IDB
Opportunities for the Majority

The Broadband Effect

Enhancing Market-based Solutions for the Base of the Pyramid

Prepared by Hystra
for Opportunities for the Majority at the Inter-American Development Bank

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About the IDB

Opportunities for the Majority
The Opportunities for the Majority (OMJ) initiative promotes and finances market-based, commercially viable business models that engage private sector companies, local governments, and communities in the development and delivery of quality goods and services for the base of the pyramid (BOP) in Latin America and the Caribbean.

Created in 2007 as part of the Private Sector Group of the Inter-American Development Bank (IDB), OMJ provides financing to small, medium-size, and large companies, financial institutions, and funds that support the development or expansion of business models that serve BOP markets. OMJ has supported BOP business models in 18 countries of the region in different sectors such as health, education, housing, and financial services, among others.

The Broadband Initiative
The Inter-American Development Bank, through its Institutional Capacity of the State Division, offers operational instruments and knowledge products to support its clients, with the aim of accelerating broadband access and promoting broadband use through public policies that foster the implementation of broadband development plans and digitalization strategies, strategic regulations, infrastructure, and human capital in the public and private sectors.

About Hystra

Hystra is a global consulting firm that works with business and social sector pioneers to design and implement BOP business approaches that are profitable and scalable, and that mitigate social and environmental problems. In order to "be the change we want to see in the world," Hystra itself is a hybrid consulting firm – a for-profit tool for social change. Since its creation in 2009, Hystra has conducted in-depth sectoral studies on clean energy, safe water, affordable housing, and ICT-based business models for development; analyzed winning marketing strategies in micro distribution; designed new models to serve low-income communities with home improvement packages, irrigation pumps, solar lights, safe water, and improved nutrition products; prepared business plans for pioneering BOP businesses; and supported the creation of a social impact fund.

Hystra has served over 40 clients from 17 countries, supporting business models that change lives in low-income communities across the globe. Clients have included large corporations, international aid agencies, foundations, and governments.

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hybrid strategies consulting

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List of Acronyms

BOP	Base of the pyramid
BPO	Business process outsourcing
ERP	Enterprise resource planning
FIP	Financial Inclusion Plan (India)
GDP	Gross domestic product
GPRS	General packet radio service
ICT	Information and communication technology
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IT	Information technology
IVR	Interactive voice response
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act (India)
MNO	Mobile network operator
NABARD	National Bank for Agriculture and Rural Development (India)
NER	Net enrollment ratios
NGO	Nongovernmental organization
NOFN	National Optical Fiber Network Project (India)
OECD	Organization for Economic Cooperation and Development
POT	Point of transaction
RIA	Red de Innovación y Aprendizaje (Learning and Innovation Network) (Mexico)
RBI	Reserve Bank of India
USAID	U.S. Agency for International Development

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Foreword

Broadband technology is a powerful tool. As shown in a study by the Inter-American Development Bank (IDB), an increase of broadband penetration by 10 per cent is associated with an average increase in GDP of 3.2 percent and in productivity of 2.6 percentage points. Private companies that have adopted the use of Internet technology in their businesses have an average increase in profitability of 10 percent, according to the McKinsey Global Institute. Even more compelling is the potential impact that broadband can have on the base of the pyramid (BOP), a segment of the population previously excluded from markets, and which lacks access to quality goods and services such as financial services, education, and health.

Broadband has facilitated the development of new business models that are more effective and efficient in terms of accessing, creating, and distributing goods and services to the BOP. A variety of private-sector-led broadband initiatives involving the BOP around the world have demonstrated profitability, while also providing social and economic returns along the value chain. The positive results are visible in highly innovative business models across sectors that use broadband to deliver solutions to the BOP. Without the use of such technology, these solutions in some cases would not be available to this segment of the population.

The IDB's Opportunities for the Majority (OMJ) and Broadband Initiative have come together to examine, at a global level, how companies that serve the BOP are deploying the use of broadband to improve the efficiency of their operations and better reach this market segment. This report sheds light on these broadband-enabled BOP business models, the ecosystem in which they operate the benefits and challenges of broadband adoption, and the role of public policy and regulation.

The business cases studies therein are sustainable models that directly target the BOP and are enhanced by the use of broadband- and Internet-enabled technologies. The case studies come from a variety of developing economies in different regions around the world, as well as from different sectors such as agriculture, health, education, and financial services.

Although these businesses have greatly benefited from the adoption of broadband, the report also looks at related challenges and limitation that have to be addressed. In most cases, the most pressing challenge is the investment required where broadband infrastructure is not available, and in those where such infrastructure exists, the costs for companies and BOP users to adopt the technology, which is known as "the last mile." To overcome these challenges, it is also important to develop a robust strategic regulatory framework and efficient public policies in partnership with private sector initiatives for the BOP.

The present study highlights both the benefits of broadband use by BOP businesses, as well as the main public policies and regulations that are needed to improve accessibility to the technology, therefore, promote its use among these types of firms. It also provides examples of how the private and public sectors have effectively collaborated to achieve this goal.

Broadband can greatly enhance market-based solutions for the BOP and improve lives among this population group. Some pioneers have taken the leap and seen how the use of broadband gives them a competitive edge, among other positive results. This report provides successful examples, and a comprehensive analysis of the benefits and challenges of broadband use by BOP firms. These models are still new, and there is still a great opportunity for other companies to continue to innovate, which would further develop the BOP business sector and ultimately benefit the lives of people at the BOP.

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Executive Summary

Over the past decade, many organizations have leveraged newly available broadband to set up sustainable projects that better include the base of the pyramid (BOP) in economic value chains as clients, producers, or employees. As a result, the Inter-American Development Bank (IDB) decided to commission a study to analyze the impact of broadband across value chains on the BOP.

Broadband-enabled Business Models by Sector and Geography

Drawing on Hystra's (2011) report on information and communication technology (ICT) for the BOP, the current study identified and analyzed 368 projects that provide financial, educational, agriculture, and health services to the BOP via ICT. Two-thirds of these projects use data connectivity and/or broadband, while the last third are only voice- and SMS-based. Key facts about those data-enabled projects include the following.

Market mechanisms. Only 39 percent rely on tested market-based mechanisms, i.e., receive revenues beyond grants and subsidies and have gone beyond the lab/pre-pilot stage. This analysis has mainly focused on those as they have the most chances of being sustainable over the long term.

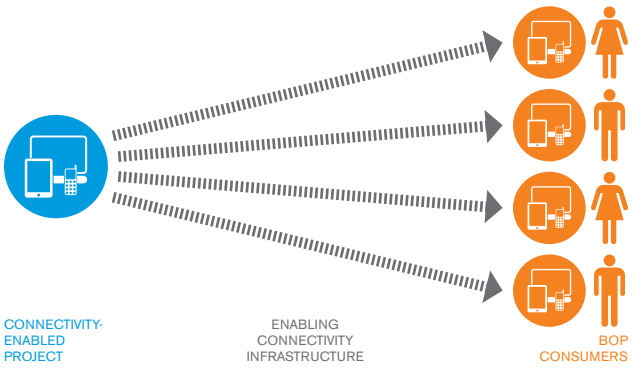
Geography. In terms of geography, Asia has the largest proportion of market-based projects (57 percent of the total of 72 projects). Africa ranks first in terms of the number of data connectivity and broadband projects (93), but 78 percent of them are grant-based, while Latin America lags considerably behind with only 30 projects.

Sectors. In terms of sectors, agriculture has the highest number of market-based projects (24 out of 53); while the financial services sector has the highest proportion of such projects (70 percent). This probably stems from the fact that in these two sectors, data- or broadband-enabled services can bring immediate economic benefits such as lower-cost money transfers or higher prices at which to sell one's products thanks to market information. One sector that seems to have recently benefited from developments in broadband is education, where the number of projects (47) has increased the most since 2011, although nearly two-thirds are still grant-based.

Three Market-based, Broadband-enabled Business Models

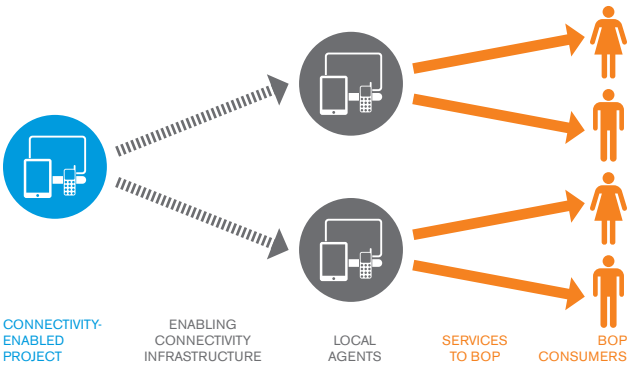
The projects analyzed in this report were categorized according to the way in which they use data connectivity and broadband.

1. Direct-to-consumer



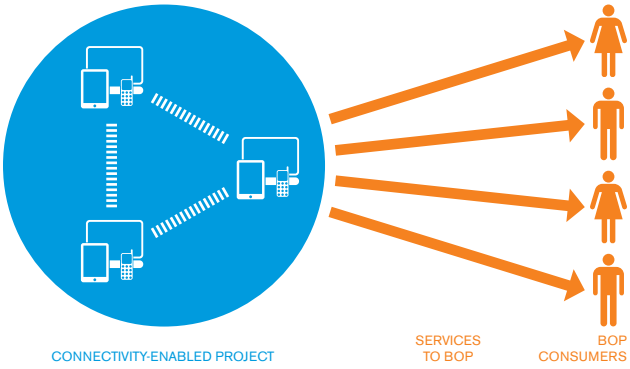
Direct-to-consumer projects provide broadband- or data-enabled services directly on BOP consumers' devices. Over half of the projects reviewed in this category (50 of 97) are not market-based; rather, they are often launched by governments or NGOs to provide information to the BOP. Among the market-based projects, most offer a main service that is SMS- or voice-based and designed to operate on the most simple devices and reach the largest number of people possible, along with a premium service that requires more complex devices and better connectivity.

2. Local Agent



Local agent projects offer broadband- or data-enabled services to BOP consumers through local agents who overcome the issues of (digital) illiteracy and device affordability for end-users. Using a shared technology point also allows for increased investment in the technology, and hence projects in this category tend to use devices with more functionalities and higher-speed broadband than direct-to-consumer projects. This model has the highest proportion of market-based projects (30 of 48, i.e., over 60 percent).

3. Optimized Internal Processes



Optimized internal processes projects leverage broadband to re-engineer their business processes and provide better services at lower costs to the BOP, without necessarily putting the end-user in contact with technology. This category has few market-based projects (18 of 99, i.e., less than 20 percent), as many projects support data-gathering by frontline community workers – making NGO or government programs more efficient, rather than serving the BOP as clients. However, a few radically innovative approaches prove that data connectivity and broadband in particular can also improve businesses' efficiency, to the extent that these approaches can serve the BOP sustainably where traditional approaches are too costly.

Key Success Factors of Each Model

Shared Success Factors

The report draws lessons from in-depth analysis of eight case studies in health, education, financial services, and agriculture in Mexico, India, Kenya, and for one project, in over 30 countries. The case studies are representative of the market-based approaches in the three above-mentioned business models (direct-to-consumer, local agent and optimized internal process), which share some key success factors in terms of the design and delivery of a successful and affordable value proposition to their BOP clients.

Pre-testing. First, the models offer a tested, comprehensive, and fully reliable value proposition to their users. Before commercial launch, these businesses test all aspects of their service with end-users to ensure that the service is fully reliable from day one and to holistically answer their client's concerns.

Use of technology. Second, the models leverage technology to continuously improve services for end-users by standardizing processes, while constantly monitoring inputs and outputs and systematically acting on feedbacks.

Adaptation to infrastructure. Finally, the business models adapt the service to the available broadband infrastructure. Where high-speed broadband is available, these businesses upgrade their technologies and processes to take advantage of it. Yet many projects have to make do with data connectivity at low speed when broadband is not available or too expensive. Businesses that fundamentally need broadband but cannot access it either build their own infrastructure or get a third party to bear connectivity costs.

Model-specific Success Factors

In terms of marketing, distribution, and scalability, the business models have different key success factors.

Direct-to-consumer. Under the direct-to-consumer model, successful businesses get endorsements from well-known brands and leverage mass marketing (e.g., TV spots or large-scale SMS campaigns) to reach a sufficient number of prospective consumers at acceptable costs. For optimal distribution, they adapt their service to broadband devices with the highest penetration rate. As these are rarely smartphones, this limits the extent of their service (and hence the price they can charge for it). In order to scale sustainably, this in turn forces the businesses to create services that can be easily transferred to other areas (e.g., with the same language) and leverage large existing client bases (e.g., from existing network operators), regardless of the sector in which those clients work.

Local agent. Under the local agent model, successful businesses leverage their network of intermediary agents, often chosen via recommendations from within the communities, to establish customers' trust. In terms of distribution, such business models achieve success provided they build a dense enough network of trusted and performing agents, which requires building a highly attractive value proposition for the agents that ensures they earn attractive revenue. In order to sustainably scale their agent network, these businesses further need to find smart investment strategies to limit the technology costs per agent (e.g., by sharing costs with the agents themselves or with other organizations).

Optimized Internal Process. Businesses using the optimized internal processes model often offer a service in a completely new way for end-users, thanks to data-connectivity and broadband (e.g., private schools with connected teachers, or tele-medicine in low-income neighborhoods that have rarely seen a computer before). In terms of marketing, these businesses need to create trust via proximity marketing, quality certifications, and top-notch after-sales service. As capital-intensive businesses, optimized internal processes projects need to invest frugally and rely on modular growth in order to scale sustainably.

Socio-economic Benefits of Broadband for the BOP

The analysis of the three models and their success factors has also shown large potential socio-economic benefits of broadband for the BOP. As a powerful tool upgrading service access, quality, and cost-efficiency, broadband helps integrate the BOP into social and economic value chains as end-users or intermediaries because it:

Provides BOP end-users with better information and connection to the world. By allowing large data transfers, broadband gives end-users access to key information and improved quality contents while enabling real-time interactivity with the digital community. Moreover, it allows for linking market players and aggregating supply and demand to optimize commercial transactions.

Empowers BOP intermediaries, employees, and entrepreneurs. By providing support for complex tasks, broadband allows for hiring and training lower-skilled BOP workers. In addition, it improves the quality of service that local agents can deliver and hence their competitiveness. For example, franchised entrepreneurs and small shop owners in both India and Mexico have been able to multiply their revenues by at least two thanks to the provision of broadband-enabled services.

Makes inclusive businesses more efficient and hence allows them to better serve poorer customers. Broadband facilitates the optimization of organizational processes and lowers costs through centralized process management. It further increases service quality through standardization and real-time monitoring. One case study showed that hospitals in India could reduce their costs by 75 percent – and hence provide their services at lower prices to their patients – thanks to increased efficiency from broadband.

Drives macroeconomic trends delivering social and economic benefits to the BOP. Companies that build their business on broadband often need large initial technology investments to get started, and consequently end up investing tens of millions of dollars in the local economy. Broadband also contributes to creating new employment opportunities, improves matching between job supply and demand on the BOP labor market, and can enhance access to social services and the quality of those services (e.g., education, health, financial services, agriculture) for the BOP. For example, in Kenya, students in private schools leveraging broadband have achieved 15-35 percent higher scores on national exams compared to students in neighboring public schools.

Challenges and Key Success Factors of Each Model

Challenge	*Key Success Factors*		
Value Proposition Offering quality, reliable service at affordable cost with the available infrastructure	**Pre-testing.** Offer a tested, comprehensive, and reliable value proposition to end-users. **Use of technology.** Leverage technology to continuously improve the service. **Adaptation to infrastructure.** Adapt the service to the available infrastructure.		
For the following challenges, key success factors vary by project model, as indicated.	 DIRECT-TO-CONSUMER	 LOCAL AGENT	 OPTIMIZED INTERNAL PROCESSES
Marketing Creating trust in technology and service quality	Get endorsements from well-known brands and leverage mass marketing.	Establish trust among consumers via local agents and community endorsement.	Create trust via proximity marketing, quality certifications, and excellent after-sales service.
Distribution Ensuring affordable access to device or point of service	Adapt the service to devices with highest penetration rate.	Build a dense network of agents by offering them an attractive value proposition.	Not applicable.
Scalability Scaling up while paying back high upfront costs	Create replicable service offers and leverage existing client base to quickly reach scale.	Find smart ways to limit or share the investment costs per agent.	Invest frugally and rely on modular growth.

Lessons Learned for Policymakers: Promoting Broadband-enabled Businesses at the BOP

While broadband can benefit the BOP, innovative projects often struggle to reach scale due to an unsupportive environment. Policymakers could give a significant push to broadband-enabled projects with potential impact through interventions that:

Facilitate access to broadband infrastructure for businesses that serve the BOP. Key actions involve improving "last mile" connectivity (e.g., by encouraging private players' investments or investing directly), and improving broadband affordability (e.g., by fostering competition between broadband providers, or by offering discounted rates – or requesting broadband providers to do so – on broadband access and use for inclusive businesses).

Create an enabling environment for BOP businesses that leverage broadband. This includes removing regulatory bottlenecks to innovative business practices with potential impact; reducing taxes and duties on services (and devices) initially considered "for the rich" but that become affordable for all thanks to broadband; and ensuring coherence of connectivity- and broadband-related public policies across ministries and agencies (e.g., by creating inter-ministerial committees to coordinate strategies and interventions).

Provide direct support for the replication and scale-up of broadband-enabled businesses that serve the BOP. This can be done by supporting the sharing of experiences and the dissemination of best practices in leveraging broadband in the provision of social services, or by leveraging government contracts to create business opportunities and catalyze technology investments from inclusive business models.

The research undertaken for this report has shed light on new approaches that leverage today's connectivity to build tomorrow's inclusive business models. Connectivity in general and broadband in particular bring new opportunities to the BOP, and are investments well worth considering for policymakers throughout the world and in particular in Latin America and the Caribbean.

More research is still needed to quantify the impact of broadband on poverty at both the macro and micro levels. Yet the authors of this report hope that it will inspire political and business leaders to create and support more broadband-enabled businesses to achieve better socio-economic inclusion at the BOP.

Chapter 1
Introduction

Context

Over the past decade, information and communication technology (ICT) has created many new opportunities to include the base of the pyramid (BOP) in economic value chains as customers, producers, entrepreneurs, or employees. A variety of private sector-led ICT initiatives involving the BOP, mostly in Asia and Africa, have achieved profitability while providing social and economic returns along the value chain.[1] Such projects, often directly linked to income-generating activities for the BOP, have also demonstrated that this segment of the population is ready to pay for access to connectivity in general and broadband in particular.

Indeed, broadband can be a powerful enhancer of growth. At the micro level, firms that use the Internet see a 10 percent rise in profitability (McKinsey Global Institute, 2011). At the macro level, broadband has proved to have a high multiplicative effect on GDP, productivity, and employment: a 10 percent increase in the number of broadband subscriptions is associated with average increases of 3.2 percent in GDP and 2.6 percent in productivity (Garcia-Zaballos and Lopez-Rivas, 2012).

Regrettably, Latin America and the Caribbean lag behind other regions of the world in terms of broadband deployment and use at the BOP. Latin America only has around 10 fixed broadband lines per 100 inhabitants (the European average is at 30) and 10 mobile broadband lines (while most Organization for Economic Cooperation and Development countries have more than 40 lines). Latin America is still a continent of many divides, both between countries (e.g., more than 20 mobile broadband lines per 100 inhabitants for Brazil and Venezuela, but less than five in Nicaragua, Bolivia, and Paraguay) and within each country (penetration of broadband of less than 4 percent in rural areas of Venezuela versus over 20 percent in the best-connected areas). The poorest are often the ones left behind, with the digital divide accentuating the wealth divide (IDB, 2012).

In this context, the Inter-American Development Bank (IDB) commissioned this study to understand how organizations can leverage broadband to better integrate the BOP in economic value chains. The objective is to show how the adoption of broadband communication technologies enhances productivity and competitiveness of market-based projects affecting the BOP in Latin America and the Caribbean.

This report analyzes eight such cases in depth, highlighting their internal and external success factors, and draws key lessons for policymakers. The case studies will hopefully inspire companies and policymakers to replicate their models or more generally invest in broadband infrastructure, to help bridge the digital, social, and economic divide in Latin America and the Caribbean.

Scope and Terminology

This report analyzes and draws lessons from market-based organizations that use broadband to better incorporate the BOP into their value chains in various sectors. In the report, these organizations are generally referred to as "BOP businesses."

Market-based models

"Market-based projects" refers to models that have set up financial sustainability mechanisms whereby a client pays for the services provided. These clients can include end-users, but also other service providers willing to serve the BOP via these broadband-enabled businesses (e.g., banks hiring intermediaries to enroll BOP customers thanks to technology, or agro-input manufacturers paying rural kiosks to sell their products). This report is agnostic as to whether the organizations launching these projects are for-profit or not-for-profit organizations, as long as the model they have set up has a market-based approach.

Broadband

The IDB recognizes the definition of broadband as a minimum speed of 256 Kbps. This minimum speed has "direct implications on the type of services and applications that can be provided, and thus, the greater the bandwidth (speed), the greater the quality associated with the service" (IDB, 2013).

Given the limited availability of broadband infrastructure in developing countries (and hence the limited number of projects leveraging broadband), this report has analyzed case

1 For example, a study conducted by Hystra (2011) showed how 15 best-practice organizations leveraged ICT in sustainable business models providing health, education, financial, and agriculture services.

studies that either used broadband or, in some cases where access to broadband was unavailable, adapted to the available data connectivity at a lower speed. In these cases, the business models used data transfer beyond SMS and voice over phone (and hence could easily graduate to broadband use if it were available). Each of the case studies in Appendix B indicates the specific networks and devices used.

Including the BOP in Value Chains

The BOP is defined as persons with a daily per capita income that is up to US$10 in purchasing power parity. This analysis has only looked at cases that aim and claim to target and have an impact on the BOP as customers, producers, entrepreneurs, or employees. Broadband also brings benefits to companies targeting higher socio-economic levels and to their clients, but this aspect of broadband impact is not part of the scope of this study.

Sectors

This report focuses on four sectors that provide essential services for the BOP: education, health, agriculture, and financial services. However, these sectors are not the only ones where broadband can have a large socio-economic impact at the BOP. In particular, further research on areas such as government services or micro-works (i.e., tasks divided between many contributors via the Internet, creating new opportunities for income) would help to better understand the contribution of Internet connectivity, and particularly broadband, to socio-economic goals.

Table 1: List of Case Studies

Project	*Model*	*Region*	*Sector*	*Device and Network Used*	*Main Service Provided*
Enova	*Local agent*	Latin America (Mexico)	Education technology	PCs and tablets with high-speed broadband	Better and lower-cost classes and Internet services for BOP children and adults
Barared	*Local agent*	Latin America (Mexico)	Financial services	iPads with high-speed broadband through own Wi-Fi antennas	Access to financial and telecommunications services closer to home for urban BOP users
FINO PayTech Ltd.	*Local agent*	Asia (India)	Payments technology; financial services	Broadband or GPRS-enabled POT terminals depending on available networks; offline mode available	Access to lower-cost payments technology and financial services at their doorstep for rural BOP users
eKutir eAgro Initiative	*Local agent*	Asia (India)	Agriculture	Tablets, mobile phones, and Internet data cards with wireless connectivity at various speeds	Increased access to market and agro-expertise for BOP farmers
Narayana Health	*Optimized internal process*	Asia (India)	Health	Cloud-based ERP/ videoconferencing tools with high-speed broadband	Lower cost and better quality of care for BOP patients
Kilimo Salama	*Optimized internal process*	Africa (Kenya, Rwanda)	Agriculture and financial services	Weather stations using GPRS	Micro-insurance for BOP farmers
Bridge International Academies	*Optimized internal process*	Africa (Kenya)	Education	Cloud-based ERP and mobile apps with second/third generation connectivity	High-quality, low-cost pre- and primary schools for BOP children
Urban Planet Mobile	*Direct-to-consumer*	Global	Education	Ringtone-like lessons on mobile phones; web-based apps	Low-cost daily English lessons for BOP learners

Notes: BOP = base of the pyramid; ERP = enterprise resource planning; GPRS = general packet radio service; POT = point of transaction. See Appendix B for the full case studies.

Methodology

The methodology used for this study follows that of previous Hystra studies, drawing lessons from what works via extensive case studies.

Drawing on the Hystra report on "Leveraging ICT for the BOP: Innovative Business Models in Financial Services, Agriculture, Health and Education" (Hystra, 2011), the current report updated and refined the information to the narrower scope of broadband-enabled projects (versus the full scope of ICT-based business models studied in 2011). This was done by conducting a literature review of 25 reports, and by interviewing 21 experts on broadband or, more broadly, on ICT-based development programs and BOP business models.

From these experts' recommendations and the IDB's inputs, eight projects were selected for in-depth case studies (Table 1). They are representative of the three business models identified in this study (direct-to-consumer, local agent, or optimized internal processes) (see Chapter 2).

A review of public information and internal documentation shared by each of the eight selected projects, as well as interviews with their top management, informed the case studies. (The case studies are presented in Appendix B.)

Each of the projects studied in depth is evaluated against four criteria that pose a series of questions to determine if the project is solving the problem, economically sustainable, scalable, and replicable (Table 2). The key results of this analysis are presented in this report, which was reviewed by IDB experts as well as all project leaders who contributed their insights to this work.[2]

Limitations and Caveats

In an effort to highlight the common features among best practices, some important nuances may have been overlooked. Given the diversity of the types of service provided, technology used, business models, and geographic scope, it is possible that not all lessons summarized here are relevant to all broadband-leveraged models or applicable in all geographic areas.

Conclusions are drawn from a limited set of eight examples studied in depth as well as from Hystra's previous experience in 2011 analyzing 15 case studies leveraging ICT to provide services at the BOP. Hystra has chosen in the current report to put forward its views while acknowledging the risk of being proven wrong.

Furthermore, the field of broadband-enabled BOP businesses in its entirety is still emerging, and the conclusions drawn here come from a small sample of relatively young companies. In this rapidly changing field, these conclusions will probably need to be updated in a few years.

Finally, as indicated earlier, some of the projects seen here do not use high-speed Internet broadband, but rather more basic Internet or data connectivity. The conclusions of this report will need to be revised once actual broadband connectivity has increased, which will allow for drawing conclusions on its impact compared to narrower-band connectivity.

Though Hystra is acutely aware of the limitations of this work, this report can hopefully inspire future BOP initiatives and government social-inclusion policies that aim to leverage broadband to better include the BOP in economic value chains and to bridge socio-economic gaps.

2 See the Acknowledgments for a complete list of interviewees.

Table 2: Qualitative Criteria for Evaluation of Case Studies

Issue	*Question*	*Criteria*
Impact	Is the project solving the problem?	• Problem Magnitude • Solution provided • Scale and reach • Acceptance and usage • Socio-economic, environmental, and other impact
Sustainability	Is the project economically sustainable?	• BOP end user level • Internmediary level (e.g., agent, employee, franchisee) • Third party level • Central organization level
Scalability	Is the project scalable?	• Key challenges and success factors to date • Key challenges to scale further
Replicability	Is the project replicable?	• Prerequisites to replicate in a new country

Notes: BOP = base of the pyramid.

Chapter 2

Three Business Models of Broadband-enabled BOP Businesses across Regions and Sectors

Over the past decade, many ICT-based projects have emerged across sectors aiming to sustainably include the BOP in economic value chains as customers, producers, entrepreneurs, or employees. Across these projects, the increased accessibility and affordability of connectivity and broadband has opened new doors to include the BOP and provide that population with a wider range of services.

This report identified and analyzed 368 such projects providing mainly financial, educational, agriculture, and health services via ICT.[3] The identification process aimed at limiting selection bias through an in-depth literature review and over 50 expert interviews between 2011 and 2014. Though this 368-project sample is not intended to be exhaustive, it provides a sound enough basis for analysis and allows for shedding light on some interesting trends in the area of ICT for development.

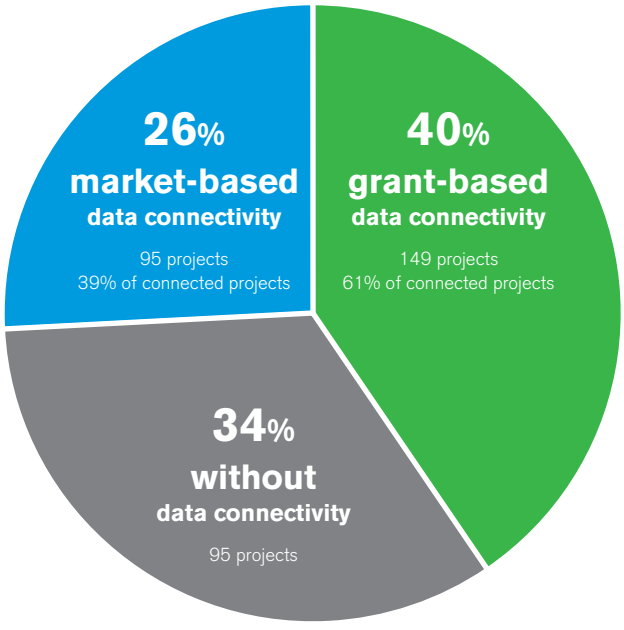
Overall

The majority of inclusive ICT-based projects do not seem to limit themselves to simple SMS and voice, as shown in Figure 1. Of the 368 projects reviewed here, an impressive 66 percent use data connectivity and/or broadband as a key component of their business model.

However, 61 percent of broadband projects lack a sustainability mechanism: most are fully grant-based (57 percent), and some are in a "lab/pre-pilot" stage or are "dead pilots" without follow-up (4 percent). This can be explained by the amount of interest and hope generated in the development community by ICT in general and data connectivity and broadband in particular, which has led to many trials and pilot projects that did not necessarily include a long-term sustainability mechanism beyond their initial funding.

Figure 1:
Breakdown of Projects Reviewed, by Use of Broadband and Data Connectivity and by Business Approach

368 Projects Total



3 Of the 368 projects, 280 come from 2011 Hystra (2011) and 88 new projects were included for this study with a specific focus on broadband, defined as any connection that enables more than simple SMS or voice over a phone.

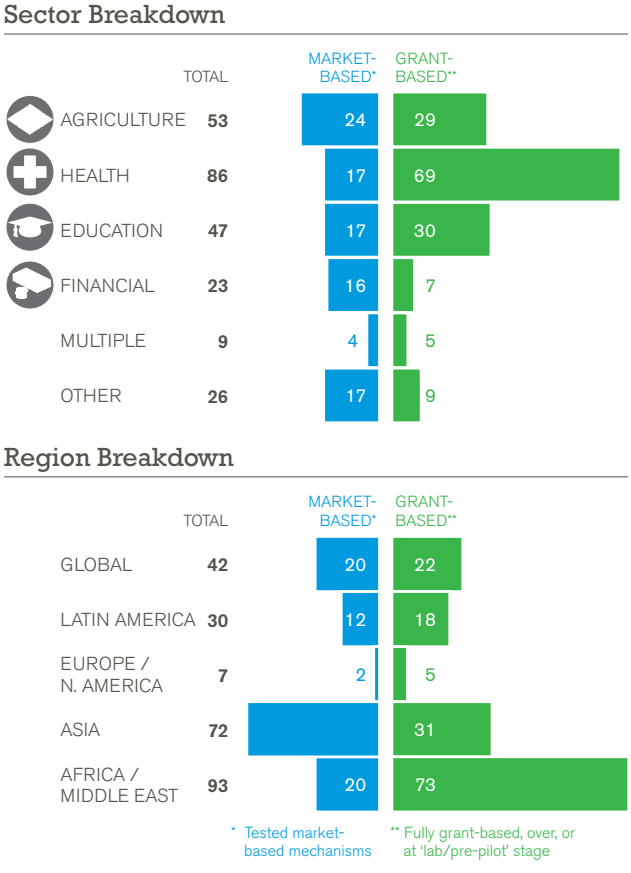
Geography

Asia is the continent with the most market-based data connectivity and broadband projects (41 projects in the sample, or 57 percent of Asian projects reviewed – see Figure 2). Interestingly, Africa ranks first in terms of the number of such projects, although 73 of the 93 (78 percent) data- or broadband-enabled BOP projects reviewed remain grant-based. This might stem from a higher concentration of donor funding in Africa versus Asia, where economies (and private companies) have generally grown faster over recent decades.

In contrast, Latin America lags considerably behind in terms of the number of data- or broadband-enabled development projects, with less than half as many as Asia or Africa-Middle East.

Figure 2:
Breakdown of Projects Reviewed, by Sector and Region

368 Projects Total



Sector

Agriculture is the sector that has the most market-based projects, with 24 such projects, while the financial services sector has the highest proportion of market-based projects, with 70 percent of the 23 projects reviewed (Figure 2). The 2011 Hystra study on ICT had similar findings. In these two sectors, data- or broadband-enabled services can bring immediate economic benefits (e.g., lower cost of money transfers or higher price at which to sell one's products thanks to market information).[4] This might explain a generally greater willingness to pay on the part of BOP clients, and hence a larger number and proportion of market-based models in financial services than in health or education.

The health sector has the most projects using data connectivity or broadband, but less than 20 percent of these projects are market-based (17 out of a total of 86). Indeed, many services consist of supporting community health workers or general public health campaigns, generally implemented by government agencies or NGOs (e.g., smartphone apps for community health workers to collect diagnostic information and send it to a central system for expert review). In the health sector (as well as in financial services), the number of data connectivity and broadband projects reviewed here is lower than that of ICT-based models reviewed in 2011, as many projects are SMS-based and excluded from this analysis (e.g., health information services or mobile money transfer systems).

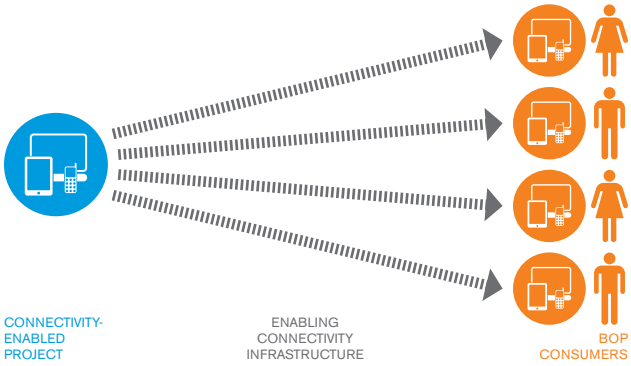
One sector that seems to have recently benefited from developments involving data connectivity and broadband is education. The number of data- or broadband-enabled education projects identified in this study is more than twice as high as the number of ICT-based education projects identified in 2011. Indeed, broadband brings true value-added in education: with better connectivity, education projects can disseminate richer content (e.g., videos), make use of interactive learning applications (e.g., on learning portals or using tablets in class), and more generally offer services that are otherwise difficult to deliver. However, most education projects are still grant-based (30 of the 47 projects in the database, or close to 64 percent).

4 See Chapter 4 as well as the case studies in Appendix B for more details on the impact generated.

Business Models

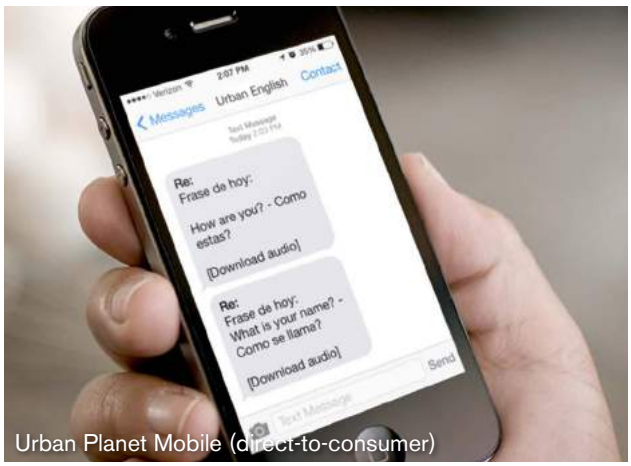
The 95 data- or broadband-enabled projects that use market-based mechanisms follow three different models, as summarized below and on the facing page. Figure 3 shows the split of projects reviewed in this study, between the three models.

1. Direct-to-consumer Projects



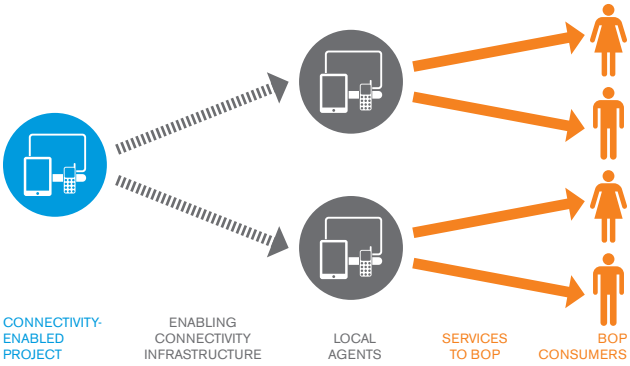
Direct-to-consumer projects provide data- or broadband-enabled services directly on BOP consumers' devices. These consumers thus need to own the required hardware. While basic mobile phones are widespread at the BOP, data-enabled devices (feature phones, smartphones, tablets, or laptops) are still scarce. Over half of the projects reviewed in this category (50 of 97) are not market-based, that is, they are often launched by governments or NGOs to provide information to the BOP. Among the 47 market-based projects, most offer a main service that is SMS- or voice-based in order to function on the most simple devices and reach the majority of the population, along with a "premium" service available on the web.

