

INNOVATING FOR THE DEVELOPING WORLD

THE CHALLENGE: How can we make it profitable for companies to innovate for the developing world?

Whether it's the economy or the environment, one thing is certain: the future of the world is inextricably linked to the future of business. Convening leading experts in diverse fields, the **Singapore Sessions** is an initiative designed to explore a range of solutions for these global challenges. This session focusses on new ways that businesses, non-profits, and universities can help bring innovation to developing nations. To join the conversation or to explore other sessions that may interest you, visit SingaporeSessions.com.



BILL DRAYTON
C.E.O., Ashoka

Bill Drayton is the founder of Ashoka: Innovations for the Public, a collaboration of almost 3,000 social entrepreneurs from every continent plus equally select business entrepreneurs. He has an A.B. from Harvard, an M.A.

from Oxford University, and a J.D. from Yale Law School. **Here, Drayton demonstrates how Ashoka's breakthrough business/social collaborations can provide a blueprint for profitable partnerships around the world.**

THE PRODUCTIVITY DEAL OF THE CENTURY

Until recently, business could usually safely ignore the citizen sector, what Ashoka calls the field of "social entrepreneurship." It was considered small-scale and disorganized – and therefore unrewarding to engage. Although these attitudes linger in many places, the reality has changed radically. In five years, failure to look closely for business/social joint venture opportunities when an organization in any sector sits down to map its future will constitute strategy malpractice.

More than half of Ashoka's 3,000 social entrepreneurs have changed national policy within five years of our helping them launch. Roughly 500 focus on ensuring that every human can be a full economic player. By mapping



Social entrepreneurs like Bangladeshi Ashoka Fellow Hosne Ara Begum (seated) bring every dimension of needed change.

the principles underpinning their successes, a truly giant global productivity deal becomes apparent.

Almost everywhere, there are large, competent, highly competitive citizen groups – from rural Mexico to Germany's schools and Thailand's forests. Their costs are lower than those of the business sector, and they understand and are trusted by their clients. This means they are feasible, attractive new partners for business.

To help everyone see the opportunity, Ashoka is bringing together business and social partners on four continents in three very different sectors. They are small farmer irrigation, slum construction, and health care. Consider the case of irrigation. Until now, most small farmers in Mexico have been unable to get drip irrigation which could double or triple their income by allowing several crops per year, and end their reliance on uncertain rains. The companies found the work unprofitable and the population too unfamiliar.

However, in the last fifteen years large, competent citizen groups, serving 50,000 to 200,000 small farmers, have sprung up all over the Mexican countryside. These groups are no good at manufacturing metal or plastic pipes, but their low costs and local relationships make

them far better at marketing, organizing, and providing technical assistance.

That, exactly, is the deal. Both have proven they cannot succeed alone. Together they can: (1) transform small farm economies; (2) enable the citizen groups to serve their clients and earn a substantial and growing new income from their markup on the sales; and (3) open a giant new market for the companies – roughly half the country's arable land area.

These new business/social collaborations will also generate huge new global financing opportunities. Moreover, each such collaboration will drive the sectors together. Such an everyone-wins-big productivity deal is waiting in every sector. The entrepreneurs who seize their opportunity early will gain key long-term advantage, and those that lag will lose.



HEATHER FLEMING
C.E.O. and Co-founder,
Catapult Design

Heather Fleming co-founded Catapult Design, a non-profit product and technology firm, to provide design, marketing, and distribution support in developing countries. She also teaches design at Stanford

University, her alma mater. **Here, Fleming shows how empowering local innovators can create solutions that are exportable throughout the world – and provide real income for disadvantaged individuals.**

LOCAL INNOVATION, GLOBAL IMPACT

A typical morning for Ngarambe starts with tin snips, a makeshift hammer, scrap metal, and discarded soda cans. A local shopkeeper in Kenya, Ngarambe is also a craftsman. Slicing a soda can in half, he rolls a second smaller diameter cylinder out of a scrap of aluminum to create a top. He solders this piece to an aluminum disc that fits on top of the can. He then coils a wick through the can and threads it through the disc. Finally, he solders the top to the can and fills it with kerosene. In just a few minutes, he's created a kerosene "lamp" that will last buyers a few days. Each lamp is sold for a few cents, generating enough profit to provide a viable living for his family.

