students can be encouraged to tackle real life social problems as a part of their final year project. By creating a platform that is open and facilitates collaboration, problems that were only partially solved one year can be taken up by students in the following year. This strategy allows the students to work on long-term projects, not just short-term ones.

Embracing the Paradoxes of Innovation

By Zia Khan and Kippy Joseph

As the previous articles have made clear, innovation is essential to developing the breakthrough ideas and practicable solutions that contribute to social progress. The process of innovation is very difficult, however: full of challenges and characterized by paradoxes. It is understandable, therefore, that people look for checklists, normatives, and practices they can adopt and follow—or shortcuts and workarounds that will enable them to avoid getting involved with innovation altogether. Experienced leaders, however, know that innovation is necessary to further social progress, and successful innovators know that the challenges and paradoxes inherent in the endeavor cannot be avoided.

One way to smooth the path of innovation is to be alert to the most common challenges that arise. Interestingly, some of the most onerous barriers to innovation—especially in a global, cross-organizational context—have less to do with the skills of the actors involved than with distinct paradoxes that are embedded in the process. As with any paradox, these contain conundrums and sometimes fly in the face of conventional wisdom. At the Rockefeller Foundation, we have identified three paradoxes in our work with innovators around the world.

1. How to pursue innovation without falling prey to "cultification."
2. How to collaborate without being derailed by compromise.
3. How to scale up breakthrough inventions within the established conventions of organizations.

These paradoxes can be managed, but they are stubborn, and they can lead to a state of innovation dissonance—a palpable tension between the regularity of the status quo and the uncertainty that comes with change. The dissonance shows up in many ways. People find themselves unsure about how to behave in certain unaccustomed situations. They may have to shoulder new responsibilities and therefore make uncharacteristic missteps. Or they may feel concern, even anxiety, about the nature of new relationships.

The presence of these paradoxes, however, should not make us shy away from the critical need to innovate and collaborate, because the benefits to social progress are inarguable. What's more, handling the paradoxes often leads to institutional and individual growth.

Experienced leaders know that innovation is necessary to further social progress, and successful innovators know that the challenges and paradoxes inherent in the endeavor cannot be avoided.

The Paradox of Cultification

The many proponents of innovation have done an effective job of making the case for innovation and also of defining associated issues and bringing to light practices and methods. This focus is laudable, but ironically it has also produced, through its very success, a kind of cult around innovation, its methods, and its most successful practitioners. As a result, innovation has become the default mode for people in almost any situation where some change or improvement might be desirable. Innovation is now so fervently favored that it almost cannot be questioned.

We all know, however, that a large percentage of our time and our organization's energy is necessarily spent on activities that don't require innovation. We also know that scaling up an innovation depends on the operation of relatively routine tasks and processes, many of which are in place and already have been proved effective.

An example of this paradox is the experience of the mHealth Alliance, cofounded by the Rockefeller Foundation. The mission of the alliance is to improve health by championing the use of mobile technologies—most typically cell phones—to support a wide variety of health-care-related activities, from the collection of patient information to the integration of systems and platforms.

There is so much potential in the mHealth Alliance that there has been an explosion of new projects and pilot programs. The proliferation of programs has reached such a level that Patricia Mechael, executive director, says they are struggling with what she calls "pilotitis."

Why is this a problem? Because organizations expend so much of their energy in the conceptualizing and testing phases that execution—financing, manufacturing, scaling up, marketing, and managing—gets less attention. As a result, a high percentage of initiatives do not progress beyond the pilot stage.

This is precisely what happened in the mobile apps industry in Uganda, where pilotitis became such a problem that even the few projects that did come to fruition failed to catalyze systemic change. Finally, in early 2012, the Ugandan minister of health declared a moratorium on all electronic health care pilots until other critical issues—such as coordination, interoperability, ownership, and institutional structures—could be resolved.

Some organizations in the mobile health industry have avoided falling under the spell of the innovation cult. Switchboard, for example, is deliberately focusing on execution issues rather than the invention of yet another mobile app. The nonprofit has partnered with existing mobile operators to network health care workers in Liberia and Ghana. Switchboard can now scale up and replicate its success in new areas, such as Tanzania, where it is developing what may be the largest network of health workers in the developing world.

The lesson from mHealth, Switchboard, and others we have studied is that in organizations where innovation has achieved cult

Zia Khan is vice president for strategy and evaluation at the Rockefeller Foundation. Previously, he advised clients on strategy and innovation while leading the San Francisco office of Katzenbach Partners, now a part of Booz & Company.