This report presents a single direct-to-consumer project, **Urban Planet Mobile**, which provides access to low-cost English lessons on mobile phones in different formats in each country, adapted to the most locally widespread devices. While Urban Planet Mobile is increasingly moving to broadband-enabled content, some lessons are still voice-based (via an interactive voice response system) or in short audio file format (similar to downloadable ringtones) in order to reach a sufficiently large customer base.



Urban Planet Mobile (direct-to-consumer)

2. Local Agent Projects



Local agent projects offer data- or broadband-enabled services to BOP consumers through an intermediary agent who operates a device with rich functionalities (e.g., tablets or computers). Each agent – who can be an employee, a franchisee, or simply a partner – serves hundreds of clients in his or her area through one shared technology point. BOP consumers do not need to own a device to access the services, overcoming issues of device affordability and lack of (digital) literacy at the BOP. Using a shared technology point also allows for increased investment in the technology, and hence a larger proportion of projects in this category use high-speed broadband. This model is the one where the highest proportion of projects is market-based (30 of 48, i.e., over 60 percent), with local agents offering services mainly in education, agriculture, and financial services.

This report showcases four local agent case studies. In Mexico, **Enova** offers e-learning courses with personalized support in community-based digital centers equipped with computers and tablets, while **Barared** provides financial and telecommunications services via Wi-Fi-connected tablets installed in mom and pop shops. In India, **FINO** is a payments technology company that offers financial services to last-mile customers through a network of correspondent banking agents equipped with a point of transaction (POT) terminal, and **eKutir** provides advice and trade information to farmers via computers located in e-kiosks managed by franchised entrepreneurs.


Enova (local agent)

3. Optimized Internal Processes Projects

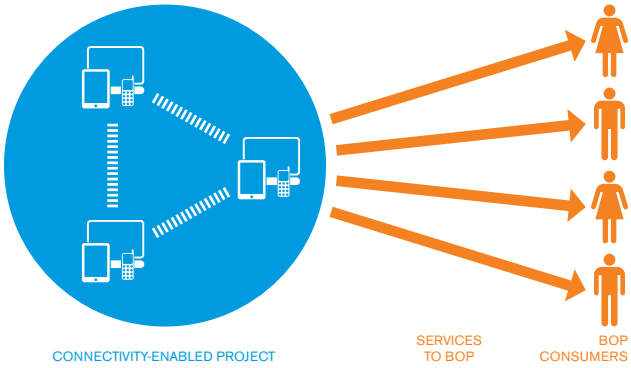
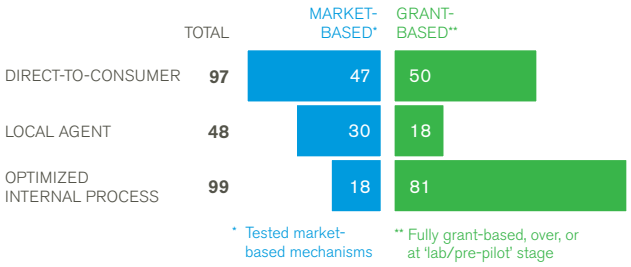


Figure 3:
Breakdown of Projects Reviewed, by Business Model

368 Projects Total



Optimized internal processes projects leverage data connectivity and broadband to reengineer their business processes to provide better services to the BOP at lower costs, without necessarily putting the end-user in contact with technology. This area has few market-based projects (18 of 99, i.e., less than 20 percent), as many projects support data-gathering by frontline community workers to make NGO or government programs more efficient, rather than serve the BOP as clients. However, a few radically innovative approaches prove that Internet/data connectivity and broadband in particular can also make businesses more efficient and allow them to serve the BOP sustainably when traditional approaches are too costly.

This report provides three such case studies in health, financial services, and education, respectively. In India, **Narayana Health** is a chain of hospitals that uses broadband for remote diagnosis and tele-consultations, real-time access to medical data, and optimization of management processes. In Kenya and Rwanda, **Kilimo Salama** uses general packet radio service (GPRS) weather stations and automated indices to remotely monitor adverse weather events, simplifying insurance companies' internal processes (e.g., by avoiding the need for in-person due diligence of a customer) to the point where serving small-holder farmers at affordable rates becomes sustainable. Also in Kenya, **Bridge International Academies**, a chain of private schools, uses a broadband-enabled enterprise resource planning (ERP) and mobile apps to standardize teaching quality across its schools and maximize its management efficiency. This enables Bridge to serve BOP pupils at prices competitive with public schools and with guaranteed quality classes.

Narayana Health (optimized internal processes)

Chapter 3

Key Success Factors for Broadband-enabled BOP Businesses

The three models that leverage broadband to serve the BOP sustainably face the same value proposition challenge: building an offer that makes do with available levels of connectivity and adapts to technologies available in terms of access and costs. However, they face different challenges regarding the marketing, distribution, and scalability of their projects, as shown in Table 3. Success factors are explained below; for each, exemplary case studies are described in blue.

Shared Success Factors

All successful models constantly evolve their value proposition, actively engage with end-users, and adapt to available connectivity.

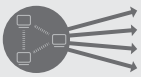
All three models need to design a value proposition that is attractive and affordable enough for households that earn only a few dollars a day, and that have many competing spending priorities. BOP users demand tailored, high-quality, and reliable services. Successful projects constantly interact with users in designing a comprehensive and reliable value proposition, and adapt their model as technology and connectivity improve.

Shared Success Factor #1: Offering a Tested, Comprehensive, and Reliable Value Proposition to End-users

Tested. Before commercial launch, BOP businesses test all aspects of their service with users. The first step, offering a tested product, is key to ensuring the usability, cultural fit, and affordability of the service. Indeed, as Enova CEO Moís Cherem Arana explains, "you first need to build a model that answers local needs."

- **Urban Planet Mobile** (direct-to-consumer model) and its partner Mobile Network Operators test and refine their content, marketing, and pricing strategy for at least one month when entering a new country. This includes ensuring that the marketing messages, price points, and billing frequencies correspond to people's habits. For instance, as most people in developing countries have pre-paid plans and are used to topping up phones with small amounts, Urban Planet Mobile designed a similar micro payment system for its daily classes of Urban English.

Table 3: Challenges and Key Success Factors of Each Model

Challenge	Key Success Factors		
Value Proposition Offering quality, reliable service at affordable cost with the available infrastructure	**Pre-testing.** Offer a tested, comprehensive, and reliable value proposition to end-users. **Use of technology.** Leverage technology to continuously improve the service. **Adaptation to infrastructure.** Adapt the service to the available infrastructure.		
For the following challenges, key success factors vary by project model, as indicated.	 DIRECT-TO-CONSUMER	 LOCAL AGENT	 OPTIMIZED INTERNAL PROCESS
Marketing Creating trust in technology and service quality	Get endorsements from well-known brands and leverage mass marketing.	Establish trust among consumers via local agents and community endorsement.	Create trust via proximity marketing, quality certifications, and excellent after-sales service.
Distribution Ensuring affordable access to device or point of service	Adapt the service to devices with highest penetration rate.	Build a dense network of agents by offering them an attractive value proposition.	Not applicable.
Scalability Scaling up while paying back high upfront costs	Create replicable service offers and leverage existing client base to quickly reach scale.	Find smart ways to limit or share the investment costs per agent.	Invest frugally and rely on modular growth.

- **eKutir** (local agent model) spent years refining its range of services and creating new applications to holistically answer its farmer clients' needs. Each service is tested with existing kiosk entrepreneurs as well as end-users to ensure maximum usability and fit with their needs.

- **Bridge International Academies** (optimized internal processes model) conducts thorough framework-based research to understand the needs of the population every time it launches a new school. As of January 2014, the research team had surveyed nearly 20,000 people in 500 neighborhoods. Bridge also tests the user-friendliness of all its broadband-enabled software and devices with its teachers and managers before disseminating them.

Comprehensive. Successful value propositions are comprehensive. According to eKutir CEO K.C. Mishra, "addressing a given need requires providing all related services together at the same time." Across the different case studies, comprehensiveness is a lever to both attract and satisfy clients. In addition, it can help improve the sustainability of organizations by increasing revenue per client.

- **Urban Planet Mobile** offers lessons for all levels and linguistic competences: four basic Urban English courses, 10 basic-to-intermediate level courses of English for Special Purposes, and eight advanced courses in English only. Writing Planet courses offer additional services for educational personnel and administrators. The company is further developing courses on smartphones following end-users in their technology upgrade as these devices become more affordable. As of the first quarter of 2014, Urban Planet Mobile was in active end-user testing for its new service, Urban English Express, for commercial launch in April 2014.

- **eKutir** kiosks address the entire range of farmers' needs for information, expert advice, and trade support (e.g., Internet research on agricultural practices, conference calls with experts, climate and weather updates, aggregation of farmer demand to lower the cost of fertilizer and seeds, aggregation of farmer supply to sell in bulk to the market, and support for optimal choices of seeds and fertilizers). The synergies between these various services allow end-users to reap maximum benefits from the support provided by eKutir.

- **Bridge International Academies** has been continuously extending the number of classes and services it offers to students. In addition to classes, its value proposition includes instruction materials, textbooks and extra reading books, and access to drinking water and sanitation. Custom-designed exams and other non-reusable materials such as curriculum-integrated homework or class workbooks are included in an additional US$2 fee per term (sold at cost). Bridge is in effect a one-stop shop for primary education, whereas many government schools require families to supply these additional materials themselves.

- **Kilimo Salama** (optimized internal processes model) has gradually increased its product range and now offers a holistic solution to smallholder farmers and their families, with insurance schemes covering inputs, harvest, higher-yielding cows, agricultural loans, outstanding credit, and even funerals.

Reliable. Finally, successful value propositions are fully reliable from day one. This is key to convincing risk-adverse BOP consumers, and it requires building accountability mechanisms (e.g., helplines, results monitoring, etc.) in the business model from the start. FINO PayTech Vice President Ashish Ahuja explains that "you must build a responsible business, accountable to last mile customers to generate trust…[T]hen your customers will be loyal and stay with you, and your business will thrive."

- **Urban Planet Mobile** launches its services via reliable mobile network operators who are used to providing daily value-added services, thus ensuring that lessons will be delivered daily as they should be.

- **Barared** (local agent model) starts by testing its new services with a few stores to make sure that they work well before disseminating these services.

- **FINO PayTech** (local agent model) has developed an information system to facilitate and track transactions, as well as an Internet-based dashboard for real-time performance monitoring of its correspondent banking agents and customers, which allows for following up on any issue.

- **Bridge International Academies** monitors teachers' attendance and results in terms of children's test scores on a daily basis, and takes action in case of any issue, to ensure that its schools offer a reliable service to parents and pupils. Bridge's helpline also reassures parents because they know they have a contact point in case of any issue.

Shared Success Factor #2: Leveraging Technology to Continuously Improve Services and the Project Value Chain

Technology is not only used to deliver services to users, it is also leveraged to interactively elicit feedback from users and improve the services provided to them.

Standardizing processes while constantly monitoring inputs and outputs and leveraging feedback allows for continuously improving services for end-users. As Bridge Co-founder Dr. Shannon May stated, "once you start your business, base every decision you make about your value proposition on data (which means, measure your outcomes from the start) and validate it with your clients to continually improve towards [meeting] their needs." Some practitioners also leverage data connectivity and broadband for real-time feedback loops and adjustments.

- **Urban Planet Mobile** offers automated real-time essay scoring and tailored feedback and exercises to users of its Writing Planet course. The data collected are used to better tailor feedback and suggestions to clients. Urban Planet Mobile also encourages customers to participate in tests and satisfaction surveys by giving them special discounts in exchange.

- **Enova** (local agent model) and **Bridge International Academies** measure students' progress in order to obtain feedback on both educational content quality and individual teacher performance. This feedback helps Enova rectify issues and improve its services.

- **Kilimo Salama** constantly updates its indexes based on information received via its weather stations, which allows for improving the quality of weather predictions and hence better tailor its pricing to risk levels.

Shared Success Factor #3: Adapting Services to the Available Infrastructure

Many projects have had to make do with data connectivity at low speed when broadband was not available. Fortunately, even the simple (not necessarily high-speed) possibility of exchanging quality information in real time or accessing services much closer to home can make a huge difference in people's lives. While it is true that the wider the bandwidth, the faster the service, in most cases the true leap comes from being connected for the first time. Broader band then allows for incrementally improving services and value chains – and in some cases, as will be seen below, broadband is truly key to delivering a quality service. Faced with limited coverage and/or high costs of connectivity in their countries of operations, BOP businesses have adapted their business models and internal processes to make do with whatever technology and connectivity were available at reasonable costs.

- **Urban Planet Mobile** has adapted the file format of its English lessons (e.g., embedded audio file, text, or video) to the network and end-user device context in each country in order to reach a maximum number of users.

- **Bridge International Academies** accommodates limited connectivity in rural areas by compressing files and sending them in a light format that enables downloads even with the most limited connectivity available in Kenya. It has also limited connectivity points to one per school – shared between teachers and school managers – in order to control costs.

- **FINO PayTech** solved the issue of lack of connectivity in rural areas by adding an offline mode on point of transaction (POT) terminals that its Business Correspondents carry to conduct financial transactions at people's doorsteps. This mode allows the POT to keep information for several days if necessary before the next connection. FINO took a similar approach to addressing the lack of electricity, making sure its POT can run on battery for several days without charge.

- **Kilimo Salama** uses any available data (including weather satellite imagery) to limit its need for costly GPRS weather stations and connectivity.

BOP businesses that fundamentally need broadband but cannot access it – because it is either nonexistent or too expensive – can choose to build their own infrastructure or get a third party to bear connectivity costs.

- **Barared** decided to invest in its own broadband infrastructure (Wi-Fi antennas that provide a bandwidth of 5.4 Gbps in a 14 km diameter area) to provide more and better services in the low-income areas of Mexico City (compared to only phone booths, which was the initial service provided). The firm is now on its way to breaking even, proving that there is a financial case for individual companies building connectivity along with broadband-enabled services.

• Also in Mexico, **Enova** benefited from public funding to pay for its technology. Indeed, Enova works in a difficult broadband context with low speed and high costs, often requiring last-mile infrastructure investments or expensive satellite technology to access high-speed broadband.

Where high-speed broadband is available, BOP businesses adapt their technologies and processes to take advantage of it. The Indian case studies in this report benefited from the rapid evolution of technology and connectivity by adapting their business models.

• **eKutir** initially needed to set up full IT kiosks for its entrepreneurs and developed its own integrated IT application to support scale-up where there was minimal or sporadic connectivity. But while eKutir used to cite increased connectivity in rural areas and better infrastructure for low-cost broadband solutions as key challenges to its scale-up, today it benefits from the new optic-fiber infrastructure set up by the government.[5] That infrastructure has improved the speed of service eKutir can deliver as well as lowered costs for entrepreneurs, allowing better margins on service provided.

• Taking advantage of this same optic fiber infrastructure, **FINO PayTech** is well poised to provide POT to small businesses in rural areas in the future (to be used much like credit card terminals for cashless transactions).

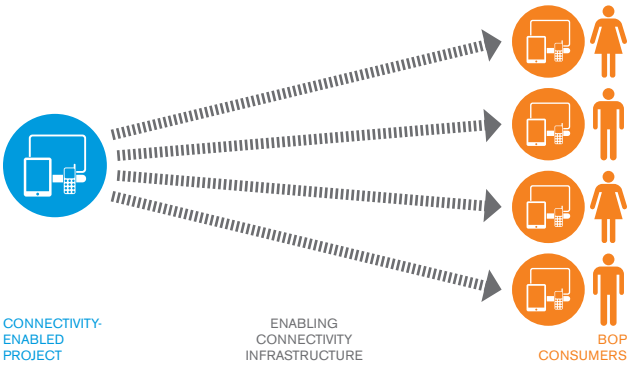
• A few years ago, **Narayana Health** (optimized internal processes model) was only able to provide remote tele-consultations because of the government's willingness to provide its satellite connectivity for free to hospitals (satellite connections would have been prohibitively expensive if Narayana Health had to pay for it). Today, Narayana Health leverages the improved fixed broadband connectivity in its hospitals by using Skype, which allows it to bear the corresponding (low) expenses independent of government support.

5 See Appendix A for more information on the policy framework in India.

Specific Key Success Factors of Each Model in Marketing, Distribution, and Scalability

Beyond the key success factors described above regarding general value proposition, each of the three models has its own specific key success factors in marketing, distribution, and scalability.

Direct-to-Consumer Model



Direct-to-consumer projects typically sell low-cost services available on broadband-enabled (or at least data-enabled) devices (e.g., apps, interactive software), and need a very large customer base to be sustainable. Their marketing strategy, the design of their service, and the choice of the devices enabling their service should all facilitate an effective scale-up process.

Successful direct-to-consumer businesses get endorsement from well-known brands and leverage mass marketing to reach a sufficient number of prospective consumers at acceptable costs. Direct-to-consumer projects need to build marketing strategies that will reach scale quickly, typically building on trust in the quality and reliability of their service directly with their end-users to develop their client base.

• In order to reach out to potential Urban English course customers, **Urban Planet Mobile** leverages its partnerships with local mobile network operators, building on their brand equity to broadcast mass SMS to their respective clients (with success rates as high as 3 percent, or twice the industry average), or to create wireless application protocol banners and TV and billboard ads. In order to establish trust among consumers, Urban Planet Mobile uses a try-and-buy model in which users can receive free lessons for 3-5 days before fully subscribing to the service. Around 85 percent of consumers who do the free trial continue using the service when it becomes paying – compared to a 70-75 percent average in the industry of phone value-added service.

Successful direct-to-consumer businesses also adapt their services to the devices with the highest penetration rate. Resisting the temptation to use the latest technology, these models must design their technologies and software to be

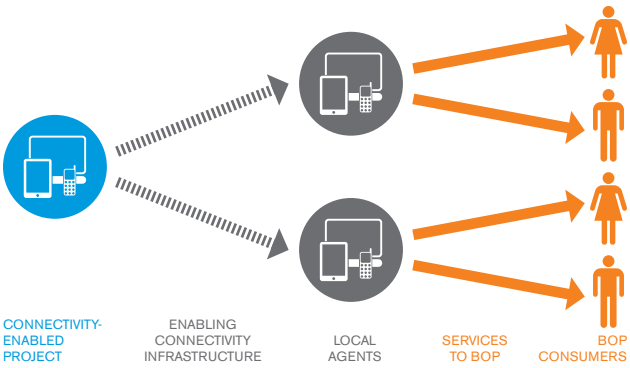
compatible with a maximum of data-enabled devices in order to make their services accessible to as many BOP users as possible. This can mean limiting the use of high-speed connectivity. Interestingly, the other two models, by leveraging intermediaries to use the technology, avoid this challenge because they do not require their end-users to own a device.

- Instead of focusing on more complex smartphone and tablet applications, **Urban Planet Mobile** decided to keep its lesson files simple and compatible with basic and feature phones (e.g., "ringtone like" lessons or interactive voice response systems), since most of its targeted consumers only have access to such low-cost devices and depend on rather weak networks.

Lastly, successful direct-to-consumer businesses create service offers that can be easily replicated from one region to another (e.g., with limited need for new content creation when moving from one country to another) and that leverage large existing client bases to quickly reach scale.

- Since **Urban Planet Mobile** offers English lessons in native languages, it first targeted large regions with the same language (e.g., large countries like Indonesia or groups of countries like Central America). It then designs all further specialized courses (e.g., English for hotel owners, English for taxi drivers) in English only, broadening the usability of the lessons while limiting costs for content creation. When entering a new country, Urban Planet Mobile leverages the client bases from its partners' mobile network operators to scale up quickly.

Local Agent Model



The local agent model enables businesses to overcome the issues raised by the low level of data- and broadband-enabled device penetration (contrary to basic mobile phones) and the lack of digital literacy among the BOP. End-users access a shared technology, most often with support from an intermediary agent, either at a specific place (e.g., a shop, kiosk, or digital center) or at their doorstep (in the case of mobile agents). Consequently, such business models achieve success provided they build a dense enough network of trusted and performing agents, while finding smart investment strategies to lower costs per service delivery point.

Attracting customers requires establishing trust via local agents and leveraging community endorsement. As Barared CEO José de Jesús Gonzalez Macín stated, "gaining customers' trust is key for them to use your range of services." End-users need to trust the local agent providing access and/or support to the service, so strategic selection of local agents is key. The Enova CEO explained that his organization "looks for people who do not necessarily have IT skills (which are easy to teach) but rather a strong social vocation and great human skills." In addition, as end-users access the services within their community (contrary to the direct-to-consumer model), marketing is much more efficient at the community level.

- **FINO PayTech** recruits its Business Correspondents in nearby villages and areas among local residents and looks for people who have an excellent reputation, are trustworthy, and are highly familiar with the local culture and people. FINO promotes its services through village and door-to-door visits and conducts financial literacy programs along with mass enrollment campaigns within the communities. In addition, Business Correspondents are trained in raising financial awareness and increasing literacy among targeted customers, which helps increase trust in their services.

- **Barared** rigorously selects the mom-and-pop owners who will offer its services and then provides them active support in attracting customers. Barared only chooses shops that look good (e.g., walls painted, facilities large enough) and will inspire trust. It selects the shop owners who are more likely to promote Barared to customers, i.e., those with a strong

business acumen and willingness to develop their businesses. The company provides associates with standardized marketing tools (posters, flyers, signs, leaflets, etc.) and conducts street marketing (such as truck advertising), focusing on local campaigns rather than mass media.

- **Enova** promotes its centers among surrounding schools and leverages word-of-mouth between children, parents, and neighbors. The company recruits its facilitators among local graduates in education to ensure a trusting relationship with students.

- **eKutir** chooses franchisee entrepreneurs among unemployed youths who are pre-selected by the community and have good relationships with local people. Entrepreneurs conduct demonstrations, training, and road shows in communities to convince early adopters, whose good results in turn then set the stage to convince other farmers who were initially reluctant to use the service. In addition, eKutir ensures customer loyalty via a specific scheme of "dividends" paid out yearly to farmers based on the number of transactions operated, which also helps create trust in the service.

The distribution strategy must focus on building a sufficiently dense and stable network of performing agents by offering them a highly attractive value proposition. For their part, BOP customers need a service point close to their home, so this requires attracting and retaining a large number of agents. As FINO PayTech Vice President Ashish Ahuja said: "It is key to build a value proposition that is a win-win for the Business Correspondents. As long as your Business Correspondents are happy and stay with you, they will make your end-customers happy." This starts by ensuring that agents can earn sufficient revenues, which will depend on the level of commission per service delivered, the size of their customer base, the range of synergetic services they will offer, and, most importantly, the performance of the agents themselves. Best practice organizations provide local agents with standardized and high-quality training as well as close support and follow-up. In particular, they leverage technology to help agents deliver the best quality of service (e.g., automatizing most service delivery in one device and providing operation monitoring applications to simplify the agent's role to the maximum extent possible).

- **FINO PayTech** has deployed 51,000 customer service points including over active 30,000 Business Correspondents, each one catering to over 1,000 customers in an area of two to three adjoining hamlets, thus bringing financial services to 50,000 villages across 499 districts. This density has been carefully computed to ensure that each agent can earn enough money through commissions on a wide range of services (financial identification, insurance, credit, deposits and investments, savings accounts, remittances, and government benefits).[6] A Channel Empowerment and Management Team trains new Business Correspondents through classes and on-the-job training. Once Business Correspondents are deployed in the field, managers (Block Coordinators) closely monitor them via an SMS-based system and visit them every other day.

- **Barared** has built a dense network of kiosks in existing retail outlets (small shops, pharmacies, corner stores, etc.) that are strategically located in areas with a large customer flow, and that are sufficiently close to each other for end-user convenience but far enough from each other to ensure sufficient transactions per store. Barared offers associates the opportunity to significantly increase their revenues (multiplied by two on average) thanks to high margins on service provider payments on about 70 new services (e.g., 50 percent for banking payments and 25 percent for voice calls) and additional sales (one of two Barared customers also buys a non-Barared product). Associates pay only 10 percent (US$280) of the total technology investment cost. In addition, each associate receives continuous training (at least 100 hours per year) and support. An Account Executive visits the associates' store once or twice a week and helps them in using the technology as well as in managing and promoting their businesses. Associates also get key management tools such as administration applications available on a personal tablet.

- **Enova** locates its centers strategically in the most densely populated BOP areas following an in-depth urban study. Each center is designed to serve up to 5,000 users per year within a 2 km radius. Facilitators are offered a competitive salary. In order to strengthen their academic knowledge and skills, as well as learn to teach with technology and manage the centers, facilitators must train over 90 hours during the first year (40 hours in person and 50 hours online) and get support from a coach. Enova plans to open a Virtual Training Center to provide every hired facilitator with 120 hours of training, available from any computer.

- **eKutir** locates its agro kiosks so that each franchisee entrepreneur can serve up to 500 farmers in a 15 km radius. The entrepreneurs are trained in ICT, marketing, and management and have a three-month handholding test period with existing entrepreneurs or eKutir staff. Through farmers' membership fees and commissions on commercial transactions, franchisees earn US$2,400 a year on average and up to US$6,000 a year to scale (two to five times the average farmer income). They typically reach a break-even point on their initial technology investment in 10 months.

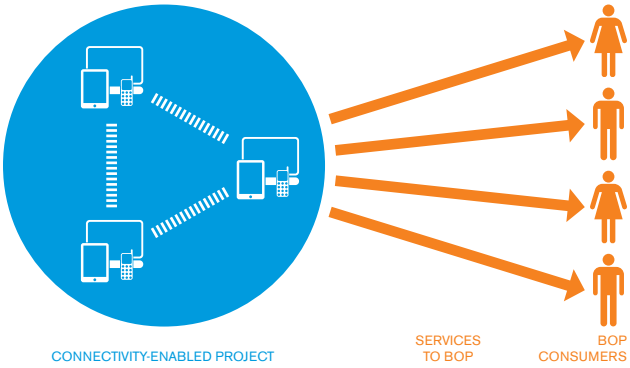
In order to scale sustainably, successful businesses need to find smart ways to limit or share the investment costs per agent. Contrary to the direct-to-consumer model in which clients pay for their device and broadband and data

6 Business Correspondents earn US$30-$70 per month on average working part time. The job represents a good opportunity to earn cash in rural areas where the economy is still mostly subsistence farming.

access, the full cost of technology now rests on the service provider and its agents, and each new agent requires a new technology investment. Barared CEO José de Jesús Gonzalez Macín notes that "we are running a very capital-expenditure-intensive business." BOP businesses can make smart use of the available technology, create multiple revenue streams from infrastructure investments, or involve third parties in the investment.

- **FINO PayTech** is a fully intra-operable system and works online. However, FINO technology also allows its field agents to work offline and to transfer data only when inexpensive public data and broadband infrastructure is available.
- **eKutir** moved from laptops to much cheaper tablets and mobile phones using wireless data connection in order to lower hardware costs and benefit from new optical fiber infrastructure set up by the Indian government.
- **Barared** invested in its own network of Wi-Fi antennas not only to provide its core services through booths located in small shops, but also to generate additional revenues by selling Internet services to local residents.
- **Enova** managed to build an innovative tri-sector partnership between several public agencies that fund and evaluate the project, private companies (e.g., Dell, Microsoft, Google) that provide technical assistance, and Fundación Proacceso, a non-profit organization with which Enova partnered to create public and private alliances.

Optimized Internal Processes Model



Optimized internal processes projects use data connectivity and broadband to improve their efficiency. The key success factors presented below are general lessons observed across case studies in healthcare, financial services, and education. Project-specific lessons are detailed in the case studies in Appendix B.

Successful marketing strategies create trust via proximity marketing, quality certifications, and excellent after-sales service. For the reasons mentioned earlier – tight budget constraints and competing spending priorities – BOP clients are looking for risk-free solutions. Hence, reassuring them about service quality and reliability is key. Successful proximity marketing strategies include getting community endorsement (via local marketing campaigns), hiring locally trusted staff, and leveraging trusted partner organizations to speak on behalf of the service. Quality certifications leverage known brands or entities (e.g., ministries). After-sales service can be a simple helpline as long as it truly acts on feedback (and in particular complaints) received.

- **Bridge International Academies** runs a below-the-line marketing strategy leveraging community dynamics, and reassures parents with a government-validated curriculum and a customer care helpline. Each school is provided with the necessary tools to conduct its own marketing operations. School representatives engage in door-to-door visits, performances at community events, "road shows" at local markets, and new school year celebrations where local children are invited to participate in short classes and show what they learned to their parents. In new schools, children are invited to take a free trial month, whereas in existing schools parents receive gift cards for their friends or relatives in order to boost word-of-mouth marketing. Bridge answers all queries from parents, pupils, and neighbors (as well as teachers) on its customer care line and its Facebook page. Additionally, Bridge sends mass SMS communications to its parents about their children's learning and about academy events. Bridge also uses mass SMS to send out its bills and issue receipts.
- **Kilimo Salama** establishes partnerships with trusted "aggregators" (e.g., cooperatives, agri-businesses, microfinance institutions, or NGOs). These organizations are

in charge of both marketing and managing the insurance products (including premium payment collection and payout distribution). Since many farmers are initially reluctant to pay for a regular insurance scheme, Kilimo Salama offers the possibility to test the products in small amounts. In order to ensure client satisfaction, Kilimo Salama also runs a phone helpline in Kenya operating daily from 6 a.m. to midnight.

- **Narayana Health** is building a solid reputation in the healthcare sector with high-level accreditation and by implementing specific operations to create trust among BOP populations in remote areas. As highlighted in a recent Harvard Business Review article (Govindarajan, 2013), the quality of Narayana Health's services is at least equivalent to that provided in Northern countries.[7] Some hospitals in the group received world-class accreditations (delivered by Joint Commission International). While this may convince well-informed patients, Narayana Health has also had to develop specific strategies for the BOP. It establishes linkages with trusted rural family practices to refer patients, deploys mobile outreach vans to send new patients to tele-electrocardiogram centers, and encourages the creation of health insurance for the BOP taken out by large trusted aggregators such as cooperatives that refer patients to their hospitals.

As capital-intensive businesses, optimized internal processes projects need to invest frugally and rely on modular growth. When asked what key recommendations he would give to an entrepreneur willing to replicate his model, Narayana Health CEO Dr. Ashutosh Raghuvanshi answered that he would focus on limiting capital expenditures: "The size of the hospital should be modular and grow as more patients come in." In order to limit their initial investments, successful businesses have also made smart use of locally available technology, leveraged donations for their capital expenditures, and sourced patient capital.

- **Bridge International Academies** had to raise a significant amount of funds from both private and social investors to support its growth. Indeed, each new school construction costs approximately US$60,000 (for 22 classrooms, sanitation and kitchen facilities, and technology equipment). Schools are designed to cover their operational costs after one year, and to pay back the initial investment after four years. While Bridge's first round of financing was led by leading impact investor Omidyar Network, subsequent rounds of capital have been secured from commercial investors, including New Enterprise Associates (one of the world largest venture capital firms), Khosla Ventures, the International Finance Cooperation, the Commonwealth Development Corporation, and Bill Gates. Bridge has raised a total of US$100 million over the past five years.

- **Kilimo Salama** is increasingly using satellite data – provided for free by the U.S. government or international agencies – to limit its costs. The automated insurance payout system requires precise and real-time weather data. Kilimo Salama still installs and manages its own weather stations, but these represent a relatively high infrastructure cost compared to the cost of acquiring and interpreting the satellite data.

- **Narayana Health** limits its capital expenditures thanks to donations, pay-as-you-go services, and low-cost hospitals. While the group receives no subsidy from the government, it obtains grants from private companies or individual philanthropists to build its infrastructure (e.g., the construction of its new children's hospital in Mumbai is being paid for mostly through donations). Instead of making large IT investments, Narayana Health relies on pay-as-you-go cloud data storage, thus limiting its capital expenditures. Lastly, Narayana Health funded R&D to develop cheaper hospitals. A pilot program in Mysore managed to divide costs per bed by three, in particular through the use of pre-fabricated structures and maximum use of daylight to reduce electricity consumption.

7 For instance, the Narayana Health hospital in Bangalore performs better than the average Texan hospital, as measured by its post-cardiac surgery mortality rate.

Chapter 4

The Socio-economic Benefits of Broadband for the BOP

Across the three models seen in the previous sections – direct-to-consumer, local agent, and optimized internal processes – data connectivity (and broadband in particular) is a powerful tool for upgrading service access, quality, and cost-efficiency, and for contributing to better integrating the BOP into economic value chains as end-users or intermediaries.

Drawing on evidence gathered in the eight case studies in this report, this section will first address how broadband, even more than simple data connectivity, makes key knowledge accessible in a user-friendly form for BOP end-users otherwise isolated from the world for economic or geographic reasons. Whether static or interactive, the larger volumes of information that BOP consumers can then access via broadband can be life-changing. The second section will show how data connectivity and broadband can also help empower BOP as part of a productive workforce. The third section will look at how the three models leverage data connectivity and broadband to constantly monitor their process and results, and reach maximum efficiency and quality, which in turn results in better service and lower prices for their clients. Finally, the last part will describe the socio-economic benefits brought by data connectivity and broadband to countries as a whole and to the BOP more specifically in the various sectors analyzed in this report. Case study examples are described in blue.

Better Information at Lower Cost

Better information. Broadband provides BOP end-users with better information and connection to the world, while minimizing transportation costs. By allowing large data transfers, broadband gives access to key information and improved quality contents such as images, videos, and documents to end-users through online platforms and emails.

- In **Enova**'s centers, children, youth, and adults upgrade from traditional class texts to online courses and video games.
- **Urban Planet Mobile**'s 250,000 daily subscribers receive English lessons on mobile phones in various formats, from audio lessons to video tutorials.
- The BOP can also access complex medical files, transferred from hospitals to patients thanks to broadband: **Narayana Health** delivers digitalized medical documents via email upon patients' requests.
- Various agriculture projects, including **eKutir**, enable farmers to access complex market information (e.g., weather updates and market prices) and learn about best agro-practices through videos uploaded on a web platform and available for download in any connected area.

Lower cost. Broadband enables real-time interactivity between BOP consumers and the rest of the world, bringing remote expertise or key services to their doorsteps. Broadband brings worldwide specialists (otherwise inaccessible) within reach of the BOP.

- While doctors are scarce in rural areas and travel time to cities can be a deterrent to receiving care, **Narayana Health**'s specialized doctors serve people in remote areas through tele-consultations provided via Skype. In 2013, 10 percent of Narayana Health consultations (or over 100,000 out of over 1 million) were conducted remotely, saving travel costs for as many patients.
- At **eKutir** kiosks, farmers can communicate remotely with agriculture experts who help them make better agro and business decisions.
- In the financial sector, broadband is key to providing real-time and secured complex transactions in underserved areas where people would typically spend a lot of time and money

traveling to bank offices. Thanks to broadband-enabled devices, local agents for **Barared** and **FINO PayTech** (mom-and-pop owners for Barared leveraging WiFi, and business correspondents for FINO using GPRS-enabled POTs) can provide secure and instant financial transactions to their customers. In the case of Barared, customers access new services closer to home (on average 100 meters away versus 10 km before), saving commuting fees (about US$2-$3 per trip) and time (on average 10 minutes versus 95 minutes before).

- When it comes to education, interactivity allows students to improve learning results and connect with potential recruiters. **Urban Planet Mobile** uses an automated essay scoring technology to provide learners with feedback on strong and weak points and suggest proper video tutorials for them to practice and improve. **Enova** students test their knowledge and skills through interactive exercises and real-time performance records, and access high-speed Internet for job searches.

Market linkages. Data connectivity and broadband also allow for linking market players and aggregate demand and supply to optimize commercial transactions.

- **eKutir** platform uses its connected platform to aggregate demand for agro-inputs and the supply of crops, enabling farmers to lower the cost of fertilizer and seeds and sell in bulk to the best-paying client on the market. As a result, eKutir users have seen their incomes increase by 50 percent on average as a result of improved productivity, better prices, and less products lost, as farmers cultivate products in demand, while their costs have decreased by 17 percent as a result of better input prices and more efficient fertilizer use.

Empowerment of Providers

Data connectivity and broadband empower BOP intermediaries, employees, and entrepreneurs.

Complex tasks. Data connectivity and broadband can provide support for complex tasks, enabling firms to hire and empower lower-skilled BOP workers. Indeed, data connectivity in general allows for standardizing, simplifying, and monitoring complex tasks, and provides real-time technology support to carry out those tasks (with high-speed broadband facilitating the acceleration of the feedback and support loop for increased service quality).

- At **Bridge International Academies**, connectivity provides teachers with all the tools required to teach and follow up on pupils' learning pace every day. This helps Bridge provide better teaching, acquire new skills, and have time to build relationships with pupils and families, which increases their self-esteem and motivation (while ensuring teaching quality for pupils and parents). Bridge has already provided jobs for nearly 3,000 teachers and academy managers from the BOP (coming from the neighborhoods where they teach).

- **Barared** empowers mom-and-pop owners as they learn to use technology proficiently and offer essential services in their businesses to their neighborhoods. Barared already has over 1,000 store-owners in low-income neighborhood in its network, and it plans to add 700 more this year through rapid expansion. Only 4 percent of registered storeowners drop out.

- Micro-works (also called "impact sourcing" for BOP workers) consist of dividing complex business processes into basic tasks (e.g., data clean-up, data entry, image labeling, transcription, and digitization) and recruiting workers to perform them against compensation. This model can provide new job opportunities for BOP workers with basic digital literacy, empowering them with new skills regardless of their educational background.[8]

Competitiveness. Data connectivity and broadband can empower local agents (e.g., franchised entrepreneurs or small shop owners) by enhancing their revenues. Connectivity (even more if it is high-speed broadband) improves the diversity, quality, and competitiveness of small agents' offerings, thus enabling them to increase their revenue.