In communities like these that exist outside the electrical grid, individuals like Ngarambe create their own tools, their



Alternatives to pollution-generating kerosene lamps (foreground) are LED lamps from d.light, Cosmos Ignite Innovations, and Barefoot Power (left to right).

own light, and their own power with resources at their disposal. Their innovative solutions are not necessarily driven by a desire for profit, but to improve their daily lives or just to make ends meet. Some of these solutions have the potential for mass appeal. For example, you can find these makeshift kerosene lamps – a cheap source of light – in nearly every corner of the world. Unfortunately, the inhalation of smoke produced by these lamps causes respiratory disease, the leading cause of death of children under the age of five in developing countries. Moreover, the fuel is often expensive, and the open flames dangerous. The demand for lighting is clear, but the current solution is flawed. Ngarambe and his community could benefit from the kind of collaborations Catapult has forged all over the world.

Catapult Design harnesses and builds upon local innovation with holistic design at its core. In 2009, Catapult worked with a social enterprise to pilot a program in Tanzania to evaluate new lighting concepts, taking health, cost, accessibility, environmental impact, and alternative power sources into account. Our development process also incorporates market assessment, product design and development, implementation and distribution, and impact evaluation.

Catapult works with numerous organizations around the world, big and small, non-profit and for-profit. All of our clients' goals align with our mission to bring transformative solutions to communities in need. The benefit we see is the cross-pollination of ideas and methodologies from around the world, as well as an increased transfer of knowledge. For example, a small-scale, low-cost wind turbine designed by Catapult as a source of electricity for rural Guatemalans could find a new home on the eastern shores of Kenya or the desert plains of Ethiopia.

By applying the shared principles of business and design to the creation of affordable, accessible, and sustainable solutions, we can realize the untapped potential of the developing world and break the cycle of global poverty forever.



PETER LOESCHER

President and C.E.O., Siemens AG

Peter Loescher's oversight of Siemens AG includes projects and business interests in 190 countries. He previously served as president of Global Human Health at Merck & Co., and president and C.E.O. of GE Healthcare

Bio-Sciences. **Here, Loescher illustrates how innovation can be a two-way street between emerging and developed nations and discusses the pivotal role of intellectual property rights protection.**

INNOVATION CAN MOVE US ALL FORWARD

Private sector innovation has the potential to change the development of any country. But this does not mean profitability and meeting the needs of the developing world are mutually exclusive. In many cases, just the opposite is true. In fact, Siemens started business in the developing world more than 160 years ago with projects such as the first telegraph system connecting London to Calcutta.

Today, through Siemens' work in developing and emerging markets, we are often helping build modern infrastructure for the first time. In some cases, it means helping with the basics: water, power generation, lighting, transportation solutions, and health care. In other cases, our innovations are helping these countries leapfrog into the sustainable sectors that will drive the twenty-first century.

For example, we are part of a consortium of companies called Desertec, an ambitious banner project that promises to meet some fifteen percent of European and also a major bulk of African energy needs by 2050, using solar-thermal plants in Africa's Sahara desert. Not only will this create jobs in northern Africa, it can help solve a large share of local problems.

Desertec is a future vision, but we are also active today. In Kenya and Uganda, our lighting division, OSRAM, is working with local partners in setting up off-grid energy

hubs using roof-mounted solar cells. In Bangalore, India, we are developing localized fuel-efficient power plants that combust coconut shells to provide enough electricity for a typical Indian village. In some cases, these products have even been exported to developed nations proving that innovation is no longer only a one-way street.

