



Juhudi Kilimo farmer

Collecting Impact Data Using Mobile Technology

A PILOT PROJECT MEASURING CLIENT POVERTY LEVELS

A Publication of



In Partnership with



CONTENTS

Introduction	3
Pilot Survey Design	4
Results	6
Implementation Considerations	8
Value	9
Looking Forward	10
Authors & Acknowledgements	11

PILOT PROJECT PARTICIPANTS

Participating Impact Investors

Acumen's mission is to change the way the world tackles poverty by investing in companies, leaders, and ideas. It raises charitable donations to invest patient capital in business models that deliver critical goods and services to the world's poor, improving the lives of millions. Since 2001, Acumen has invested more than \$82 million in 73 companies around the world. Acumen also works to build a global community of emerging leaders and is committed to learning at the edge, sharing ideas, insights, and lessons learned. www.acumen.org

Grassroots Business Fund is an impact investor dedicated to building and supporting high impact businesses that provide sustainable economic opportunities to millions of people at the base of the economic pyramid. It provides long-term investment capital and business advisory services focused on financial management, corporate governance, strategy, and environmental and social management information. www.gbfund.org

Participating Companies

d.light design is an international social enterprise serving households without access to reliable electricity by offering solar-powered energy and lighting solutions that are affordable and energy-efficient. d.light operates in India and Africa, including Kenya. At the time this pilot was conducted, d.light employed over 20 Brand Activators in Kenya who connected to potential consumers through community events and groups. There they educated community members on the benefits of solar-powered lighting over kerosene and other expensive, unhealthy off-grid alternatives. www.dlightdesign.com

Juhudi Kilimo is a social enterprise based in Kenya that provides asset financing and technical assistance to over 10,000 smallholder farmers and agri-businesses in rural communities in Central, Rift Valley, Nyanza, and Western provinces. It connects to its clients through monthly loan meetings attended by a loan officer. www.juhudikilimo.com

Olivado is a social enterprise based in New Zealand that produces organic fair trade oil from avocados grown in the Central province of Kenya. Olivado partners with over 1,000 farmers for exclusive production of avocados. Its Extension Services Managers work directly with farmers to provide technical assistance and ensure best practices. www.olivado.com

INTRODUCTION

As the impact investment market has gained traction, investors are increasingly interested in feasible ways to approach impact measurement and data collection. While the industry has made progress in the past several years with the development of resources such as IRIS,¹ data collection for many impact metrics remains challenging. For investors who aim to improve lives of people at the base of the economic pyramid (BoP) via investments into mission-driven companies, the task can be especially difficult, as traditional in-person survey techniques can be expensive and time consuming. Investors may want to determine the extent to which companies are successfully improving BoP livelihoods by gathering data directly from clients,² who often live in remote areas. A first step in this assessment is to understand the poverty profile of a business's clients, or the proportion of households served that are living below the country's poverty lines. This information can provide a baseline for measuring changes in the company's client profiles and in its BoP reach over time. This paper focuses on this first step, summarizing the findings from a pilot project exploring the feasibility of using mobile technology to collect data that indicates the poverty level of clients.

Two impact investment funds, Acumen and the Grassroots Business Fund (GBF), designed the pilot project, with implementation support from mobile platform Echo Mobile (Echo), grant funding from the Aspen Network of Development Entrepreneurs (ANDE), and knowledge-sharing support from the Global Impact Investing Network (GIIN®). The pilot project tested different conditions to send the Progress out of

¹ IRIS is the catalog of generally accepted performance metrics that leading impact investors use to measure social, environmental and financial success, evaluate deals, and grow the sector's credibility. IRIS is an initiative of the GIIN.

² This paper uses the term "clients" throughout to refer to customers, suppliers, beneficiaries, or others served by mission-driven organizations.

Impact Investments

Impact investments are investments made into companies, organizations, and funds with the intention to generate measurable social and environmental impact alongside a financial return. They can be made in both emerging and developed markets, and target a range of returns from below market to market rate, depending upon the circumstances.

Pilot Accuracy Considerations

Accuracy considerations are not explored in depth in this paper, which focuses on how the pilot tested incentives to increase response rates. The Grameen Foundation, which manages the PPI, conducted a separate in-person follow up study to the pilot project to determine if there was a difference in response content between the SMS and in-person data collection. The accuracy-checking exercise found that the percentage of households living below the determined poverty lines differed from those calculated in the SMS survey by 0.1-4 percent, depending on which poverty line was used in analysis.¹ Grameen notes that is up to investors and organizations conducting the PPI to determine if a similar level of variance is acceptable for the way they will use the information. Grameen plans to release the study in July 2013.