- **eKutir** offers new revenue sources for BOP rural inhabitants who become franchisees. Through farmers' membership fees and commissions on commercial transactions, franchisees earn US$2,400 per year on average and up to US$6,000 per year at scale (two to five times the average farmer's income).

- Most of **FINO PayTech**'s Business Correspondents work part time, in addition to other jobs, and earn an additional $30-$70 per month on average.

- Small stores offering **Barared**'s broadband-based services typically double their revenues through commissions (average monthly commissions are US$110) and attract new customers, which in turn generates additional sales (half of Barared transactions generate another sale of non-Barared products).

8 Examples of organizations working with impact sourcing include Samasource, a U.S. NGO connecting unemployed women and youth in low-income countries to digital work; Digital Divide Data, a social enterprise providing disadvantaged youth with vocational training and revenue sources through IT micro-works; and It's Noon, a Brazilian web platform helping companies launch "creation calls" (or in other words, creativity contests) asking members to share their ideas about specific concepts. Best projects are rewarded financially.

Lower Prices through Efficiency

Data connectivity and broadband make BOP businesses more efficient, enabling them to lower prices and better serve the BOP.

Efficiency. Data connectivity and broadband improve organizational efficiency and lower costs through centralized process management. Organizations can make large gains in efficiency and significantly reduce operational costs by automating processes and managing data at the central level, even more so if this is through broadband that allows for faster data gathering and feedback loops.

- In Kenya, the **Kilimo Salama** micro-insurance model relies on the use of weather data from GPRS weather stations to determine which farmers will receive payouts, replacing costly field visits. This simplified payout process significantly reduces operational costs compared to traditional insurance processes (and altogether removes the need for processing claims from farmers). As of January 2014, this had made micro-insurance easy to use and affordable for over 180,000 BOP farmers who could not afford traditional schemes (making Kilimo Salama the largest agricultural insurance program in Africa).

- **Narayana Health** leverages its most costly resources, i.e., specialists, who can be called via Skype to diagnose a patient in another location (a paying service to other hospitals without such specialists). In addition, thanks to medical data-sharing in real time across the group, doctors and specialists are better coordinated and diagnose patients faster, thus saving doctors' time and costs to the hospital, and improving patient care. The company also tracks profits and losses on a daily basis, sending electronic updates to employees in order to encourage cost-efficiency. Narayana Health CEO Dr. Ashutosh Raghuvanshi estimates that the use of technology and broadband leads to "around 75 percent cost reduction as compared to a traditional hospital," thus enabling Narayana to offer affordable healthcare to its patients, 50 percent of whom are from the BOP.

- **Bridge International Academies** handles all non-instructional activities (e.g., pupil admissions, staff coordination, payments) via in-house developed applications, cloud-based servers, mobile payment systems, and vertical data integration. This reduces risks of corruption and increases cost-efficiency, resulting in low school fees (equivalent to the cost of going to a government school) and fast scale-up (as standardized processes are easier to replicate in a new location) at low marginal costs. As of January 2014, one new academy was opening every second day, with the number of students having multiplied by close to 20 in less than three years. Using the mechanisms mentioned above also gives Academy Managers more time to concentrate on important tasks on the ground that cannot be standardized through technology, including building relationships with the community and mentoring teachers.

Quality. Data connectivity and broadband improve service quality through standardization, real-time monitoring, and continuous improvement processes. Organizations can leverage data connectivity to standardize their offerings, closely monitor their results, and continuously improve their model based on this data, ensuring the highest quality of service for end-users. As mentioned above, going from low-speed connectivity to broadband allows faster data gathering and feedback loops, further improving service quality.

- At **Bridge International Academies**, teachers download a standardized curriculum and learning materials (developed at the central level by world-class Master Teachers) on their tablets on a daily basis. This allows all teachers to maintain the same class quality. Bridge follows teachers' attendance in real time and controls teacher performance by closely monitoring pupils' learning pace and results, which allows for detecting any abnormalities in scores and acting on under-performing teachers. Thanks to this monitoring, teaching time at Bridge is three times higher than in Kenyan public schools, where teachers are not teaching most of the time when they should be, and students get an average of only 2 hours and 19 minutes of class per day.[9]

- Similarly, **Enova** developed its own software to assess and record student performance in each course according to various indicators (time spent, level of difficulty, number of mistakes, skills acquired, etc.). Broadband allows this BOP business to continuously improve its methods and ensure the best learning results for all students.

- **Kilimo Salama** continuously updates its weather data indices to refine its insurance scheme, similarly leading to better service for end-users.

9 World Bank, Service Delivery Indicators, http://datatopics.worldbank.org/sdi/.

Macroeconomic Benefits

Broadband Drives Macroeconomic Trends that Deliver Social and Economic Benefits to the BOP.

Enterprise growth. Sufficient data connectivity or the right to develop the network allows new businesses to emerge and additional private sector investments to fuel a country's economy.

- *New private sector investments leveraging broadband:* **Bridge International Academies** has cumulatively invested approximately US$40 million into Kenya's development (through school construction, book production, distribution, etc.), while **Enova** has invested over US$33 million in building its learning centers and digital libraries since 2009.

- *New private sector investment in broadband:* Once it got the necessary government authorizations to set up the infrastructure and run a banking correspondent business out of mom and pop shops, **Barared** invested over US$6 million in building its own WiFi antennas and its network of small stores as service providers. This enabled Barared to build a strong business case.

Employment. Data connectivity and broadband create new employment opportunities and a better match between job supply and demand on the BOP labor market. The case studies in this report provide anecdotal evidence of the economic benefits that data connectivity and broadband can generate at the micro level, which could impact countries at a macro level if scaled up.

- *New employment opportunities at the BOP:* Projects hiring data- and broadband-supported local agents are offering new forms of employment that could go to scale – indeed, these models need a large network of agents to be sustainable. For instance **FINO PayTech** already employs 30,000 Business Correspondents and is continuously expanding its network throughout India. **Barared** also has significant potential for a macro impact because small stores provide the largest source of employment in Mexico (and Barared estimates that each of its partner stores creates an additional 4-5 jobs). Data connectivity and broadband could also foster other forms of employment for the BOP such as the micro-works described in Section 4.2.

- *Improved match between job supply and demand:* Broadband can contribute to bridging the gap between supply and demand in skills on the labor market through better job prospects and education. Providing online courses and Internet access for the job search gives **Enova**'s end-users a better chances of finding employment (multiplied by close to four times over for women, according to a social-return-on-investment analysis by the University of Pennsylvania, and having already helped 9,000 people find a job). Overall, broadband can be a powerful growth-enhancer at the national level. Enova estimates that US$1 invested in its centers generates US$1.74 in economic growth.

Data connectivity and broadband allow for providing better social services to the BOP. The case studies also provide anecdotal evidence of the social benefits that data connectivity, and broadband in particular, can generate.

- *Better primary education and improved earning opportunities:* On international exams, **Bridge**'s 80,000 pupils attain higher scores than their peers in neighboring schools (35 percent higher in reading and 19 percent higher in mathematics). **Enova**'s 4th grade pupils who attend a 12-week support program for their national exam improve by 7 percent in mathematics and 6 percent in Spanish over their subsequent national score examinations. Looking at further impact, Enova students earn more money thanks to their higher level of skills: they benefit from an average increase of $60 of annual earning potential by attending Enova classes, and up to $300 for children with one parent also involved with Enova.

- *In health, more patients treated at low cost:* In 2013 alone, **Narayana Health** doctors treated 54,000 BOP cardiac patients for free and performed over 11,000 cardiac surgeries, with a post-surgery mortality rate below the U.S. average.

- *More accessible banking:* **FINO PayTech** has enabled financial institutions to cost-efficiently provide banking services to 72 million remote customers, most of whom were previously unbanked, across rural and semi-urban regions of India. In Mexico, an average of 35 transactions per day are carried out in **Barared**'s small stores, enabling BOP customers to perform their banking operations closer to home at a fraction of the cost in banks. A withdrawal is charged US$0.8 through Barared (free for Banamex customers), versus US$1.2-$2.2 through other delivery points and banks. Remittances are not charged a commission via Barared versus a typical 4 percent fee on the market.

- *Access to insurance.* Data connectivity allowed **Kilimo Salama** to provide insurance to otherwise too-costly-to-serve BOP customers, which in turn unlocked financing for farmers. Insured farmers have easier access to loans, as their revenues are guaranteed. In Kenya, over 30,000 Kilimo Salama-insured farmers were able to access $5.5 million in financing thanks to the insurance.

- *Improved revenues for farmers:* As mentioned above, **eKutir** farmers have seen their costs decrease by 17 percent and their incomes increase by 50 percent on average thanks to the range of services offered by eKutir. In the case of **Kilimo Salama**, insured farmers have been shown to invest 20 percent more in their farms and generate 16 percent more income than their uninsured neighbors.

Table 4 summarizes the benefits brought by data connectivity and broadband in the case studies in this report.

Table 4: Uses and Advantages of Broadband across the Case Studies

Project	*Need for Connectivity*	*Advantage for BOP Compared to Alternative*
Barared	Essential for real-time secured banking transactions, telecommunications, and other Internet services at a fixed transaction point.	Access to financial and telecommunication services closer to home. Increased revenues for participating store owners
Bridge International Academies	Essential for audio/ video files that are too large for current network. Useful for quality information-sharing and real-time monitoring.	Better teachers via standardization/ quality control, lower education cost via school process optimization.
eKutir eAgro Initiative	Essential for video-conferences with experts. Useful for faster aggregated sales and purchase and data sharing.	Increased farmers' market access via e-aggregation. Better harvest via customized advice
Enova	Essential for student access to rich and evolving educational content and real-time monitoring.	Better and lower-cost classes via web access to the Internet.
FINO PayTech	Enables real-time secured banking transactions and data transfers, including stocking data for later download in unconnected areas.	Access to lower-cost financial services at customers' doorsteps.
Kilimo Salama	Useful for real-time weather updates and index comparison and automated payouts	Increased access to micro-insurance via process optimization.
Narayana Hospitals	Essential for expertise sharing (including image and video) and patient monitoring. Useful for medical data-sharing and process monitoring.	Lower cost and better quality of care via standardization and process optimization.
Urban Planet Mobile	Useful for sending quality content on customers' devices and for real-time student scoring.	Better access to and lower cost of daily English lessons.

Chapter 5

Lessons Learned for Policymakers and Regulators in Promoting Broadband-enabled BOP Businesses

While broadband can benefit the BOP, innovative projects often struggle to reach scale due to lack of affordable connectivity, lack of support, and unsuitable regulatory environments. Policymakers could give a significant push to the replication and scale-up of impactful broadband-enabled projects through interventions in three key directions:

Lesson #1: Facilitate Access to Broadband Infrastructure

Independent of the sector (healthcare, financial services, agriculture, education, etc.), the first step to support broadband-enabled BOP businesses is to ensure that they have access to the necessary infrastructure at an affordable price. This can be done by:

Improve last-mile connectivity by making or fostering appropriate investments.

As Enova CEO Moís Cherem Arana stated, "For governments, partnering with the private sector…is crucial, because they cannot do everything alone." Policymakers can implement different strategies to encourage the extension of broadband coverage: (a) cofinance the infrastructure (via public private partnerships); (b) make universal coverage mandatory for mobile network operators or any operator providing broadband services; (c) create a fund (levied via connectivity taxes on existing telecommunications) to finance infrastructure in low-density areas; or (d) allow operators to share infrastructure costs in low-density areas. France implemented strategies (b) and (c) to ensure connectivity in rural areas. In developing countries, India is also using strategy (c) to fund its National Optical Fiber Network via a government fund financed through a "Universal Service Levy" tax charged to telecommunications service providers, and through central government grants. The government of Rwanda provides a good example of how political will can engage the private sector: on the president's initiative, a joint-venture was launched in 2013 with South Korea's KT Corporation to build out a 4G network that aims to reach 95 percent of the population in the next three years (McKinsey Global Institute, 2013).

Improve the affordability of broadband by fostering competition among operators.

Policymakers can foster competition on the connectivity market by lowering entry barriers for new mobile network operators (or any operator providing broadband services), e.g., by allowing them to use government-owned infrastructure at lower prices, or by requesting that established operators let them use their infrastructure for a set period. The French government implemented the latter strategy in 2012 with the entry of Free Mobile, requesting the incumbent company France Telecom to provide access to its infrastructure at limited costs, which led to a significant drop in broadband access prices. The government of Kenya chose instead to co-invest with the private sector in order to retain a say on prices. For example, the government is part of a public-private partnership as a co-investor in projects such as TEAMS (The East African Marine System), on which it collaborated with Etisalat (a mobile network operator from the United Arab Emirates); and through collaborations such as that with regional operators and private investors from Kenya and Uganda on an initiative to hasten provision of bandwidth trough submarine optic fiber cables. By holding 20 percent of the consortium, the Ministry of Finance – if not satisfied with prices – can sell capacity and compete with the other shareholders, thus lowering market prices (InfoDev, 2011).

Improve the affordability of broadband by offering discounted rates on broadband access for BOP-serving businesses.

For instance, Narayana Health initially benefited from free access to the satellite technology of the Indian Space Research Organization to provide its tele-medicine services.

Lesson #2: Create an Enabling Environment for BOP Businesses Leveraging Broadband

Needless to say, broadband alone is not sufficient to solve social issues. As Barared CEO José de Jesús Gonzalez Macín stated: "You have to get a favorable regulatory environment to provide the right services to your end-users." For example, Barared needed a regulatory framework allowing correspondent banking to operate its booth-based services. Measures to create a more favorable regulatory framework include the following:

Remove regulatory bottlenecks to innovative and impactful business practices.

Sector-specific regulations need to be continuously adapted to the new models enabled by broadband. For example, the Indian government lowered the number of documents required to open a bank account, which, along with other favorable regulations for correspondent banking, enabled FINO PayTech to reach over 70 million users in India. In Mexico, the regulation that allowed correspondent banking made possible the Barared model, by which small stores could provide financial services. Similarly in the health field, tele-medicine can dramatically change medical processes but requires new regulations on patient data confidentiality, quality standards for tele-medical acts, or reimbursement policies.

Reduce taxes and duties on services once considered "for the rich," and that technology now makes affordable for the poor.

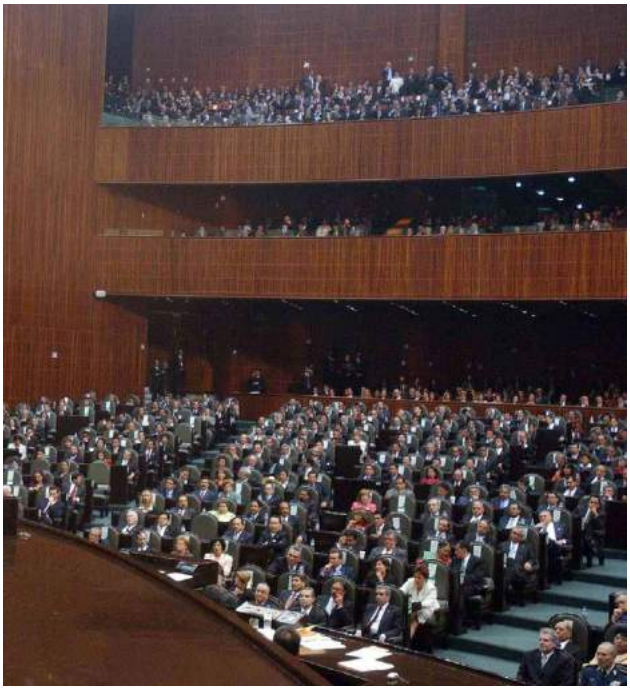
Dropping the initial luxury taxes on mobile phones in Africa was one of the factors that allowed the democratization of this technology. In the case studies in this report, governments have already lowered taxes and duties on specific services, e.g., for hospital chains targeting BOP patients like Narayana Health. Insurance providers targeting BOP farmers like Kilimo Salama and private school organizations targeting BOP pupils like Bridge International Academies are still subject to "luxury" taxes, but they are pushing for similar changes in fiscal rules.

Ensure coherence of public policies across ministries and agencies involved in solving a given social issue.

This will be key to aligning regional priorities, and broadband versus sector initiatives, to avoid counterproductive interventions. For example, broadband can only contribute to improving smallholder farmers' productivity if their access to the market is allowed by the regulation (e.g., no constraints to the development of cooperatives, or to bulk sales via nongovernmental entities).

Create an inter-ministerial committee to coordinate strategies and interventions.

Broadband can bring significant socio-economic benefits across sectors. Hence coordination is required to evaluate the systemic benefits of fostering broadband, align interests before designing strategies, and coordinate government interventions and public policies, as proposed above.



Lesson #3: Provide Direct Support for Replication and Scale-up of Broadband-enabled BOP Businesses

The past decade saw the emergence of socially impactful and financially sustainable business models leveraging broadband. However, few have reached scale and even fewer have been replicated in new regions. Policymakers can support the replication and scale-up of such models via the following interventions:

Create a replication facility focused on importing successful models.

While local entrepreneurs best understand the problems in their country, they are often not aware of successful models from other areas and thus spend precious time and resources reinventing the wheel. An effective approach to accelerate the development of such models in new areas would be to enable local entrepreneurs in a given country to "adapt and import" the key aspects of successful projects from elsewhere.[10] Sectoral workshops focused on specific social problems could bring together all the necessary players from the chosen sector (e.g., a financial services workshop would gather financial institutions, mobile network operators, local governments, etc.), and expose them to best practices in the field. Interested players could then take the lead in adapting and replicating those practices.[11] As they develop their business plan and implement pilot programs, these players could also benefit from both financial support and technical assistance to further increase their likelihood of success.

Leverage government contracts to create business opportunities and catalyze technology investments.

In order to encourage the development or scale-up of impactful market-based models, governments could outsource social interventions to selected BOP businesses, and hence create incentives for technology investments. The corresponding government contracts need to specify goals and accountability mechanisms (e.g., payment conditioned on reaching a certain number of users) but leave freedom to the private sector firms to develop the most appropriate technology solutions and improve their value proposition over time. For instance, the Indian government allowed FINO PayTech to distribute government benefits through its agent network, while letting FINO design the right technology to do so. Guaranteed revenues from these government transfers allowed FINO to invest in developing appropriate technology. In the area of education, the Mexican government hired Enova to help reduce the digital divide and improve education in underserved communities by setting up digital centers that provide online courses. As of March 2014, 85 percent of Enova revenues still come from the government. An alternative approach in education is that of the government of Kenya, which simply allowed Bridge International Academy to offer the national curriculum while leaving it ample freedom on how to set up its model.

Concluding Remarks

The research in this report has shed light on new approaches that leverage today's connectivity to build tomorrow's BOP business models. Connectivity in general and broadband in particular bring new opportunities to the BOP, and are investments well worth considering for policymakers throughout the world and in particular in Latin America. More research is still needed to quantify the impact of broadband on poverty at both the macro and micro levels. Yet the authors of this report hope that it will inspire political and business leaders to create and support more broadband-enabled businesses to achieve better socio-economic inclusion of people living at the base of the pyramid.

10 This is already a widespread practice in the for-profit venture capital industry, where it is called "geo-arbitrage" (e.g., venture capital houses such as Benchmark Capital and General Atlantic). The terms refer to the practice of backing start-ups that take an established business model and adapt it to an emerging market.

11 Hystra has already tested this "import" approach in Pakistan (with the support of the U.K Department for International Development): out of five sectorial workshops, three new approaches were taken on by local players willing to carry them out.

Appendix A

Brief Overview of Broadband-related Policies and Regulations in the Case Study Countries

India

While most rural areas in India do not have access to broadband – the vast majority of the more than 120 million regular Internet users reside in large cities – remote areas are getting increasingly connected. The Indian government has announced its intention to bring the Internet to 600 million citizens by 2020.[12] The first large initiative for connecting remote areas was launched in 2006 with the establishment of 100,000 Common Services Centers in villages. The centers are ICT-enabled kiosks equipped with a PC and a basic Internet connection.

In 2013, the government launched the National Optical Fiber Network (NOFN) project, which aims to connect over 200,000 gram panchayats[13] with optical fiber by 2016 (at least three Internet connections and one Wi-Fi hotspot in each gram panchayat). Service providers are given non-discriminatory access to the fiber network. The cost of the NOFN project is estimated at US$4 billion and will be funded by the Universal Service Obligation Fund, a government entity funded through a tax, the "Universal Service Levy," on telecommunications service providers, and through central government grants.[14]

The recent improvements in broadband access in India have led to significant efficiency gains for BOP businesses. eKutir was able to move from laptops with dial-up connections to medium-speed tablets and feature phones, Narayana Health is now using mainstream Internet tools (e.g., Skype) instead of satellite connections, and Fino PayTech can now provide more real-time services (rather than waiting to access connectivity to transfer data).

Mexico

Mexico has one of the highest broadband penetration rates in Latin America but the lowest among OECD countries (10.6 percent for fixed broadband subscriptions and 4.6 percent for mobile broadband subscriptions) (Broadband Commission, 2012). Mexico's consumer prices for broadband are high (US$1.69 per Mbps versus US$0.51 on average among OECD countries). This is mainly due to a lack of competition in the telecommunications industry, which is largely dominated by Telmex with a 62 percent market share. The Mexican government waited until 1995 to liberalize the sector after privatizing Telmex in 1990.

Since 2012, the government has launched various initiatives to expand broadband access that should bear fruit in the coming years. These include the Actions for Strengthening Broadband and Information Technology Plan and a National Digital Agenda, which aim to use public-private investments to build broadband infrastructure, reduce broadband costs, and increase digital education; the expansion of the national fiber-optic network to over 400 municipalities; the Pact for Mexico that guarantees broadband in public places; and the CompuApoyo Program that provides subsidies for 1.7 million BOP households to acquire computers and Internet connections.

12 Nachiket Mhatre, "The State of Internet Connectivity in India," Tech 2, March 23, 2013, available at http://tech.firstpost.com/news-analysis/the-state-of-internet-connectivity-in-india-82006.html.

13 The smallest Indian administrative division, typically three villages of 200-500 households each.

14 For more information on India's Universal Service Obligation Fund, see http://www.usof.gov.in/usof-cms/usof_home_contd.htm.

Kenya

In Kenya, about half the population is estimated to have access to Internet services.[15] Approximately one-quarter of the country's total population of over 44 million has a private data/Internet[16] subscription, while only 1.3 million are subscribed to broadband, and over 99 percent of the data/Internet subscriptions are through mobile phones. Kenya iGDP – a measure developed by the McKinsey Global Institute to describe the Internet's contribution to the overall economy as a share of total GDP – stands at 2.9 percent. This is well above the African average (1.1 percent) and comparable to European countries like France or Germany. However, Internet users often face unreliable or slow connections both in rural and urban areas.

In the past decade, Kenya has emerged as the African hub for innovation, notably in the ICT sector. In its 2008 "Kenya Vision 2030," the government of Kenya declared its intention to make the country one of the top three business process outsourcing (BPO) destinations in Africa, providing business services via the Internet to companies and organizations in developed countries.[17] Yet, as of 2012, BPO services still represented less than 1 percent of the Internet contribution to Kenya's GDP (McKinsey Global Institute, 2011). In 2012, the government launched the terrestrial National Optic Fiber Backbone Infrastructure Program to provide last-mile connectivity in eight major towns and 36 districts. And in its National ICT Master Plan 2017, the government further stated its aim to connect "every citizen, resident, home and institution…through countrywide robust, accessible and affordable ICT infrastructure."[18]

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15 Defined by Kenyan Communications Commission of Kenya as Internet speed greater or equal to 256 Kbps.

16 Via mobile, terrestrial wireless, satellite, fixed DSL, fixed cable modem, or fixed fiber optic connections.

17 Kenya Vision 2030, Government of Kenya, 2008, available at http://theredddesk.org/sites/default/files/vision_2030_brochure__july_2007.pdf.

18 The Kenya National ICT Masterplan, Kenya ICT Board, Ministry of Information, Communications, and Technology, 2014, available at http://www.kenet.or.ke/sites/default/files/Final%20ICT%20Masterplan%20Apr%202014.pdf.

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Appendix B
Case Studies

The Broadband Effect

Enhancing Market-based Solutions for the Base of the Pyramid

FINANCIAL TELECOM

BUSINESS MODEL LOCAL AGENT
BOP IMPACT CUSTOMERS, STORE OWNERS
CONNECTIVITY HIGH SPEED

Barared

Low-cost Telecommunications and Banking Services in Mexico City Help BOP Customers and Mom-and-Pop Shop Owners

A large share of the population in Mexico lacks access to affordable financial and telecommunications services. Created in 2006, Barared is a private network of service booths, equipped with tablets and located in mom-and-pop shops that provide low-cost telecommunications, financial transactions, and other services to the BOP in Mexico City. Barared partners with the storeowners, who earn commissions on operations, and provides them technical and business support. As of January 2014, Barared had set up 1,000 such kiosks across 35 municipalities in Mexico City, where it offers some 70 different services.

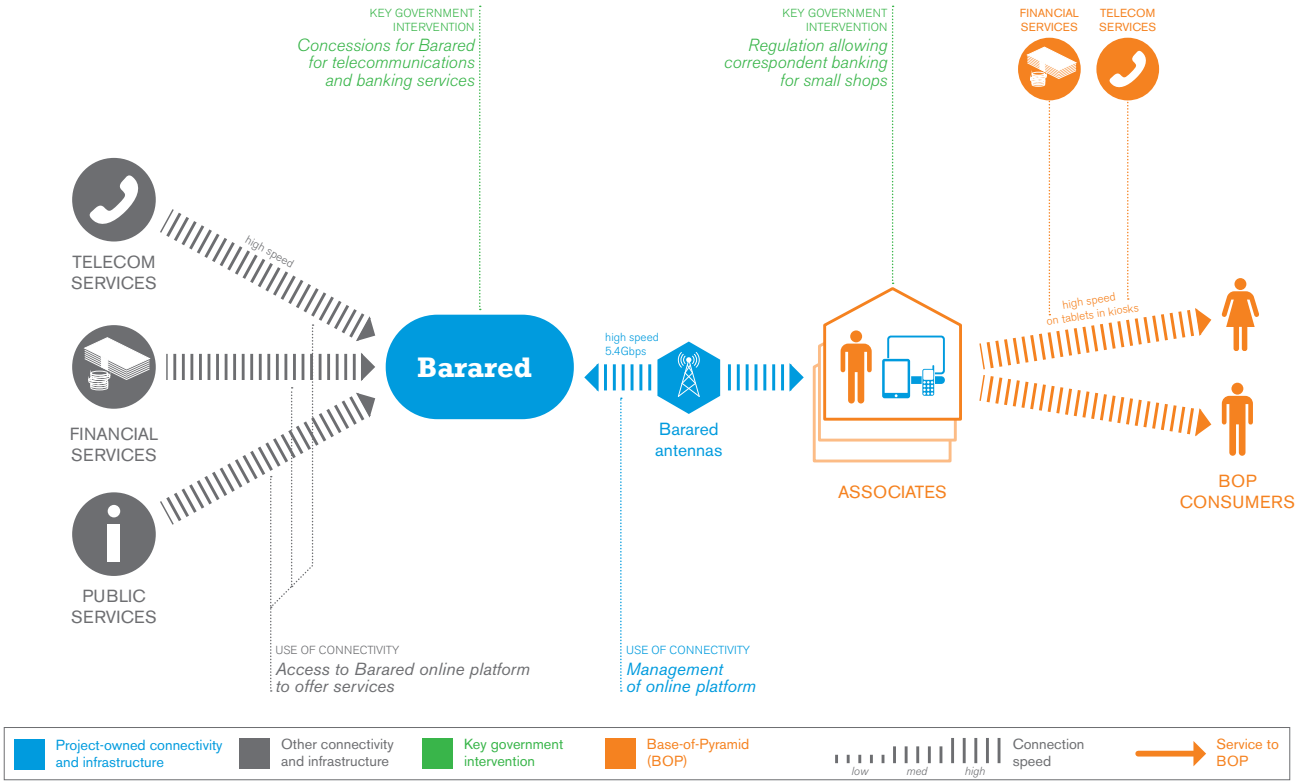
Role of Broadband and Data Connectivity

Providing secure financial transactions and a (growing) range of other services meant Barared needed a fast and secure data network to work on. As connectivity was poor in its targeted neighborhoods, Barared invested in building the necessary broadband infrastructure with Wi-Fi antennas that provide a bandwidth of 5.4 Gbps in a 14-kilometer diameter area. Barared has also been equipping its kiosks with tablets that allow BOP customers to access a wide range of real-time services previously inaccessible to them (or, available but at a much higher cost). These new broadband-enabled services also allow retail owners to significantly increase their revenues and further create local employment.

Key Success Factors

Barared's success was driven by its strategy of diversifying from telecommunications to banking and other services while keeping a simple delivery terminal through the booths it installs in mom-and-pop shops. Today, its large investments in technology and its own network of broadband Wi-Fi antennas are a huge asset that will generate more revenues when Barared starts to provide Internet, voice, and content to local residents. Finally, Barared built an innovative financing model between end-customers, service providers (e.g., banks and telecommunications operators), and associates (retail owners), and offers an attractive value proposition to all of them.

System Diagram: Barared



Implications for Policymakers

Important changes in the regulatory environment in Mexico were critical to enable Barared to operate under this model. In the financial field, authorities allowed and regulated correspondent banking, forbidding any kind of exclusivity. In the telecommunications sector, authorities granted Barared federal concessions, which allowed for building and operating a proprietary network that provides any kind of telecommunications service (television, Internet access, telephony, etc.). Policymakers can help such models emerge by speeding up certification processes, which enables new players on the market to operate and earn revenues faster. Such regulations are key to improving financial inclusion and access to services within the poorest neighborhoods, where considerable potential in economic activity and employment remains to be exploited.

Website

http://www.barared.mx

Description of Business Model

History of Organization

Mexican entrepreneur José de Jesús González Macín created Barared in 2006 through the firm Servicios Caseteros, Barared first offered voice and SMS services under the brand Barafón through public telephone booths located in retail outlets in poor neighborhoods in Mexico. As its business was threatened by growth in the mobile market and the decrease of prices in fixed telephony, it progressively diversified the range of services offered thanks to new regulations (Mexican banking authorities allowed correspondent banking in 2009) and new capital (since 2010, IGNIA has invested US$6.1 million in the business). Barared is now a multi-service network providing a wide menu of products and services from telecommunications to financial transactions. It partners with over 50 client companies, including three banks (Compartamos Banco, Kubo, and Banamex, Mexico's second-largest bank) and 50 non-banking companies (including Telmex, Movistar, Telcel, CFE, and GasNatural). Barared is also partnering with Coca-Cola for advertising and to provide product information. Barared started to develop its network in the poorest slums of East Mexico City (in the Chimalhuacan area), and plans to expand throughout Mexico before replicating in other Latin American countries.

Value proposition

Barared has built an innovative transaction platform between three stakeholders: service providers, retail storeowners (hereafter "associates," acting as intermediaries), and customers, who are mostly from the unbanked BOP population.

Customers: In phone booths (hereafter "kiosks," called *casetas* in Mexico) installed in retail outlets, Barared offers a wide range of self-services: voice calls (local, national, international, and toll-free numbers), cellphone top-ups, bill payments (electricity, water, telephone), email access, Skype videoconferences (which will allow for providing tele-medicine by 2015), and banking services (account deposits, withdrawals, remittances, microloans, micro-insurance). Service providers set their prices, which are among the lowest on the market (e.g., remittances are free and withdrawals cost only 10 MXN, i.e., US$0.8, versus an average of US$2.2 through banks). In addition, the lending platform Kubo offers microloans on a 16-week period for a competitive annual interest rate of 37-40 percent (versus 70-80 percent on the market, and 52.6 percent on average for Kubo clients). The average loan amount is US$92, and after seven months of operations, Kubo has not recorded any defaults. Barared enables customers to access new services at less distance (on average 100 meters away versus 10 kilometers away

previously), saving commuting fees (about US$2-$3 per trip) and time (investing on average 10 minutes versus 95 minutes previously). Delivery of services is also more convenient (customers can conduct several types of transactions at a single point and mom and pop stores are open longer hours than bank branches) and safer (financial transactions are cashless).

Associates: Mom and pop shops are often small family businesses with simple offerings and little access to business management tools. Via Barared, associates increase the sustainability of their business through:

- A new range of ~70 services available on tablets installed in the booths by Barared. Associates reach new customers and typically double their revenues, from commissions on operations and other sales generated (50 percent of Barared customers also purchase a non-Barared product).
- Email access and administration apps provided on a personal tablet that help them monitor their business (e.g., management of cash flows, inventory, costs, and revenues).
- Business management support by Barared through training, logistics support, relationships with new suppliers, access to a network, advertising tools, etc.
- Microcredits to expand their business, provided through the Kubo platform. Loans can reach US$3,850, with annual interest rates of 37-40 percent (depending on the client's risk profile).

Overall, Barared enables associates to increase their revenues and competitiveness on the local market, especially against bigger stores set up in the neighborhood.

Service providers: Barared provides a delivery channel that enables companies to offer services at low cost to new customers. Service providers pay a setup fee, a monthly fee, and a fee per transaction, which depend on the nature of the service.

Barared's main competitor is Oxxo, the largest chain of convenience stores in Mexico, though Oxxo does not specifically target the BOP. Barared has a strong competitive edge because of its credibility among storeowners.

Technology Aspects

To equip its kiosks with high-speed connectivity, Barared is building its own broadband network of Wi-Fi antennas, which provide a bandwidth of 5.4 Gbps in 10-20 km diameter areas. As of March 2014, Barared had set up 27 antennas covering 70 percent of Mexico City (i.e., about 14 million inhabitants). It plans to add 13 more antennas by end-2014 to reach an additional 10 percent of the population. Wi-Fi is currently only used in mom and pop shops, but Barared plans to start serving resident end-users by end-2014, providing its own service of Internet, voice (fix and mobile), and content. After an in-depth study of the best adapted customer handset, Barared chose the iPad because it is user-friendly, simple (little training is needed), robust, and able to provide numerous functionalities, including videos. Barared provides each shop with two tablets: one for the customers (running service applications inside the kiosk) and one for the associate (running administrative systems for the business). The proprietary information system is based on iOS, and the software was developed jointly by Barared and GoNet, a technology services company. Three sites, located in Monterrey and Mexico City, monitor data security (sites are redundant so that if one server fails, the other two are able to take over). Broadband connectivity has a direct impact on the diversity, price, and quality of the services: it allows for widening the range of available services to customers, lowering costs for service providers and hence their price for the customer (e.g., providing e-banking is a lot cheaper than operating branch offices), and improving service quality, such as transaction speed. Overall, Barared's broadband network helps to better integrate the BOP into economic value chains both as customers (reducing the gap in access to financial transactions and telecommunications in poor neighborhoods) and producers (increasing incomes of BOP mom and pop owners).

Business Design

Operations and distribution: Barared has built a dense network of 1,000 kiosks set up in existing retail outlets (mom and pop shops, pharmacies, corner groceries, etc.), strategically located in areas with a large flow of customers. Four hundred kiosks offer the full range of Barared services, including correspondent banking, while the remaining 600 to date only provide telecommunication services (but will be upgraded to all Barared services by end-2014). Barared aims to set up a kiosk every 600 meters so that customers can access one within 300 meters from home. Management of operations is divided into four regions of Mexico City (North,

South, West, and Ecatepec). In each region, one Team Leader supervises one or two Operations Coaches, who in turn supervise Account Executives. The 14 Account Executives support associates in their businesses (each one visits 35-50 associates once or twice per week, depending on their needs). In addition, an Acquisition Team of 28 people is in charge of recruiting new associates (they are expected to sign up eight associates out of 40 visited per month). A call center handles customer feedback, associate queries, etc.

Staff recruitment and training: To recruit its new associates, the Acquisition Team first collects data and builds maps to identify active mom and pop stores in strategic locations. Then, the team gets in touch with targeted stores (through calls, letters, etc.) before visiting them. The teams assesses the business according to 24 criteria that include business acumen, legal status, banking requirements, inventories, etc. Associates must own their locations or have a leasing contract, and operate the business themselves, or with the help of their family (Barared does not work with chains). The store must also look attractive for customers (sufficient space, walls painted, etc.). On average, Barared recruits one associate out of 20 visited (it aims to recruit one out of 16 visited). As of June 2014, Barared will allow other stores to operate Barared booths, with the exception of banking services, which will remain exclusive for one associate per zone. Once recruited, new associates sign a contract with Barared and receive training. Barared runs five training centers where associates must attend at least 100 hours of training classes per year. Sixty percent of training is in-person classes, while 40 percent is in the field. An Account Executive supports each associate, visiting the store once or twice a week and helping the associate in using the technology and managing and promoting the business.

Marketing: Barared provides marketing tools to associates to promote the services offered: posters, flyers, signs, leaflets, etc. It also conducts street marketing (such as truck advertising), focusing on local campaigns rather than mass media. Its marketing messages highlight the comprehensiveness of the services offered, along with the reliability of the technology. Word-of-mouth is also efficient to acquire new customers.

Business model: Service providers set the customer prices of services typically lower than through other delivery channels. Barared charges service providers fixed and variable fees on transactions, depending on the type of services and the number of customers served. It also charges its associates a one-time membership fee for investing in the technology, and then pays them through commissions per transaction. Overall, 65 percent of Barared revenues come from service providers (among which 70 percent are monthly fees, and 30 percent are setup fees and transaction fees), 20 percent come from commissions on transactions, and 15 percent come from Barared products (voice communications). Associates are in charge of collecting or disbursing the cash to customers once they complete transactions in the kiosk (an alert goes off on the associate's tablet, letting him/her know that a new operation is pending approval and collection). Transactions operate through associates' own bank accounts. At the beginning of each day, they must have at least US$192 on their account (there is no cash float threshold, as cash-in happens to be largely superior to cash-out).