Kippy Joseph is associate director, innovation, at the Rockefeller Foundation. Previously, she led the Young Foundation's education portfolio.

status, execution takes a back seat to invention. To succeed in the face of this paradox, we have found that there are two paths to follow. First, organizations can link pilot approval phases to the solving of associated executional demands. By so doing, they will heighten the status of non-invention activities and reduce the number of shooting-star pilots. Second, leaders can choose to focus their organization's efforts solely on execution and let others do the invention. They can then assert their well-functioning operational capabilities as an essential asset to the broader process of innovation.

The Paradox of Collaborative Compromise

Organizations almost always pursue innovation when they need a solution to a complex, rather than a simple, problem. The search typically involves multiple players with different experiences and approaches, multiple commitments to different groups affected by the problem, and unacknowledged and intertwining problems.

In the face of such complexity, organizations often look to their leaders to set priorities and make judgments about how resources should be allocated. Ideally, a collaborative approach—in which the diverse resources, disparate views, and separate goals are integrated—can yield an innovative solution that is greater than the sum of its parts. Often, however, the collaboration becomes a competition for resources and a protracted negotiation over priorities. This is particularly true when senior leaders turn their attention away from the collaboration and hand it over to deputies after the excitement of launch is over. Factions may form and positions may harden. The result is rarely a solution, but rather a compromise, and often at the lowest common denominator.

One organization that has had to work through this paradox is Global Pulse, a UN initiative and Rockefeller Foundation grantee, that seeks to encourage UN agencies and member governments to make greater use of Big Data. The initiative required the UN's bureaucratic wheels to turn in a new way, because real political and technical constraints had to be overcome. Not only can it be a technical nightmare to share real-time data that exist in different forms and locations, it can cause political problems. UN agencies work through member states, and if data shared by a UN agency have not gone through the proper national government channels and are somehow misused, it can cause problems for the UN agency.

Early on, Global Pulse recognized that the main challenge they faced was not skepticism about the potential of big data, but rather concern about the risks involved in collaboration. Who will decide what? How will resources be allocated? How will sectors and governments be prioritized? How will we protect our IP, our reputation, and our strategy? Who will come out "ahead"?

So the leaders spent a good deal of time getting early buy-in from the participants. Once there was sufficient buy-in, a core data and research team was formed. The members were decision-makers—called secondments—from UN and government agencies with domain experts in fields ranging from transnational crime to early childhood education, as well as volunteers from partners in the private sector and academia, including statisticians and technical experts in big data analytics.

The role of the secondments was to help the technical experts understand the on-the-ground issues; the experts were there to help the secondments master the concepts of big data. Together, their purpose was to integrate the multiple views, goals, and approaches into superior, workable solutions. "The idea was to create a space conducive to open and active debate," says Robert Kirkpatrick, director of Global Pulse. "We maintain minimal hierarchy on the team so that good ideas can flow free."

Global Pulse created a series of proof-of-concept projects to demonstrate the opportunities presented by big data. Each project involved interdisciplinary teams, typically including a secondment, a partner expert, a data scientist, a culture and language expert from the relevant country, and a project manager who could "translate" between and among the players.

One question they explored was whether there were real-time digital data sources that could serve as a proxy for actual food prices. If so, that capability could help decision-makers gain insights into food price inflation, day by day rather than month by month. In consultation with colleagues at the World Food Programme, the project team formulated preliminary research hypotheses and posed them to its partners. Then, together with Price Stats, a company that daily tracks the prices of five million products advertised online, they completed the project.

This and other proof-of-concept projects demonstrated what might be possible through the innovative use of big data. Global Pulse's leaders spent several months presenting the projects to colleagues in the UN. Soon Global Pulse was being invited to give presentations to individual units within UN agencies. These presentations led to a much richer understanding of how big data could be applied to specific lines of work. As a result, colleagues throughout the UN now seek to co-develop projects with Global Pulse.

The lesson from Global Pulse and other initiatives we have studied is that collaboration can be derailed by individual, disciplinary, and organizational concerns—all of which can be valid. Leaders who choose not to make executive decisions may do so in a genuine belief in the power of collaboration, but they may not fully understand the real difficulties it can create when a committee-created innovation comes to be translated into on-the-ground execution. No wonder collaborations often turn into elaborate rituals of bartering and protectionism.

Proof-of-concept programs like those at Global Pulse can quickly build trust, create knowledge, build collaboration skills, and avoid compromised solutions. One needs the right combination of people to make these programs work. These are usually people who are skilled translators and are willing to engage in battle over substantive issues and still respect one another's goals.

The Paradox of Invention Within Convention

A third paradox of innovation involves the disconnect between the process of invention—developing the core, original breakthrough—and the effort required to scale it up and integrate it into a larger, conventional system. The skills of the inventor are rarely those of the integrator.