We do not believe that innovations are unique to the developed world. Siemens has numerous research centers across the world, from Europe and the U.S. to Asia, including China, India, and Singapore – where many new innovations and patents are registered every day. And this is the key: In all the locations where we conduct R&D, protecting our intellectual property is at the heart of being able to innovate further. Without patent protection, private sector innovation would dry up.

Unfortunately, this issue could be a sticking point in one of the greatest challenges facing all nations today: climate change. When I attended the United Nations climate conference a few months ago in Copenhagen, a key question was about intellectual property rights. On one side was most of the developed world with many technologies to help improve the environment. On the other were developing nations insisting the only access to these technologies was through mechanisms such as compulsory licenses.

Thankfully, what sounded like an insoluble impasse actually sparked a creative idea. A win-win solution has been suggested by the Alliance for Clean Technology Innovation, a trade group including Siemens and other E.U.- and U.S.-based multinationals. The group has proposed creating "Technology Centers" around the globe to build on earlier successful models that would



Lake Victoria fishermen use OSRAM's energy-saving lamps to attract fish.

Singapore Sessions is a trademark of the Singapore EDB.

What do you think? To join the conversation, log on to SingaporeSessions.com/Innovation

help identify technology and management options that make the most sense on the ground.

Instead of calls for weakening intellectual property rights or imposing compulsory licenses, Technology Centers would play a positive role in speeding the deployment of key technologies in developing countries – and build more trust between donor and recipient nations. Innovative ideas, like innovative technology, can move us all forward.



THOMAS MAGNANTI
President, Singapore University of
Technology and Design (SUTD)

Thomas Magnanti is the founding president of the new SUTD, which seeks to become an intellectual hub and engine for growth in Singapore and beyond. He was the former dean of engineering

at MIT. Here, Magnanti explains how harnessing the curiosity and drive of students can produce solutions that help both society and business.

FUELING STUDENT PASSION TO CREATE A BETTER WORLD

Universities are powerful engines of innovation for the developing world. They are a hotbed of ideas and impact the world through the knowledge they develop and disseminate, the technologies and services they bring to the marketplace, and the human capital they nurture.

Innovation and design for the developing world in particular are well suited for student engagement in the early stages of their studies, and not as daunting, for example, as designing a sustainable city. Universities such as MIT, Stanford, Berkeley, and Colorado State become leaders in this area by creating ecosystems. They provide courses on design and innovation (addressing the full value chain: users' needs and markets, financing, political and social environments), as well as laboratories and facilities, seed funding, site visits to communities, entrepreneurial and faculty mentors, clubs, design and business competitions, and other activities that promote the innovation process.

Three examples from the MIT 100K Development Track competition illustrate what these ecosystems can achieve:



Student Learning Studio at SUTD (artist rendering).

- Born in an MIT D-Lab Design class and refined by a team of women mechanical engineers from MIT and participating M.B.A.s, competition winner Global Cycle Solutions uses bicycle parts to develop low-cost technologies for food processing and energy generation.
- Incubated in an MIT Development Ventures class as a competition-winning joint effort by a Harvard-MIT team, ClickDiagnostics provides affordable, sustainable, quality health care using mobile phone-based tele-consultation services in Africa, South Asia, and the Americas – areas with little or no access to doctors.
- One of the finalists, Ghonsla, supplies affordable insulation made from renewable and waste materials to under-served markets in Pakistan and beyond.

By unleashing student potential, energy, and passion, and providing supportive environments, universities can foster remarkable achievements like these. But reaching their full and scalable potential requires that the private and public sectors see sufficient social and economic value in providing support and financial investments. The Singapore government, for example, expresses the potential benefits through its Bottom of the Pyramid initiative.

At the new Singapore University of Technology and Design, we aim to do our part by nurturing tomorrow's leaders, focussing on "Big D" design, which includes all aspects of technology-grounded design. We will also conduct research on such topics as engineering for the developing world. Our goal is to fashion many more success stories like those described above, creating a better world. What else could we ask?