Policies and regulations: Barared would not have been able to operate under this model without important changes in Mexican regulations. As Barared was a new model in the financial sector, it took time to overcome government resistance and convince it to adapt its regulations. Barared had to wait 18 months before banking authorities allowed it in 2009 to provide correspondent banking (it is currently the only company operating in that area). The law forbids any kind of exclusivity in correspondent banking, enabling Barared to offer banking services for any bank in its booths. In the telecommunications sector, Barared's relationship with the government was easier, and in 2011 Barared acquired several federal concessions (it has five concessions to date), enabling it to extend its services from voice and data to banking, mobile, and commercial services. Finally, a new regulation now requires mom and pop owners to register with the fiscal administration. Barared will provide support to its associates in the registration process through its tablets.

Other ecosystem aspects: Barared was the first entrant on the correspondent banking market and created new demand among BOP customers. More competitors may enter the market later on, so Barared signed exclusivity agreements with its associates. The telecommunications industry is moving fast and Barared, through its Wi-Fi network, is well positioned to meet the increasing demand for fast connectivity. This attracts new clients, such as Coca-Cola, which is currently partnering with Barared (customers who buy a Coca-Cola product get 15 minute of free Internet). In the long run, Barared plans to become a mobile telecommunications company to meet end-customer needs in Internet, voice (fixed and mobile), and content. A decrease in technology costs and broader access to capital (e.g., with the increase in the number of impact-investing funds) would boost Barared growth.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

A large share of the population in Mexico lacks access to affordable financial and telecommunications services. Due to insufficient competition, broadband penetration is very low at 10.6 percent for fixed broadband subscriptions and 4.6 percent for mobile broadband subscriptions (Broadband Commission, 2012), and consumer prices are high at US$1.69 per Mbps versus US$0.51 on average among OECD countries. On the financial side, 57 percent of the population in Mexico does not have access to a banking branch in their municipality.[1] The issue is more critical in BOP neighborhoods. In the Chimalhuacán area, for instance, only two bank branches serve 100,000 adults (versus 14.5 bank branches per 100,000 population in all of Mexico).[2] To access financial services, the BOP population has to travel long distances (10 km on average in Mexico City, which has its own costs) and carry cash unsafely.

Solution Provided

Tool quality: Telephone booths are combined with robust and easy-to-use tablets, able to support a wide variety of services (it has endured tests from the Mexican SEC, Banamex, and field trials). Software has also undergone various user tests.

1 World Bank, "More than Half of Mexican Households Don't Have a Bank Account," 2 December 2012. http://www.worldbank.org/en/news/feature/2012/12/12/mexico-more-than-half-of-households-do-not-have-bank-account.

2 World Bank, Commercial Bank Branches (per 100,000 Adults. http://data.worldbank.org/indicator/FB.CBK.BRCH.P5.

Service quality and comprehensiveness: There is a dense network of kiosks accessible within meters from customers' homes, and a wide range of about 70 services, from telecommunications to financial transactions. There are real-time services with reliable technology.

Scale and Reach

Total number of service delivery points: 1,000 kiosks across 35 municipalities of Mexico City (Federal District and its metropolitan area); 400 kiosks provide banking correspondence and 600 offer only telecommunications; 1,700 kiosks in 48 municipalities are planned by end 2014.

Total number of users: Unknown (a Customer Relationship Management Department will be set up in 2014 and will allow for better monitoring this number).

Average number of operations: 35 operations per day per kiosk (10-15 voice calls, 10-12 mobile pop-ups, two bill payments, and seven banking transactions); 1.2 million operations per month. Goal of 45 operations per day by end-2014 (more than 50 stores already register over 100 transactions a day).

Growth rate: 70-80 new associates per month.

Acceptance and Usage

Acceptability: Good fit with residents' habits of accessing products and services locally in their own neighborhoods, especially through mom and pop shops; simple and user-friendly tool with audio/visual help; high flow speed due to broadband.

Usability: Self-use by customers on tablets; user-friendly interface chosen after extensive tests; available support from associates (for help on device and cash management) and Barared call center.

Socio-economic Impact

Social outcomes: Higher social inclusion of the BOP population through access to new or cheaper services, e.g., telecommunications and financial transactions.

Economic impact: Customers save time (1-2 hours) and money (US$2-$3 per trip) on transportation and get more economic opportunities through financial services (withdrawals, loans, etc.). Associates increase their income (which typically doubles thanks to Barared) and are likely to create more jobs (more than 4-5 new jobs would be generated in each store).

Gains in efficiency due to technology: Administration applications installed on associates' tablets help them manage such financial matters as cash flow, inventory, and costs and revenues, and thus monitor their business more closely and improve its sustainability. Service providers gain access to new end-customers at low cost thanks to technology.

Scale and BOP Reach

Barared has installed **1,000 service booths** with tablets in retail outlets of Mexico City, providing BOP urban households with low-cost telecommunications and financial services (35 operations per day on average in each booth).

Sustainability

Barared managed to attract significant private funding (including US$6.1 million from IGNIA) to cover large investments. The company expects to **break even in 2014-2015**, generating revenues from fees charged to service providers, commissions on transactions, and sales of communication services. At the local agent level, mom and pop shops typically double their revenues. Barared end-users benefit from lower-cost access to telecommunications and financial services closer to home.

Replicability

The model has a **high potential for replicability** in dense underserved and underconnected urban areas, provided that adequate regulation and authorizations for correspondent banking are in place.

Economically sustainable?

Barared managed to attract significant private funding (including US$6.1 million from IGNIA) to cover large investments. The company expects to break even in 2014-2015, generating revenues from fees charged to service providers, commissions on transactions, and sales of communication services. At the local agent level, mom and pop shops typically double their revenues. Barared end-users benefit from lower cost access to telecommunications and financial services closer to home.

At the BOP end-user level:

Initial cost: No initial fee to access Barared kiosks.

Direct cost of services: Prices are set by each service provider. Average cost per transaction: US$0.5.

Additional indirect cost: Typically no or few transportation costs, since kiosks are available throughout the neighborhood.

Average household income for target beneficiaries: ~US$400 per month in current areas (targeting segment E); plans to target segment D areas earning ~US$550 per month.

Cost of best alternatives: A withdrawal is charged US$1.2 through other delivery points and US$2.2 through banks, versus only US$0.8 through Barared (free for Banamex customers). Remittances are typically charged a 4 percent fee on the market (0 percent through Barared).

New income-generating opportunities that will help BOP users pay: Opportunity for customers to take out a loan, which can help generate new income if they invest in economic activity.

Ability to reach the poorest: Over 90 percent of customers and associates are from the BOP.

At the associate level:[3]

Why Barared is attractive for them: New services and modern equipment attract more in-store traffic and commissions; and additional sales bring in new sources of revenues. Barared kiosks are generally the single largest source of revenue for associates, and their earnings are bolstered further by Barared's continuous introduction of new services.

Expected revenues: Average monthly commissions for storeowners are US$110: their margins are around 25 percent of service provider payments for voice calls, 6 percent for top-ups, and 50 percent for banking payments. Their overall revenues are typically doubled with commissions plus other purchases made by Barared customers (one of two transactions generates another sale of non-Barared products).

Initial investment: US$280 (i.e., 10 percent of the total investment cost for Barared, which pays the remaining 90 percent). This is reinvested by Barared in training, support, and services to associates.

Loyalty/churn: 4 percent of associates drop out, in most cases following shop bankruptcy.

At the service-provider level:

Initial cost: Membership fee, depending on type of product.

Direct cost of services: Depending on type of products and number of transactions.

Avoided costs/additional sales from this service: Barared allows service providers to deliver their services at lower cost and reach new customers in poor areas.

At the Barared level:

Total number of people employed at central level: 190.

Revenues and profit: US$7 million in transactions processed in 2013, including US$1.4 million in revenues for Barared; US$2.7 million loss in 2013; expected US$5.4 million net revenues and positive EBITDA in October 2014.

Total investment required: US$7 million in investments made by Barared to date.

Initial and ongoing funding: US$6.1 million invested by IGNIA as of December 2013; remaining from CEO and bank loans.

3 The statements in this section concern only associates offering the entire range of broadband-enabled services.

Scalable?

What have been the key challenges and success factors to date for the project?

Generate the idea and make it go through many regulatory doors: To be able to launch its innovative model, Barared faced strong resistances from banking authorities before being allowed to provide correspondent banking. It finally managed to get proper authorizations and, since 2011, the company has won five federal concessions, which allowed it to extend services from voice to broadband-based banking services.

Convince investors of the company's potential and get the money to grow: Barared has now proved that it positioned itself on the market at the right time, and it might attract new investors.

Gather the required human capital: Barared took time to build a strong team by convincing the right people to leave safe jobs to build the company.

Set up a large broadband network to allow expansion: Barared has been able to expand its business by building an increasing number of Wi-Fi antennas, which was initially challenging in terms of getting the proper bandwidth and quality of service. Barared progressively managed to automatize its building process and is now able to set up a new antenna in one month and a half.

What are key challenges today to scale further?

Ensure quality delivery of services while expanding, with expected costs and margins, making sure that mom and pop owners earn enough money and trust Barared.

Increase the number of transactions by launching and promoting more services.

Choose the right mom and pop owners by building the marketing team capacity to convince them to join.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Similar retail environment in densely populated areas.

Proper regulation and authorizations for correspondent banking: For instance, Barared could not replicate its model in Argentina (where correspondent banking is forbidden) or in Brazil (where correspondents must be exclusive and offer only the services of one bank).

Additional Information

Exchange rate used for this case study:

1 USD = 13 MXN

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José de Jesús González Macín

Founder & CEO

An Endeavor entrepreneur since 2013, José de Jesús Gonzalez Macín is the founder and CEO of Barared. Prior to creating the company in 2009, he had 15 years of experience in sales in the telecommunications industry. He holds a MBA from the PanAmerican Institute for High Business Direction and a PhD in Management from the Autonomous University of Nuevo León.

What are your next steps and future plans?

Two of our client companies are pushing to launch Barared in other countries in 2015. But for now we want to deliver quality service for our clients in Mexico City, make our coverage there denser, and go to different cities in this country. We might try to open up in a new country by co-investing with a local entrepreneur as a franchise or by teaching our know-how to build another company there, using our systems to make it more profitable. In Brazil for instance, we could offer a franchise to a local bank.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

First, you have to get the regulatory environment favorable to provide the right services for your end-users, and build your solution supported by the proper concessions. Second, you have to focus on the quality of the products you offer and on ensuring a great user experience, because gaining customers' trust is key for them to use your range of services.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

The State tries to generate jobs out of large companies, whereas mom and pop shops are the most important job provider in Mexico. However, regulations are not made in any way to support them. Policymakers need to build policies in order to protect those jobs and businesses, otherwise it will become harder and harder for these people to generate income. Passing laws that allow correspondent banking is also key for us to be able to provide our whole range of services. The Mexican law in that regard is fulfilling our need.

What support would you request from a donor?

They could help by supporting the mom and pop shops. For example, they could give some investment capital or help build the network, material and systems that each shop needs to efficiently deliver its services. Donors could provide support directly to mom and pop shops, or through Barared by investing in our company. We are running a very capital-expenditure-intensive business (90 percent of our capital expenditure is invested in networks and in mom and pop shops), as we create an infrastructure that does not exist yet. We need more capital expenditure to grow faster and set up many more antennas; this is an investment donors could take on. Once we have a network we can start connecting the mom and pop owners and generate revenues. Additionally, investing in broadband infrastructure would improve all forms of inclusion, because digital inclusion is a prerequisite for financial inclusion, medical inclusion, etc.

EDUCATION

BUSINESS MODEL OPTIMIZED INTERNAL PROCESSES
BOP IMPACT ACADEMY MANAGERS, TEACHERS, STUDENTS
CONNECTIVITY LOW TO HIGH SPEED

Bridge International Academies

Technology-enabled Low-cost Primary Schools for Kenyan Children from the BOP

Bridge International Academies (Bridge) is a chain of private nursery and primary schools founded in Kenya in 2008. Through a business model that is highly standardized at each point of its service, Bridge delivers high-quality education at low cost. As of January 2014, it became the world's largest chain of nursery and primary schools, serving 80,000 students and employing 2,700 teachers in 259 academies. Bridge aims to break even in 2016 and to operate in at least four countries serving 4.5 million pupils by 2022.

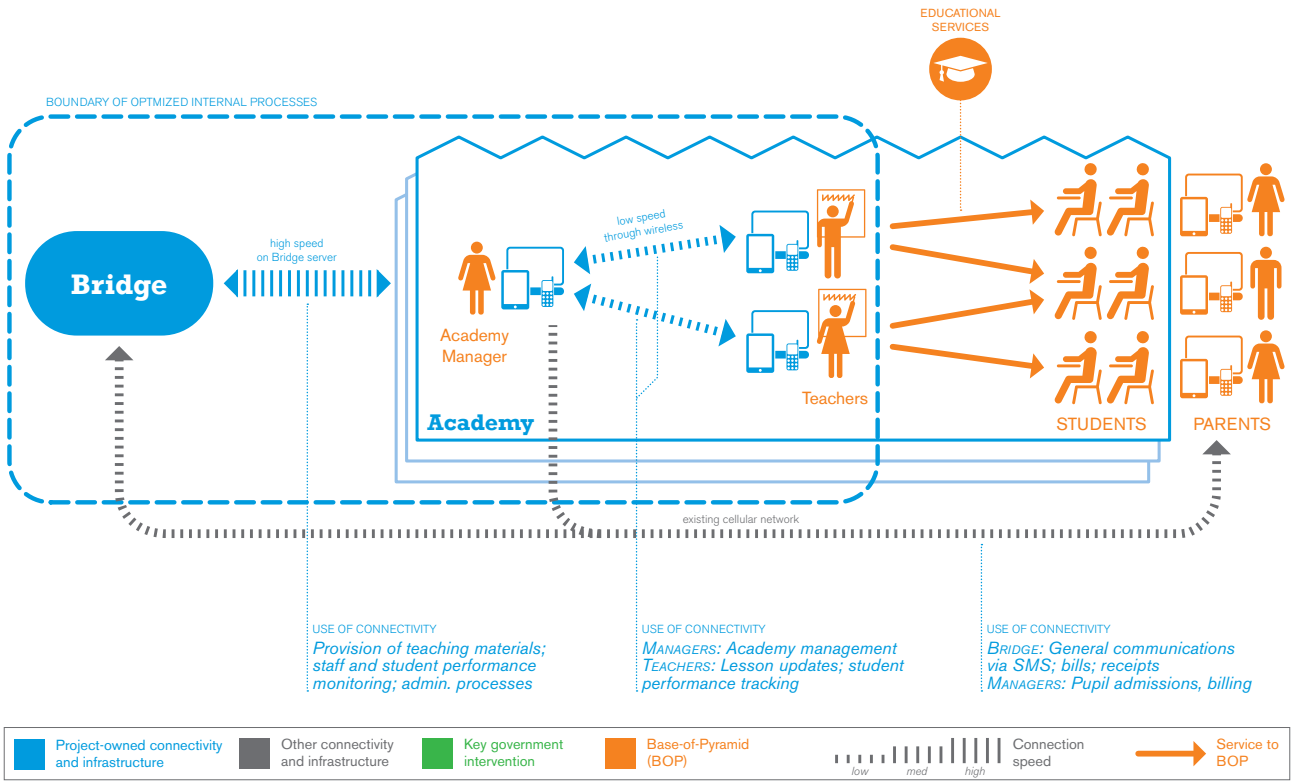
Role of Broadband and Data Connectivity

Technology and the use of Internet through a second- or third-generation (2G or 3G) network (requiring a minimum of 150 Kbps) are central to the model, both at the management and academic levels. Instructional activities are supported through tablets, giving teachers access to in-house standardized and scripted curricula, learning materials, and student record systems. Noninstructional activities, such as financial operations, admissions, or staff coordination, are handled via in-house developed applications, cloud-based servers, and mobile payment systems, increasing cost-efficiency and allowing school fees to remain as low as US$6/month (equivalent to what students would pay in government schools). All students and most Academy Managers and teachers are from the BOP, living on US$1.24/day. Bridge pupils have been shown to perform significantly better on international exams than their peers in neighboring schools.

Key Success Factors

Bridge's use of web-enabled ICT allows the standardization of all school and education processes, enabling fast scale-up at low marginal costs. ICT also allows for constantly monitoring both inputs (e.g., a teacher's presence) and outputs (e.g., a student's test scores), for real-time adjustments and data-based long-term strategic decisions and model improvements. Through this ICT-enabled combination of standardization and monitoring, Bridge

System Diagram: Bridge International Academies



constantly adapts its model to customers' needs and provides them with the best possible schooling option at acceptable costs.

Implications for Policymakers

Openness by governments to engage with nongovernmental actors like Bridge to discuss questions key to their sectors (e.g., how to define learning progress and success) would help create better synergies while improving the effectiveness of both players. Further, adapting national regulations to businesses targeting the BOP (e.g., by taxing low-cost private schools at lower rates than regular private schools or by adapting school registration requirements to schools working on lower budgets) would help models like Bridge keep operational costs at a minimum and avoid time lost due to red tape. This in turn could result in potentially lower subscription fees and higher schooling rates for children from BOP families.

Website

http://www.bridgeinternationalacademies.com/

Description of Business Model

History of Organization

Co-founded in 2008 in Kenya by Jay Kimmelman, Shannon May, and Phil Frei, Bridge International Academies (Bridge) is a chain of private nursery and primary schools delivering high-quality education at low cost. The first Bridge schools opened in 2009 in a Nairobi slum, offering Pre-Unit (Kindergarten), Class 1,[4] Class 2, and Class 3. The M-Pesa mobile payment system was used for school fees. After expanding in and outside of Nairobi in 2011, Bridge became the largest chain of private schools in Kenya. At the same time, it added Class 4 everywhere, and piloted Nursery Class (4-year olds), and beta-tested a customized smartphone software for school managers. In 2012, the school management software was rolled out nationwide, along with Class 5. Baby Class (3-year olds) was also piloted. By the end of 2012, Bridge was declared the fastest growing company in Kenya. In 2013, Bridge introduced a dynamic tablet application for teachers across schools, as well as national exam prep classes, Class 6, and Baby Class nationwide. In December 2013, Bridge established two merit-based scholarship programs financed via crowd-funding. The scholarships were already benefiting over 100 students by January 2014.

In 2012, Bridge received the Small and Growing Business Award from the Africa Leadership Network, and its CEO Jay Kimmelman was named as one of Top 40 men under 40 by the Business Daily. Bridge's biggest investors are the National Education Association, Learn Capital, Khosla Ventures, and Omidyar Network.

As of January 2014, Bridge ran 259 academies and served more than 80,000 pupils from Early Childhood Development to Class 7. It expects to open an additional 80-100 academies in 2014 in Kenya, and add Class 8 in 2015. Bridge plans to expand to four countries by 2022, benefiting over 4.5 million pupils.

Value Propositions

Today, Bridge provides pupils from BOP families with nursery and primary education from Baby Class to Class 7 for a monthly subscription fee of KES 550 (US$6) on average (depending on age, class level, and school location). The fee covers instruction materials, textbooks, extra reading books, drinking water, access to toilets, and teacher salaries. Exams and non-reusable materials such as homework or class work books are included in an additional US$2 fee per term. Uniforms are not included in the fees, but are not compulsory.

4 In Kenya, primary education typically starts with Class 1 at age 6 or 7 and covers 8 class years.

In Kenya, the academic year starts in January and consists of three terms (school fees are not charged during school breaks). At Bridge, class is in session from 7.30 a.m. to 5 p.m. Monday through Friday and 8 a.m. to 2 p.m. on Saturdays. With teaching time nearly equaling school time, Bridge offers high rates of net learning activity, contrary to Kenyan public schools where teachers are either absent or present but not teaching in over 47 percent of cases,[5] and where students get an average of 2 hours and 19 minutes of class per day.[6]

Bridge school fees are less than 70 percent of fees of other low-cost private schools in the same communities, and are often cheaper than "free" governmental schools that end up costing US$2-$12/month once additional fees for materials, uniforms, access to toilets, or cost of paying substitute teachers are added up.

5 Kenya Economic Update, World Bank, 2013.

6 World Bank, Service Delivery Indicators. http://datatopics.worldbank.org/sdi/.

Technology Aspects

The use of connectivity and web-enabled devices is a key aspect of the Bridge business model, allowing Bridge to maximize the school system's efficiency and ensure teaching quality. While students do not access the Internet in class, learning contents are developed and distributed through web-enabled devices. These work on a second-/third-generation (2G/3G) network (as they require a minimum connectivity of 150 Kbps) and are connected to a single data connection point at each school. Further, all non-instructional activities are automated and centralized using cloud-based systems and mobile applications.

At the central level, all operations are closely monitored through custom systems (created by in-house software development teams), based on extensive mobile and enterprise resource planning (ERP) technology. Financial transactions (fees, school bills, and staff wages) go through the M-Pesa mobile payment system (bringing over 50,000 additional customers to M-Pesa to date, one of its largest single sources of new clients), increasing efficiency and reducing risks of corruption. Mobile surveys and satellite-based tools help analyze local needs and determine potential sites for new schools. Academy Officers and the Quality Assurance Team use smartphone apps to monitor operations. Data is vertically integrated through Android systems to influence real-time decision-making and a data-driven back-end support system ensures operational quality.

At the academy level, managers connect to the central system through smartphones and customized apps, enabling efficient school management (pupil admissions, tuition payments, teacher assessments, vendor payments, etc.), while freeing up time to build relationships with pupils and families. These apps also provide real-time data on operations to Bridge headquarters. Teachers are provided with (SIM-card free) tablets, which they are required to connect to the Academy manager's phone twice per day via a local wireless hotspot in order to update curricula and scripts as well as student records.

At the customer level, Bridge runs a 24/7 customer care line to answer queries from teachers, parents, pupils, and neighbors, recording all problems on an online platform to monitor satisfaction and make improvements at scale. It uses mass SMS to send parents bills and issue receipts, or to inform them about academy events (e.g., Parent Days, Parent-Teacher Conferences), about how to engage their children in learning activities at home, or about new academy locations (for students who are withdrawn due to relocation).

Bridge ensures data security through industry-standard SSL certificates and maintains its system regularly according to defined preventative processes such as backups to multiple locations and media. Servers are further kept up to date with the latest security and patch updates.

Business Design

Bridge manages to drive efficiencies in costs and quality through a vertically-integrated "Academy-in-a-Box" model that leverages data, technology, and scale:

Operations and distribution: Bridge has developed a standardized model for its operations, which is replicated in each of its 259 academies. Each academy is composed of 10-12 teachers and one Academy Manager (as well as a general laborer and a cook). The number of teachers increases as new classes open, reaching up to 27 employees in full two-stream academies. Academies are further supervised by Professional Development Managers (more than 12-15 academies per manager).

At headquarters, world-class Master Teachers develop learning contents in the form of textbooks and step-by-step scripted lessons based on the national education program and curriculum requirements. Lessons are then downloaded on teachers' tablets and delivered to pupils. Pupils receive learning materials and are tested on each subject every 10 days, plus on mid-term and end-term exams. Teachers record students' assessment scores, attendance, and lesson pacing on their tablets, allowing continuous adaption of educational content to pupils' learning processes.

Bridge locates its academies strategically considering the number of primary-aged children, parents' income levels, the school's availability, quality and cost, etc. A research team evaluates potential properties for future academies within targeted neighborhoods and conducts household surveys through questionnaires and interviews. Construction of academies (costing approximately US$60,000, including technology for a fully-built, two-stream academy with 22 classrooms, kitchen, sanitation, etc.) is closely monitored through mobile surveys to comply with exact specifications.

Staff training and recruitment: To create a sense of ownership, Bridge recruits Academy Managers and teachers from the served communities and invests in their professional development. All of the teachers and managers belong to the BOP and 90 percent are unemployed or part of the informal economy before joining Bridge. For a first selection, members of the Bridge specialized recruitment team go into the respective communities to provide training and conduct interviews. Selected applicants (for both management and teaching positions) receive free 350-hour residential induction training covering theoretical and practical teaching aspects in video-based sessions at the Bridge International Training Institute. Throughout the training, various exams are given in order to select the top 14 percent, who then get a certification and are hired. Academy Managers go through a similar process focusing on leadership skills. Both Academy Managers and teachers are provided with additional training content on their tablets and ongoing coaching, visits, and monitoring.

Regarding professional development, Academy Managers regularly assess their teachers' work (5-10 minute assessments daily plus one longer session of 30-45 minutes per week), and quality assurance evaluations are conducted every 7-10 days. Teachers are also provided with monthly personalized coaching by a professional development coach and receive 24/7 assistance via the Bridge customer care line if needed. Bridge further provides both managers and teachers with ongoing training and certifications (once per term for managers and once per year for teachers).

Marketing and consumer education: Marketing is developed centrally at Bridge headquarters and then implemented locally at the academies. Each academy is provided with marketing tools and is responsible for its own marketing. Academy Managers and teachers receive training on how to use these tools at the Bridge International Training Institute and are provided with marketing guides.

In order to reach even illiterate parents Bridge uses highly visual materials, such as posters, flyers, and videos shown at the academy level. At a more regional level, it uses billboards, branded motorcycle vests (for taxi drivers), radio ads, and mass SMS (targeting parents of existing, potential, new, and withdrawn students).

Highlighting community relationships, Bridge engages in door-to-door visits, performances at community events, and "road shows" where academies display their books, learning tools, and other materials at local markets and other popular neighborhood events. Bridge further holds "Grand Opening" celebrations for new academies and "Back to Class" celebrations at the beginning of each school year, inviting children from the community to take hour-long classes and then perform what they have learned in front of their parents. At new academies, children are further invited to take a free trial month. At existing academies, students' parents receive gift cards to give to friends or relatives in order to boost word-of-mouth marketing (approximately 40 percent of all parents hear of Bridge through referrals by friends and family members).

Business model: At Bridge, revenues come solely from academy fees. All payments (student fees, staff salaries, equipment) are cashless, processed either through the M-Pesa mobile banking system or Bridge's Equity Bank account. Parents pay fees in advance for a full school year, term, or month. Families having trouble paying for school fees (over a limited period of time) can benefit from the Bridge Financial Hardship Program: payments are put on hold until the end of the term, when families are requested to pay the term amount.

Selected students are provided with crowd-funding-based scholarships covering subscription and exam fees for a full year. These scholarships are based on merit and any student can apply. The "Bridge Achiever" scholarship awards best performance (in primary schools only, one scholarship per class of 15+ pupils), and the "Bridge Ambassador" scholarship awards pupils showing the highest interest in learning (one scholarship per class awarded through essay writing).

Policy and regulations: The Kenyan education system defines a school along very specific inputs (e.g., acreage, physical size of classroom, construction material). Institutions that do not meet these criteria are not registered as schools with the Ministry of Education. This makes it particularly difficult for entrepreneurs targeting BOP areas, as they have to invest a lot in inputs and cut down on teaching materials, teacher development, and monitoring, and, as a result, on the quality of the education itself.

In its "National ICT Master Plan 2017," the government of Kenya stated its goal to connect "every citizen, resident, home and institution… through countrywide robust, accessible and affordable ICT infrastructure."[7] Broadband-related regulations have not yet impacted Bridge so far.

Other ecosystem aspects: In Kenya, the import of computers is duty free, so Internet-enabled e-readers used at the Academy level can be brought into the country without duty costs. However, all inputs to the education system (e.g., construction materials and school books) are taxed at 16 percent.

7 The Kenya National ICT Masterplan, Kenya ICT Board, Ministry of Information, Communications, and Technology, 2014, available at http://www.kenet.or.ke/sites/default/files/Final%20ICT%20Masterplan%20Apr%202014.pdf.

Scale and BOP Reach

Bridge has opened 259 academies throughout Kenya, providing nearly 3,000 teachers and academy managers from the BOP with jobs and 80,000 students from BOP families with high-quality basic education at low cost.

Sustainability

Bridge generates revenues from academy fees paid by students' families (approximately US$3 million in 2013). Each academy is designed to cover operational costs after one year, and initial investments after four years. Bridge has not yet reached economic sustainability, but expects to break even in 2016. Costs for students are equivalent to those of government schools.

Replicability

Comprehensive process standardization makes this model highly replicable.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

30 percent of children in Africa have no access to education due to lack of teaching staff or infrastructure. Thanks to the introduction of free basic education policies, many countries have been able to increase primary net enrollment ratios (NER), as did Uganda (91 percent NER)[8] and Kenya (83 percent NER). However, in some countries rates are still very low (e.g., Nigeria with 56 percent NER) or vary widely between regions and income groups. In Kenya's North-East Province, 55 percent of girls and 43 percent of boys from poor households in 2008 had never attended school.[9] Further, a lack of efficiency and accountability burdens the national education system, resulting in low-quality public schools. In Kenyan public schools, teachers are absent or not teaching 47 percent of the time when they should be teaching,[10] and only 35 percent of them are able to pass a test based on the curriculum they teach.[11] Most private schools do not work on a sustainability-oriented business model and close shortly after inception. Consequently, 75 percent of families are in search of a better schooling alternative for their children.

Solution Provided

Tool quality: Modern IT infrastructure with all-centralized data system at each step of the process, from teachers to headquarters.

Service quality and comprehensiveness: High quality in both learning content (fully government-validated curriculum developed by world-class Master Teachers) and service delivery (high level of teacher commitment due to IT support and close monitoring, real-time tracking of pupil performance). Comprehensive range of classes, from three-year old Baby Class to Class 7 (and Class 8 opening in 2015).

Scale and Reach

Total number of schools: 259 academies with an Academy Manager in each one and 2,700 teachers.

Total number of students: 80,000 enrolled students in 2013 (100 percent BOP); on average 300-400 students per school and 36 students per class (with a set maximum of 50 students per class in low grades and 60 per class in higher grades).

Rate of penetration in target communities: 44 percent of academies located in urban areas, 22 percent in peri-urban areas, and 34 percent in rural areas.

Growth rate: The number of Bridge International Academies grew from 37 in 2011 to 83 in 2012 and 259 as of January 2014, with one new academy opening on average almost every two days. Similarly, the number of students rose from 4,500 in 2011 to 31,500 in 2012, 55,000 in 2013, and 80,000 in January 2014. Bridge plans to launch its first academies in Nigeria by the end of 2014, and in India by the end of 2015. By 2022, Bridge aims to serve 4.5 million pupils across at least four countries.

Acceptance and Usage

Acceptability: Bridge manages to reach high levels of acceptability thanks to a curriculum based on government standards and to hiring staff from communities. It strategically determines locations for new academies according to a population's needs, after conducting thorough framework-based research (by January 2014, the research team had conducted over 14,000 surveys in 384 neighborhoods).

Usability: Bridge tests the user-friendliness of applications, software, and devices with teachers or managers before disseminating them.

8 World DataBank. World Development Indicators, World Bank.

9 Education for All Global Monitoring Report. Fact sheet: Education in Kenya, UNESCO, 2012.

10 Kenya Economic Update, World Bank, 2013.

11 Education and Health Services in Kenya. Data for Results and Accountability, African Development Bank, 2013.

Socio-economic Impact

Social outcomes: On international exams, Bridge pupils reach a reading score that is (on average) 35 percent higher than their peers in neighboring schools and 19 percent higher in math.[12] A higher level of education is expected to positively influence the students' own development as well as that of their communities.

Economic impact: Job creation in local communities, and more than US$40 million cumulatively invested in Kenya's development (through school construction, book production, distribution, etc.).

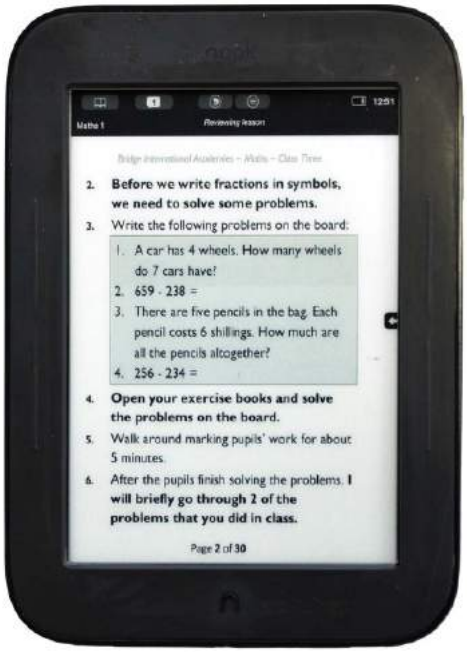
Gains in efficiency due to technology: More time spent on learning thanks to standardized lesson-scripts and high-quality learning content accessible on ICT devices, as well as to higher teacher attendance (almost three times the amount of teaching time in public schools).

Environmental impact: Most schools are not connected to the electricity grid.

Economically sustainable?

Bridge generates revenue from academy fees paid by students' families (over US$3 million in 2013). Each academy is designed to cover operational costs after one year, and initial investments after four years. Bridge has not yet reached economic sustainability, but expects to break even in 2016. Costs for students are lower than in 70 percent of all other low-cost private schools in the neighborhoods Bridge serves.

12 Early Grade Reading Assessment and Early Grade Mathematics Assessment (USAID-designed exam), administered by independent third-party used by USAID, 2013.



At the BOP end-user level:

Initial cost: US$5.80 admission fee.

Cost of service: Subscription fee of US$6/month, plus US$2/term exam fees.

Additional indirect cost: Transportation to school, lunch, school uniform (not mandatory, but available at approximately US$19).

Average household income: US$103/month, students' families consisting of 2.5 children and 1.7 adults on average, with a daily per capita income of US$1.24.

Cost of best alternative: 70 percent of other local private schools are more expensive than Bridge. Public schools are "free" but require additional expenses costing up to US$2-$12/month.

Ability to reach the poorest: Affordable for 85-90 percent of the targeted BOP families to send all of their children – both boys and girls – to Bridge (a scholarship program is also in place); 100 percent of the students belong to the BOP.

Churn: Where students are withdrawn from academies, it is mainly due to relocations, as families live in volatile situations and often move in pursuit of work. Other students drop in and out of school several times within the same year for various reasons (e.g., family problems), particularly in pre-school, when schooling is not mandatory.

At the central organization level (Bridge):

Total number of people employed: 300-350 employees at headquarters (training, book writing, marketing, finance, research, construction, legal), 259 Academy Managers, and 2,700 teachers.

2013 revenues: Over US$3 million.

Cost recovery level: Bridge expects to break even in 2016, when presumably reaching 800,000 students across 1,000 academies. Each academy is designed to cover its operational costs after one year, and its initial investment after four years.

Initial and ongoing funding: By 2016, Bridge will have invested more than US$100 million into developing the "Academy-in-a-Box" model, opening new academies and entry into three new countries. It is funded by both private and social investors, mainly the national education Association, Omidyar Network, LearnCapital, Khosla Ventures, and Bill Gates. Other partners include the Mulago Foundation, Jasmine Social Investments, and the Deutsche Bank Americas Foundation. In 2014, the International Finance Cooperation and Commonwealth Development Cooperation signed its latest equity investment (for a total of US$16 million).

Scalable?

What have been the key challenges and success factors to date for the project?

Regulatory framework: In many countries, regulations were designed at a time when policymakers did not imagine a private school would cater to BOP segments of the population. In Kenya, for example, the lowest income bracket for private schools is set at approximately US$350 per year per student, which is much higher than the US$58-$70/year/ per student that Bridge generates. Hence, Bridge ends up paying the same taxes as much more expensive schools.

Industry: In most countries, there is very limited industry to serve BOP groups. As a result, Bridge had to innovate across all the channels it needed for its business (construction, book publishing, distribution, marketing, etc.). It is now in 10 different industries, carrying out operations at all levels in order to keep costs low for students and their families.

Human resources: Bridge is a technology-driven company but also employs over 3,000 people on the ground. Managing so many people creates challenges, especially as Bridge scales up at a pace that makes it difficult to hire and train this constantly growing number of people as well as it did on a small scale.

Service quality: While scaling rapidly, it is a major concern at Bridge to ensure the high quality of its service. In a context where every dollar is extremely important, customers demand extra communication and clarity on services and benefits. Bridge strongly focuses on measuring outcomes and refining its services to meet customers' needs and expectations.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Population and needs: When determining where to replicate the Bridge model, Bridge considers the current lack of quality education (e.g., through literacy scores, failure rates for national exams, percentage receiving basic education), potential market size (e.g., via the number of BOP families), and ease of replication considering its existing experience (i.e., English-speaking countries with a similar curriculum, as much teaching material can be re-used).

Framework: Before entering a new market, Bridge analyzes the business context in order to determine what regulations would need to be considered and how suitable they are for starting their business in that given country.

Additional Information

Exchange rate used for this case study:

1 USD = 86 KES

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Dr. Shannon May

Co-founder

Chief Strategy & Development Officer

Shannon May is a co-founder of Bridge International Academies and serves as both its Chief Strategy Officer and Chief Development Officer, leading the development pipeline in Kenya as well as international expansion. She also leads Research, Government Relations and Business Development, and supervises Marketing and Brand Strategy. Prior to founding Bridge, Shannon published widely on ecological and economic development, and served as an advisor to multiple international organizations focusing on design, development, and sustainable cities around the world. Her experience also extends to the classroom, having taught in schools in China and the United States. Shannon received her BA, Magna Cum Laude in Social Studies from Harvard University, and her PhD in Anthropology from UC Berkeley.

What are your next steps and future plans?