¹The [Kenya Progress out of Poverty Index survey](#) aligns to six major poverty lines: Kenyan National Poverty, National "Food" Poverty, 150% of National Poverty, the USAID Extreme Poverty, USD 1.25/day in 2005 PPP, and USD 2.50/day in 2005 PPP.

Poverty Index® (PPI®) via SMS³ to clients of three companies receiving or seeking impact

³ SMS stands for short message service, a system that enables mobile phone users to send and receive text messages. It is widely used around the world because it is a standard offering on basic mobile phones and analog networks, as opposed to services that require phones and networks capable of supporting data connections. Echo's surveys are sent via SMS to capitalize on this widespread use.

investment capital. Acumen and GBF hoped that information from the pilot could help meet their broader goal to understand how current and potential investees help improve the lives of BoP populations. Acumen sought to help its investees, which seek to improve the lives of the poor, use effective tools to track their success. Similarly, GBF was interested in better understanding companies' abilities to provide sustainable economic opportunities to BoP clients. The PPI is an objective poverty measurement tool (see box) supported by the Grameen Foundation (Grameen) and used by organizations and impact investors. Though typically administered in person, Acumen and GBF hypothesized that using SMS to send the PPI survey would result in cost savings, since conducting it in person requires extra human resources if there is no opportunity in normal company-client interactions to gather household-level information. By using Echo's mobile platform to gather and analyze SMS data in real time, in-person travel and data entry costs would be eliminated. They chose Kenya as the location for the pilot because most Kenyans have SMS-capable cell phone access. They then tested the effects of various incentives on response rates. The pilot was followed by an accuracy checking exercise by Grameen Foundation, with positive results (see box on page 5). Conducted in summer 2012, the pilot found that the SMS-based survey was cheaper than conducting an in-person survey and that it could achieve strong response rates when sent in a context that made sense to respondents.

PILOT SURVEY DESIGN

The pilot tested the effects of two variables—phone airtime bonuses and advance personal outreach—on response rates across three levels of company-client relationships. The pilot stakeholders hypothesized that providing an airtime bonus and performing advance outreach would increase response rates to the survey. They also hypothesized that companies with higher degrees of client relationships, and thus more client trust and ongoing incentive to cooperate, would garner higher response rates.

Measuring Impact with the Progress Out of Poverty Index and IRIS

Impact investors and mission-driven organizations serving the poor can use data indicating the poverty levels of their clients to measure and manage their social impact. IRIS, an initiative of the GIIN, is a catalog of generally accepted performance metrics, including standardized metrics that measure the number of poor clients served by an organization. The Progress out of Poverty Index® (PPI®) is an objective poverty measurement tool supported by Grameen Foundation for organizations and businesses with missions to serve the poor. The PPI is a 10 question scorecard derived from national data and contains household-level indicators that may include family size, asset ownership, number of children attending school, or housing situation. Answers are scored to compute the likelihood that the household is living below poverty lines, both national and international. Investors can use IRIS and the PPI together to measure, track, and report the number of very poor and poor clients that an organization reaches.

The PPI toolkit and the IRIS metrics are publicly available online at www.progressoutofpoverty.org and <http://iris.thegiin.org>.

For detail on how the PPI and IRIS can be used together, see <http://iris.thegiin.org/iris-progressoutofpovertyindex>.

1. Airtime Bonus: Respondents were sent an introductory SMS that asked them to opt-in to take the survey. It explained that they would receive a small direct transfer of phone airtime at the end of the survey. Each answer triggered the next question sent via SMS. At the survey's conclusion, Echo transferred an airtime bonus worth 30 Kenyan shillings (USD 0.35), the equivalent of 30 SMS or 10-15 minutes of airtime, to thank the respondent for participating. The airtime bonus amount was chosen based on Echo's past experience that incentives can be fairly small and increase response rates.

2. Advance Outreach: Companies conducted outreach to clients during normal business

operations asking that they participate in an SMS-based service. For example, one company’s employees explained, “We are asking clients to complete a household survey to learn more about you and to ensure that our products and services meet your needs.” If clients opted to participate, they sent Echo an SMS to register their mobile number, and then received a registration confirmation message.