This is a particular problem in large organizations that have optimized themselves around a founding innovation. They know they must continue to innovate, but the proven methods of innovation go against the conventions of how they currently operate. Their organization is not constructed of small, flexible entities with porous borders through which people, ideas, and resources can easily flow. So they often pursue innovation by forming separate innovation teams, such as ad hoc units, skunk works, one-off projects, or partnerships with outsiders.

Even when these innovation efforts are successful, the organization may find them challenging to manage. The organization wants to encourage and support these initiatives but it also wants to protect its organizational assets, further its own departmental interests, and not neglect its current operations. The tensions intensify when the parent organization wants to bring its nascent innovation back into the fold and scale it up—without mangling the invention and without any disintegration of the methods and structures that have made it successful.

Just as the actors at Global Pulse worried that collaboration across entities could threaten their situations, actors within a large organization have similar concerns when the space probe tries to dock with the mother ship. How will this solution affect our current ones? How can we be sure this grain of exotic sand will become a practical pearl and not just an irritant to a system that already works well?

Root Capital faced this paradox and has figured out an effective way to pursue innovation outside its main organization and, when the invention is ready to scale up, to bring it inside and take advantage of the parent's superior resources and processes.

Root Capital is a nonprofit social investment fund that lends capital, delivers financial training, and strengthens market connections for small and growing rural businesses in Africa and Latin America. It created Root Lab as a way to be both freer and less ad-hoc about innovation. The initiative is driven by an R&D team that is based in a physical laboratory, and whose members also include innovation officers in each of the field offices. The lab has a dedicated budget, but it does not operate with the same risk-reward expectations as other units in the company. Nor is the lab required to follow the same processes.

The field officers are focused on finding new opportunities, piloting innovation loans, determining what went right and what went wrong, and then culling and systematizing the learning. They work closely with Root Capital's core loan officers, interacting on problems that emerge and taking in the essential and nuanced perspective that only a core loan officer could have. Field officers then take these ideas and experiences back to the lab, where they build out the potential innovation.

This partnership between the lab and the African field offices led to a startling discovery: three-quarters of African crops are grown for domestic use. This finding contradicted the long-held notion that the best way to raise rural incomes was to grow high-value, organically grown, fair-trade crops for export. Root Capital, which had concentrated its loan activities on supporting export endeavors, adjusted course and began piloting innovation loans to community farmers. After much iteration, Root Capital moved this activity into its core operation and has built it into an $8 million business.

The lesson from Root Capital is that the process of invention, even when pursued through an entity separate from the main organization, should not operate in secret. In the quest for the next innovation, an organization need neither marginalize its innovation capability nor place it on a pedestal. Regular interaction between the innovation group and the implementation group yields the best innovations. Equally, integration of an invention should not take place in one fell swoop—as in a massive implementation or transformation program—but incrementally, so that field learning can flow back into inventive thinking.

Innovation Dissonance

While engaging in the process of innovation, we inevitably run up against one or more of these three paradoxes. They create tensions between actors and disciplines, and between intentions and executional issues. But the tension is a sure sign that innovation is happening, that people are working through their differences, finding common ground, and sparking new combinations and directions that would never have appeared otherwise. It is, therefore, a productive tension that we call "innovation dissonance."

We believe that innovation occurs when different points of view and different elements are reframed, reimagined, or recombined in new ways. To manage this coming-together of disparate elements and crossing-over of multiple boundaries requires an understanding of the paradoxes that put pressure on collaboration and an ability to identify and relieve them enough for innovation to thrive.

We have seen that people and organizations around the world are finding their own path to innovation—by being innovation enthusiasts without kowtowing to every practice of the cult, by integrating disparities without neutralizing their distinctive contribution, by building extended teams that know how to integrate invention outposts into the larger landscape of the organization, and by recognizing that the dissonance involved is usually short-lived and that social benefit can last for lifetimes.

As people at the Rockefeller Foundation have been learning for 100 years, innovation isn't easy, but it may be that wrestling with these innovation paradoxes creates much of the energy that drives the creation of new products, processes, and services that can fundamentally improve the lives of poor or vulnerable people.

Rockefeller Foundation

Innovation for the Next 100 Years

The Rockefeller Foundation aims to achieve equitable growth by expanding opportunity for more people in more places worldwide, and to build resilience by helping them prepare for, withstand, and emerge stronger from acute shocks and chronic stresses.

Throughout its 100 year history, The Rockefeller Foundation has enhanced the impact of innovative thinkers and actors working to change the world by providing the resources, networks, convening power, and technologies to move them from idea to impact.

In today's dynamic and interconnected world, The Rockefeller Foundation has a unique ability to address the emerging challenges facing humankind through innovation, intervention and influence in order to shape agendas and inform decision making.

This supplement was produced by the *Stanford Social Innovation Review* and funded by The Rockefeller Foundation.