We are currently planning to expand to Nigeria, and see if we can also start setting up academies in India and Uganda in the next two years. These three countries are the first in our development pipeline. They are all Anglophone in their medium of instruction, so we can avoid major extra costs for translation and rewriting of our materials and trainings. Once we gain experience in replicating our model to other countries, we will also look into expanding to countries with other languages.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

Immerse yourself in your future clients' universe and be ready to change your point of view. You need to have a mindset of accepting to question yourself every day. The best way would be to live in the same context as your target group and to completely integrate in their lives, problems, and challenges. That way you can best design specific interventions that will really make a change in their lives. Once you start your business, base every decision you make about your value proposition on data (which means, measure your outcomes from the start) and validate it with your clients, to continually improve towards meeting their needs. Train every single team member to constantly think and re-think your model that way, as your business grows.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

Many governments interpret the number of schools, the size of classrooms, or the number of teaching hours as a sufficient indicator for their education system's quality. However, in order to make innovations possible and to further improve the quality of education, it is necessary not to presume what does or does not work, but to measure and quantify learning outcomes. In 2013, about 56 percent of Kenyan students failed the national primary school exam. This clearly indicates that something in the system is not working as assumed. Governments need to re-define the concept of a good teacher or learning success and from there make possible changes in teacher training or school curricula. Also, governments should consider whether the current requirements for a school to be officially registered focus too strongly on physical criteria rather than content and quality aspects. They should try to adapt policies so that they encourage organizations and entrepreneurs to start schools serving the BOP, even on lower budgets. Another issue regards regulations on licenses or taxes. Governments could significantly help businesses like Bridge by making sure regulations are suitable for businesses targeting the BOP, while at the same time ensuring that services stay affordable.

What support would you request from a public or private donor?

Both public and private donors should engage in policy reforms and help design national policies around businesses that are targeting the BOP. For example, we have chosen the International Finance Corporation as an investor because it can play a large role in engaging government leadership in discussing issues that are key to our business (e.g., how to define progress in education, how to measure success, etc.). Donors, on the other side, could be helpful in funding monitoring and evaluation systems. By spinning off into such a program, we could ensure and improve the quality of our services without creating extra costs for our students and their families. Additionally, we could act as partners and entry points for NGOs and donors that equally target children from BOP groups, but offer other services (e.g., health care, vaccinations, deworming, etc.).

AGRICULTURE

BUSINESS MODEL LOCAL AGENT
BOP IMPACT FARMERS
CONNECTIVITY LOW TO HIGH SPEED

eKutir / Krishi Vikas

Improving Small Farmers' Lives through Franchised Agro-kiosks in India

eKutir is an Indian social agro-business launched in 2009. It developed a network of entrepreneurs who run franchised local e-kiosks supporting local farmers. As of December 2013, 106 eKutir e-kiosks had provided individualized advice and trade information to 50,000 small-holder farmers.

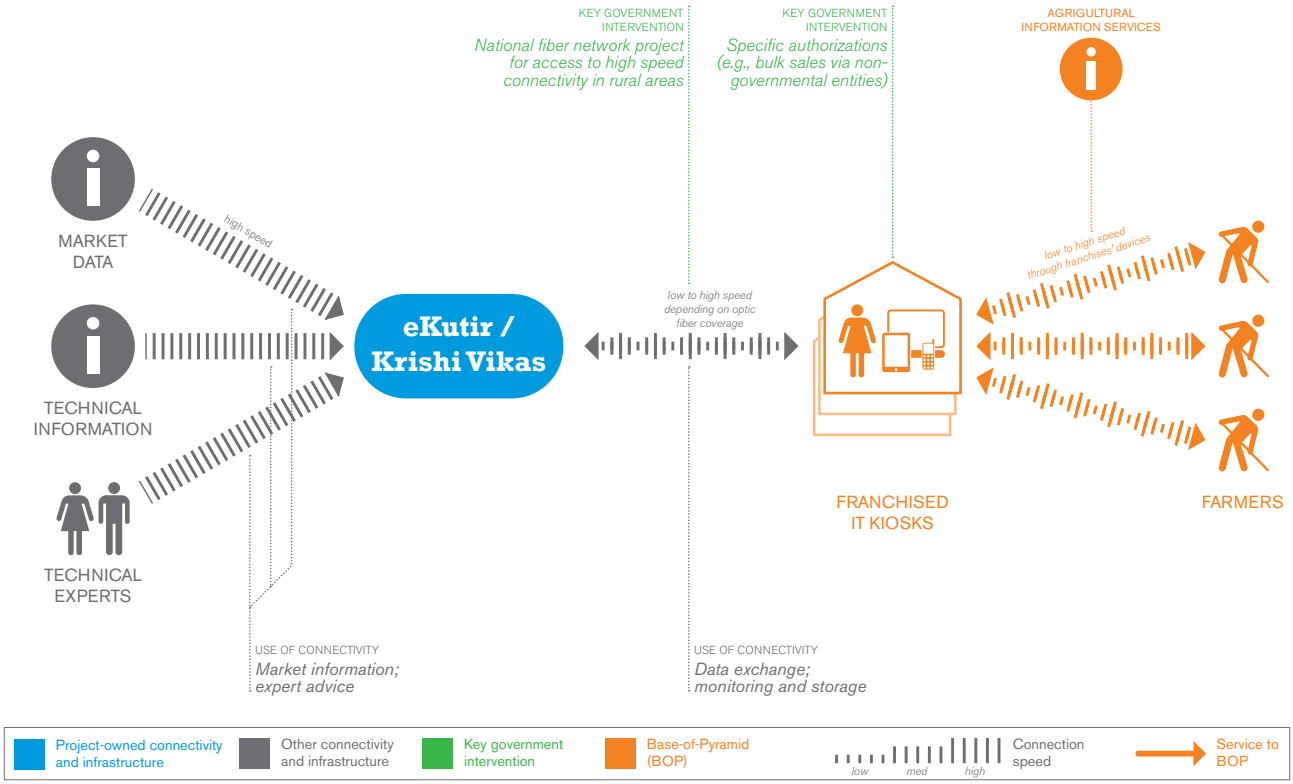
Role of Broadband and Data Connectivity

Connectivity (and broadband when available) is at the very heart of the eKutir business model. It allows entrepreneurs – equipped with a tablet or mobile phone and an Internet data card ensuring wireless medium-speed connection (~140 Kbps) – to directly link small-holding farmers (with 2-3 acres of land) with the market (direct orders from buyers, aggregate purchase of inputs) and with agro experts who can advise them. On average, eKutir users have seen their incomes increase by 50 percent and their costs (e.g., of inputs) decrease by 17 percent.

Key Success Factors

Broadband infrastructure such as the fiber network that is currently being expanded by the Indian government in rural areas is key for the project to deliver a sufficient number of services quickly enough to be attractive to farmers. eKutir's success also lies in the design of user-friendly applications, in its strict process of selection and training for entrepreneurs (which was refined over the years), in its collaboration with communities and their local leaders to ensure local buy-in, and in its diversification of revenue sources to reach sustainability.

System Diagram: eKutir



Implications for Policymakers

The Indian government's push to develop Internet infrastructure reaching remote areas – through the Common Services Center Project since 2006 and the National Optical Fiber Network Project since 2013 – was crucial for eKutir's e-kiosks. Subsidizing the initial network set-up cost can then allow commercial services to thrive, as remote populations are those with the most to gain from access to fast information and transaction networks in terms of access to new services, reduced transportation costs, etc. In agriculture, it is also critical that regulations facilitate the progress that ICT can bring (e.g., authorization for farmers to sell in bulk via nongovernmental entities).

Website

http://www.ekutirsb.com/

Description of Business Model

History of Organization

K.C. Mishra launched the social agro-business eKutir in 2009 with the goal to improve farmers' productivity and livelihoods through the use of ICT. As of 2013, eKutir's "Krishi vikas" (a farmer development program designed with Grameen Intel) provided services to 50,000 farmers.

Value Propositions

eKutir's local entrepreneurs run franchise kiosks at the village level, serving farmers in a 15 km radius and also benefiting agricultural product buyers and suppliers. eKutir clients also include donors and eAgro project implementers.

Farmers: Entrepreneurs provide farmers with eight main services developed by eKutir and based on ICT tools (both in-house software[13] and regular Internet tools) using broadband or other speed connections available:

Seed selection ("Ankur"): Recommends the most appropriate seed (type/variety for the crop) depending on agro-climatic analysis and the type and condition of the farmland.

Nutrient management ("Mrittika"): Recommends the type and quantity of fertilizer farmers should use through soil-testing.

Crop planning ("Krishi Yojana"): Helps farmers with planning taking into account the availability of resources, cost, and projected income during the crop cultivation phase.

Harvest and marketing ("Bozar"): Provides farmers with information on market demand and supply, allowing them to take fact-based decisions regarding harvest and marketing.

Pest and disease management ("Pratikar"): Helps farmers in handling crop management effectively.

Farmer portfolio management tool: Helps farmers manage their assets (i.e., balance sheet creation) and connects them to all the stakeholders.

Supply chain risk assessment: Assesses the commodity supply chain risk before cultivation, and provides risk mitigation advice to farmers and to other value chain players.

Farmer risk assessment: Assesses the risks farmers face considering their agricultural habits (e.g., the utilization of organic/chemical fertilizers) and advises them on a risk mitigation strategy.

To benefit from these services, farmers must pay an annual membership fee of US$2.5 (150 INR) plus a service fee (5-20 percent commission on transactions).

13 For instance, eKutir developed a soil nutrient analysis and recommendation software, and it is also selling stand-alone software as an additional source of revenue.

Buyers and suppliers of agricultural product: eKutir aggregates demand for suppliers of agricultural inputs, and supply for buyers of crops. For this aggregation eKutir gets a commission on their products.

Donors or eAgro project implementers: eKutir provides the "Track Impact, Measure Efficacy" tool to donors or e-agro project implementers. This tool monitors and evaluates agriculture services at the farmer level and the impact of their intervention.

Technology Aspects

The use of broadband and data connectivity is central to the eKutir model. At the kiosk level, entrepreneurs were initially equipped with a netbook, digital camera, and dialup connection. To lower hardware costs and benefit from new fiber infrastructure set up by the government, kiosks are now equipped with a tablet or mobile phone and an Internet data card ensuring wireless data connection of at least 140 Kbps. With this equipment entrepreneurs can run eKutir applications and communicate with headquarters or agriculture experts. eKutir headquarters is equipped with a server running a Center Management System (CMS), which has the capacity to store information from millions of farmers and is where all the data collected are aggregated. Ten IT experts manage the CMS and create tools for Management Information Systems. eKutir uses standard security and encryption protocols, employing what are called "Pretty Good Privacy" paradigms to secure data exchanges between kiosks and headquarters. eKutir has a dedicated maintenance team (10 IT technicians plus four field technicians) who provide support to local entrepreneurs on both hardware and software issues through a helpline or field visits.

Business Design

Operations and distribution: As of December 2013, 106 entrepreneurs were running kiosks in six Indian states. Each kiosk can serve up to 500 farmers in a 15 km radius, usually in groups of 20-25 people with an elected leader who deals directly with the entrepreneur. On a three-month crop cycle, farmers need to go to the kiosk on average 10 times (concentrated in one month during the growth stage of the plant). Farmers have different crop cycles, which avoids that entrepreneurs have to deal with a rush of clients all at the same time. The entrepreneurs receive 10-15 farmers' visits on average per day. Sometimes farmers talk to the entrepreneur on a mobile phone and get the advisory without traveling to the hub/kiosks.

Entrepreneurs' recruitment and training: eKutir selects franchisee entrepreneurs among unemployed youths identified by the community in order to ensure acceptance and trust. The youths are selected based on having basic agricultural knowledge and good relationship and management skills. eKutir trains them for a week on ICT, marketing, and management. After this initial training, entrepreneurs have a three-month handholding test period with existing entrepreneurs or eKutir's own staff. About 40 percent of candidates pass the test and set-up their own kiosk. Their initial investment is ~US$250 for the infrastructure (mobile/tablet, connectivity, electricity), US$85 for the training, and a US$170 yearly franchise fee.

Marketing and consumer education: In a new area, the entrepreneur conducts demonstrations, trainings, and road shows to convince early adopters that they can earn money using eKutir's services. Then the entrepreneur's priority is to ensure service quality and customer satisfaction. eKutir developed a scheme to strengthen customer loyalty: at the end of the financial year, farmers are given a "dividend" payout on the basis of the transactions made during the year. Finally, word-of-mouth is the best marketing channel, in this case meaning that the good results of early adopters convince reticent farmers to use the service. Typically, 100 farmers sign up during the first crop cycle and over 200 join within a year. It takes three years to reach the maximum penetration of 500 users.

Business model: eKutir earns money from franchisee fees and from marketing fees from the companies for whom it sells products to farmers. It also has technology and consultancy contracts with other agro-entities. Franchisees are paid out of the farmers' yearly membership fees, plus they earn a commission on products bought and sold to farmers. Farmers pay their membership fee at the beginning of each year, and commissions on products bought and sold are then embedded in the product price (hence not visible as a fee for farmers) and paid at the time of transaction.

Policy and regulations: The Indian government has announced its intention to bring the Internet to 600 million citizens by 2020. In 2013, it launched the National Optical Fiber Network Project, which aims to connect over 200,000 gram panchayats with optical fiber by 2016 (at least three Internet connections and one Wi-Fi hotspot in each gram panchayat). Service providers are given non-discriminatory access to the fiber network. The recent improvement of broadband access in India has led to significant efficiency gains for social businesses – Narayana Health (see case study) is now using mainstream Internet tools (e.g., Skype) instead of satellite connections.

Other ecosystem aspects: All the ecosystem stakeholders (e.g., seed companies, fertilizer companies) are involved in the project.

Scale and BOP Reach

50,000 small BOP farmers (2-3 acres of land on average) use eKutir services in 106 franchised kiosks run by local entrepreneurs.

Sustainability

eKutir is economically sustainable at the farmer level (improves incomes by 50 percent on average), franchisee level (break-even point after 10 months on average), and central organization level (break-even point in 2012, and $230,000 in revenue in 2013 thanks to a diversity of revenue channels, the largest being marketing fees charged to agro-products companies).

Replicability

Replication requires similar types of needs (lack of market access and agro-information), sufficient density of farmers for kiosk sustainability (minimum 200 clients per kiosk to break even), low-cost Internet connectivity in rural areas, and regulations authorizing bulk purchase.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

Of the 760 million Indian farmers, 78 percent cultivate less than five acres of land. It is nearly impossible for these farmers to get out of poverty because of:

- Lack of awareness and information about their main asset (soil nutrition) and linkages between soil type, crop, required nutrition, and markets.
- Spurious seeds/fertilizer on the market.
- Quantity of harvest in excess of subsistence production too small to be sold.
- Unjustified margins taken by middlemen.
- Little access to financing.
- Agricultural R&D too far from the field and seen as irrelevant.

Solution Provided

Tool quality: Wireless broadband and data connection and mobile hardware running user-friendly applications with single-window interface.

Service quality and comprehensiveness: Integrating the various silos of the agricultural ecosystem, addressing the entire range of farmers' needs for information, expert advice, and trade support (e.g., Internet research on agro practices, conference calls with experts, climate and weather updates, aggregation of farmer demand to lower the cost of fertilizer and seeds, aggregation of farmer supply to sell in bulk to the market, and support for optimal choice of seeds and fertilizers).

Scale and Reach

Number of kiosks: 106.

Villages covered by the service: 3,000.

Number of users: 6,000 in 2011, 50,000 in 2013.

Penetration rate: Maximum penetration (500 users per kiosk) reached after three years.

Users profile: Mainly small farmers with 2-3 acres of land.

Acceptance and Usage

Local entrepreneurs play the role of intermediary between technology and farmer, avoiding IT literacy issues.

Socio-economic Impact

Social outcomes: Anecdotal farmers' testimony mentioning their empowerment. Entrepreneurs' status in the community is enhanced.

Economic impact: Average farmer incomes improve by 50 percent as a result of improved productivity, better prices, and less product lost as farmers cultivate products in demand. Costs are reduced by 17 percent as a result of better input prices and more efficient fertilizer use. eKutir has started putting together the financial records of farmers, which should allow them to gain better access to financial opportunities by enabling institutions to assess their creditworthiness.

Gains in efficiency due to technology: Access to information saves transportation time. Aggregation of farmers for their purchases and sales of crops makes the economic value chain more efficient (e.g., less lost products, aggregated orders and transports).

Environmental impact: Anecdotal evidence of improved water resource management, reduction in indiscriminate use of chemicals, and better use of fertilizer. Promotion of organic farming methods.

Other Impacts

All: Increased transparency and trust in the system.

Agro researchers: Direct link to the field, allowing targeted studies on what is most needed.

Economically sustainable?

eKutir is an economically sustainable venture at the BOP farmer level (income improvement of 50 percent on average), franchisee level (break-even point after 10 months on average), and central organization level (profitable business that generated US$230,000 revenue in 2013).

At the BOP end-user level:

Initial cost: Membership fee of US$2.5/year.

Service cost: Transaction fee depending on services (e.g., 10-20 percent on seed sales, less than 5 percent on fertilizer sales), accounting for around US$8 per year per acre of land. On the other hand, eKutir facilitates a 17 percent reduction in costs for farmers (US$15-$20 per acre for one season).

Average household income for target beneficiaries: US$400-$1,000 per year (proceeds from sales in addition to subsistence production).

Cost of best alternative: The cost of best alternatives is 50 to 100 percent higher than eKutir's costs, e.g., Mandis (government-mandated marketplace) gives up to 80 percent margins to intermediaries.

Income increase: 50 percent on average.

Ability to reach the poorest: Low-end BOP with only two or three acres of land are willing and able to pay for service.

At the local franchise level:

Franchisees revenues: US$2,400 per year on average, up to US$6,000 per year to scale (two to five times average farmers' income). In addition to membership fees of US$2.5 per member, franchisees earn on average US$8 from services provided for one acre of land.

Initial investment and break-even point: First year investment: ~US$500 (IT material and connection, training, and franchise fee) plus US$80/month for operation expenditures; following years, US$170 in franchise fee plus US$80/month for operation expenditures. On average, entrepreneurs reach the break-even point in 10 months (three months to cover annual operation expenditures and seven months to cover initial investment), and then need 200 clients to earn a sufficient attractive income (over US$2,000/year).

Churn: Less than 5 percent per year (after the three-month test).

At the central organization level:

Employees: 50 employees (including eight executives at the head office, 10 IT staff, four field technicians, five agro experts, and 10 marketing department staff)

2013 revenues: US$240,000 in revenues expected for 2013 (versus US$70,000 in 2012), including US$20,000 from franchisee fees, US$150,000 from marketing of agriculture products, US$20,000 from consultancy for e-Agro companies, US$20,000 from One Acre Venture (crowd funding/donor platform launched by eKutir) and US$30,000 from selling stand-alone software.

Cost recovery level: eKutir broke even in 2012.

Initial and ongoing funding: US$1.3 million in seed funding received for pilots. Scaling-up of operations in new geographic areas is ensured by eKutir revenues.

Scalable?

What have been the key challenges and success factors to date for the project?

In 2011, the main challenges were:

Technology: Initial challenges included designing appropriate technology and making sure there was enough connectivity at acceptable costs. Since then the government optic fiber project has made broadband accessible, and moving from laptops to much cheaper tablets and phones has reduced costs (in addition, technology costs went down). Finally, support from Grameen Intel and BOP Connect helped eKutir design appropriate user-friendly applications.

Entrepreneurs: Finding the right entrepreneurs with good ability and a sufficient literacy level was very difficult. eKutir overcame this by setting up well-defined processes, particularly for entrepreneurs' training.

Acceptance by all stakeholders: The eKutir project cannot work without a common agreement among suppliers, buyers, experts, and farmer themselves. Today eKutir is selecting entrepreneurs in the community and working with local leaders to make sure the kiosks are well accepted.

What are key challenges today to scale further?

Human resources: Finding the right entrepreneurs is very difficult because agriculture and social business are not attractive sectors for Indian youth.

Financial resources: Developing additional IT innovations is required but costly.

Regulations: Stabilization of regulations is required to offer microfinance services (there have been many recent changes in microfinance regulations).

Cooperation: New partnerships with development agencies, technology companies, or funding partners would be welcome.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Infrastructure ensuring broadband connectivity at low cost in rural areas.

Legal context authorizing bulk purchaser of agro-products to buy directly from farmers (previously in India all agro-products had to be sold via the government markets, called mandis).

Similar issues for farmers as in the Indian context (*lack of market access and agro-information*), rewarding kiosk users with immediate benefits so that enough of them use the kiosk rapidly and kiosks can break even.

Subsidies or other initial funding mechanisms to support high capital expenditure for developing locally appropriate apps (which takes time) and purchasing the technology.

Additional Information

Exchange rate used for this case study:

Exchange rate used for this case study: 1 USD = 60 INR

Sources:

eKutir website: http://www.ekutirsb.com/.

Interview with K.C. Mishra, Founder and CEO, 12/04/2013.

Leveraging Information and Communication Technology for the Base of the Pyramid, Hystra, 2011, available at http://hystra.com/leveraging-ict.

Contact person for the project:

K.C. Mishra, *Founder and CEO*
kcmishra40@gmail.com

K.C. Mishra

Founder and CEO

A renowned social innovator, K.C. Mishra has 30 years of leadership exposure to rural banking, microfinance, agriculture development, and education, and technology services at the national, regional, and local levels. K.C. Mishra was named an Ashoka Fellow in 2012. An alumnus of Delhi University (DU), he is certified in the "Innovative Organizational Model of Farmers" from the Graduate Institute of Co-operative Leadership (GICL), University of Missouri. K.C. is an honorary trustee to Global Knowledge Partnership Foundation (GKPF), and an Advisor to the BOP Hub.

What are your next steps and future plans?

Regarding the e-Agro project we want to scale up to operate in new geographic areas, with the goal of running 10,000 kiosks by 2015. We are willing to develop our two new projects: 1) ONE Acre Venture, a crowd-funding, value-chain financing platform where social investors can financially support small and marginal farmers; 2) Veggie Kart initiative, a Farmer to the Consumer platform (F2C) ensuring a direct link between farmers and consumers.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

There is huge scope for doing business that makes a difference in the space of broadband economy. Local people's needs must be identified and solved in an ecosystem and market driven approach.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

To shift from a developmental approach to agriculture to an enterprise approach to agriculture. An inclusive market-driven approach with a network of value-chain players networked by broadband will help in addressing the complex problems of agriculture and livelihood.

What support would you request from a public or private donor?

The eKutir model is based on the principles of 'Engagement, Convergence, Connect & Collaborate.' Engagement: A social entrepreneur can only succeed if he engages with the customers, being regularly in touch with them to change their behavior for a better life. Convergence: Addressing a given need requires providing all related services together at the same time (e.g., information on market price is useless if you cannot bring your products to the market, information on best crops and fertilizers must be coupled with access to these crops and fertilizers, etc.). Connect: Using broadband allows connecting all the service providers together and with the users. Collaborate: Collaboration of all the service providers is key to deliver a holistic service as required for Convergence. Both the public and private sectors should participate in this initiative for the benefits of the BOP farmers.

EDUCATION

BUSINESS MODEL LOCAL AGENT
BOP IMPACT STUDENTS
CONNECTIVITY HIGH SPEED

Enova

Educational Resources and Internet Access in Learning Centers Impacting BOP Students in Mexico

Created in 2007 in Mexico, Enova is a social enterprise that offers technology access and affordable e-learning courses with personalized support in digital centers located in BOP communities. Enova has built an innovative tri-sector partnership between several public agencies that fund and evaluate the project, private companies (e.g., Dell, Microsoft, Google) that provide technical assistance, and the Fundación Proacceso, a non-profit organization with which Enova partnered to create public and private alliances. As of December 2013, Enova had welcomed 478,500 users in its 95 centers across the State of Mexico.[14]

14 The State of Mexico, located in the south-central part of the country, is one of 31 states that, with the Federal District, constitute the nation of Mexico.

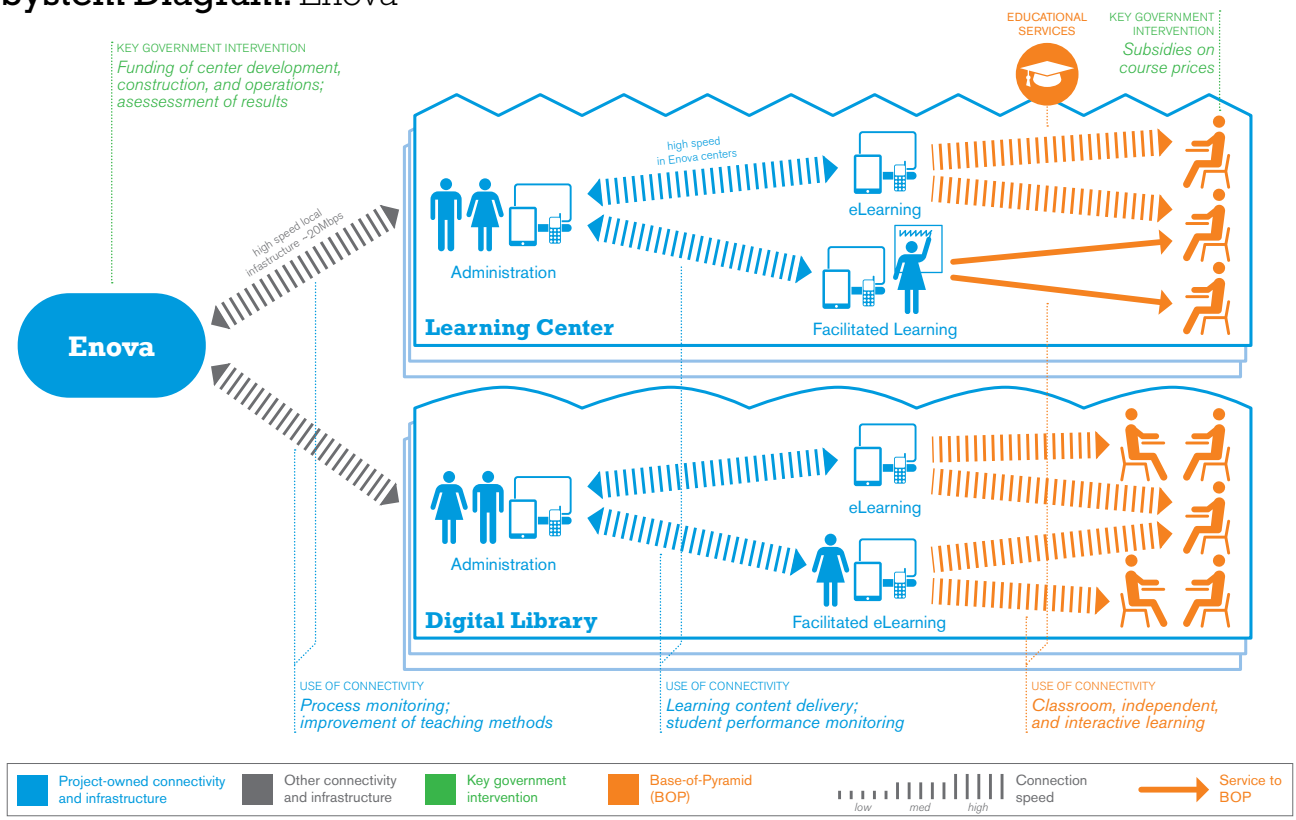
Role of Broadband and Data Connectivity

All Enova centers are equipped with broadband connectivity (up to 20 Mbps), which enables students to get fast access to rich and interactive educational content. It allows Enova to monitor processes and key data on student performance in real time in order to continuously improve its methods. This results in a high-quality learning content available at low cost for the BOP population, whose average household income is US$290 per month, or below US$2 per person per day. This content helps the BOP population improve their level of education, acquire new skills, and get more job opportunities.

Key Success Factors

Enova's success relies on real-time assessment software that ensures that students learn efficiently and that content can be improved based on results. Additionally, Enova managed to build a win-win partnership with the government that reduces costs for end-users by 70 percent compared to alternatives. Meanwhile, the government can offer quality connectivity and content to its poorer citizens at lower costs than through other technology options.

System Diagram: Enova



Implications for Policymakers

Public funding and support was key to enabling Enova to make its services affordable for BOP users. To improve education for the BOP, governments can efficiently complement the public system by partnering with private companies that use high-quality innovative tools.

Website

http://enova.mx

Description of Business Model

History of Organization

Enova is a social enterprise dedicated to improving digital inclusion and education in Mexico. It was created in 2007 by three Mexican entrepreneurs, who initially provided consulting services to the Mexican government on ways to reduce the digital divide in underserved communities, before being hired by the government to create a structure dedicated to this purpose. In 2009, the entrepreneurs launched their first 10 digital centers known today as the Red de Innovación y Aprendizaje (RIA) (Learning and Innovation Network). In their first year of operations, the centers provided educational content and Internet access to more than 37,000 persons at the BOP. Enova partnered with a non-profit organization called Fundación Proacceso, which owns all RIA's assets. The foundation creates alliances with government, executes agreements with sponsoring agencies, and ensures that the project preserves its social mission. Enova's main partners from the public sector are the National and State Councils of Science and Technology (CONACYT and COMECYT), the Sate of Mexico's Council of Culture and Arts (IMC), and the National Ministry of Education. These public agencies, along with independent agencies, evaluate Enova's results and the due management of resources. Private partners include Dell, Intel, Microsoft and Google, which provide technical collaboration and in-kind donations. In 2010, the OECD named the RIAs among the "Compendium of Exemplary Educational Facilities" in the world, and Enova won a US$130,000 prize from the "Iniciativa Mexico." In 2012, its interactive game "Jaguar" ranked second in the Latin American Game Contest, and in 2013 Enova won the Microsoft Education Award at the Tech Awards. Its general director, Moís Cherem Arana, was selected as an "Endeavor Entrepreneur" in 2011, and was twice awarded (in 2012 and 2013) the "Social Entrepreneur of the Year" award by the Schwab Foundation at the World Economic Forum in Latin America. In 2013, Enova was certified as a B Corporation for meeting rigorous standards of social and environmental performance, accountability, and transparency. Enova is now the largest network of digital education in the State of Mexico, with 95 centers having benefited 478,500 people in 50 municipalities. It plans to build 590 new centers across the country and reach 3.5 million people by 2018.

Value proposition

Enova seeks to offer quality education to marginalized people of every age (60 percent of users are less than 25 years old), and especially to out-of-school children and youth and adults who are language and computer illiterate (68 percent of registering users have never used a computer and 73 percent do not speak English). Enova provides digital learning content through:

• *RIAs*, which are learning centers that provide access to the Internet and to 45 courses with different levels (according to age and grade). All users can access courses in technology (basic computing, use of the Internet, introduction to Open Office or Microsoft Office) and in English. Children ages 8 to 12 can follow a 12-week free program called "Expedición RIA" that covers reading, computing, math, and science, as well as courses during holidays in science, art, and technology. Youth and adults have access to online courses (including high school and university level courses) and learning in social studies, personal finance, online job search, social media, personal and community development and digital photography. Other services include printing, scanning, audiovisual equipment, and the renting of facilities, as well as free movie projections.

• *Digital libraries*, which are technology centers equipped with computers, tablets, and e-readers that provide access to RIA services along with online portals, educational applications, encyclopedias, electronic and audio books, banks of articles and interactive resources, etc.

• *A free online platform* called Chíspale that offers 21 innovative educational videogames designed to help children from grades 3 to 6 apply primary knowledge in civics, mathematics, history, sciences, and Spanish acquired through playing the games.

A program lasts on average 105 hours divided into 21 weeks, depending on the subject and level (216 to 360 hours for English, about 30 hours for computing, 100 hours for Expedición RIA).

On average, a user follows five hours of courses per week (lessons last one to two hours). Most programs include one part that is supervised learning and another part that is autonomous practice. Every user gets a grant that subsidizes on average 70 percent of the course cost. Users must pay the remaining cost at prices ranging from US$0.1 to US$1.2 per class hour or US$0.3 to US$3.8 per week for weekly courses (e.g., US$0.3 to US$1.5 for English, US$2.3 to US$3.5 for computing), and up to US$7.7 per week for intensive holiday programs. Fees for children are typically lower than fees for youth and adults. Hourly renting prices are US$7.7 for an auditorium, US$3.8 for a projector, and US$2.3 for audiovisual equipment. There is no local competitor providing similar services at such low cost in poor urban areas (prices are 70 percent lower than other alternatives on the market, mostly paper-based or traditional classes). Centers are highly attractive for users thanks to the low prices, the high quality of the courses and services, and the close follow-up by teachers in small classes.

Technology Aspects

To reach its aim of improving education, Enova leverages the potential of technology through state-of-the-art IT infrastructure. All centers are equipped with PCs connected to the Internet, along with tablets and e-books in digital libraries. Internet speed depends on local infrastructure and is typically 20 Mbps for download and 5 Mbps for upload. This enables students to get fast access to interactive learning content on innovative support platforms, without losing time. To evaluate its impact and ensure the quality of educational content, Enova's in-house technology team developed a software platform called Mako that assesses and records students' performance on each course according to various indicators (time spent, difficulty of subject, number of mistakes, skills acquired, etc.). This allows students to follow their progression, and the IT team to continuously improve the teaching tools. Mako also helps Enova monitor administrative processes, teacher rotation, scheduling of courses, sales, scholarships, etc. To ensure data security, central platforms control all servers and a technical team monitors the hardware, operating systems, and telecommunications services. Users register safely via a unique authentication (personal user name and password) that is encrypted and stored in Lightweight Directory Access Protocol. Facilitators are trained in using Mako as a support for classes.

Overall, via technology and broadband, Enova enables the BOP population to get fast access to new services and rich educational content, which helps them acquire new skills and hence access more economic opportunities. Technology also allows Enova to constantly monitor processes and improve its services in real time.

Business Design

Operations and distribution: Enova designs, builds, and operates the centers, investing in infrastructure, connectivity, content, and training. It locates its centers strategically in the most densely populated BOP areas following an in-depth urban study that considers population density, income and education levels, public schools, commercial buildings, public transport systems, green areas, road access, etc. Whenever possible, centers are built in existing buildings, such as public schools. An RIA is typically composed of three classrooms, a multi-purpose room, a projection room, a supply store, and a waiting area. On average, it is equipped with 38 computers (36 for users and two for staff) and can serve up to 5,000 users annually within a radius of 2 km. A digital library typically features 50 computers and five tablets or e-readers, and benefits on average 1,700 students in a radius of 3 km. In each center, an attendant welcomes users and registers new members (name, age, and a self-evaluation of English and computing skills), who receive an ID member card. The facilitators (three in RIAs, two in digital libraries) typically teach two to three classes per day with 8-10 students per class, provide learning support, and collect students' feedback. At the regional level, a team of promoters invites the communities to join the centers and creates local partnerships, technical staff provides tech assistance, and supervisors control the educational and operational quality. The centers are opened every day with peak hours between 2 and 7 p.m. Each center adapts its course schedule to local demand. Users graduate from their course if they attend 80 percent of the program and take the final exam, though it is not an official diploma.

Staff recruiting and training: A key to Enova's growth is to have highly competent staff with both technical and educational skills. All the facilitators graduated in education or pedagogy. Selected applicants go through an interview with human resources, a psychometric test, a technical examination (for English teachers), an interview with the Head of Operations and with Academic Coordinators (for English and computers), and a demonstration class. Recruited facilitators then get trained by Enova to strengthen their academic knowledge and skills, and learn to teach with technology and manage the centers. Facilitators must train over 90 hours during the first year (40 hours in person in the RIA and 50 hours online) and are supported by a coach. Enova also plans to open a Virtual Training Center to provide every hired facilitator with 120 hours of training, available from any computer. The training will include 60 hours of compulsory basic training for all facilitators (in center management, teaching with technology, basic digital skills, etc.) plus 60 hours of training in teaching academic content.

Marketing and consumer education: Enova is still strengthening its marketing strategy, which is so far mainly focused on promoting the centers among neighboring schools and on leveraging word-of-mouth between children and parents (the vast majority of users became aware of the centers through word-of-mouth). Interested persons can call a phone number or access the RIA website to get information on the closest center in their neighborhood. The centers are supported by a call center that provides customer assistance and outreach.

Business model: The project is funded by various sponsors from the public and private sectors and civil society. In 2012, 85 percent of total revenues came from government, 5 percent from private companies or NGOs, and 10 percent from users. Among public sponsors, CONACYT pays for the design and construction of the education centers, while state agencies (COMECYT and IMC) fund center operations. NGOs and private sponsors include Dell Mexico, Televisa, Financiera Independencia, Adobe, Microsoft Mexico, and Impulsora de las Culturas y de las Artes, among others. Enova also receives in-kind donations from Librerias Gandhi, Cengage Learning Editores, Dell Mexico, Microsoft Mexico, Google, and E-Source Capital. Regarding user fees, centers operate under a pay-as-you-go model: users pay every week in cash for the courses they attend. There is no strict payment policy, as amounts are small. As centers are located in BOP areas, grants are provided to every user without any selection criteria. This drives the user payment down to 30 percent of the average course price.

Policies and regulations: Political support is a key determinant of Enova's growth, given the large share of government funding in its revenues. Enova has a renewable yearly contract with the government, although the risk of ending public funding is low: digital libraries are part of the state's development plan and the company´s projects have consistently presented positive results. Besides, any public program seeking to implement more IT in schools (such as the "One Laptop Per Child" program that is currently in a pilot phase in Mexico) represents an opportunity for Enova, as it increases demand in computer training for adults.