3. Degree of Client Relationships: The three participating companies had varying levels of client relationships:

- **Light:** d.light design, which produces solar lanterns for home use, has little to no repeat contact with clients, and thus had the lowest expected response rates. Lanterns are distributed through a variety of channels, such as local franchise shops, so d.light had limited direct interaction with their clients. Clients had little incentive to respond, since there were no repercussions for non-participation.
- **Medium:** Juhudi Kilimo offers financial services to farmers and meets with them monthly in groups within their communities,

but staff visit clients in-person only once or twice a year. Though taking the survey would not affect their ability to take out additional loans, borrowers had an incentive to respond because they may have been interested in continuing a good relationship with the company.

- **High:** Olivado, which works closely with the farmers that supply its agricultural inputs, regularly interacts with producers on their farms and purchases all of their produce on an ongoing basis. Because of this high-touch relationship, Olivado had the highest expected response rates.

The investors and Echo designed the survey to be sent in three rounds, using different combinations of the above-mentioned variables:

- **Round 1:** Respondents received airtime bonus and opted-in via advance outreach
- **Round 2:** Respondents opted-in via advance outreach only, with no airtime bonus
- **Round 3:** Respondents received airtime bonus only, and did not opt-in via advance outreach

PILOT SURVEY DESIGN

COMPANY	COMPANY / CLIENT RELATIONSHIP	SURVEY ROUNDS 		
	Light Retail Clients	Round 1 Advance outreach and airtime bonus	Round 2 Advance outreach only	Round 3 Airtime bonus only
	Medium Loan Clients			
	High Product Suppliers			

Source: GIIN

IMPLEMENTATION

To deliver the PPI via SMS in Kenya, Echo first translated the PPI questions from English to Kiswahili. Second, it adapted the questions in the PPI survey to SMS format, with guidance from the PPI's manager, Grameen Foundation. All questions were trimmed to 160 characters and other small modifications were made as needed. For example, instead of being asked to give an answer in terms of a numerical range, as done in-person, respondents were asked to type exact numbers.

Echo worked directly with the three companies to distribute the PPI surveys to their clients. Echo trained company staff to support the advance outreach activities by sharing the pilot's goals, general instructions on how staff should introduce SMS surveys to clients, and an interactive demonstration of the PPI survey via SMS.

Echo sent the PPI to 100 client phone numbers per company in each survey round. For rounds 1 and 2, in which companies conducted advanced outreach, companies asked their clients to opt-in to participate in SMS-based services during normal business operations: at loan group meetings with Juhudi Kilimo, farm visits by



Photo: d.light design customers

Olivado, and marketing events with d.light. If clients agreed, they sent an SMS to Echo opting in, and then Echo sent a confirmation message that they would receive the survey. In contrast, for round 3, companies provided Echo with phone numbers for clients who had not received any previous surveys or other SMS from them, nor had they been told about the survey in advance. These clients only received a survey invitation via SMS. For all of the rounds, clients received the survey in the evening, when they were expected to be at home.

RESULTS

Investors measured a large part of the success of the survey pilot by response rates. Since response rates for PPIs given in person are typically near 100 percent, they were of significance to those conducting the pilot. For average response rate results by round, company, and in total across the pilot survey, see page 8.

For the organizations that participated in this pilot, it appears that conducting advance outreach to provide background and request that all respondents opt in to receiving SMS-based services was, on average, a better investment of resources than providing only an airtime bonus.



Photo: Olivado avocado line

PILOT RESPONSE RATE RESULTS

		SURVEY ROUNDS 		
COMPANY	COMPANY / CLIENT RELATIONSHIP	ROUND 1 Advance outreach and airtime bonus	ROUND 2 Advance outreach only	ROUND 3 Airtime bonus only
	Light Retail Clients	44%	N/A	8%
	Medium Loan Clients	47%	20%	20%
	High Product Suppliers	92%	39%	10%
<i>Source: GIIN</i>	TOTAL Average Response Rate	61%	30%	13%

Note: Each survey round was sent to 100 clients per company, or 300 total recipients per round. d.light did not participate in the second round because it was unable to reach 100 clients in the set timeframe.

However, the combination of advance outreach and the airtime bonus in round 1 produced the highest response rates of any round, across all organizations. The 92 percent response rate for Olivado's clients in round 1 was the highest rate, with the 8 percent rate in round 3 for d.light being the lowest.

The pilot stakeholders found that client-company context affected response rates. Olivado, which had the strongest client relationships, garnered the highest response rates across two of the three survey rounds and had the highest average response rate (47 percent) across companies. Its clients reported feeling a desire to give back to the company given their ongoing producer-client relationship and noted that they trusted Olivado with their data. However, airtime bonus incentives alone, without advance outreach, appear to have had less effect on response rates

for Olivado's clients.⁴ Post-pilot outreach by all companies found that clients who did not respond to the survey chose not to respond for a number of reasons, varying from personal reference to uncertainty around the validity of the SMS content.⁵

⁴ The pilot did not test the effect of an increase in airtime bonus transfer on response rates.