Other ecosystem aspects: According to the OECD, the telecommunications network in Mexico is very costly for a low quality of services. As there is currently only one technology provider for connectivity, more competition would allow for decreasing connectivity costs (which account for 3.78 percent of total annual costs for Enova) and slightly improve the profit margin.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

Mexico suffers from very low levels of digital inclusion and elementary education: 69 percent of the population (i.e., 86 million people) do not have access to a computer or the Internet at home (this proportion runs as high as 80 percent in the neighborhoods where Enova operates), according to the OECD. Due to insufficient competition, broadband penetration is very low at 10.6 percent for fixed broadband subscriptions and 4.6 percent for mobile broadband subscriptions (Broadband Commission, 2012), and consumer prices are high at US$1.69 per Mbps versus US$0.51 on average among OECD countries. When it comes to education, 75 percent of Mexican students who start elementary school do not graduate.[15] The level of literacy is critical in the State of Mexico, which is ranked 25 out of 32 states in the country in terms of elementary education.

Solution Provided

Tool quality: Centers are easily accessible in BOP neighborhoods, highly equipped with modern IT infrastructure, and offer personalized support to ensure proper use.

Service quality and comprehensiveness: Wide range of courses from basic education to technology and personal and professional development.

Scale and Reach

Total number of service delivery points: 95 centers (70 RIAs and 25 digital libraries) in 50 municipalities in the State of Mexico, with a total of 259 classrooms, 3,716 computers, and 150 tablets. Twenty-five new digital libraries and six new RIAs are planned for 2014. In addition, 30 new centers are under discussion in other states for 2015 (the national expansion plan aims to build 115 additional centers by 2015).

Total number of users: 478,500 users and over 140,000 graduates since 2009. In 2013, ~12,500 active users per month on average (who come for any service or Internet access) and 8,700 active students per month (who come to attend courses). An average of 8,400 new subscribers per month in 2013.

Rate of penetration in target communities: 4.44 percent

Growth rate over the past three years: Compound annual growth rate of 31 percent in users (2010-2013) and 65 percent in revenues (2009-2012)

Acceptance and Usage

Acceptability: Interactive and rich content, in-depth training, and in-person support facilitate the use of technology,

Usability: Retention rate for all courses during 2013 was 68 percent (higher for computer classes, lower for children, mainly due to parents' inability to take them to the centers regularly).[16] On average, a user comes regularly to the center during seven weeks. The graduation rate is 67 percent.

Socio-economic Impact

Social outcomes: For children: improved education levels (improvement by 7 percent in math and 6 percent in Spanish in national score examinations for 4th grade children after the 12-week Expedición RIA program).[17] For adults: new or better skills in personal and professional development, higher level of self-esteem and motivation, reinforcement of community spirit through digital interactions (e.g., e-mails and videogames), and cheaper access to entertainment (e.g., movie projections).

Economic impact: Increased likelihood of obtaining jobs (RIA helped about 9,000 people find a job and it multiplies employment chances by close to four times over for women) and higher potential revenues due to a higher level of skills: average increase of US$60 in annual lifetime earning potential by attending RIA and of US$300 for children with one parent also involved with the RIA. Overall, every US$1 invested in RIA by the Fundación Proacceso generates US$1.74 in economic growth.[18]

Gains in efficiency due to technology: Wider and easier access to information and communication, time saving in job search, and higher quality of educative content.

Environmental impact: Centers are built with sustainable materials: panels are made with oriented strand board (compressed wood from construction waste) and chairs from recycled plastic. Most centers are renovations of preexisting buildings used to reduce waste and construction time. Architecture is modular, allowing for easy reconfiguration without wasting materials. Centers use energy-saver light bulbs, solar panels and separate recyclable waste.

Other impacts: In 2013 Enova was certified as a B Corporation for meeting rigorous standards of social and environmental performance, accountability, and transparency. The Global Impact Investing Rating System rated Enova in 2013 with an above average performance of 3/5 in terms of impact on governance, community, and workers. Great Place to Work ranked Enova among the 50 best companies to work for in Mexico.

15 According to a study by Mexicanos Primero entitled *Contra la Pared 2009*.

16 The retention rate is computed as the number of people who come to classes for more than one week out of the total number of registered users.

17 According to an external impact evaluation conducted by the IDEO Foundation in 2012.

18 According to an independent study, the Social Return on Investment (SROI) Evaluation conducted by a working group from the University of Pennsylvania between May 2009 and May 2011.

Economically sustainable?

Enova's business and financial model are supported by funding from government and sponsoring agencies. It generated US$16.5 million in revenue in 2013. At the BOP level, services are affordable thanks to public subsidies on course prices. The facilitator job is attractive, with a competitive wage.

At the BOP end-user level:

Initial cost: No subscription fee. Enova allows for a gratuity service of five Internet hours.

Direct cost of services: US$1 to US$15 per month according to the course and level.

Additional indirect cost: English classes for youth and adults may require buying books (US$17 compulsory for 1st level, US$26 facultative for levels 2-5), though they may be borrowed within the RIA.

Average household income for target beneficiaries: US$290 per month.

Cost of best alternatives: Typically three times more expensive than Enova services.

Ability to reach the poorest: 100 percent of users are from the BOP and receive grants to afford the service.

At the facilitator level:

Monthly revenues: Between US$415 and US$646, plus bonuses based on punctuality (3 percent of monthly salary), attendance (3 percent), and productivity (equivalent to 1-4 monthly wages, according to performance), along with vouchers (US$63 per month) and saving funds (5 percent of monthly wage).

Why it is attractive for them: Salary is competitive (average increase in annual salary for employees in comparison to previous jobs is US$685)[19] and centers are typically close to the facilitator's home.

Loyalty/churn: Attrition rate is 35 percent annually. Human resources are considering additional benefits to reduce it.

19 According to the SROI evaluation (see previous footnote).

Scale and BOP Reach

Enova has 478,500 users in 95 centers across the state of Mexico. All are from the BOP and most are computer illiterate.

Sustainability

Enova has covered most of its costs since inception thanks to funding from government and sponsoring agencies. It generated $16.5 million in revenues in 2013. At the BOP level, services are affordable thanks to public subsidies on course prices. The facilitator job is attractive, with a competitive wage.

Replicability

Replication requires strong support and funding capacity from the government over the long term, as well as the availability of affordable broadband or the ability to cover high connectivity costs.

At the government level:

Initial cost: About US$385,000 invested per new RIA, and US$770,000 per new digital library (typically bigger than RIAs).

Direct cost of services: Operational costs per center are on average US$7,700 per month (including local rent, electricity, security, salaries, supplies).

Avoided costs from this service: Program chosen for its cost efficiency compared to other programs of digital inclusion.

At the central organization level:

Total number of people employed: 601 employees: 166 by Enova and 435 by the Fundación Proacceso in operations (including 71 center attendants, 70 academic advisors, and 219 facilitators).

Revenues: US$16.5 million in revenue in 2013, US$21.9 million in revenue expected in 2014.

Cost recovery level: Break-even level reached one year after construction is completed. Renewable yearly government contract that covers most of the project costs.

Total investment required: Creating 70 RIAs and 25 digital libraries has required an investment of US$33 million since 2009, while operating each center costs an average of US$11,153 per month.

Scalable?

What have been the key challenges and success factors to date for the project?

Introducing a new offering and conveying the value proposition: As Enova services and the subsidized model were new in BOP areas, the company had to overcome trust issues. It communicated carefully to explain how IT skills could help its potential users improve their future prospects, and why its services were so cheap. Enova tailored its offerings to various audiences to satisfy the needs of a large share of the population (including housewives and children), and early adopters helped spread the word and build trust in the community.

Gathering a young and talented team to be connected to the users: The Enova team's average age is 28, which allows them to connect well with young users and brings a fresh perspective to their needs.

Attracting housewives and children to the centers: Women were especially difficult to reach as they are the furthest from technology, they feel intimidated, and bringing their children to the centers requires a considerable time commitment (transportation, waiting for the children during their courses, etc.). Enova succeeded in convincing many housewives to sign up and bring their children (56 percent of RIA users are women).

What are key challenges today to scale further?

Standardizing for scale while customizing the value proposition to be attractive to enough users: Cultural differences are large in Mexico, especially between the North (close to the United States, with higher expectations about technology) and the South (more rural). As Enova is standardizing its model for national expansion, it has to remain sensitive to local preferences to offer the best value proposition to each profile (e.g., teaching more complex technological skills in urban areas where demand in IT jobs is higher).

Getting high-quality technology with limited resources: In order to lower its costs while leveraging modern IT infrastructure, Enova uses open-source technology to develop its own software. However it will require more resources to develop further and provide high-quality services on a large scale.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Support and funding from the government: Enova would not have been able to build its model at affordable prices without support from the Mexican government. Its model requires a government receptive to collaboration with the private sector and with the willingness and the financial capacity to invest in the project in the long run.

Availability of affordable broadband or ability to cover high connectivity costs: Enova works in a difficult broadband context with low speed and high costs (it often has to pay the provider for last-mile infrastructure or use expensive satellite technology), and requires strong funding support to be able to pay for it.

Additional Information

Exchange rate used for this case study:

1 USD = 13 MXN

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Moís Cherem Arana

Partner and CEO

Moís Cherem Arana is Founding Partner and CEO of Enova and has received several prestigious awards for his work. He was selected as an Endeavor Entrepreneur and as one of the top 10 entrepreneurs in Mexico by the Mexican magazine Expansion, and he joined the World Economic Forum's community of Global Shapers. He was also awarded the title of Social Entrepreneur of the Year by the Schwab Foundation at the World Economic Forum on Latin America in 2012 and 2013. Moís studied law at the Instituto Tecnologico Autonomo de Mexico and earned a Master's in Public Policy from the Harvard Kennedy School.

What are your next steps and future plans?

We plan to expand first within the State of Mexico, by implementing 25 new digital libraries and six new RIAs in 2014. The next step will be to expand nationally: we are already discussing the building of 32 new centers. In total, we plan to open 85 centers within the country by 2015. In the long term, we aim to build 590 new centers and impact 3.5 million people by 2018.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

First, you need to build a model that answers local needs. Our model could work in most Latin American countries in communities that are aware of needing better education and new skills. Once you focus on local needs, then it is all a matter of implementation. You need to build trust among your customers and partners by implementing your model well. In our case, building trust in our relationship with the government was key and we did it by always achieving what we promised and many times over-delivering. You also need to recruit the best potential talent to manage the initiative. Many of our workers are women with a college education. We look for people who do not necessarily have IT skills (which are easy to teach) but rather a strong social vocation and great human skills.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

For governments, partnering with private sector and civil society players is crucial, because they cannot do everything alone. Most IT education initiatives led by governments alone have failed. Policymakers have to set clear goals, responsibility, and accountability mechanisms with their private sector partners, but also give them breathing space on processes and flexibility to innovate. For instance, Enova has total control on school location, curriculum content and how it organizes teachers' training.

Policymakers also need to be aware that although the broadband markets will increase their penetration quickly, the population in the bottom half of the income distribution will find it difficult to pay for Internet services. Therefore, alternative mechanisms such as the RIA can make digital inclusion feasible for those who would otherwise be left out of the information society. Secondly, satellite connections are often the only ones available in rural areas. They are very expensive (over $700 monthly) and the quality is very poor (less than 1 Mb per school). Therefore, carriers need to be pushed to comply with their legal obligations to foster social connectivity through other technologies. Finally, as the technology companies are increasing the use of video and are relying more on cloud services, decent broadband connections are becoming even more essential for the learning process.

What support would you request from a public or private donor?

It is necessary that high-net-worth individuals realize that they need to get more involved in filling the economic gap and solving social conflicts in Latin American countries. Then, depending on their position in society they can play different roles. Private companies could help and have helped our model by giving free licenses: it is a win-win partnership as they make new users experience their products with no marginal costs. Involving high-ranking employees from large corporations to support our projects would also be very useful: we and our users have a lot to learn from their experience, while these employees usually like to feel involved in solving social issues through their skills. In our case, working with Endeavor fellows helped us a lot to redefine our strategies and goals. I encourage everyone to be very ambitious, as we need to take bold initiatives to address the digital divide and live in a Latin America that is more connected and equal.

FINANCIAL

BUSINESS MODEL LOCAL AGENT
BOP IMPACT CONSUMERS
CONNECTIVITY LOW TO HIGH SPEED

FINO PayTech Ltd.

A Payments Technology Company for the Unbanked and Under-banked in India

FINO PayTech Ltd. (FINO) is a business and banking technology platform created in 2006 in India. It deploys technologies such as biometric devices and transaction systems as well as a network of Business Correspondent called bandhus who provide financial services to remote customers on behalf of banks, insurance companies, and governments. As of January 2014, FINO had served more than 72 million persons at the BOP in rural and semi-urban regions across 26 states of India.

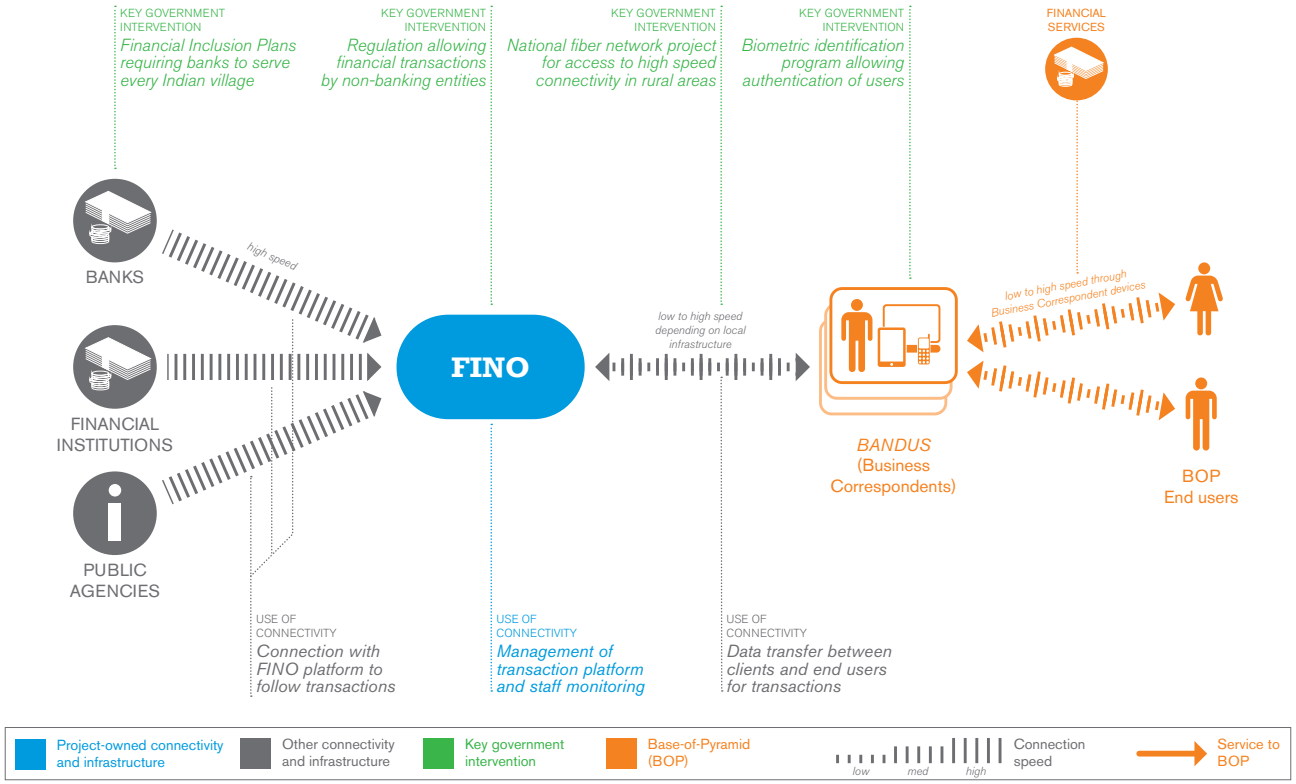
Role of Broadband and Data Connectivity

The use of second- and third-generation-enabled devices allows for collecting and transferring data on enrollments and financial transactions in real time between customers and the banking system. This results in higher efficiency for financial institutions and government agencies because it enables them to reach new customers and beneficiaries at lower costs. Consequently, it results in more financial inclusion for remote customers who can now access affordable financial services.

Key Success Factors

FINO's success lies in its ability to leverage technology and existing levels of connectivity (from general packet radio service [GRPS] to broadband) to address existing bottlenecks in the financial sector (e.g., high costs for branch banking, especially in remote areas), as well as its ability to take advantage of favorable regulations promoting financial inclusion (e.g., Financial Inclusion Plans (FIP-1 & FIP-2) launched by the Reserve Bank of India). FINO also managed to overcome traditional hurdles in BOP markets, such as the lack of formal financial education, by conducting financial literacy programs, and the lack of connectivity, by integrating an offline mode on its mobile devices.

System Diagram: FINO PayTech Ltd.



Implications for Policymakers

FINO's story is emblematic of how an active commitment from the government – through investments in broadband infrastructure, as well as incentives and constraining policies to serve the BOP – creates business opportunities and lowers costs, allowing a financial inclusion industry to emerge. In FINO's market, this push allowed various stakeholders including the government itself to reach more people and in particular remote customers, who are now better included in the formal economy.

Website

www.finopaytech.com

Description of Business Model

History of Organization

FINO PayTech Ltd. (FINO) is an institutional-investor-driven company with a strong board and management. It was established at the ICICI Bank in July 2006 to act as a technology provider to banks and microfinance institutions, promoting low-cost payment solutions in India. It is now a business and banking technology platform with an extensive services delivery channel. Through the FINO Fintech Foundation, a Section 25 company created in 2007, FINO is dedicated to improving financial inclusion and financial capability, especially for rural customers, through a network of over 30,000 active Business Correspondents acting as mandated banking intermediaries. FINO started taking over banks' front-end operations and doing the due diligence to bridge the access deficit by onboarding previously unbanked and under-banked masses and offering them four basic financial products: savings, credit, remittances, and insurance. FINO largely extended the range of services starting in 2009 when the Reserve Bank of India (RBI) launched a national Financial Inclusion Plan. As of January 2014 FINO's clients included 24 banks, 10 microfinance institutions, 14 government entities, and six insurance agencies. FINO has implemented financial literacy programs in collaboration with entities like Citi Foundation Financial Capability Fund, UNDP-NABARD (National Bank for Agriculture and Rural Development), MFO-Mastercard Foundation, World Bank-IFC, OECD Fund for Financial Literacy, Microfinance Opportunities, NABARD, and several Indian Banks. FINO received the Forbes India Leadership Award 2012, the 2011 Young Global Leader Award by the World Economic Forum, the Bloomberg-UTV CXO Award 2011, the FT/IFC Sustainable Banking Awards, the Banking at the Bottom of the Pyramid Award 2010, the Skoch Financial Inclusion Award 2011, the Manthan 2010 Award, the eIndia Health Award 2010, the INTEL Duet Award, the Frost & Sullivan South Asia Product Line Strategy Award, the Excellence in Innovation Award at the Indira International Innovation Summit, and the Edge Network honors. As of January 2014, FINO served 72 million customers in 26 states of India. Consulting services and technology solutions are provided in neighboring countries such as Nepal, Bangladesh, and Sri Lanka.

Value Propositions

FINO provides technology solutions to government entities and financial institutions such as banks, microfinance institutions, and insurance companies (hereafter "clients") to perform field operations and biometric authentication. Through the FINO Fintech Foundation, it also provides a service delivery channel through a network of field agents, known as Business Correspondents (also called bandhus), who act as intermediaries between clients and end-users (hereafter "customers").

Clients: Whereas FINO clients used to face high costs of customer acquisition and servicing, FINO provides them with systems that are flexible, customizable, scalable, and ready for deployment to reach the BOP at lower cost:

Hardware solutions: A full suite of biometric products for enrollment, storage, and verification – including hand-held devices, laptops and mobiles, biometric smart cards, backend switches, financial institution gateways, and micro deposit machines – enables various remote transactions, reducing the cost of customer acquisition and service distribution.

Operations systems: To collect and make the most of operational data, FINO offers field force monitoring and transaction processing systems.

Consultancy services: FINO PayTech Consultancy Services trains both private and public clients in technology architecture, strategy and planning, implementation, product design, regulation and policy frameworks, channel management, and capacity building.

In addition, clients can mandate FINO Business Correspondents to deliver their products to their most remote customers. Fees depend on the type of services provided, the number of customers served, and the number of Business Correspondents required. For example, partner banks pay 1.75 percent of the amount disbursed to FINO for government social benefit transfers such as MGNREGA wages[20] and social security payments. Similarly, FINO commercial terms vary depending on product type and client for products like remittances, insurance, credit, and basic savings bank deposit accounts.

Customers: Most customers are unbanked. Much of the BOP population lives in rural and semi-urban regions, where financial services are typically limited, expensive, and time-consuming (long delays for service, long travel time to bank branches, etc.). Through field agents, FINO provides:

Financial transactions: Bill payments, remittances, saving accounts (opening, consultation, deposits, and withdrawals), and loans (for individuals as well as microfinance groups).

Electronic services: Mobile and television recharge, ticket booking, and sales of mobile SIM cards.

Insurance schemes: Life and disability insurance, "cashless" health insurance including the Rashtriya Swasthya Bima Yojana (RSBY), and a national health insurance welfare scheme offered to people living below the poverty line (US$0.8 insurance premium for up to US$498 hospital coverage).

Government scheme benefits: Disbursement of MGNREGA payments and social security pension payments

Customers are not charged for any service except for remittances, for which fees range between 1 and 2 percent per transaction (versus 3-6 percent through informal channels). By offering access to formal banking services, FINO enables customers to save costs as compared to informal alternatives. Customers usually start only by opening a deposit account, before upgrading to new services.

FINO has technology leadership on the market of Business Correspondents (direct-to-consumer banking model) with a rural market share of over 65-70 percent. Its competitors include Invest India Micro Pension Solution, Integra Micro Systems, Atom Technologies, A Little World, EKO, TATA Consultancy, and Vakrangee Softwares.

20 MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) is a job guarantee scheme that ensures 100 days of employment in every financial year to adult members of any rural household willing to do public work-related, unskilled manual work. MGNREGA payments are part of the Indian jobs program. Through FINO, participants in the program are able to receive their full payment electronically on their third day of work with no cost to them.

Technology Aspects

At the central level, FINO uses Accounting and Management Information Systems to facilitate and track transactions, and an Internet-based dashboard for monitoring real-time performance of Business Correspondents and analyzing clients. Its technology platform can support multiple front-end transaction points and is fully integrated with clients' back-end systems to allow interoperability.

At the Business Correspondent level, a mobile phone and a Bluetooth-enabled printer serve as handheld Point-of-Transaction (POT) terminals that allow correspondents fill out online applications, take and send photos, carry out transactions, pay bills, etc. POT terminals are GPRS-enabled to transfer the data collected over the Internet to the banking system and to FINO's central platform. They require a minimum connectivity of 256 Kbps (which is typically available in the field), but can use an offline mode to store the data collected if connectivity is too low on-site, before transferring data whenever a connection is available. Business Correspondents use a personalized smart card to authenticate themselves before using the device.

At the customer level, biometric smart cards allow consumer authentication (through customers' fingerprints and photo) and data registration (demographic and financial details), linked to the host bank's online system. Each card memory is able to support 10,000 transactions for 10 years; data remain stored in the servers of the bank and of FINO, and can be retrieved in case the card is lost. Whenever a transaction is completed, customers can get an SMS message on their mobile phone so that they can collect the money.

Data security management is done by a Centralized Processing Centre (ISO 27001 certified). All innovations are developed in-house. A team of FINO tech executives in each zone is responsible for tech maintenance and troubleshooting. The network of Business Correspondents and partners is trained in POT terminal use and maintenance, and customers are trained on how to use smart cards for transactions.

The use of technology enables clients to uniquely identify customers, record their transactions over time, and improve the efficiency of client servicing. More specifically, using Internet allows for connecting remote customers with financial institutions (for banking services), firms (for merchant and bill payments), and relatives (for remittances). It results in higher financial inclusion and higher trust for banks in serving remote clients. Upgrading to broadband allows for providing more real-time services (rather than waiting for accessing connectivity to transfer data)

Business Design

Operations and distribution: Services are provided through FINO's Business Correspondent network. FINO's Block Coordinators act as an immediate supervisory layer, and they are in turn monitored by District Coordinators and state- and central-level monitoring teams, themselves supervised by vertical heads and top management executives. Around 30,000 active Business Correspondents are deployed across 499 districts, with a density that allows for each to earn enough money (on average each correspondent caters to ~1,000 customers in two to three villages). Business Correspondents are local people who are formally educated and have a good reputation in their villages. They are selected, trained, and appointed by FINO. Each correspondent provides services for one specific bank that has the mandate from government to deploy its services in its district (though intra-operability enables customers to use their bank card and account in any district). Business Correspondents are in charge of identifying, enrolling, and servicing customers. They work out of a Customer Service Point, i.e., any FINO and partner bank co-branded convenient location (e.g., their home, a central village building, or a mom and pop store). Close to 60 percent of Business Correspondents are mobile and visit customers at their doorsteps; 40 percent are stationary and operate only out of their site, where people come to carry out transactions.

Staff recruiting and training: FINO recruits Business Correspondents from among local residents in nearby villages and areas. Correspondents include farmers or small shopkeepers, most of whom were previously unemployed or underemployed. It leverages local mass media to raise awareness about job vacancies. FINO selects applicants via a two-round process. First, applicants are rated on various criteria (familiarity with local geography, culture, and people, tenure of stay, technological and soft skills, etc.), and verified with local community stakeholders (e.g., village heads, school teachers, government officials, and police). Then, selected applicants follow an induction process composed of classroom and on-the-job exposure, conducted by a Channel Empowerment and Management Team. A new selection round is run, and approved candidates take three days of training in soft skills, customer service, basic banking, POT machine handling, technical troubleshooting, cash management, etc. A final examination serves to select the new correspondents who will be deployed in the field. The correspondents are then closely monitored via an SMS-based system and by the Block Coordinators, who visit each correspondent every other day, collect excess cash (over US$83), or deliver new cash (if withdrawals exceeded deposits). Thirty-nine percent of FINO agents are women.

Marketing and consumer education: FINO promotes its services through village and door-to-door visits, posters at bus stops, leaflets, and other visual advertisements. A team of 500 persons is in charge of customer acquisition, successively moving from one district to another according to mandates obtained from banks. FINO advertises its presence one to two days in advance, and can process up to 200 enrollments per day. During the enrollment process FINO takes pictures and issues smart cards for each customer. In parallel, the FINO Fintech Foundation conducts financial literacy programs to teach skills for good money management practices, with the support of audio-visual media, brochures, and comic books (sessions are also open to non-FINO customers in the area). Business Correspondents themselves are also trained in raising financial awareness and literacy among their customers, which results in more transactions and commissions. The choice of correspondents among trusted members of the community, including 39 percent who are women (perceived as more trustworthy than men), helps establish trust in FINO. To ensure trust in technology, transaction receipts are emitted instantaneously and local technicians are available in each district in case of technical issues. For e-banking services, a call center answers customers' queries.

Business model: FINO's main revenue sources are ongoing rental fees (for space on their back-end system and for POT terminals), annual maintenance fees for the terminals, new card issuance fees, enrollment charges, and sales of POT terminals. About two-thirds of revenues come from RSBY insurance and electronic benefit transfers (social security payments, MGNREGA, etc.) and one-third comes from basic saving bank deposit accounts, remittances, credit, non-RSBY, insurance, etc. Clients are charged on transaction- and disbursement-based models. FINO has foolproof and ultra-secure cash management processes in place. When a Business Correspondent records a payment, his or her device instantaneously generates a receipt with the amount of the transaction and sends it to the cash management monitoring team, which monitors field transactions and takes all necessary steps as per set processed.

Policies and regulations: FINO obtained official authorization to conduct financial transactions for nonbank entities, ratified by the government in January 2006 (Reserve Bank of India [RBI] guidelines that allow banks to use the services of a third-party to expand coverage), and obtained accreditation for financial literacy from NABARD in early 2011. It has received strong support for promoting financial inclusion from government agencies and public sector banks. In addition, new policies and regulations are significantly impacting FINO's business. A recently released RBI report on comprehensive financial services for small businesses and low-income households holds great promise for FINO as it aspires to become a payments bank in the future.

Banking deployment: In 2010, RBI launched the Financial Inclusion Plan (FIP) that mandates banks to provide banking services (opening branches or deploying Business Correspondents) in each village of India by 2015. The first stage of the plan (FIP1) resulted in the deployment of banking outlets in 268,000 new villages, among which 221,000 are served by Business Correspondents. The next phase of the plan (FIP2) will focus on 74,000 villages with less than 2,000 people. As these villages will be mostly covered by Business Correspondents, this plan is a significant opportunity for FINO, which is the leader in this market. According to RBI's report on comprehensive financial services for small businesses and low-income households, every citizen above the age of 18 should have access to a Universal Electronic Bank Account with a banking retail outlet at a distance of a maximum 15 minute walk from home by January 1, 2016.

Biometric authentication: In 2013, the Unique Identification Authority of India launched a new system of online authentication, having thus far registered 400 million citizens with demographic and biometric data. Consequently, FINO has developed the expertise to link bank accounts to Unique Identification Authority of India numbers.

ATM penetration: Nonbanking entities can now operate white-label ATMs, which will increase ATM penetration in the country (112 ATMs for 1 million people versus 1.734 in the United States).[21]

Broadband infrastructure: The Indian government has announced its intention to bring the Internet to 600 million citizens by 2020.[22] In 2013, the government launched the National Optical Fiber Network (NOFN) Project, which aims to connect over 200,000 gram panchayats[23] with optical fiber by 2016 (at least three Internet connections and one Wi-Fi hotspot in each gram panchayat). Service providers are given nondiscriminatory access to the fiber network. The cost of the NOFN project is estimated at US$4 billion. With broader access to broadband, more FINO services will become accessible in real time.

Other ecosystem aspects: As connectivity is improving, people are increasingly able and willing to use digital money for all types of payments (including directly at retail outlets), which will drive FINO business strategy.

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21 World Bank Databank, Automated Teller Machines (ATMs) (per 100,000 adults). http://data.worldbank.org/indicator/FB.ATM.TOTL.P5.

22 Nachiket Mhatre, "The State of Internet Connectivity in India" Tech 2, March 23, 2013. http://tech.firstpost.com/news-analysis/the-state-of-internet-connectivity-in-india-82006.html.

23 The smallest Indian administrative division, typically three villages of 200-500 households each.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

There are 500 million unbanked people in India (40 percent of the population, 60 percent in rural areas), and some 400 million internal migrants, among whom 70 percent use informal channels for remittances at high cost. Financial institutions face barriers to serve them: illiteracy, inadequate infrastructure, and low margins due to small transaction size. In addition, there is often an issue of mistrust on both sides.

Solution Provided

Tool quality: Widely available through a far-reaching network of Business Correspondents, secure and flexible systems, and robust POT devices that can be used in all conditions and easily transported.

Service quality and comprehensiveness: Full range of services for financial identification, insurance, credit, deposits and investments, savings accounts, remittances and government benefits.

Scale and Reach

Total number of service delivery points: 30,000 active Business Correspondents in over 50,000 villages across 499 districts of 26 states.

Total number of users: 72 million customers (including 26 million enrolled in RSBY health insurance and 45 million with bank accounts, among which 22 million receive electronic benefit transfers from government schemes, 2.5 million receive remittances, and 1 million have a loan); ~50,000 enrollments per day, 1.5 million per month; a target of 100 million users by 2015.

Total number of transactions: 4.5 million transactions per month, over 5,000 remittance transactions per day.

Rate of penetration in target communities: Depends on mandate of enrollment in each state.

Growth rate: Compound annual growth rate of 56 percent between 2006 and 2012; 1.5 to 2 million new customers per month.

Acceptance and Usage

Acceptability: Good fit with people's habits and preferences – Business Correspondents work in local languages and with customers nearby, minimizing customer travel time.

Usability: High usability, overcoming literacy barriers through intermediary agent; 30 to 40 percent of opened accounts are active in a particular year.

Scale and BOP Reach

FINO has served 72 million people in rural and semi-urban regions across 26 states of India. Most customers are from the BOP and were previously unbanked.

Sustainability

FINO has a profitable business model that generated $55 million in revenues in 2012-2013, attracting many investors including the IFC, PE Funds, and public and private sector banks. At the Business Correspondent level, net income is typically low and drives correspondents to work part-time to get additional sources of revenues. Financial services are affordable for the BOP, on average 10 times cheaper than traditional banking services.

Replicability

Replication requires strong government incentives for financial inclusion to push financial institutions to serve remote areas, a national authentication system to secure transactions, and a sufficient network infrastructure to operate data transactions at local level.

Socio-economic Impact

Economic impact: Access to new or cheaper financial services for 72 million people; ~33,000 people employed; income generation (particularly for women, who account for 39 percent of Business Correspondents); lower transaction costs for clients; and opportunities for microfinance institutions to attract more capital and increase credit offering.

Social outcomes: Access to health, life, and disability insurance.

Gains in efficiency due to technology: Higher efficiency and productivity for clients thanks to real-time transactions, cheaper customer enrollment, and improved transparency.

Economically sustainable?

FINO has a profitable business model that generated US$55 million in revenues in 2012-2013, attracting many investors including IFC, PE Funds, and public and private sector banks. At the Business Correspondent level, net income is typically low, which drives correspondents to work part-time to get additional source of revenues. Financial services are affordable for the BOP, on average 10 times cheaper than traditional banking services.

At the BOP customer level:

Initial cost: No registration cost to end-customers (borne by clients).

Direct cost of services: Free deposits, withdrawals, and electronic benefit transfer services. Other service (remittances, insurance, etc.) fees variable between banks (e.g., US$0.08-$0.1 per transaction cost on average).

Additional indirect cost: No transport costs thanks to POT devices.

Average household income for target beneficiaries: 68.8 percent of the Indian population living on less than US$300 per household per month.[24]

Cost of best alternatives: Traditional banking services are on average 10 times as expensive as FINO services. For instance, informal remittance fees range from 3 to 6 percent (versus 1 to 2 percent through FINO), and transaction costs in the banking system are US$0.8 to US$1 (versus US$0.08 to US$0.1 through FINO).

Ability to reach the poorest: Most customers are living below the poverty line and were previously unbanked; 90 percent of them live in rural areas.

At the Business Correspondent level:

Wage structure: Guaranteed fixed salary depending on location and bank mandate, plus variable commissions (on account opening, transaction completed, insurance product sold, etc.), motivating Business Correspondents to recruit and educate users on FINO technology.

Monthly salary: Highly dependent on local wage structure, hours of work, and sales performance. Most Business Correspondents work part-time, earning US$30-$70 per month on average.

Initial cost: US$150-$250 to join FINO, for inventory (POT), and mitigating cash risk.

Loyalty/churn: General attrition rate is 20-22 percent. Main reasons for leaving are low direct income, migration of husbands to urban areas, and pregnancy among women Business Correspondents (39 percent of correspondents are women).

At the client level:

Direct cost of services: Depends on type of product and the number of customers and Business Correspondents required (e.g., US$0.20-$0.40 per new opening plus US$17-$33 per month per agent deployed). For electronic benefit transfers, 1.75 percent transaction fee.

Avoided costs: Traditional high banking costs (paperwork, transportation costs, branch costs, etc.).

Additional sales from this service: New clients, previously unreachable.

At the central organization (FINO) level:

Total number of people employed at the central level: 3,000 direct employees, 30,000 agents (part- or full-time).

2012/2013 revenues: US$55 million in 2012-13.

Cost-recovery level: Broke even in 2011:Q1, cash positive since Q4 2009.

Initial funding: Initially established at the ICICI bank (US$1.7 million in September 2006), then raised money from ICICI Lombard (US$83,000 in 2007), IFC, Legatum and Intel Capital (US$15 million in June 2007), HSBC Private Equity (US$15 million in 2009), and Blackstone (US$30 million in 2011).

Ongoing funding: Investors include public sector banks (Corporation Bank, Indian Bank, Life Insurance Company of India, and Union Bank), private sector banks (HSBC, ICICI Group – the first historical investor, as ICICI bank ran the project until April 2006), international agencies (IFC), and other private investors (Intel, Blackstone, Headland Capital Partners, IFMR Trust, affiliated with ICICI). No current operating subsidy for core business. Technical assistance from the World Bank IFC, UNDP-NABARD, and Microfinance Opportunities to develop financial literacy programs.

Cost of technology: US$2-$4 per smart card, US$300-$400 per secure smart card terminal (manufactured by Ingenico).

Scalable?

What have been the key challenges and success factors to date for the project?

Proof of identity as a requirement for access to finance: Know-your-customer regulations in India required documentary proof of identification and proof of residence for clients to access formal financial services. This excluded the large majority of the Indian population, and FINO successfully worked with banking partners in India to open up the system. Relaxed know-your-customer norms for basic saving bank deposit accounts were introduced to successfully onboard previously excluded populations into banking.

Illiteracy: Illiteracy prevented people from having the ability to authenticate themselves formally (e.g., sign their name), which is key for financial transactions. FINO used biometric technology to overcome this, with fingerprint authentication.

Electricity supply: The lack of power in rural areas to use these technologies was overcome with a device that can run on multiple batteries.

24 World Bank, Poverty Headcount Ratio at $2 per day, 2010. http://data.worldbank.org/indicator/SI.POV.2DAY.

Internet infrastructure: The poor Internet network during the initial period of the program led FINO to design an offline architecture allowing each device to stock information for 48-72 hours before sending transaction data to the system back-end.

Customers' lack of financial literacy: To reach customers who do not understand the financial goals and interest of bank accounts and financial products, FINO needed to convey the advantages of banking services to customers, promote opening and using accounts, and enable end-customers to make informed financial choices. FINO did it both via formal financial inclusion programs (co-funded by entities like NABARD, IFC, Citi, MFO, etc.) that reached 300,000 people, or more simply via trainer programs, workshops, street plays, interactive games, phone-based financial literacy helplines, incentives to Business Correspondents, financial literacy leaflets, flip books, calendars, etc.

Cash management risks between urban and rural areas: To avoid having agents carrying too much cash at any point in time, FINPO developed an extensive monitoring system leveraging technology and strict processes.

What are key challenges today to scale further?

Motivating banks to see financial inclusion as a business opportunity and not just as a compliance obligation (as the government has set up quotas for financial institutions to serve unserved clients). In 2006, the goal of FINO was simply to open bank accounts, and out of the 70-80 million basic savings bank deposit accounts opened through the Business Correspondent channel, more than 45 million were open by FINO alone. At present these account openings are driven by compliance motives; banks see it as a cost that they have to carry, instead of as a business model. They need to change their mindset to offer customers a better value proposition that would be both more useful to customers and more profitable for them.

Coherent policy: Many different government agencies are involved in financial inclusion: the Ministry of Finance, the RBI, state governments, the Unique Identification Authority of India, etc. They sometimes send conflicting guidelines – at one point there was a cluster-based approach of financial inclusion promoted on the basis of reverse bidding, a type of local monopoly in various clusters with an aim to address the question of sustainability and profitability of service providers and banks. Various entities participated in the process but it never really took off. A clearer and sustainable policy direction would help to scale financial inclusion further.

Getting Business Correspondents to be sustainable sufficiently fast: Business Correspondents have a long gestation period (3-4 years), it takes them a long time to become self-sustainable selling bank services only, as they need to build a client base, so quite often they do more than one job at once. It also takes time for them to understand and be able to promote the various financial products FINO offers.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

The regulatory framework needs to be spelled out very clearly and well synchronized between the various ministries and entities playing a role in establishing this framework. A stable environment is a prerequisite for banks to see an opportunity in serving this market.

Availability of locally appropriate technology that answers local challenges is key (technology is now one of FINO's best assets).

Availability of quality manpower (particularly at Business Correspondent level) with sufficient financial literacy can make or break the model, as it is the correspondents who must convince customers to use financial services for the first time in their lives.

Additional Information

Exchange rate used for this case study:

1 USD = 60 INR

Sources:

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Ashish Ahuja

Vice President, FINO PayTech Ltd.

Ashish Ahuja is the Vice President (Customer Service Delivery Group-CSDG) at FINO PayTech Limited. As the head of CSDG, he is responsible for executing projects right from customer acquisition, servicing, and ensuring effective functioning of entire ground-level operations to deliver on mandates accorded by banks, governments, and insurance companies. An ex-armed forces officer, Ashish has over 22 years of experience in various domains ranging from the military to banking, technology, channel set-up, management, and sales in core rural areas.

What are your next steps and future plans?

We will continue pushing our business strategy, further serving the unserved and underserved consumers. We are leaders in the financial inclusion segment with around 65-70 percent market share, and we would like to keep expanding our footprint by offering quality delivery. Our domestic remittance and insurance business is growing, we aim for the first place in that segment too. We would look at all aspects of the policy on payment banks and take a decision with respect to the same at the appropriate time. – i.e., a bank that can offer payments and deposit services. We are also exploring various new businesses in payments space, such as white label ATMs, to expand our rural footprint. Our ambition is to become the preferred choice of customers by fulfilling their needs all the way down to the grassroots level.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

First, a sound business model must be put in place from the start. Pushing a subsidized model is never sustainable. Companies most likely to succeed will specialize in financial inclusion hence have real skin in the game to make this work (as opposed to other entities for whom this will only be a business diversification). They should also integrate all the services financial inclusion requires (technology, support to banks, and service delivery on the front end) to have complete ownership of the business model (rather than doing only the technology provision bit, for example).

You should also convey to your clients (banks and government agencies) that this is a business, and make sure that these clients get involved for business reasons (i.e., providing these additional services will enhance their customers' stickiness and loyalty) and not just as a compulsory compliance mechanism. You should look for a value proposition that brings value both to you and your clients.

It is also key to build a value proposition that is a win-win for the Business Correspondents. As long as your Business Correspondents are happy and stay with you, they will make your end-customers happy.

Another key is to invest in technology from day 1 and let it be an answer to all processes you want to implement, rather than man-supported processes. Mobiles have come a very long way today and can help in that sense.

Finally, you must build a responsible business, accountable to last-mile customers to generate trust between them, you, and the government agency or bank you work for. Then your customers will be loyal and stay with you, and your business will thrive.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

Policymakers should start with deciding which key challenge they want to overcome (in our case: the lack of financial inclusion), then analyze which current barriers explain this challenge (in our case, the know-your-customer regulation to open a bank account, requiring documents that the majority of the population did not possess), and then decide on the policy that can overcome the challenge. In India, changing the know-your-customer guidelines allowed for enrolling the 70-80 million accounts opened through the Business Correspondent channel.

More generally, for a model such as ours to work, they should make sure that a network is in place, which can be utilized for data transaction at the local level. If the policy framework and connectivity networks are in place, then private players should be able to build robust technology solutions through which the entire financial inclusion process is facilitated. Policymakers should leave this part to the market; it is important to let competition help create the best local solution.

Finally, if there are government benefits that can reach end-beneficiaries through this system, they should go through this channel to strengthen existing players while allowing customers to choose from which player he wants to receive his benefits and gain access to other financial services.

What support would you request from a public or private donor?

Any model built on grants won't work; however, grants are very crucial to fund innovations.

Hence donors should help build innovations: networks that all players can use to make available a robust transaction platform, which once built will last a lifetime. They can also help with financial literacy, supporting programs educating people on the benefits of the model that is being created. This will help all players in the field equally, and promote financial inclusion at large, without infringing on the sustainability of business models like ours.

AGRICULTURE

BUSINESS MODEL OPTIMIZED INTERNAL PROCESSES
BOP IMPACT FARMERS
CONNECTIVITY MEDIUM SPEED

Syngenta Foundation for Sustainable Agriculture / Kilimo Salama

Affordable Insurance Schemes for BOP Farmers in East Africa

Kilimo Salama (KS) is an agricultural social business project in Kenya and Rwanda launched in 2009 by the Syngenta Foundation for Sustainable Agriculture (SFSA). KS insurance schemes cover crop inputs or harvest against extreme weather conditions or certain diseases, cow mortality, agricultural microloans, outstanding credit, and even funeral costs. They are sold mainly via aggregators (e.g., microfinance institutions and farmer cooperatives). As of January 2014, KS was the largest agricultural insurance program in Africa, serving over 187,000 farmers. KS plans to expand to Tanzania by the end of the year and conduct feasibility studies in Zimbabwe and Nigeria.

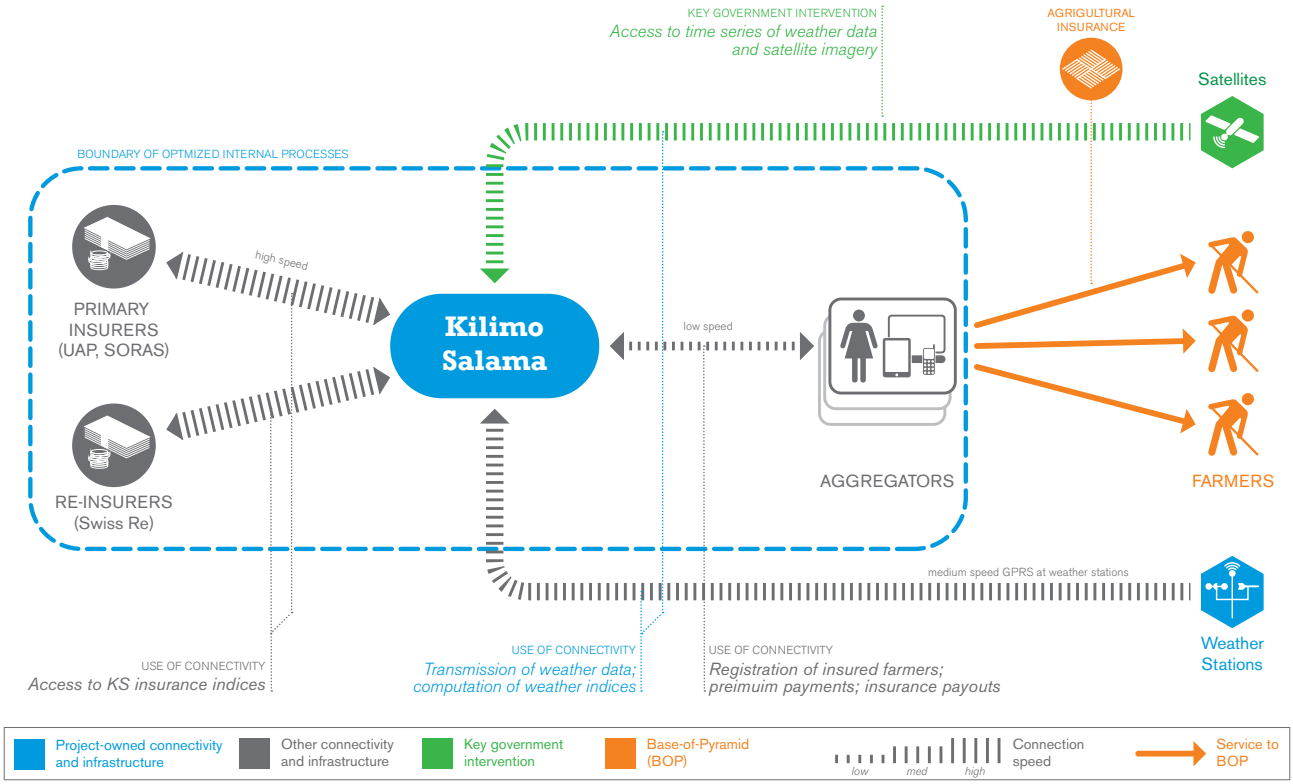
Role of Broadband and Data Connectivity

KS manages to provide insurance to smallholder farmers – who cannot be served sustainably via traditional insurance processes that would require visits to their fields – with the support of technology and connectivity. With KS, field visits to determine payouts are unnecessary because the project uses fully automated weather stations connected to cloud-based servers via general packet radio service (GPRS) and satellites (monthly data volume of 3 Mb per station). Disbursements are made automatically based on the data measured by the weather stations and satellites, eliminating claims and simplifying the payout process for both parties. As a result, operational costs are kept low enough to make micro-insurance affordable to targeted farmers, over 95 percent of whom belong to the BOP.

Key Success Factors

The success of the KS model is strongly connected to its simplicity. At all levels, KS focuses on keeping concepts and processes simple: working with aggregators to sell group insurance and outsourcing administrative tasks to them significantly lowers the project's operational costs. Further, the automation of payout calculations simplifies the process to the point that it makes costly field visits almost unnecessary.

System Diagram: Kilimo Salama



Lastly, the simplicity of the insurance model itself makes it easy to understand for customers and thus increases their trust and willingness to purchase KS products.

Implications for Policymakers

Regulatory frameworks (e.g., for taxes and duties) that distinguish non-commercial insurance from commercial insurance have proven crucial for models like KS to keep operational costs low. Moreover, centralized collection and free provision of long-term weather data (e.g., via databases) can significantly simplify the establishment and replication of models like KS.

Website

http://kilimosalama.wordpress.com

Description of Business Model

History of Organization

Kilimo Salama[25] ("safe farming" in Swahili) is a project launched in Kenya in 2009 by the Syngenta Foundation for Sustainable Agriculture (SFSA). Kilimo Salama (KS) is a service provider of affordable insurance products for smallholder farmers, protecting them against severe weather conditions and their agricultural and economic consequences. The SFSA developed the KS product in partnership with UAP (a Kenyan insurance company) and Swiss Re (a global reinsurance company). It first launched two insurance products called KS and KS Plus, offering crop insurance to individual farmers through agro dealers (selected input distributers at the village level) at the time of purchase. In 2012, KS started phasing out individual insurance products and focused on insuring groups through aggregators (e.g., cooperatives, savings and credit cooperative organizations, agribusinesses, lending institutions, and NGOs). Since then, it has introduced loan-linked insurance, dairy livestock insurance, and credit life and funeral insurance, as well as insurance for contracted seed-growing farmers. In September-October 2013, KS piloted a replanting guarantee for SeedCo seeds and will roll out the scheme at full scale in 2014, targeting 200,000 farmers.

25 Soon to be renamed the "Africa Climate Risk Enterprise" (ACRE).

KS won the Financial Times/International Finance Corporation (IFC) prize for Technology in Sustainable Finance in 2012. In 2013, the Flextronics Economic Development Award at the Tech Awards, and the Aon Client Innovation Award.

In 2012, KS expanded to Rwanda, and it plans to expand to Tanzania in 2014. It has now become Africa's largest agricultural index insurance program, serving over 187,000 farmers in 2013 alone. KC aims to insure 1.4 million farmers and plans to register as an independent corporation in 2014.

Value Propositions

KS leverages local organizations as aggregating intermediaries between smallholder farmers and insurers, making agricultural micro-insurance affordable to the BOP (over 95 percent of its clientele).

Farmers: KS insures farmers' inputs (e.g., seeds, fertilizers, pesticides, labor, land leasing fees) or harvests against severe weather conditions or diseases. Farmers receiving a payout get on average 30 percent of the sum insured, depending on the insurance product:

Microfinance Loan-Linked Insurance: Farmers using input loans over KES8,500 (US$100) to buy certified products are insured by UAP. Depending on the microfinance institution, insurance premiums are reflected in higher interest rates or

fully covered by the microfinance institution itself (as part of its risk reduction strategy).

Contract Seed Grower Insurance: Seed companies take over first premium payment for contracted seed-growing farmers, and later deduct the premium from first harvest delivery payments.

Dairy Livestock Insurance: A dairy cooperative advances farmers' premium payments and deducts costs from the final milk delivery payments. Payouts depend on preventability of the animal's cause of death (e.g., by vaccination) and vary from 50-80 percent of the cow's value.

Replanting Guarantee: Seed bags include an insurance voucher that allows farmers to avail themselves of a replanting guarantee, through which they can get a new bag of seeds in case of lack of rain for three weeks after planting.

Credit Life and Funeral Insurance: The insurance is available in two main formats:

Funeral insurance: Covers the primary insurance member and his/her spouse for one year, at US$2-$3 on average. Potential payouts are around US$230. It can also cover any number of dependents.

Credit life insurance: Can cover the primary member, his/her spouse, and any number of dependents. The insurance covers credits that remain unpaid in case of the primary member's death, as well as funeral costs for the other family members. Premiums vary by the size of the loan and the number of dependents.

Insurers: Through KS, primary insurers (UAP in Kenya, SORAS in Rwanda) can reach smallholder farmers who cannot afford traditional insurance schemes. KS lowers the cost to insurance providers by outsourcing administration to the aggregators (e.g., for client registration, payment collection, payout dissemination), and by utilizing rainfall measurements from fully automated weather stations and satellites to calculate losses and corresponding payouts. Insurers obtain 80 percent of the insurance premium and are responsible for transferring payouts to farmer aggregators.

Aggregators: For established groups or organizations, partnering with KS and insuring their farmers is usually in their interest. In the case of microfinance institutions, it minimizes risks that farmers cannot repay their debts following droughts and other devastating weather events. For NGOs, it helps them reach their social objective. In exchange, the organizations are fully in charge of administering insurance policies, collecting and transferring premium payments, and distributing payouts.

Input manufacturers (e.g., Syngenta, MEA, SeedCo): KS is an opportunity for input manufacturers to be more attractive to consumers and to differentiate themselves from their competitors by offering insurance schemes. Some manufacturers choose to carry the insurance premiums without increasing their prices, as they expect these extra costs to be covered by extra sales.

Previous weather insurance schemes on inputs were not available to small-scale farmers. Since insurance adjustors had to visit each farm to determine payouts, and their transaction cost to insure a 200-acre farm was as high as for a one-acre farm, making it unsustainable to serve smallholder farmers.

Technology Aspects

Connectivity and ICT are at the heart of the KS insurance model. Fully automated weather stations are set up throughout served areas and are equipped with SIM cards. They measure climate information every 15 minutes and send the data (six numbers) to a central server over a GPRS network (amounting to 3 Mb per month). At headquarters, the KS actuarial team compares the data to a set of pre-defined weather indices to determine if weather conditions were severe enough for insured farmers to be entitled to an insurance payout. Long-term databases covering 20-30 years of historical weather data serve to estimate the likelihood of severe weather conditions and the financial risk for the insurer. Where no historical data are available (e.g., due to wars or lack of equipment), satellite data and imagery are used (e.g., from third parties like the U.S.-based National Oceanic and Atmospheric Administration). In new markets, KS increasingly uses satellite data and installs only a few weather stations for ground-proofing.

At the customer level, farmers wanting to register for the Replanting Guarantee use SMS to indicate the insurance code featured inside the seed bag. The SMS allows KS to define the planting date and establish the farmers' GPS locations via satellite. Refunds under this scheme are also handled via SMS by sending farmers a mobile payout that can be used to purchase another bag of seed.

While construction costs for weather stations are quite high (~US$5,000), maintenance is not very costly and is done by a single KS team member. Data are sent via a secured server of KS partner ADCON telemetry in Austria.

Business Design

Operations and distribution: When farmers purchase an input product or loan-linked insurance, the respective aggregator registers them, their inputs/loans, and their farms' locations with the KS database. To finalize registration, the aggregator collects or advances premium payments and transfers them to KS's insurance company partner (UAP in Kenya and SORAS in Rwanda). When weather stations and satellites indicate adverse weather conditions, there is an automatic payout of an amount based on the deviation from the crop's rainfall needs over the season and the value of the insured input/loan. At the end of each period, farmers receive the potential payouts directly through their aggregators.

For the Replanting Guarantee, see "Technology Aspects" in the section above.

Staff training: KS has developed tools to provide aggregators with training on related topics (e.g., farming risks, index insurance). Depending on the aggregator, there are also training-for-trainers courses (KS has developed a training manual) to enable aggregators to conduct workshops for their customers (e.g., microfinance institution customers).

Marketing and consumer education: KS is mainly promoted through the aggregators and local radio programs that explain the benefits of KS and tell consumer where to purchase the insurance products. Further, KS runs a phone helpline in Kenya for both clients and potential customers. Operating daily from 6 a.m. to midnight, the helpline has handled over 50,000 calls since the inception of KS.

While KS does not train farmers directly, it offers a farmer manual on weather index insurances (including illustrations and exercises) to train their customers.

Business model: KS receives a margin of around 20 percent of the premiums on each insurance product. The premium is roughly 5-10 percent of input prices (6 percent on average) depending on local conditions and estimated risk. Farmers generally insure their seed and fertilizer (e.g., worth ~US$100 for one acre of maize). The aggregator collects payments, and (as the policyholder) is in charge of all administration and distribution tasks, including premium transfers to KS and payouts.

Policy and regulations: In Rwanda, KS is working with the government to develop a new regulatory framework that does not cluster BOP-oriented insurance under the same scheme as commercial insurance.

The Kenyan government has launched its "National ICT Master Plan 2017" that sets a national goal to connect "every citizen, resident, home and institution… through countrywide, robust, accessible, and affordable ICT infrastructure."[26] Broadband-related regulations have not affected KS so far.

Other ecosystem aspects: In Kenya, KS benefits from the existence of 20-30 years of national weather data at the Meteorological Department. KS can make use of the data free of charge, as long as the data are exclusively used for calculating the weather indices.

26 The Kenya National ICT Masterplan, Kenya ICT Board, Ministry of Information, Communications, and Technology, 2014, available at http://www.kenet.or.ke/sites/default/files/Final%20ICT%20Masterplan%20Apr%202014.pdf.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

In Kenya, minor droughts occur on average every two to three years and major droughts every six to 10 years. Farmers' ability to pay for seeds directly depends on their previous harvest. A bad harvest due to drought can lead to a poverty trap affecting farmers' lives for years. Because of the fixed costs of traditional insurance schemes (claims and expert visit procedures), the premium demanded of smallholder farmers is much higher (in proportion to the size of their land) than that required from large-scale farmers. Consequently, most smallholder farmers have no way of mitigating the risk of severe weather conditions.

Solution Provided

Tool quality: Good hardware quality and robust weather stations requiring little maintenance. Satellite data require little follow-up, since they are obtained directly via reliable institutions.

Service quality and comprehensiveness: KS products offer a holistic and affordable solution to smallholder farmers and their families, with insurances schemes covering inputs, harvest, higher-yielding cows, agricultural loans, outstanding credit, and funeral costs.

Scale and Reach

Number of users: Almost 300,000 users since inception and 184,000 in 2013 (65,000 in Kenya, 115,000 in Rwanda and 4,000 Tanzania) with:

Loan-Linked Insurance: 182,000 farmers

Credit Life and Funeral Insurance: 56,000 farmers

Replanting Guarantee: 2,200 farmers (in pilot stage in 2013)

Contract Seed Grower Insurance: 879 farmers

Dairy Livestock Insurance: 58 farmers, insuring 97 cows (in pilot stage in 2013).

Number of weather stations: 78 in Kenya and 38 in Rwanda (covering 15-20 square km each).

Number of aggregators: 22 in total (19 in Kenya and three in Rwanda).

Geographical coverage: Insurance schemes are available in Kenya (Bungoma, Busia, Oyugis, Homa Bay, Migori, Eldoret, Embu, Nanyuki, and Kital), and Rwanda (Huye, Nyanza, Nyaruguru, Gisagara, and Karongi).

Growth rate: Since its inception, KS has doubled its customer base every year and expanded to one new country, with another planned for launch by mid-2014. Feasibility studies are also planned for two additional countries in 2014. After starting with 185 insured farmers in 2009, KS increased its number of customers to 11,700 in 2010 and to 23,600 in 2011. When KS refocused mainly on group sales, its customer numbers started growing significantly, reaching 73,600 in 2012, and 187,000 in 2013. KS aims to serve 1.3 million farmers by the end of 2014. By 2016, it plans to more than triple the number of countries in which it operates.

Acceptance and Usage

Acceptance: Since many farmers are initially reluctant to pay for a regular insurance scheme, certain KS products (e.g., the Replanting Guarantee) offer the possibility of testing the insurance on small amounts of input before opting for larger schemes. Working through trusted aggregators can further enhance trust in the scheme.

Usability: Feasibility studies are conducted in each new market to assess the viability of agricultural insurance. The studies assess market potential, including field visits, discussions with potential clients/government, the collection of weather data sources, etc. Payouts are kept simple and without claim processes, so clients are automatically and directly refunded in case of losses or damage.

Retention rate: 23 percent in 2012, and 42 percent in 2013.

Socio-economic Impact

Social outcomes: Thanks to KS insurance schemes, farmers can better cope with climate change and weather-related

disease, as well as dairy cow mortality. Additionally, they have easier access to loans linked to insurance (in Kenya, over 30,000 farmers were able to access US$5.5 million in financing thanks to the insurance).

Economic impact: Compared to their uninsured neighbors, insured farmers invest 20 percent more in their farms and generate 16 percent more income. Because of risk mitigation, microfinance institutions acting as aggregators for their clients can extend loans to more farmers with the same amount of cash in the bank.

Gains in efficiency due to technology: Thanks to fully automated and GPRS-connected weather stations, farm visits are only needed in rare case where there is a dispute.

Environmental impact: Most KS weather stations are solar-powered.

Economically sustainable?

KS has not yet reached sustainability. Due its not-for-profit status it was not able to collect margins. To change this, KS plans to register as a corporation in 2014 and aims to break even in 2016/17. With KS, farmers get access to insurance previously unaffordable via traditional channels.

At the BOP end-user level:

Service cost: Farmers pay a premium of roughly 5-10 percent (6 percent on average, though in some regions it can be higher) on their inputs/loans to get the insurance, although sometimes their aggregator pays it for them.

Income increase: Farmers generate 16 percent more income than their uninsured neighbors.

Ability to reach the poorest: Over 95 percent of customers belong to the BOP.

At the aggregator level (microfinance institutions, cooperatives, seed companies):

Revenues: Aggregators do not receive any commission or share of the premium. The amount of additional revenues depends on the aggregator, product and the number of additional customers reached (e.g., thanks to loan-linked insurance, one large NGO in Kenya was able to increase its number of loans from 19,000 farmers in 2011 to 45,000 in 2012).

Cost: Aggregators collect premiums from farmers, advance the premiums, or bear their full cost, as this allows them to minimize their financial risk.

At the insurer level (UAP, SORAS):

Revenues: The insurer receives 80 percent of the insurance premiums.

Payouts in 2013: US$356,000.

Scale and BOP Reach

Since inception, Kilimo Salama has installed over 110 weather stations in Kenya and Rwanda, covering almost 187,000 farmers in 2013 under weather index-based insurance schemes. All farmers covered belong to the BOP.

Sustainability

KS has not yet reached sustainability. Due its not-for-profit status it was not able to collect margins. To change this, KS plans to register as a corporation in 2014 and aims to break even in 2016/17. With KS, farmers get access to insurance previously unaffordable via traditional channels.

Replicability

Comprehensively automated processes make this model highly replicable in places where historical weather data are accessible and existing entities can play an aggregator role (e.g., microfinance institutions, farmers' cooperatives).

At the central level (Kilimo Salama):

Employees: 33 in total (15 in Nairobi headquarters, 15 field operators in Kenya, and three in the Rwanda country office).

Cost-recovery level: KS aims for operational sustainability in 2016/17, when it aims to reach 2.2 million farmers. To date, KS has not been allowed to collect margins due to its not-for-profit status as a project of the SFSA. In order to get closer to breaking even and make KS financially sustainable, KS plans to register as a corporation in February 2014 under the name of "Africa Climate Risk Enterprise" (ACRE).

Initial and ongoing funding: KS has been mainly grant-funded to date (by the SFSA, IFC's Global Index Insurance Facility, and the Lundin Foundation). Grant funding is used to cover operational costs, feasibility studies, weather stations, and salaries. In the Rwandan market, KS is partly funded by Access to Finance Rwanda.

Scalable?

What have been the key challenges and success factors to date for the project?

Weather data infrastructure: Significant investment in automated weather stations and satellite technology is key to the KS model. Working with fully automated, reliable, and

representative data on local weather patterns means insurers can feel comfortable with measurements. However, using rainfall measurements as a proxy for farmers' losses inherently has a "basis risk." For example, the rainfall measurements collected by a weather station or estimated by a satellite may not be the same as what farmers experience on their farms due to micro climates (e.g., if the farm is on the other side of a hill). Basis risk can also result from the insurance covering drought risk, but not diseases. One way to mitigate this issue is to allow aggregators to redistribute the payouts within a certain group of farmers according to their internal evaluations.

Regulatory framework: One of the main constraints KS has faced is linked to a lack of legal frameworks for micro-insurance in many countries. In Rwanda, for example, farmers are required to pay a value-added tax and duties of 30 percent on top of the premium because the tax system was originally designed for commercial insurance. KS is cooperating with the Rwandan government to develop a more suitable framework, and is currently covering the 30 percent tax with a subsidy from the IFC until the new regulation becomes law.

Identification and development of relevant distribution networks: Since the costs of reaching out to farmers in rural areas can end up being higher than the actual amount of the insurance premium, KS partners with established structures, such as farmer cooperatives. In this way a broader client base can be reached while leveraging channels with which farmers are already familiar.

Outsourcing administrative processes: Insurance products need to be affordable for farmers, without reverting to subsidies, in order to make KS a sustainable business solution. By delegating tasks and costs of distribution and administration to the aggregators, operational costs can be significantly reduced and premiums minimized.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Access to historical weather data: Availability of historical weather data is a key criterion for KS to decide on potential expansion to a new country. In its feasibility studies, KS identifies and collects monitoring data for each new market (among other information), and evaluates the accessibility of such data (e.g., through meteorological departments or public databases). If the data do not exist or are not publicly available, KS looks for third parties that can provide weather databases and/or satellite imagery (e.g., international meteorological centers).

Regulatory environment: KS needs to set up partnerships with insurance companies, banks, and input manufacturers, and has to deal with country-specific laws and regulations (e.g., licenses or taxes) that affect its ability to keep products affordable. It is critical that regulations, not only for insurance but for the whole agro-sector, allow such a scheme to work.

Agricultural sector: Before expanding, KS analyzes how well the agricultural sector is developed, i.e., how agricultural value chains are set up. A rather well-organized and developed sector can strongly simplify market entry and partnership with aggregators. Further, KS takes into account the potential market for various crop types and calculates the respective insurable risks (e.g., maize has a very high insurable risk, while cassava does not).

Interested reinsurance company: KS depends on reinsurance companies that are open to carry the risks and create products for smallholder farmers. However, most reinsurance companies are only looking for US$500 million premium markets (at a minimum), which is still rather out of reach for KS.

Additional Information

Exchange rate used for this case study:

1 USD = 86 KES

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Nila Uthayakumar

Product Development Advisor

Nila Uthayakumar is the Product Development Advisor for the Syngenta Foundation's Kilimo Salama index insurance project. In this role she has managed the funeral, credit life, and life insurance products, and has been leading the development of a tea frost risk product and a price risk insurance product. She also previously led the project's impact assessment effort to measure the influence of the insurance on its smallholder farmer clients. Nila previously served as a consultant to East African microfinance institutions BRAC Uganda, Faulu Kenya, and Juhudi Kilimo. She has worked in East Africa for over four years and holds a B.S degree in business administration with a minor in African studies from the University of Florida.

What are your next steps and future plans?

We want to further grow the aggregator distribution channels that we have developed in our markets in Kenya and Rwanda. Further, we want to focus on new high-potential markets. For that purpose, we are finalizing our feasibility study for Tanzania and will go on to conduct feasibility studies in Nigeria and Zimbabwe. Kenya was our testing ground, so we tried out different models and products. But in new countries we want to be very particular on the clients and distribution channels we target. We plan to expand to three new countries in the next two years, and four by the end of 2016. Our overarching goal is to break even by 2017.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

First, focus on how to distribute the insurance. Distributing the insurance through aggregators of farmers can build a sustainable business, as opposed to selling individual policies to farmers one by one.
Second, keep your insurance scheme as simple as possible. Keep contracts simple, so they are easy to explain to farmers (in the beginning of KS, when selling insurance directly to farmers we explained the cover on a single sheet of paper using simple calculations and diagrams).
Finally, for the historical weather data, look for cheaper ways to create the weather index. Instead of solely relying on weather stations, look into satellite imagery. Satellite data are available for entire continents and will give time series of historical weather data going back 30 years that can be used to build an index for new countries. Weather stations are still very useful to ground proof the satellite data.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

Governments could adapt their tax regulations and make sure there is no unreasonable tax on non-commercial insurance targeting the BOP. This would make insurance premiums affordable for smallholder farmers. Further, governments could provide great support by collecting and organizing historical weather and yield data, and making it easily accessible (e.g., by creating public databases).

What support would you request from a public or private donor?

We have been lucky to work with key donors like Syngenta Foundation, IFC, the Lundin Foundation, and Access to Finance Rwanda, which have great networks and experience.

HEALTH

BUSINESS MODEL OPTIMIZED INTERNAL PROCESSES
BOP IMPACT PATIENTS
CONNECTIVITY HIGH SPEED

Narayana Health

Affordable Quality Healthcare for the Masses in India

Founded in 2011, Narayana Health (NH) is a private group of hospitals in India that leverages ICT and broadband to increase its efficiency and provide quality healthcare at affordable prices. NH is a profitable social business serving over 80,000 patients per month in one of its 24 hospitals or remotely via tele-medicine. NH has also been active in the promotion of insurance schemes for economically disadvantaged households in order to further contribute to its social mission of "affordable quality healthcare for the masses." It is now scaling up internationally, with new hospitals opening in the Caribbean and Malaysia in 2014.

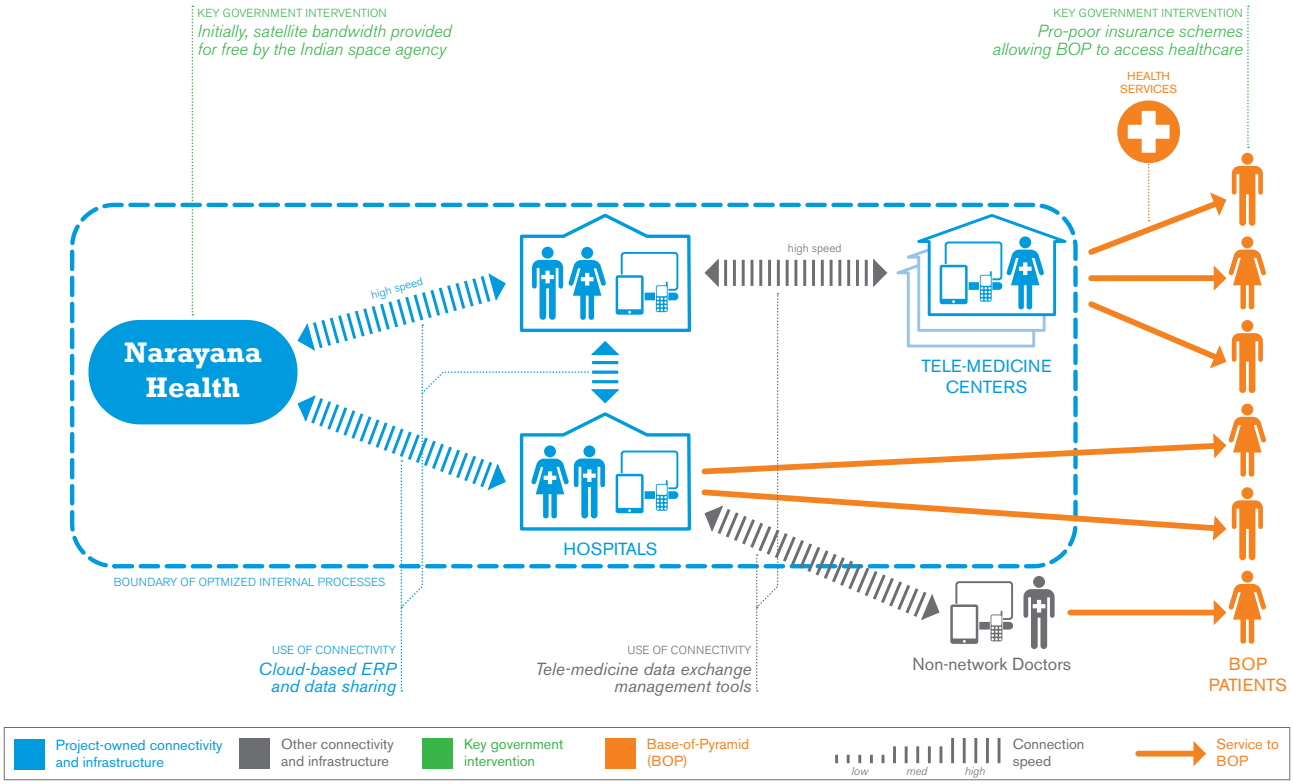
Role of Broadband and Data Connectivity

The use of broadband enables remote diagnosis and tele-consultations, real-time access to medical data across the group, and optimization of management efficiency thanks to a cloud-based enterprise resource planning (ERP) system. The NH CEO estimates that the use of technology, broadband, and data connectivity leads to "around 75 percent cost reduction as compared to a traditional hospital," thus enabling NH to offer affordable healthcare to its patients, 50 percent of whom are from the BOP. The minimum connectivity requirements for one hospital range between 1 Mbps for small facilities offering only consultation and diagnoses to 4-8 Mbps for medium-size and large hospitals.

Key Success Factors

The NH business model requires a critical mass of patients, so hospitals must be located in densely populated urban centers and leverage insurance schemes that allow for serving the majority. NH can only work if there is availability of skilled human resources – not just doctors but also nurses and paramedical staff, which allows doctors to use all of their time on the most critical part of the work. Lastly, broadband has lowered costs of operations compared to previous expensive alternative methods (e.g., satellite connection for tele-consultations) and thus allowed for reaching the BOP.

System Diagram: Narayana Health



Implications for Policymakers

For the model to reach the BOP, policymakers should promote insurance schemes. In order to be sustainable, these schemes should ideally rely on contributions from all parties: beneficiaries, government, and hospitals. To cope with the need for skilled staff, policymakers also need to encourage medical human resource training by creating schools and adapting regulations. Lastly, pushing the development of broadband infrastructures is crucial to the efficiency of the NH model.

Website

www.narayanahealth.org

Description of Business Model

History of Organization

Formerly the Narayana Hrudayalaya Hospital Group, Narayan Health (NH) is a private group of hospitals founded in 2001 by Dr. Devi Shetty. It provides low-cost healthcare to a diverse patient base in India. Over the years NH has expanded out from its initial focus on cardiac services and now handles cases in neurology, pediatrics, nephrology, urology, and gynecology. In 2013, the group had 24 hospitals (including four major health centers called "health cities" in Bangalore, Ahmedabad, Jaipur, and Kolkata), comprised of 97 operating theaters and 6,400 beds, and serving over 80,000 patients per month. NH provides more than 10 percent of the cardiac services in India, with each hospital performing about eight times more surgeries per day than India's average. New locations will be opened in the Cayman Islands and Kuala Lumpur in 2014.