⁵ Sample bias: This paper claims no statistical significance in the results. The pilot did not gather significant information on why clients did or did not respond to the survey. Anecdotally, clients who did not respond stated that they did not have time or meant to complete the survey but did not get to it. Others said they wondered if the SMS was really sent by the stated organization. Clients who did respond stated that they did so primarily because of their relationship with the organization or staff, and some said that they just like to respond to surveys. In Round 3, companies found that many of the mobile phone numbers pulled from their client records were incorrect.

IMPLEMENTATION CONSIDERATIONS

The pilot stakeholders identified some key implementation considerations from the pilot.

- **Costs:** The investors wanted to shed light on the cost effectiveness, and thus scalability, of sending the surveys via SMS. They found the SMS-based surveys were indeed less expensive than conducting the PPI in person, because it eliminated travel and surveyor hiring costs and saved time by processing results electronically. The investors and Echo note that they invested a few months' time in designing the pilot, working with companies to plan advance outreach and train staff, and translating the PPI survey to Kiswahili in an SMS format.

Specific costs of sending SMS surveys will vary by region, mobile platform, and mobile survey provider. For example, Echo sets the price of its services per outgoing SMS sent. Echo's pricing for this survey was approximately KES 5 (USD 0.06) per outgoing SMS, plus any airtime bonuses provided for completed surveys. Because total cost is tied to each outgoing SMS, it will vary by number of recipients and their response rates. In this case, sending 100 recipients the 10 question PPI, with introduction SMS but without airtime transfers, and achieving a 50 percent response rate, would have resulted in a rough total cost of cost KES 3,000 (USD 36).⁶

The investors also noted that the costs of verifying survey accuracy (see box on page 5) may be relevant to those weighing the cost of conducting in-person versus SMS-based surveys, as they may want to understand the potential level of accuracy variance. Costs and timeframes will vary by sample size, transportation infrastructure, client location data, and additional contextual factors. Grameen's two-month validation process for this pilot cost roughly USD 12,000, which

⁶ Exchange rate used: KES 84:USD 1.

Interpretation Limitations

The pilot findings should not be extrapolated to mean that PPI surveys conducted via SMS will generate similar results. Response and accuracy rates may differ in different country and cultural contexts. In addition, the pilot was not a randomized control trial; respondents opted into taking the survey. The pilot project claims no statistical significance.

covered checking 75 client respondents of Juhudi Kilimo, as that company had good information on their physical locations given loan paperwork.⁷ As noted earlier, Grameen found that the two methods yielded a 0.1-4 percentage point variance in the aggregate poverty rate of the respondents, depending on the poverty line used.

- **Context:** The PPI's 10 questions can seem unusual and out of context for survey respondents, especially for organizations with light relationship levels with their clients. The PPI contains personal household-level questions that may include family size, number of pots and pans in the house, number of children attending school, or housing situation. Purchasers of d.light's lanterns may have been confused as to why the company wanted to know how many pots and pans they had in their households, whereas it may have made more sense for Juhudi Kilimo's loan recipients to respond. For companies with light touch client relationships using SMS technology to gather client information, the pilot stakeholders suggest that they first gather information clearly related to their products to accustom clients to SMS

⁷ Data collection took roughly two weeks, as the Grameen team of four was only able to do five surveys per day – conducted in the mornings and evenings, when people would be at home. The whole accuracy checking process took two months when including planning time, contracting staff, staff training, data entry, and analysis.

interactions, and then later introduce a more lengthy and personal survey instrument like the PPI. For example, companies selling products may want to include PPI questions within the framing of a client satisfaction survey.

- **Translation:** When Grameen staff checked PPI results in person, they found this approach enabled greater flexibility to check and fix the questions' translation to Kiswahili. For example, the data collected via SMS for one question were inaccurate because the incorrect word was used to translate "frying pan." The stakeholders recommend that translations be thoroughly reviewed before sending the survey.
- **Data sharing agreements:** Implementers noted it was helpful to establish data sharing protections among survey stakeholders upfront so sensitive client information was legally protected. All pilot participants, including investors and companies, signed a data sharing agreement to protect the anonymity of field partners and their clients. When surveys and validations were completed, the results were provided to companies. Data were stripped of names and phone numbers before given to the investors, and aggregated data was provided to the GIIN for analysis. This point is especially important for investors working with microfinance institutions, as client assets and income levels are sensitive data.

In addition to these factors, other elements that the stakeholders mentioned they would weigh before rolling out an SMS survey tool more broadly would include: more evidence and clarity on the scope and accuracy of survey questions; cost efficiency needed at sufficiently large sample sizes to deliver statistically reliable data; understanding of the survey by recipients; and the time and cost burdens both on the companies and investors.

VALUE

In terms of value, the three companies all had positive experiences using the SMS-based technology to gather client data in the pilot, and expect to use similar tools in the future. The inputs required from participating companies were minimal. Staff training consisted of 30 minutes in already-scheduled company meetings. They conducted advance outreach to participants through existing company-client interaction channels, which did not require additional time. Echo collected the data and compiled it electronically in real-time, so time spent on data analysis and translating PPI survey results into aggregate data for decision making decreased, benefiting the businesses.

As for the investors, they found the exercise valuable in helping meet their goals to use poverty level information to better gauge the social impact of future investments. For example, if future PPI results find that 20 percent of a company's clients are living at the BoP, the investors note they could use that information to inform the potential social impact of a different investment with similar impact objectives. The investors also envision that if the SMS-administered PPI can scale in different regions and if companies report that it is useful, SMS surveys could become an offering they provide as a management assistance tool. For example, using SMS to reach clients could be further expanded from the PPI to solicit ongoing customer feedback and improve company business operations. If response rates are strong, companies may be able to use the tool to hear from and respond to their clients in a timely way, a valuable feedback mechanism, particularly for low-touch companies.

LOOKING FORWARD

While this investor-driven pilot project of an SMS-administered PPI conducted with three Kenyan companies garnered good response rates when sent in a context that made sense to respondents, additional research is needed to determine if this approach can successfully translate to other environments. Related areas for further research include conducting a similar pilot via randomized control trial, and testing if and how different values of airtime bonus incentives drive increases in response rates. A related, more theoretical exercise could explore the steps to determining how impact investors can use PPI and IRIS data to give insight into desired social outcomes.



Photo: Juhudi Kilimo farmer

AUTHORS

This paper was authored by Katy Lankester and Min Pease of the Global Impact Investing Network (GIIN®).

ACKNOWLEDGEMENTS

The authors thank Allison Basile of Grassroots Business Fund, Rachel Brooks and Jeremy Gordon of Echo Mobile, and Rohit Gawande and Tom Adams of Acumen for their perspectives. In addition, they thank Carla Culos of Acumen and Mary Jo Kochendorfer and Matt Walsh of Grameen Foundation for their contributions, and Saurabh Lall of Aspen Network of Development Entrepreneurs and Melody Meyer, Kimberly Moynihan, and Sarah Gelfand of the GIIN for their review.

Implementation Partners

Echo Mobile is a robust, scalable web-based platform for SMS that any organization can access to market, research, support, and engage. Developed in 2010, organizations have used Echo Mobile, originally called mSwali, to send over 500,000 SMS to extend their reach and give voice to markets and communities across Kenya. For more information, see www.echomobile.org.



Grameen Foundation, a global nonprofit organization, helps the world's poorest people – especially women – lift themselves out of poverty by providing appropriate financial services, life-changing information, and unique business opportunities. It supports the use of the Progress out of Poverty Index® (PPI®), a poverty measurement tool for organizations and businesses with a mission to serve the poor. For more information on Grameen Foundation, visit www.grameenfoundation.org, and for more information on the PPI, visit www.progressoutofpoverty.org.



Supporting Partners

Aspen Network of Development Entrepreneurs (ANDE) provided funding for this pilot through its Capacity Development Fund. ANDE is a global network of organizations that invest money and expertise to propel entrepreneurship in emerging markets. Officially launched in 2009, it is a member-driven organization housed within the Aspen Institute, an international nonprofit that promotes enlightened leadership. Its members are focused on small and growing businesses that create economic, environmental, and social benefits for developing countries. ANDE seeks to build sustainable prosperity in the developing world. For more information, see www.aspeninstitute.org/policy-work/aspen-network-development-entrepreneurs.



Global Impact Investing Network (GIIN®) is a nonprofit organization dedicated to increasing the scale and effectiveness of impact investing. The GIIN builds critical infrastructure and supports activities, education, and research that help accelerate the development of a coherent impact investing industry. One of its core initiatives is IRIS, the catalog of generally accepted performance metrics that leading impact investors use to measure social, environmental, and financial success, evaluate deals, and grow the sector's credibility. For more information, see www.thegiin.org.