NH is recognized for its contribution to the development of low-cost insurance schemes, and in particular the Karnataka Yeshasvini Health scheme, which Dr. Shetty initiated in 2003 for poor farmers and which is now reaching 3 million household members. NH has also been innovative in the field of tele-medicine: the group has offered tele-consultations and distance diagnoses in remote areas since 2002. The number of NH tele-medicine and tele-ECG (electrocardiogram) centers in India has grown to 160 and 590, respectively. Lastly, NH is part of a government of India initiative in Africa (Pan-African e-Network Project) to offer tele-consultations and train medical workforces via videoconference.

Founder and Chairman Dr. Devi Shetty was named Entrepreneur of the Year by Ernst & Young in 2003 and Citizen Extraordinaire by Rotary in 2004. He was awarded the Social Entrepreneurship Award by the World Economic Forum in 2005 and The Economist's Innovation Award 2011. In 2012, he was named Economic Times Entrepreneur of the Year, Indian of the Year (by CNN-IBN), and received the Lifetime Achievement Award (from FICCI). The NH group as a whole received the India Shining Star CSR Award 2011 and the FICCI Healthcare Excellence Award 2012, and was named Healthcare Service Provider Company of the Year 2012. In the same year, Fast Company ranked NH best in "The Top Ten Innovative Companies in India," second best in "The World's Top 10 Innovative Companies in the Healthcare Industry," and 36th among the "World's 50 Most Innovative Companies." The quality of services at NH was also recognized, as two hospitals (Jaipur and Bangalore) received accreditation from Joint Commission International, and five others obtained the National Board Accreditation.

Value Propositions

NH offers a broad range of quality healthcare at low cost in its 24 hospitals and outside its network through tele-medicine. Medical treatment and surgeries are available at different price levels. BOP patients can get discounted prices based on scanning done by NH's charitable wing. For instance, only 40 percent of the over 11,000 cardiac surgeries performed in 2013 were billed at the full price of INR 150,00 (US$2,500) which is still 25-35 percent lower than the average Indian price, and at least eight times lower than the price in the United States. Tele-consultations and remote diagnoses in tele- ECG centers are provided for free.[27] Some patients even receive free treatment. Lastly, the quality of NH hospitals attracts international patients (5-6 percent of total in 2013).

Technology Aspects

The NH CEO estimates that the use of technology and broadband leads to "around 75 percent cost reduction as compared to a traditional hospital."[28]

Remote diagnosis and tele-consultations: NH has developed this tele-medicine service in collaboration with the Indian Space & Research Organisation. For videoconferencing with patients, NH used to rely on satellite technology, but is now mainly using broadband (including mainstream tools such as Skype). NH is one of the largest tele-medicine facilities in India, with 590 tele-ECG and 160 tele-medicine centers. NH also provides its services to 53 locations in Africa and 10 other locations outside India.

Real-time access to medical data across the group: NH was the first group in India to integrate all its hospital units through a cloud-based system (ERP and medical data). Real-time access to medical data avoids having a specialist in every location (e.g., a specialized radiologist can analyze an MRI or X-ray remotely) and hence reduces costs. NH is also using its cloud-based image management system to offer doctors' consultation services to other hospitals (14 client hospitals in India in 2013).

Optimization of management efficiency: NH uses its cloud-based ERP to optimize its processes. For instance, NH tracks profits and losses on a daily basis, sending updates to doctors and administrators electronically in order to encourage cost efficiency. NH further uses the Internet to deliver digitalized medical documents via email upon patients' requests as well as to communicate with their insurance companies about coverage and billing.

NH has partnered with ICT companies to develop its cloud-based system. The main server, storage, and WAN environment are outsourced. Instead of making large investments, NH has opted for a pay-per-use contract with IT service providers. This also avoids maintenance costs on physical infrastructure. In total, NH estimates that this option is saving ~65 percent costs over a conventional IT system. The data security processes and protocols are also outsourced. However, NH retains the right to audit the facility and the network security at any point in time.

27 NH used to sell trans-telephonic ECG devices in order to provide remote consultations. The technology has evolved quickly and chronic disease monitoring is now mostly done via smartphones or tablets in developed areas. NH is still providing services to health centers equipped with the ECG technology, but mostly in remote rural areas. The group is now working on the development of an app for smartphones or tablets.

28 In order to optimize its cost-efficiency NH has developed further strategies that do not directly leverage broadband. These strategies include developing a low-cost cardiac hospital model to reduce the cost of building hospitals in smaller towns (typically 100-200 bedded surgical hospitals primarily built as a pre-fabricated ground floor structure with minimal reinforced concrete construction and optimal use of natural daylight to reduce energy consumption); and extending the life of medical equipment through proper servicing (done through a joint venture with a U.S. firm called Trimedx, a subsidiary of Ascension Health). This has allowed NH to lower the construction cost of new hospitals to an average cost per bed below $30,000 (when typical hospital construction costs are more around $58,000 per bed), which makes NH's hospital construction costs among the lowest in the country.

Business Design

Operations and distribution: NH provides healthcare services to over 80,000 patients per month either on site or in one of its 24 hospitals or through its tele-ECG and tele-medicine centers. In 2013, NH treated a total of ~115,000 in-patients and ~930,000 out-patients.

Staff training: NH provides training to its staff through the NH Training and Organizational Development Department, either in person or through computer-based training. NH also promotes post-graduate programs for doctors and the Nursing Institute affiliated with the Indian Nursing Council and Rajiv Gandhi University.

Marketing and consumer education: NH has built a strong rural network throughout India, establishing linkages with small family practices. It also has deployed mobile outreach vans to find new patients and have them benefit from free diagnosis at a nearby tele- ECG center. Health insurance also sends many patients to NH.

Business model: NH revenues come mainly from its healthcare operations, with cash-paying patients accounting for ~40 percent, patients registered under government/ micro-insurance schemes ~30 percent, privately-insured patients ~30 percent, and services to hospitals outside the network less than 1 percent. NH receives no subsidy from the government, but it does receive grants from private companies or individual philanthropists to build its infrastructure (e.g., its new hospital for children in Mumbai is mostly paid with donations).

Payments are always made in advance: Thus, the price of surgery is independent of how long a patient stays in the hospital. Insured patients can receive cashless outpatient consultations.

Policy and regulations: Governments adopted the insurance scheme initiated by Dr. Shetty, which is key to NH success for the BOP

The Indian government has announced its intention to bring the Internet to 600 million citizens by 2020. In 2013, it launched the National Optical Fiber Network (NOFN) project, which aims to connect over 200,000 gram panchayats[29] with optical fiber by 2016 (at least three Internet connections and one Wi-Fi hotspot in each gram panchayat). Service providers are given non-discriminatory access to the fiber network. The recent improvement of broadband access in India has led to significant efficiency gains for social businesses, and NH is now using mainstream Internet tools (e.g., Skype) instead of satellite connections

29 Smallest Indian administrative division, typically three villages of 200-500 households each.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

In India, only 100,000-120,000 cardiac surgeries are performed out of 2 million needed yearly. Costs are prohibitively high for a majority of the population, and 70 percent of the population lives in rural areas while 80 percent of doctors are located in urban areas. On a global scale, cardiac care is not affordable for 80-90 percent of the population, even though rates of heart illness are growing.

Solution Provided

Service quality and comprehensiveness: NH is very active in the health value chain, from training medical staff to promoting insurance schemes and delivering healthcare services at low cost in its hospitals and in remote areas via tele-medicine.

Tool quality: NH has world-class technologies for surgery, and tele-medicine tools developed with the Indian Space & Research Organisation. The tele-medicine system consists of customized hardware and software at the patient's and doctor's ends with diagnostic equipment like ECGs, X-rays, and pathology microscope/cameras provided at the patient's end. The quality of services is proven by the accreditations that NH has received. For instance, a recent Harvard University paper underlined that NH's 30-day post-surgery mortality rate for coronary artery bypass procedures at the Bangalore hospital is below the average rate recorded by a sample of 143 hospitals in Texas (Govindarajan, 2013).

Scale and Reach

Broadband activities: NH has conducted over 350,000 remote diagnoses (over 100,000 or about 10 percent of diagnoses in 2013 alone) and over 50,000 tele-consultations to date. NH used to rely on satellite for video-conferencing but is now using Skype and other mainstream broadband-based tools. Its cloud-based ERP and data system connecting all hospitals use data flows of ~50GB per day.

Overall medical services: 24 NH hospitals (including four "health cities"), 160 tele-medicine centers, and 590 tele-ECG centers receive over 80,000 patients monthly. More than 80,000 cardiac surgeries have been performed since NH's inception (over 11,000 in 2013 alone). Cardiac surgeons perform 400-600 procedures per year, which is three times more than the U.S. average.

Growth rate: NH experienced over 35 percent year-on-year growth rate from its inception in 2000 to 2011, 27 percent in 2012, and ~30 percent in 2013.

Acceptance and Usage

Acceptability: NH has gained patients through quality services at affordable prices.

Usability: Healthcare services widely available across the country thanks to tele-medicine.

Socio-economic Impact

Social outcomes: NH provides healthcare services at the BOP (50 percent of patients). Many treatments are provided below costs: 54,000 cardiac patients were treated for free in 2013.

Economic impact: Positive impact on the economy through quality healthcare at low cost for the BOP (not measured).

Gains in efficiency due to technology: Access to quality healthcare even in remote areas.

Environmental impact: Not measured

Other impacts: NH promotes job opportunities at the BOP by encouraging medical training, in particular through scholarships for medical studies (in West Bengal).

Economically sustainable?

NH is a profitable social business that generated ~$US140 million in revenue in 2013. Each new hospital is able to break even within 12-14 months. BOP patients access healthcare services at discounted price or for free.

At the patient level:

Direct cost of services: Free remote diagnosis services. Some direct services at discounted prices based on the customer's ability to pay. The most common cardiac surgery (coronary artery bypass graft) costs ~US$2,500 (US$1,200 for insured patients).

Additional indirect cost: Transportation to point of care or tele-medicine.

Average household income: Very diverse target groups.

Ability to reach the poorest: Among NH patients, 50 percent are at the BOP.

At the Narayana Health level:

Total number of people employed at central level: 1,300 full-time doctors and 12,500 staff.

Annual turnover: ~US$140 million in 2013.

Profit margin: Over 10 percent earnings before interest, taxes, depreciation, and amortization (not accounting private grants), although NH commissioned 10 new hospitals in 2013 that have not yet broken even (it takes 12-14 months for a hospital to break even). For surgery costing ~US$2,500, around one-third goes to salaries.

Initial and ongoing funding: Various sources of funding, financial institutions hold about one-quarter of NH capital.

Cost-recovery level: Each new NH hospital is able to break even within 12-14 months (this is also true for hospitals that did not receive donations for their infrastructure).

Scale and BOP Reach

80,000 patients treated every month in one of the 24 hospitals of the group or remotely via tele-medicine; 50 percent of patients are from the BOP.

Sustainability

NH is a profitable social business that generated ~$140 million revenue in 2013. Each new hospital breaks even within 12-14 months. BOP patients access healthcare services at discounted price or for free.

Replicability

Good potential for replication provided a critical mass of patients can be reached (requiring policymaker support for BOP insurance schemes, and no market distortion against private hospitals), qualified manpower is available, and broadband connectivity is sufficient.

Scalable?

What have been the key challenges and success factors to date for the project?

Overcoming import duties for parts used in off-patent technologies (production expansion currently limited by high duties and rising costs of parts).

Continued donations through trusts, individual donors, or by the hospital as cross-subsidies to sustain concessional rates.

What are key challenges today to scale further?

Overcoming regulatory hurdles of the Medical Council of India to facilitate the opening of medical schools for doctors, nurses, and paramedical workers. Having skilled paramedical staff is critical to ensure that doctors optimize their working time.

Obtaining an increase in the payout from government insurance schemes: These payouts have not been revised for the past three years, in spite of costs going up dramatically due to inflation and wage increases. Today, the scheme is sustained only because of cross-subsidies between paying patients and patients from the scheme.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Involvement of policymakers in the creation of sustainable insurance schemes.

Availability of manpower: In some countries, medical training is poor and there are severe restrictions on attracting resources from outside.

Broadband connectivity: At NH, the minimum connectivity requirements for one hospital range between 1 Mbps for small facilities offering only consultation and diagnoses, to 4-8 Mbps for medium-size and large hospitals.

Additional Information

Exchange rate used for this case study:

1 USD = 60 INR

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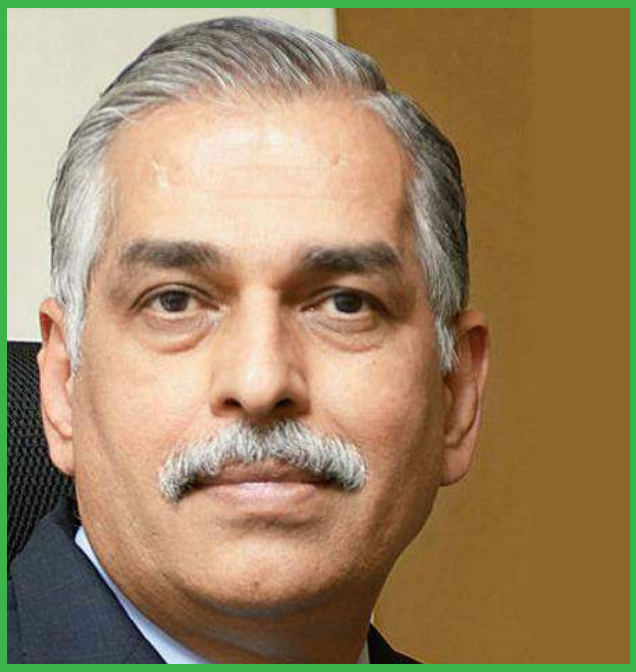
Dr. Ashutosh Raghuvanshi, MD

Vice Chairman and Group CEO

Dr. Ashutosh Raghuvanshi joined NH as a Senior Cardiac Surgeon. He is credited with the establishment of the Rabindranath Tagore International Institute of Cardiac Sciences, Kolkata, which he joined as director in 2000, and which is today one of the largest multi-specialty hospitals in Eastern India. In 2009 he was appointed as the Vice-Chairman & Group CEO and Executive Director of the NH Group. In 2011, he was appointed the Managing Director of NH. In this role, he is responsible for the administration of all the group hospitals. He is also pioneering the growth of NH by actively pursuing new opportunities for expansion and setting up new hospitals across the country and abroad.



What are your next steps and future plans?

Our long-term goal is to become a 30,000-bed organization with surgery priced at US$800, following NH's social mission: 'Affordable quality healthcare for the masses.' In the short term, we plan to open new hospitals in India and internationally by leveraging joint ventures. We want to continue improving our efficiency by leveraging technology (e.g., development of an iPad app for the intensive-care unit). Another key development is the setting up of low-cost hospital infrastructure (we have a current pilot in Mysore).

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

I would first recommend opening the first hospital in a high-density area, ideally where people have insurance schemes, in order to get a critical mass of patients allowing economies of scale. Then, the initial capital expenditures should be limited: the size of the hospital should be modular and grow as more patients come in. Pay-per-use contracts with ICT providers participate in this modularity.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

I think they should first create insurance schemes that rely on contributions from all parties: beneficiaries, government, and hospitals. Payouts to providers need to be sufficient in order to be sustainable. They should also encourage human resources training, including among the economically disadvantaged population (for instance, through scholarships that would enable them to attend medical training). Training of paramedical staff is key to ensure that most qualified doctors optimize their time.

What support would you request from a public or private donor?

I would request support in building infrastructure for manpower training, and in building hospital infrastructure.

EDUCATION

BUSINESS MODEL DIRECT-TO-CONSUMER
BOP IMPACT LEARNERS OF ENGLISH AS A SECOND LANGUAGE
CONNECTIVITY LOW TO HIGH SPEED

Urban Planet Mobile

Affordable English Courses via Phones and the Internet for Learners from the BOP in 38 Countries

Urban Planet Mobile (UPM) is a for-profit social business founded in Delaware in the United States in 2007 that provides daily learning activities at low cost, making quality educational content more accessible and affordable to poor people. Its main service consists of up to three-minute English lessons delivered once or twice a day on clients' mobile phones. Today, UPM is present in 38 countries and delivers over 250,000 English lessons per day. Its service has delivered over 60 million lessons since its commercial launch in 2010.

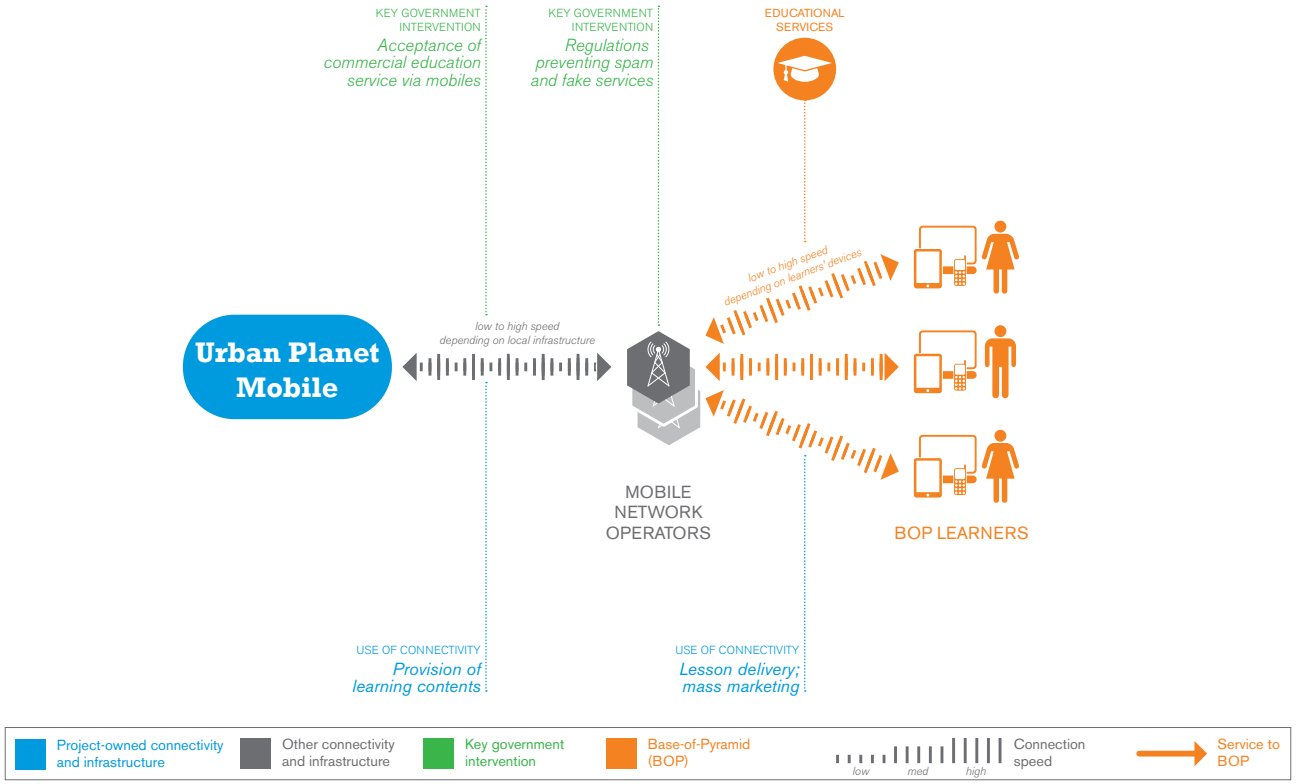
Role of Broadband and Data Connectivity

The use of ICT and broadband is central to the services offered by UPM, contents being delivered via SMS, wireless application protocol, interactive voice response (IVR) systems, and online platforms. Due to UPM's ability to highly compress data (to ~250KB per lesson), services are available on very basic mobile phones, making them accessible to people from the BOP (constituting ~80 percent of the client base), who as a result improve their English skills and increase their chances of finding jobs and generating higher incomes. UPM also offers "Writing Planet," an Internet-based tool for writing assessments to prepare for key exams, and recently launched "Urban English Express," a new service that uses broadband to deliver a full program for learning English on smartphones, tablets, and computers.

Key Success Factors

Using existing levels of connectivity to target web-enabled devices and basic phones allows UPM to offer its services to a wide audience and enable a mobile micropayment system (through credit on pre-paid SIM cards). Its careful process of selecting mobile network operator (MNO) partners

System Diagram: Urban Planet Mobile



ensures their commitment and increases the likelihood of success. Further, pre-launch product testing, together with the MNOs, allows UPM and the MNOs to adapt their strategy (marketing, pricing, billing frequency) to each market individually.

Implications for Policymakers

The openness of governments to accept an education service offered via mobile and based on a commercial business model is crucial for UPM and its MNO partners. Also, governmental regulations have proven to be helpful in preventing ripoffs of customers through spam ringtones and services.

Website

http://www.urbanplanetmobile.com/

Description of Business Model

History of Organization

Urban Planet Mobile (UPM) is a for-profit social business co-founded in 2007 by Brian OliverSmith and M. Catherine OliverSmith, J.D., to provide daily educational contents at low cost. In 2009, UPM developed a digital library of English language learning lessons designed for mobile delivery consumption. In 2010, UPM launched its first and most popular service, "Urban English," in Indonesia, delivering lessons via SMS on clients' mobile phones. In 2012, UPM added "Writing Planet" to its product line, an online platform offering automated English writing assessments. In 2012, Urban English expanded to over 12 countries globally. Combined, UPM products are available in 38 countries. In 2013, UPM piloted the MobiLiteracy Uganda Project as part of the U.S. Agency for International Development's (USAID) All Children Reading Initiative, providing mobile phones and daily literacy activities through SMS. In 2014, "English for Champions" will be available, delivering daily English lessons on football-related topics, as well as "Urban English Express," a cross-device, multi-media learning program.

UPM was awarded a Frost & Sullivan Award for Most Innovative App and received two major international awards in 2011: The Gartner Cool Vendor Award in Education and the GSMA Global Mobile Award for Best Mobile Education Innovation. In 2013, it won the U.S. Commercial Services' Export Achievement Award and the Moviforum Latin Mobile Award. As of 2013, UPM had delivered over 5 million Urban English lessons each month, reaching ~250,000 subscribers daily.

Value Propositions

UPM cooperates with local MNOs to provide low-cost access to English learning contents for users of ICT devices. To date, UPM has launched two main lines of products: Urban English (for both web-enabled and very basic mobile phones), and Writing Planet (for advanced Internet-connected media devices). These products address the needs of different clients:

Non-native English learners: UPM provides a comprehensive range of English learning content at low cost in countries with limited or no access to quality educational contents:

Urban English: Learners get access to daily English lessons, delivered as a highly compressed audio file (i.e., similar to a ringtone) if they own a web-enabled phone, or through an IVR system if they own a basic phone. Users can choose between up to 12 courses offered by their MNOs (out of 25 developed by UPM), with different levels and for different purposes,

from basic English to special-purpose English (e.g., for taxi drivers). Each course includes 60-90 daily lessons, including vocabulary and grammar content. Lessons are free for a 3-5 day trial period, and then available for a subscription fee of US$3/month on average (prices depend on local context), paid daily or weekly, prior to content reception.

Writing Planet: Advanced learners get access to over 200 web-based and individualized writing assessments that help them prepare for writing exams or TOEFL/TOEIC/ILT and SAT exams. Exams are scored using underlying automated essay scoring technology with results available virtually immediately, providing writers with feedback on areas needing improvement. The system then suggests appropriate video tutorials for students to practice and improve. Features include over 50 video lessons and tutorials as well as multiple-draft functions for process-based writing and progress tracking. Yearly subscription costs are US$40 at maximum, and US$24 on average (prices depend on local context).

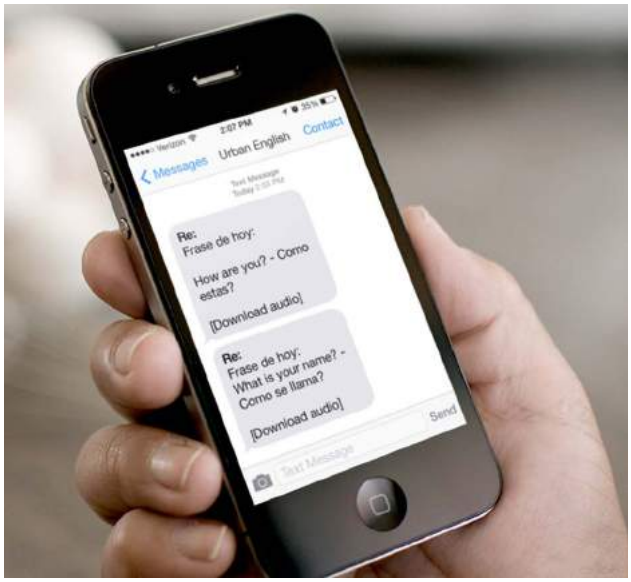
Pre-literate children and parents (service in pilot phase): UPM offers "MobiLiteracy," a mobile service providing literacy activities empowering parents to create a literacy-rich home environment for their children to develop the underlying knowledge that leads to literacy. Parents of pre-literate children receive daily activities to engage their children in listening comprehension, word sound recognition, letter recognition, and familiar word spelling. Activities are delivered via SMS and embedded audio files, so far free of charge (pilot phase costs are borne by USAID).

Educational personnel and institutions: Writing Planet saves teachers' time due to its incorporation of automated assessment technology. Through an online portal, teachers post assignments, comment on essays, and track students' progress (individually and collectively). Thanks to the automated assessment and feedback functions, teachers focus on contents, and decrease their workload while increasing their effectiveness. Subscription fees for institutions depend on the number of final users (students and teachers).

Urban English is often the first English learning content and sometimes the first mobile education content to be launched in a new market, making UPM a global leader in the development of mobile educational products.

Technology Aspects

The products offered by UPM are all based on the use of connectivity (broadband when available) and ICT devices. Urban English lessons are 1-3 minute audio files, highly compressed to the size of an average ringtone and thus using very little data volume (~250 Kb). The data is mostly transmitted through wireless application protocol push (depending on local infrastructure). In countries where people are used to IVR and/or where feature phones do not have sufficient penetration, UPM makes its service available via IVR (by sending the user an SMS with a number to call), available on even the most basic mobile phones (30 percent of all users).



Writing Planet is cloud-based, requiring users to have access to an Internet-connected computer or other web-enabled devices. Users can reduce dataflow by pre-writing essays offline, but need to connect to the web to upload them and receive assessments or to use other functions. Assessments are conducted via Project Essay Grade, an automated assessment technology developed and trademarked by Measurement Incorporated.

At the central level, the organization uses broadband and SMS to manage subscriptions and payments. To check if subscribers have sufficient phone credit, a ping message using Mobile Termination SMS (depending on the MNO) is sent out twice a day before lesson delivery. If credit remains insufficient or the user stays inactive for 5-7 consecutive days, users will be automatically unsubscribed. As for data security, security formats are implemented at the distribution and MNO levels to protect Urban English contents against piracy, while Writing Planet is web-secured through unique user name and password combinations.

Business Design

Operations and distribution: In each of the 38 countries where it operates, UPM cooperates with one or several local MNOs (22 in total) that offer Urban English as a value-added service to their clients. Partnerships for future distribution are set up in another 37 countries. UPM is very careful in its choice of partners and only works with MNOs that:

- See the value of providing an education service at low cost and agree to charge relatively low prices (compared to other value-added services).
- Agree to waive data, navigation, or IVR charges (no other charge than the service cost).
- Agree to bear all marketing costs (after receiving marketing support from UPM).

UPM recommends that its MNO partners (and supports them) test their strategy (marketing message, price point, billing frequency, etc.) for a month before launching the product commercially.

Staff training: At the UPM level, staff members of the Technology Division receive training on educational and pedagogical aspects related to the products, while the team of educational content developers receives training on technological aspects. At the MNO and partner level, UPM trains staff members on its products and how to implement the service.

Marketing and consumer education: UPM develops marketing materials to support distributors, partners, and MNOs interested in carrying UPM products. These include images, written materials, tools for testing the market, and information on product-specific marketing strategies. To attract new Urban English users, partner MNOs are responsible for conducting marketing activities, i.e., at a minimum SMS broadcast to their client base (with success rates as high as 3 percent, or twice the industry average) or sometimes additional activities such as mass media marketing (wireless application protocol banners, TV and billboard ads), giveaways (scholarships for English language schools, or more simply phone credit or ringtones), or direct marketing activities (e.g., events in schools).

To foster customer loyalty, Urban English clients can receive discounts on their second Urban English product purchase. In the case of Writing Planet, customer loyalty (e.g., at universities) comes from the relationship built by UPM, which offers to develop additional materials, curricula, or tools tailored to their needs.

Business model: Pricing levels are determined by the distribution partners depending on local markets. For Urban English, UPM recommends a price point at 20-40 percent of the market average revenue per user. Writing Planet fees are categorized into different levels, depending on the number of end-users (if purchasing group licenses) and local markets. Urban English subscription fees account for 70 percent of UPM revenues and Writing Planet for the rest. Urban English subscriptions are pre-paid on a daily or weekly basis via users' airtime credit. Subscriptions end upon the user's request via SMS or due to lack of phone credit. Writing Planet services are paid online by credit card.

Policy and regulations: Governments have controls in place to protect customers from spam and fake services. Regulation also covers sign-up for paid services and how to unsubscribe. To date, there is little or no regulation regarding education programs, as they are nascent in mobile. Any controls are the same as for other services, such as horoscopes and trivia. UPM is committed to working on best practices for the industry regarding quality and affordable educational content available for mobile users.

Evaluation Framework

Is the project solving the problem?

Problem Magnitude

Affordable access to quality educational content is scarce in many countries and particularly for people at the BOP. English skills are crucial when looking for a job or aiming for a higher income, especially in tourism-based economies.

Solution Provided

Tool quality:

- Urban Planet: Robust mechanism to deliver lessons in any country, as lesson format is adapted to existing network and usage. Flexible use thanks to ability to work on wide range of devices.
- Writing Planet: Assessment system (to rate users) shows high accuracy and agreement with user raters in 97 percent of cases.

UPM monitors quality via customers' participation in surveys and tests (for which they receive service giveaways).

Service comprehensiveness: Offering lessons for all levels and linguistic competences: basic Urban English courses (four in total) and basic-to-intermediate-level course of English for Special Purposes (10 in total) available in 22 languages; and advanced courses in English only (eight in total). Writing Planet offers additional services for educational personnel and administrators.

Scale and Reach

Service delivery: Over 5 million Urban English lessons are delivered each month via mobile phones (as of end-2013); UPM aims to deliver 40 million lessons in 2014.

Users: 250,000 daily subscribers for Urban English (Guatemala, the country with the most subscribers, has 110,000 active daily subscribers, or over 4 percent of MNO Tigo's user base in the country); and 7,000 yearly subscribers to Writing Planet in 16 countries.

Distribution: Products are available in 38 countries across five continents through cooperation with 22 MNOs.

Growth rate: Since the launch or Urban English in 2010, over 60 million lessons have been delivered, with 21 million in 2013 alone. If the current trend continues, the number of lessons delivered in 2014 will double compared to 2013. UPM also plans to expand to over 100 MNOs in 2014.

Acceptance and Usage

Acceptability: Product format and marketing message are tailored and tested in each new country to match people's habits. For Urban English, the micropayment system fits people's habits of topping up phones with rather small amounts.

Usability: High usability with basic lessons delivered in native language and intuitive technological design (Urban English).

Churn rate: 13-17 percent of customers unsubscribe within the first week in the try-and-buy model (compared to 25-30 percent average in the industry of phone value-added service).

Loyalty: Average subscription period for Urban English is seven months, and for Writing Plane it is three to six months (almost twice the industry average); 20-25 percent of Urban English clients subscribe to more than one product.

Socio-economic Impact

Social outcomes: Access to quality English lessons, improved English skills (a study on the SAT Remix course showed significant vocabulary retention). New services such as the MobiLiteracy pilot show potential to empower parents to help their children develop reading skills through similar programs.

Economic impact: Subscribers develop better chances of generating greater income.

Gains in efficiency due to technology: Use of Writing Planet and embedded Project Essay Grade technology lead to higher efficiency in teachers' assessments and potentially higher teaching effectiveness.

Economically sustainable?

UPM is a for-profit social business and would have reached operational sustainability and broken even in 2013 if it had not re-invested in new projects and expansion.

At the BOP end-user level (Urban English):

Initial cost: No registration costs.

Direct cost of services: On average US$3/month for Urban English (UPM recommended pricing is 20-40 percent of average revenue per user). MNOs wave their broadband/data charges for service access.

Additional indirect cost: Cost of phone.

Ability to reach the poorest: ~80 percent of Urban English users belong to the BOP.

At the educational personnel or institutional level (Writing Planet):

Direct cost of services: On average US$24 per year per student.

Additional indirect cost: Costs of computers and Internet service.

At the MNO level:

Revenues: 40-60 percent share of total Urban English revenues (e.g., in one country, close to US$150,000 of revenues in 2013, including US$90,000 for the MNO).

Costs: Waving of Internet/data charges and IVR call costs plus marketing costs (e.g., in same country as above, ~US$8,000 of marketing costs for the operator, or a gross profit of over 90 percent on MNO share of revenues).

At the central organization (UPM) level:

Number of people employed: 27 in total (10 employees at headquarters, six at the regional level working with carriers, and 11 developers/contractors around the globe).

2013 revenues: US$900,000.

Profit margin: Negative due to re-investments.

Cost-recovery level: UPM started earning revenues in 2010 and would have broken even by 2013 if it had not re-invested in new projects and expansion.

Initial and ongoing funding: Initially funded by private investors. UPM revenues finance current scaling-up of operations. USAID grant for MobiLiteracy was accepted with particular interest in governmental alliances and support.

Scalable?

What have been the key challenges and success factors to date for the project?

Partner channel education: Often UPM is the first to launch mobile education contents in its targeted markets, and MNOs are reluctant to enter the education market. Most other educational products and services are developed for the top 14 percent of the pyramid, meaning that partners need to be convinced that investing in a BOP service can be a successful and scalable business strategy.

Partner organization structure: Since Urban English is a new product in any given market, and since the concept of mobile learning itself is a new idea for the operators, there are either unclear or too many decision-makers within one MNO who need to approve UPM before launch (e.g., in some countries there is no digital product division, or there might be one that is different from the value-added service department). The lack of coordination and communication among divisions, central and regional offices, etc. makes for a long process before launch.

Pricing: Some MNO or distribution partners want to set prices as high as possible instead of focusing on the long-term payoff of offering mobile education at a low price.

Mobile payment collection: Micropayments often fail because clients do not have sufficient credit on their pre-paid phones, resulting in user churn and/or low billing success rates.

Scale and BOP Reach

Urban English lessons make low-cost English learning via mobile affordable to 250,000 daily subscribers, of whom 80 percent belong to the BOP.

Sustainability

UPM is a for-profit social business and would have reached operational sustainability and broken even in 2013 if it had not re-invested in new projects and expansion. End-users access lessons at a fraction of the costs of in-person English classes.

Replicability

UPM has already replicated its model in 38 countries and has high potential for further replication as a "turn-key" service to MNOs willing to launch educational value-added services.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Commitment: MNOs must have a strong commitment to make this business model work, and prove it by accepting the revenue-sharing agreement (50/50) and relatively low product pricing, as well as waiving data charges and accepting responsibility for marketing (with UPM support).

Regulatory framework: Governments must be open to accept an education service via mobile, and let it be a commercial model. They should not stop the flow of education products over the Internet by being overly controlling of access, stripping content, or blocking content. Governments must also implement policies that make it easier for content providers, particularly in education, to work with local distributors and MNOs to get valued services to the end user.

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Brian OliverSmith

Co-founder & CEO

With 24+ years of sales and marketing expertise working for Fortune 500 companies and entrepreneurial business development, Brian OliverSmith leads Urban Planet Mobile as its president and CEO. He is a member of TESOL, the American Society for Training and Development, the Audio Publishers Association, and the Cellular Telephone Industry Association.

What are your next steps and future plans?

In 2014 we will start two new projects. First, we will pilot our new service Urban English Express (across platform, multi-media, self-study learning system). It will be accessible through Android smartphones and tablets and available on computer. The program will be available through both institutions (i.e., schools) and MNOs. Additionally, right on time for the World Cup in Brazil we will launch CR7 Video Club, a program for the 120+ million fans of Cristiano Ronaldo, two-time Ballon D'Or winner and the world's most recognized and highly valued sports personality. With this launch will be a line, English for Champions, that teaches English through soccer/football.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

We are marketing in Latin America and taking our model throughout the region. It is a very complex endeavor and necessitates understanding of the market, education, mobile operators, pricing, regulations, limitations of the device and delivery methods, and significant up-front investment and engagement. Anyone looking at developing a complementary product line needs to have a long view of where they want to go as this is not a short-term commitment.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

If governments want sustainable models to survive, they should recognize the strategic value of a for-profit business approach and make sure not to undermine the market with free offers that won't last. In Tunisia, we supported a government project to create English lessons delivered via mobile phone. Against our recommendation, the provider initially launched the service as a free service, resulting in half a million users. Several months later the service was changed into a subscription service with a much too high price and subscriptions dropped significantly to just over 1,000. It is key to present the service as commercial from the start and let the customer determine the inherent value of the service to ensure long-term success and sustainability.

What support would you request from a public or private donor?

We are most interested in working with governments and NGOs looking for widely deployable, affordable, and sustainable solutions. A sustainable solution must generate enough income to support itself and needs little or no ongoing overhead. The end-users will pay for high-demand information and content for which they perceive a net gain from the exchange, such as English language learning. While providing information about recycling, civic engagement, and public health information would readily lend itself to a mobile program, the end-user is less likely to be willing to invest money in getting this information. At this point, this is a program that will need ongoing support, which impacts the scalability and/or sustainability. This information could be created as an English lesson, providing the information that the donor wishes communicated while teaching English. UPM has done such a program with civic engagement in the past.

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